AN ANALYSIS OF EARNINGS MANAGEMENT:
A COMPARISON OF SEVEN COUNTRIES

by

Zhijian He

B.Com., University of Northern British Columbia, 2008
C.G.A., Association of Certified General Accountants, 2011

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE
IN
BUSINESS ADMINISTRATION

UNIVERSITY OF NORTHERN BRITISH COLUMBIA

October, 2012

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ABSTRACT: This article examines the systematic differences in earnings management including the possible impact of cross-country differences in culture on earnings management in seven countries: India, Hong Kong (China), Japan, France, the United Kingdom, Canada, and the United States. A set of traditional financial variables (firm performance, business cycles) and cultural variables (Uncertainty Avoidance, Individualism, Power Distance) were used to test the hypotheses developed in this paper. Regression results indicate both the traditional financial variables and cultural variables can explain the choices of accounting accruals in different countries when the Jones Model serves as a dependent variable. Also, the Jones Model provides the most statistical explanatory power in the regression model on the international level. This paper's primary contribution to the existing literature is the thorough analysis of discretionary accruals and their relationship to traditional financial variables and cultural variables using a large data set.
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CHAPTER ONE
INTRODUCTION

After a series of accounting scandals involving Enron, WorldCom, and others, the former chairman of the Security and Exchange Commission, Arthur Levitt, stated that if earnings management problems are not addressed soon, they will have adverse consequences for America’s financial reporting system. Furthermore, they will further damage America’s financial system as well as investor’s confidence in the stock market. Since that time, the research topic of earnings management has increased in popularity.

Much of the prior literature has attempted to define and explain earnings management and several explanations of earnings management have been introduced in the literature. Barnea (1976) defines earnings management behavior as an attempt to reduce the cost of capital through a lowering of the assessment of firm risk, which in turn benefits shareholders by allowing management to convey information useful for predicting future earnings. Healy and Whalen’s (1999) definition is the most widely used in scholarly literature and concludes that earnings management is the use of judgment in financial reporting to mislead stakeholders about firm performance or to influence contractual outcomes. A more recent explanation has been raised by Buckmaster (2001), stating that earnings management was undertaken to ensure the distribution of dividends in years of poor performance.

Much of the literature on this topic has attempted to evaluate earnings management by studying firms’ financial statements. Over the years, several discretionary accrual models have been developed to quantify earnings management by evaluating their financial statement accounts. The discretionary accrual models include the DeAngelo
(1986) model, the Healy (1985) model, the Jones (1991) model, the Modified Jones (1995) model, and the Industry model (1998). Dechow et al. (1995) compared and evaluated the relative performance of the five models and concluded that the Modified Jones model provides the most powerful test of earnings management. However, their study is done solely in the United States and their research findings might not be appropriate for other countries. In this paper, we examine the four models (Jones, Modified Jones, Healy, and DeAngelo) and evaluate which model has the most statistical power on an international level.

Besides quantifying earnings management, the relevant literature also focuses on the study of varieties of incentives for earnings management such as earnings management on issuance of an initial public offering (Wong & Rao, 1998), seasoned equity offerings (Range, 1998), and mergers and acquisitions (Goodwin, 2009).

Among the published earnings management literature, there are a few recent studies that take into account the possible effects of cultural values on earnings management in an international context, identifying whether earnings management exists and if there is an incentive to manipulate earnings. Gary (1988) was the first to suggest that accounting values are derived from cultural values, while Bao and Bao (2004) suggest a relationship between culture and earnings management. However, neither explain how culture might be the significant factor contributing to earnings management. Also, they did not provide empirical results in their examinations. Chung et al. (2002), Leuz et al. (2003), Guan et al. (2006), and Timothy (2008) have indicated that there are systematic differences in earnings management due to different cultural dimensions and other institutional factors.
In this study, we focus on the analysis of how traditional financial variables and cultural variables influence earnings managements in seven countries: India, Hong Kong (China), Japan, France, the United Kingdom, Canada, and the United States. We use a large cohort of firms (1158 firms) over a twenty year period (1992 to 2011) to examine the determinants of accruals in the seven countries.

This study contributes to understanding international differences in earnings management. First, the result indicates that there is a significant relationship between culture and earnings management. Secondly, there are international differences on determinates of accruals. Thirdly, the Jones model was found to be the most powerful model to measure earnings management on the international level.

This paper is organized as follows: Chapter Two will discuss prior literature related to earnings management. Chapter Three discusses variables and data employed in our empirical tests, as well as hypotheses development. In Chapter Four, we will discuss empirical results and explain some of our findings, with concluding remarks about earnings management offered in Chapter Five.
CHAPTER TWO
REVIEW OF LITERATURE

This chapter briefly reviews literature on the topic of earnings management. The chapter is organized as follows: Section 2.1 reviews definitions and methods of earnings management and related literature. Section 2.2 discusses different discretionary accrual models. Section 2.3 summarizes research findings on prior earnings management literature.

2.1 Definitions and Methods of Earnings Management

2.1.1 Definitions of Earnings Management

In addition to the definition of earnings management discussed in Chapter One, earnings management can further be classified into two types: earnings discretion and earnings smoothing. Earnings discretion is defined as when managers use discretion in accruals accounting to report earnings to achieve a certain target, or to avoid reporting small losses. This aspect of earnings management is generally associated with income-increasing accruals (Timothy, 2008). The other type of earnings management is earnings smoothing, which is defined as the process of manipulating the time profile of earnings (Dechow and Skinner, 2000) to make the reported income stream less of a variable (Fudenberg and Tirole, 1995).

In contrast to Arthur Levitt’s (1998) opinion on earnings management that was discussed in the previous chapter, Dechow and Skinner (2000) suggest that not all earnings management is problematic or requires immediate remedial action. They suggest
that the existence of earnings management may not be a concern for investors.

Furthermore, they make distinctions between fraud and earnings management, as shown in Figure 1.

**Figure 1:**
**The Distinction Between Fraud and Earnings Management**

<table>
<thead>
<tr>
<th></th>
<th>Accounting Choices</th>
<th>Real Cash Flow Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conservative Accounting</strong></td>
<td>WITHIN GAAP&lt;br&gt;Overly aggressive recognition of provisions or reserves&lt;br&gt;Overvaluation of acquired in-process R&amp;D in purchase acquisitions&lt;br&gt;Overstatement of restructuring charges and asset write-offs</td>
<td>Delaying sales&lt;br&gt;Accelerating R&amp;D or advertising expenditures</td>
</tr>
<tr>
<td><strong>Neutral Earnings</strong></td>
<td>Earnings that result from a neutral operation of the process</td>
<td></td>
</tr>
<tr>
<td><strong>Aggressive Accounting</strong></td>
<td>Understatement of the provision for bad debts&lt;br&gt;Drawing down provisions or reserves in an overly-aggressive manner</td>
<td>Postponing R&amp;D or advertising expenditures&lt;br&gt;Accelerating sales</td>
</tr>
<tr>
<td><strong>Fraudulent Accounting</strong></td>
<td>VIOLATES GAAP&lt;br&gt;Recording sales before they are &quot;realizable&quot;&lt;br&gt;Recording fictitious sales&lt;br&gt;Backdating sales invoices&lt;br&gt;Overstating inventory by recording fictitious inventory</td>
<td></td>
</tr>
</tbody>
</table>

The table shows how different types of managerial choices are characterized, as well as the distinction between fraudulent choice and those that are accepted by generally accepted accounting principles (GAAP).
2.1.2 Methods of Earnings Management

Levitt (1998) concluded that there are five popular methods of earnings management: (a) "Big bath" is an earnings management technique that expenses the restructuring cost of the income statement in order to reduce income in the current year. No amortization expenses are claimed on the restructuring expense, with the objective to achieve higher income in future years. The goal is to show a big loss in a single year so future years will show increased net income. Since the Wall Street analysts focus only on future earnings, they do not view restructuring as a negative signal for the stock price. (b) Creative acquisition accounting is when companies use stock as an acquisition currency. They record the acquisition price of another company as "in-process" research and development cost, and the entire amount can be expensed at once according to GAAP rules. In addition, the parent company tries to hide the future operating expenses from the acquired company by recording these expenses as a liability, avoiding negative effects on the parent company's future earnings. (c) "Cookie jar reserves" arise when companies use unrealistic assumptions to estimate liabilities for such items as sales returns, loan losses, or warranty costs. These companies increase their accrual estimations to reduce earnings during good times and dramatically reduce their accrual estimations to increase earnings during bad times. (d) "Materiality" – according to auditing standards, materiality is a matter of professional judgment. The auditor's primary responsibility is to ensure the financial statements are free of material misstatements. Companies misuse the concept of materiality by intentionally recording errors within a defined percentage ceiling and try to argue with auditors that the effect on the bottom line is too small to
matter. Therefore, statements are free of material misstatements. (e) “Premature recognition of revenue” arises when companies try to boost earnings by manipulating the recognition of revenue. Companies often recognize revenue before products are shipped to customers.

2.2 Discretionary Accrual Models

In the following section, we will discuss the four most widely used models when measuring non-discretionary and discretionary accruals. Managers use accrual based earnings management techniques to provide flexibility within accounting rules to manage firm earnings. One of the simplest methods to manage firm earnings is through early recognition of revenue. This method affects several financial statement accounts including revenue, accounts receivable and total assets. The models discussed below try to detect earning management by measuring percentage changes between financial statement accounts.

(A) The Healy Model (1985)

One of the earliest discretionary accrual models was developed by Healy in 1985. The model uses mean of total accruals ($\sum T_A_t$) scaled by lagged total assets ($T$) from the estimation period as the measure of non-discretionary accruals. The Healy model assumes that non-discretionary accruals follow a mean reverting process. This implies the following model for non-discretionary accruals:
\[ NDA_t = \frac{\sum_{i=1}^{T} TA_t}{T} \] (2.1)

Where:

- \( NDA \) = estimated non-discretionary accrual;
- \( TA \) = total accruals scaled by lagged total assets;
- \( t = 1, 2...T \) is a year subscript for year included in the estimation period; and
- \( t = \) a year of subscript indicating a year in the event period.

Unlike other accrual models, the Healy model predicts that systematic earnings management occurs in every period. Thus, in order to estimate mean total accruals, Healy divided the sample into three groups, with earnings predicted to be managed upward into one group and downward into the other two groups. This approach is equivalent to treating the group that is predicted to be managed upwards as the estimation period and the other two groups as the event period. The mean total accruals from the estimation period then represent the measure of non-discretionary accruals.

(B) The DeAngelo Model (1986)

The underlying assumption of the DeAngelo model is that non-discretionary accruals follow a random walk process. The DeAngelo (1986) model uses the previous year’s total accruals (\( TA_{t-1} \)) scaled by lagged total assets (\( A_{t-2} \)) as the measure of non-discretionary accruals. The DeAngelo model can be viewed as a special case of the Healy model in which the estimation period for non-discretionary accruals is restricted to the prior year’s observations. Dechow (1995) suggests that the DeAngelo model is more appropriate to be used when discretionary accruals follow a random walk, while the Healy model is appropriate to be used when discretionary accruals follow a white noise process around a constant mean. The empirical results suggest that the total accruals follow an approximate white noise process (Dechow, 1994).
\[ NDA_t = \frac{TAt-1}{A_{t-2}} \] (2.2)

Where:

\( NDA_t \) = non-discretionary accrual at time t;
\( TAt-1 \) = Total accrual at time \( t - 1 \);
\( A_{t-2} \) = Total Asset at Time \( t-2 \).

(C) The Jones Model (1991)

Jones (1991) proposes a model that attempts to control for the effects of changes in a firm's economic circumstances on non-discretionary accruals. He indicates that changes in total assets, gross revenue, and gross property plant and equipment are the determinants of non-discretionary accruals. This model assumes revenue is discretionary while changes in revenue are the reflection of a change in business conditions and business cycles. Unlike the previous models discussed, the Jones model assumes that the non-discretionary accruals are non-constant over time. The Jones model for non-discretionary accruals in the event year is:

\[ NDA_t = \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t}{A_{t-1}} \right) + \alpha_3 \left( \frac{PPE_t}{A_{t-1}} \right) \] (2.3)

Where

\( \Delta REV_t \) = revenue in year \( t \) less revenue in year \( t - 1 \) scaled by total asset at \( t - 1 \);
\( PPE_t \) = gross property plant and equipment in year \( t \) scaled by total asset at \( t - 1 \);
\( A_{t-1} \) = total assets at \( t - 1 \); and
\( \alpha_1, \alpha_2, \alpha_3 \) = firm-specific parameters.

Estimates of the firm-specific parameters, \( \alpha_1, \alpha_2 \) and \( \alpha_3 \) are generated using the following model in the estimation period:

\[ TAt = \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t}{A_{t-1}} \right) + \alpha_3 \left( \frac{PPE_t}{A_{t-1}} \right) + V_t \] (2.4)
Where: \( a_1, a_2, a_3 \) denote the OLS estimates of \( \alpha_1, \alpha_2, \alpha_3 \) and \( TA \) is total accruals scaled by lagged total assets. \( \nu_t \) is the error term.

(D) The Modified Jones Model (1995)

The Modified Jones model is the modification of the aforementioned Jones model. The original Jones model was not designed to eliminate management manipulation on revenue through misstatement of accounts receivable. To calculate discretionary accruals, the modified Jones model removes discretionary accruals through adjustments in accounts receivable \( (\Delta RE_{t-1} - \Delta REC_t) \).

\[
NDA_t = \alpha_1 (1/At-1) + \alpha_2 ((\Delta RE_{t-1} - \Delta REC_t)/A_{t-1}) + \alpha_3 (PPE_t / A_{t-1})
\]  

(2.5)

Where

\( \Delta RE_t = \) revenue in year \( t \) less revenue in year \( t-1 \) scaled by total asset at \( t-1 \);
\( \Delta REC_t = \) receivable in year \( t \) less receivable in year \( t-1 \) scaled by total asset at \( t-1 \);
\( PPE_t = \) gross property plant and equipment in year \( t \) scaled by total asset at \( t-1 \);
\( A_{t-1} = \) total assets at \( t-1 \); and
\( \alpha_1, \alpha_2, \alpha_3 = \) firm-specific parameters.

(E) Total Accruals

Prior research by Healy (1985), and Jones (1991) introduced the following balance sheet approach equation to compute the total accruals:

\[
TA = (\Delta CA_t - \Delta CL_t - \Delta Cash_t - \Delta STD_t - Dep_t / A_{t-1})
\]  

(2.6)

Where:

\( \Delta CA = \) change in current assets
\( \Delta CL = \) change in current liabilities
\( \Delta Cash = \) change in cash and cash equivalents
\( \Delta STD = \) change in debt included in current liabilities
\( Dep = \) depreciation and amortization expense
\( A = \) total assets
The non-discretionary component reflects business conditions such as growth and the length of the operating cycles that naturally create and destroy accruals, while the amount from total accruals is a metric that reflects accruals that are due to management’s choice alone. In other words, there appears to be no business reason for these accruals, so discretionary accruals are a better proxy for earnings quality. Discretionary accruals is calculated by the following formula:

\[ DA_{it} = TA_{it} - NDA_{it} \] (2.7)

The accrual models discussed above rely on a number of firm-specific variables in attempting to estimate the discretionary and non-discretionary portions of accounting accruals. Figure 2 presents a summary of discretionary accrual proxies used in the above models that were discussed. Dechow et al. (1995) compared the four accrual models and evaluated the specifications and power of commonly used test statistics in order to determine which model is most representative for the purpose of detecting earnings management. They concluded that the Modified Jones model provides the most powerful test to detecting earnings management. However, results of the four models are fairly similar. Therefore, we use the four models discussed above in our empirical testing to examine which model works best on the international level, combining data (presented in Chapter Four) from seven countries. In this study, we use the four models to calculate four different discretionary accruals and use the calculation results to serve as dependent variables for our estimations.
Figure 2: Discretionary Accrual Proxies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Discretionary Accrual Proxy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healy (1985)</td>
<td>Total accrual</td>
</tr>
<tr>
<td>DeAngelo (1996)</td>
<td>Change in total accruals</td>
</tr>
<tr>
<td>Jones (1991)</td>
<td>Residual from regression of total accruals on change in sales and property, plant and equipment</td>
</tr>
<tr>
<td>Modified Jones Models</td>
<td>Residual from regression of total accruals on change in sales and property, plant and equipment, where revenue is adjusted from change in receivables in the event period</td>
</tr>
</tbody>
</table>


2.3 Prior research on earnings management

There is a wide range of earnings management research done on various topics in earnings management such as “earnings management and stock prices” and “earnings management and initial public offerings”. This paper will mainly focused on literature related to cultural influences on earnings management.

Gary’s (1988) study was the first to introduce the theory of cultural influence on the development of accounting systems. Figure 2 has summarized Gary’s model (1998). In his study, Gary argues that a country’s accounting systems are influenced by cultural dimensions which were developed by Hofstede (1980). His study suggests that institutional consequences and accounting values are generated from the cultural dimensions and a country’s accounting systems are a product of institutional consequences of accounting values.
Following Gary’s research, Leuz et al. (2003) studied systematic differences in earnings management across thirty one different countries. They investigated the relationship between investor protection and earnings management. They developed the hypothesis that managers have an incentive to manipulate the firm’s true performance in order to conceal the private control benefit and minimize interference from outsiders. The results of their study suggest that there is a negative relationship between investor protection and earnings management. The greater the protection provided for outside shareholders and the stronger the enforcement of legal rights, the lower the amount of earnings management in the country.

Guan et al. (2006) studied the possible impact of cross-country differences in culture on earnings management in five Asia-Pacific countries. They investigated the relationship between income-increasing accruals and the cultural value of individualism,
power distance, uncertainty avoidance, and longer term orientations. The result of their study suggests the following:

a) There is a significant positive relationship between income-increasing discretionary accruals and Hofstede's cultural values of individualism.

b) There is a significant negative relationship between income-increasing discretionary accruals and uncertainty avoidance.

c) There is a significant negative relationship between income-increasing discretionary accruals and long-term orientations.

Recently, Timothy (2008) published a paper relating to culture and earnings managements in which he studied the effects of culture on earnings management across thirty one different countries. Timothy discussed the possible relationship between each of Hofstede's cultural dimensions, earnings smoothing and earnings discretion. According to Hofstede (1984), the societies which have high levels of uncertainty avoidance would prefer to be in control of their futures. Earnings smoothing is one of the methods used to manage the future. In addition, higher levels of uncertainty avoidance leads to greater usage of earnings discretion to avoid the uncertainty associated with potentially negative events (such as missing analysts’ earnings forecast). In societies that have high levels of collectivism (low levels of individualism), employees would expect the firm to defend their interests, namely stability and long term sustainability. Firms in these societies are more likely to smooth their earnings. The results of his studies suggest that cultural dimensions of uncertainty avoidance and individualism are significantly related to earnings management.
CHAPTER THREE
SAMPLE SELECTION AND RESEARCH DESIGN

The following chapter discusses data selection and research design used to estimate the empirical results of this study. Chapter Three is divided into three sections: Section 3.1 discusses the samples used in this study, Section 3.2 discusses the variables and hypotheses development, and Section 3.3 discusses the methodology used in this study.

3.1 Data Selection

The data is collected from the CaptialIQ database. The analysis is based on financial data from 1992 to 2011 for over 1,158 firms from seven countries. For the purpose of the study, data was collected for all firms in the following seven countries: India, Hong Kong (China), Japan, France, the United Kingdom, Canada, and the United States. In order to be included in the sample, a country must have at least 900 firm-year observations for a number of accounting variables, including total assets, total liabilities, sales, and accounts receivable. Each firm that had income statement and balance sheet information for at least two consecutive years was included in our data. Table 1 shows the detailed breakdown of the number of firms that were included in the sample. The final sample consists of 1,158 firms and 23,160 firm-year observations between 1992 and 2011.
Table 3.1
Description of sample selected by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of firms</th>
<th>Period covered</th>
<th>Total observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>126</td>
<td>1992 - 2011</td>
<td>2,520</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>58</td>
<td>1992 - 2011</td>
<td>1,160</td>
</tr>
<tr>
<td>Japan</td>
<td>243</td>
<td>1992 - 2011</td>
<td>4,860</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>299</td>
<td>1992 - 2011</td>
<td>5,980</td>
</tr>
<tr>
<td>France</td>
<td>49</td>
<td>1992 - 2011</td>
<td>980</td>
</tr>
<tr>
<td>Canada</td>
<td>94</td>
<td>1992 - 2011</td>
<td>1,880</td>
</tr>
<tr>
<td>United States</td>
<td>289</td>
<td>1992 - 2011</td>
<td>5,780</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,158</strong></td>
<td><strong>1992 - 2011</strong></td>
<td><strong>23,160</strong></td>
</tr>
</tbody>
</table>

3.2 Variable Description and Hypotheses Development

3.2.1 Financial Variables

(a) D/E ratio (DE)

Many earnings management articles found significant results that managers have more incentive to perform income increasing earning management when the firm's debt to equity ratio is high and close to the debt covenant violations. As an example, Duke and Hunt (1990) suggested that when the debt covenants restrictions are related to retained earnings, working capital, and net tangible assets, managers are more likely to manipulate the debt to equity ratio to meet the debt covenant restrictions. Thus, as the debt to equity ratio increases, income-increasing activity is expected; that is, a positive association is predicted.

Although we have mentioned that managing debt to equity ratio may be used to prevent violation of debt covenants, the results of that research were based on US firms. There is no compelling reason to believe that the closeness to debt covenants will influence the managers in other countries to choose to increase accrual. As an example, the different
sources of debt could be the reason for the different effects of debt covenants on earnings management. Most Japanese corporations borrow money from banks, while most large Hong Kong firms borrow from insurance companies and various types of bonds. Therefore, the higher debt to equity ratio does not necessarily mean that the firm is close to debt covenant violations. Thus, the hypothesis that the higher the debt to equity ratio would result in higher earnings management might not be true for all the countries used in this study.

**H1: THERE IS A POSITIVE RELATIONSHIP BETWEEN DEBT TO EQUITY RATIO AND EARNINGS MANAGEMENT**

*(b) Firm Size (FS)*

Warfield et al. (1995) and Beasley et al. (2000) suggested that corporate governance mitigates the degree of earnings management and improves the quality of financial reporting. Also, Kim and Liu (2003) suggested that the larger the firm size, the less earnings management may be feasible. The large firm has more sophisticated internal control systems that ensure the reliability of financial information disclosed to the public. Therefore, large firms are more likely to design and maintain more effective internal control systems in comparison to small firms which would reduce the ability of management to manipulate the firm’s earnings. Furthermore, the large firms are usually audited by the big four auditors. The big four accounting firms have more experienced and knowledgeable staff to perform the audit. As a result, the firms audit by the big four auditors’ report lower level of discretionary accruals (Becker et al., 1998; Frances et al.,
1999; and Payne and Robb, 2000). Also, Lennox (1999) found that the audit reports issued by a big four auditor are more informative, exhibiting that the auditor size is positively related to the audit quality.

**H2: Firm size is negatively related to earnings management**

*(c) Firm Performance (FP)*

Bartov et al. (2000) compiled evidence stating that firms may meet or beat their earning expectation through earnings management. Myer and Skinner (2000) purport that the firms that had preceding positive earnings are more likely to manipulate earnings to keep a consecutive earnings growth trend; therefore, the performance of the firm in the prior year influences the manager’s tendency to manipulate earnings to meet or exceed the analyst’s earnings forecast. For the purpose of this study, we use return on asset instead of stock prices as a measure of firm performance. The underlining assumption is that the return on asset captures the percentage changes in the financial statement; however, stock prices do not provide an indication of any changes in the financial statement nor how that would affect firm’s operating performance.

**H3: Profitability is positively related to earnings management**

*(d) Business Cycles (BC)*

The behavior of earnings management may also be affected by economic cycles. During the expansion period, there are more opportunities for firms to do
income-decreasing accruals. During the contraction period, firms are more likely to do the opposite. In the earnings management literature, the methods used for earnings management are either accounting method or estimation of accruals. For the purpose of this study, we will test earnings management by examining the magnitude of estimated discretionary accruals. The reason for choosing this method is that current accruals are the primary tool for management to do earnings management. Dechow and Dichev (2002) found that the quality of accruals and earnings is negatively related to economic cycle. Therefore, we include business cycle as a control variable in our model to examine whether the business cycle affects the firm’s propensity for earnings management. The National Bureau of Economic Research (NBER) provides a chronology of the US business cycle. The US business cycle periods were applied to all countries. The underlining assumption is that the US economy has significant influences over the other 6 countries. Based on the data from 1992 to 2011 we determine the expansion and contraction period as following: Contracting periods- 1981, 1982, 1990, 1991, 2001, 2007-2000, and 2011; Expansion periods- 1983-1989, 1992-2000, 2002-2006, and 2010.

\[ H_4: \text{The discretionary accrual is lower during the expansion period, and higher during the contraction period.} \]

(e) Tax Rate (TR)

Tax rates may also be a factor for causing earnings management activities. The higher the tax rate a country has, the more incentive for management to use
income-decreasing accruals to minimize tax expenses. This argument will be tested in the following hypothesis:

**H5: Tax rates are positively related to earnings management**

*Cultural Dimensions*

The significance of culture in influencing and explaining behavior in social systems has been recognized and explored in a wide range of literature. Hofstede’s (1980, 1983) research studied the structural elements of culture and particularly those which most strongly affect known behaviors in work situations in organizations. Hofstede obtained data from a survey of 117,000 employees of large corporations in sixty seven countries. The research project used the survey answers on thirty two value statements to calculate each country’s score on cultural dimensions. The higher score in each dimension indicates their ranking among the countries. For the purpose of this study, seven countries were selected from Hofstede’s (1984) summary and are shown in Table 2.

*(f) Uncertainty Avoidances (UA)*

According to Hofstede (1984), Uncertainty Avoidances is the degree to which the members of a society feel comfortable with uncertainty and ambiguity. Companies in the countries with a high value of uncertainty avoidance score would try to control the future by managing its earnings. Income increasing earnings management can occur as a result of the desire to avoid the negative impact likely to arise from fears of not meeting the analysts’ earnings forecast, and the violation of debt covenants, etc. As a result, the higher level of
uncertainty avoidance should lead to greater usage of earnings management to avoid the uncertainty associated with these potential negative events.

---

**H6: UNCERTAINTY AVOIDANCE IS POSITIVELY RELATED TO EARNINGS MANAGEMENT.**

*(g) Individualism (IND)*

Arguably, senior management benefits most from the companies’ high growth rate and short term successes due to incentive programs like bonuses and stock options. Managers in countries with high levels of individualism have an incentive to report higher earnings to meet or exceed the analysts’ earnings forecast in order to satisfy their personal needs. On the other hand, managers in countries with low levels of individualism would be less inclined to use earnings management due to risk of long term harm that earnings management would bring to the company as well as the stockholders. Hofstede (1980) suggests that in countries with high collectivism, members of the firm would expect the organization to look after themselves like family members and to defend their best interest. Earnings management might be viewed as harmful to the society and company.

---

**H7: INDIVIDUALISM IS POSITIVELY RELATED TO EARNINGS MANAGEMENT**

*(h) Power Distance (PD)*

According to Hofstede (1984), power distance is the extent to which the members of a society accept that power in institutions and organizations is distributed unequally. “In large power distance countries, accounting systems will be frequently used to justify the decisions of the top power holders: they are seen as the power holders’ tool to present the
desired image and figures will be twisted to this end" (Hofstede and Hofstede, 2005, p. 259). Hofstede suggested that there is a positive relationship between power distance and earnings management. This argument will be tested in the following hypothesis:

**H8: The relationship between power distance and earnings management is positive**

Table 3.2 summarized the expected relations between Hofstede's cultural dimensions and earnings management. Uncertainty avoidance, individualism, and power distance are expected to influence earnings management.

<table>
<thead>
<tr>
<th>Cultural Dimensions</th>
<th>Earnings Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty Avoidance (UA)</td>
<td>Positive</td>
</tr>
<tr>
<td>Individualism (IND)</td>
<td>Positive</td>
</tr>
<tr>
<td>Power Distance (PD)</td>
<td>Positive</td>
</tr>
</tbody>
</table>

In addition, the model includes several institution control variables that have been found in prior research to influence earning qualities internationally. We followed Leuz et al.'s (2003) findings and added two primary control variables to our models which: Outside Investor Rights and Legal Enforcement measures of investor protection. Outside Investor Rights is a proxy used by La Porta et al. (1998) as a measure of 'Anti-director Rights', and Legal Enforcement is computed as the average three variables developed by La Porta et al. The three variables are (a) efficiency of judicial system, (b) rule of law, and (c) government corruption. The two additional controls are a measure of the strength of
security regulations related to publicly listed companies (Burgstahler et al., 2006), and the nature of a country's legal system. Security Regulation is measured as the average of three variables developed by La Porta et al. (2000): (1) a disclosure requirements index, (2) an index of the investor's difficulty in recovering losses, and (3) an index of public enforcement of security regulations. Finally, legal system indicates: (i) Common Law system and (ii) Code Law system. Related research by Ball et al. (2000) finds the common law legal system provides more effective prevention to limit companies using dictionary accrual methods to manipulate their earnings.

Table 3.3 reports the seven countries' score for the relevant cultural dimension and legal institution variables. For the purpose of this study, we assumed these cultural and institutional variables are constant overtime. Even though these cultural and institutional value changes over time especially when our study covers a twenty year period, our assumption is that the changes in these variable are very small and does not have significant consequences to our study results. Table 3.3 also indicates that Japan has the highest score (92) for Uncertainty Avoidance among the sampled countries and Hong Kong has the lowest score (29). The US has the highest score (91) in Individualism and Hong Kong has the lowest score (25). For Power Distance scores, India ranks number one and the UK has the lowest score. India, Hong Kong, the UK, Canada, and the US are under the Common law system. La Porta et al. (1998) ranked Outside Investor Rights from one to five. If a particular country got a score of five, it means that the country has the highest investor protection. As Table 2 indicated, France has the lowest score in Outside Investor Protection amongst these sample countries. The higher score on legal enforcement indicates that laws in that country play an important role in economic activities and there is
less government corruption. In our sample, Canada has the highest and India has the lowest score for legal enforcement. La Porta et al. (1998) also breaks down countries into two legal system groups: Common Law system and Code Law system, and they assigned a value of one to Common Law system and a value of zero to the Code Law system. This "anti-director rights index" has been used as a measure of shareholder protection in over a hundred articles since it was introduced by La Porta in 1998.

Table 3.3

<table>
<thead>
<tr>
<th>Country</th>
<th>Cultural Dimensions</th>
<th>Legal Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UA</td>
<td>IND</td>
</tr>
<tr>
<td>India</td>
<td>40</td>
<td>48</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>Japan</td>
<td>92</td>
<td>46</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>35</td>
<td>89</td>
</tr>
<tr>
<td>France</td>
<td>86</td>
<td>71</td>
</tr>
<tr>
<td>Canada</td>
<td>48</td>
<td>80</td>
</tr>
<tr>
<td>United States</td>
<td>46</td>
<td>91</td>
</tr>
</tbody>
</table>

Notes:
Cultural Dimensions (Source: Hofstede, 2001, p.500)
UA - Uncertainty Avoidance
IND - Individualism
PD - Power Distance
The higher the number, the higher the country ranks on that particular dimension.

Legal institutions
OIR - Outside Investor Rights (source: LaPorta et al., 1998, pp.1130-1; Antidirector Rights').
ENF - Legal Enforcement (source: LaPorta et al., 1998, pp.1142-3; average of 'Efficiency of Judicial System', 'Rule of Law' and Corruption Index')
REG - Securities Regulation (source: LaPorta et al., 2006, pp. 15-16; average of 'Disclosure Requirements', Liability Standard' and Public Enforcement')
LEG - Legal System (source: LaPorta et al., 1998, pp. 1130-1; Common Law = English origin; Code Law = French origin, German origin, Scandinavian origin); Common Law = 0; Code law = 1.
3.3 Methodology

3.3.1 Measuring the Discretionary Accruals

Most of the prior studies in earnings management focus on explaining accounting choices by examining the relationship between an accounting choice variable and a number of explanatory variables. Following Dechow et al. (1995), we measure the discretionary accruals by using the four models that were discussed in Chapter Two. The variables used in the calculation of accruals are listed in the empirical tests provided in Table 3.4.

3.3.2 Model Specification

Discretionary

In order to examine the relationship between earnings management and a number of explanatory variables, the following models are designed to undertake a multiple regression analysis:

3.3.2.1 Model 1: Earnings Management and Traditional Financial Variables

Following many prior earnings management studies, Model 1 was designed to evaluate how the traditional financial variables explain earnings management in each of the seven countries.

\[
Model 1 : DA = \alpha + \beta_1 DE + \beta_2 FS + \beta_3 FP + \beta_4 TR + \beta_5 BC + \varepsilon_i
\]

\[\varepsilon_i = \text{Random error Term}\]

\[\beta_1, \ldots, \beta_5 = \text{model parameters}\]
Table 3.4 Descriptions of Variables Used

<table>
<thead>
<tr>
<th>Notations</th>
<th>Names</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDA</td>
<td>Non-discretionary accruals</td>
<td>Non-discretionary accrual value as determined by the four discretionary accrual models</td>
</tr>
<tr>
<td>DA</td>
<td>Discretionary accruals</td>
<td>Discretionary accrual value as determined by the four models. Discretionary accrual is equal to total accrual less non-discretionary accruals.</td>
</tr>
<tr>
<td>TA</td>
<td>Total Asset</td>
<td>Total assets of a firm in year t</td>
</tr>
<tr>
<td>ΔREV</td>
<td>Change in revenue</td>
<td>revenue in year t less revenue in year t -1</td>
</tr>
<tr>
<td>ΔREC</td>
<td>Change in receivables</td>
<td>receivables in year t less revenue in year t -1</td>
</tr>
<tr>
<td>PPE</td>
<td>Property, Plant and Equipment</td>
<td>Property, plant and equipment in year t</td>
</tr>
<tr>
<td>BC</td>
<td>Business Cycles</td>
<td>Dummy Variables with value of zero during contraction period, one during the expansion period.</td>
</tr>
<tr>
<td>D/E</td>
<td>Debt to Equity ratio</td>
<td>Debt to equity ratio of the firm in year t</td>
</tr>
<tr>
<td>Dep</td>
<td>Depreciation</td>
<td>Depreciation expense of the firm in year t</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on Assets</td>
<td>Earnings before interest and taxes divided by total asset of the firm at year t</td>
</tr>
<tr>
<td>ΔACL</td>
<td>Change in current liabilities</td>
<td>Current liabilities in year t less current liabilities in year t -1</td>
</tr>
<tr>
<td>FS</td>
<td>Firm Size</td>
<td>Total assets of the firm in year t</td>
</tr>
<tr>
<td>FP</td>
<td>Firm Performance</td>
<td>Return on assets of the firm in year t.</td>
</tr>
<tr>
<td>TR</td>
<td>Tax Rate</td>
<td>Marginal tax rate for year t.</td>
</tr>
<tr>
<td>UA</td>
<td>Uncertainty Avoidance</td>
<td>Assigned value based on the ranking among countries</td>
</tr>
<tr>
<td>PD</td>
<td>Power Distance</td>
<td>Assigned value based on the ranking among countries</td>
</tr>
<tr>
<td>IND</td>
<td>Individualism</td>
<td>Assigned value based on the ranking among countries</td>
</tr>
<tr>
<td>OIR</td>
<td>Outside Investor Rights</td>
<td>Assigned value based on the ranking among countries</td>
</tr>
<tr>
<td>ENG</td>
<td>Enforcement</td>
<td>Assigned value based on the ranking among countries</td>
</tr>
<tr>
<td>REG</td>
<td>Regulations</td>
<td>Assigned value based on the ranking among countries</td>
</tr>
<tr>
<td>LEG</td>
<td>Legal system</td>
<td>Dummy variables. Common law = 1 and Code law = 0.</td>
</tr>
</tbody>
</table>
3.3.2.2 Model 2: Earnings Management and Cultural Variables

We developed the second model which only used the cultural variables to explain earnings management. We are interested to see how powerful the model would be when only cultural variables are included in the model.

Model 2: \( DA = \alpha + \beta_1 UA + \beta_2 IND + \beta_3 PD + \varepsilon_i \)  

\( \varepsilon_i \) = Random error Term 
\( \beta_1 \ldots \beta_3 \) = model parameters

3.3.3 Model 3: Earnings Management among Traditional Financial and Cultural Variables

Following Guna et al. (2006) and Timothy (2008), we included both the traditional financial variables and cultural variables into Model 3. We are motivated to see how well both variables can explain earnings management.

Model 3: \( DA = \alpha + \beta_1 DE + \beta_2 FS + \beta_3 FP + \beta_4 TR + \beta_5 BC + \beta_6 UA + \beta_7 IND + \beta_6 PD + \beta_7 O + \varepsilon_i \)  

\( \varepsilon_i \) = Random error Term 
\( \beta_1 \ldots \beta_7 \) = model parameters
3.3.2.4 Model 4: Earnings Management among Traditional Financial, Cultural and Institutional Variables

In an effort to improve the methodology, the institutional variables were added to Model 4. We are interested to see if the institutional factors limited the ability of managers to perform earnings management.

\[ Model 4: DA = \alpha + \beta_1 DE + \beta_2 FS + \beta_3 FP + \beta_4 TR + \beta_5 BC + \beta_6 UA + \beta_7 IND + \beta_8 PD + \beta_9 OIR + \beta_{10} EN + \beta_{11} REG + \beta_{12} LEG + \varepsilon_i \]  

\[ \varepsilon_i = \text{Random error Term} \]

\[ \beta_1, ..., \beta_{12} = \text{model parameters} \]
CHAPTER FOUR

EMPIRICAL RESULTS

This chapter discusses the empirical results of our statistical analyses of earnings managements for the period from 1992 to 2011. This chapter is organized as follows: Section 4.1 discusses the descriptive analysis of the variables used in the empirical testing, Section 4.2 provides a correlation analysis among the independent variables, Section 4.3 discusses the descriptive cluster analysis of the seven countries, Section 4.4 discusses our regression results from seven individual countries and discretionary accruals from the four models are served as dependent variables and traditional financial variables are served as independent variables, and Section 4.5 discusses a multivariate analysis based on seven countries and the cultural and institutional variables used in this analysis.

4.1 Descriptive Analysis

Table 4 provides the summary of descriptive statistics of key variables by country. The table reveals that French firms have the largest average size of firms in our sample (approximately $114 million in total assets), and India has the smallest sample (approximately $343 thousand in total assets). There is, however, significant variation in size across the sample in each country as represented by the minimum and maximum values and standard deviations. Data on the debt to equity ratio reveals that Japanese firms have the highest average debt to equity ratio of 1.48 followed by French firm’s 0.96 and US firm’s 0.688. India has the lowest debt to equity ratio at 0.085. The other three countries have a similar average debt to equity ratio. This suggests that the capital structure of the
Japanese companies is definitely different from that of the other six countries in this study. A high debt-equity ratio generally means that a company has been aggressive in financing its growth with debt. However, the downfall of debt financing is that firms have to meet certain bank covenants, such as the debt covenant that determines that debt to equity ratio cannot exceed 1.5 to 1. If the covenant is breached, the banks will call back the loan and the firms will be at risk of bankruptcy. Return on assets ratio data reveals that Canadian firms have the highest return on assets with 3.1% followed by French firm’s 2.9%. Indian firms have the lowest return on assets ratio at only 0.9%. Return on assets is an indicator of how profitable a company is relative to its total assets. Therefore, ROA gives an idea as to how efficiently management uses the company’s assets to generate earnings. The table also reveals that the average tax rate for Japanese firms is 41%, which is the highest average tax rate among the sample of seven countries. The United Kingdom has the second highest tax rate of 31.4% and France is in third place with 24.6%. Indian firms have the lowest tax rate of 0.7%. This suggests that the tax system among the sample countries is significantly different in this study.
<table>
<thead>
<tr>
<th>Country</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>DA(Jones)</td>
<td>2539</td>
<td>-0.237</td>
<td>1.472</td>
<td>6.024</td>
<td>-26.213</td>
<td>38.261</td>
</tr>
<tr>
<td></td>
<td>DA(Modified Jones)</td>
<td>2539</td>
<td>-0.204</td>
<td>1.336</td>
<td>7.111</td>
<td>-22.951</td>
<td>37.173</td>
</tr>
<tr>
<td></td>
<td>DA(Healy)</td>
<td>2539</td>
<td>0.002</td>
<td>0.086</td>
<td>2.158</td>
<td>-0.016</td>
<td>4.332</td>
</tr>
<tr>
<td></td>
<td>DA(DeAngelo)</td>
<td>2539</td>
<td>0.017</td>
<td>1.013</td>
<td>23.830</td>
<td>-3.021</td>
<td>50.681</td>
</tr>
<tr>
<td></td>
<td>Asset</td>
<td>2539</td>
<td>343.0</td>
<td>2,686</td>
<td>30,812</td>
<td>0.001</td>
<td>61,623</td>
</tr>
<tr>
<td></td>
<td>DE</td>
<td>2539</td>
<td>0.085</td>
<td>0.450</td>
<td>3.644</td>
<td>0.002</td>
<td>7.289</td>
</tr>
<tr>
<td></td>
<td>EPS</td>
<td>2539</td>
<td>0.139</td>
<td>0.609</td>
<td>0.012</td>
<td>0.002</td>
<td>20.350</td>
</tr>
<tr>
<td></td>
<td>ROA</td>
<td>2539</td>
<td>0.009</td>
<td>0.038</td>
<td>0.163</td>
<td>0.004</td>
<td>0.326</td>
</tr>
<tr>
<td></td>
<td>TR</td>
<td>2539</td>
<td>0.070</td>
<td>0.177</td>
<td>2.696</td>
<td>0.000</td>
<td>5.392</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>DA(Jones)</td>
<td>1180</td>
<td>-0.039</td>
<td>0.120</td>
<td>-0.007</td>
<td>-1.173</td>
<td>1.520</td>
</tr>
<tr>
<td></td>
<td>DA(Modified Jones)</td>
<td>1180</td>
<td>0.056</td>
<td>0.185</td>
<td>0.660</td>
<td>-0.758</td>
<td>2.079</td>
</tr>
<tr>
<td></td>
<td>DA(Healy)</td>
<td>1180</td>
<td>0.000</td>
<td>0.003</td>
<td>0.032</td>
<td>-0.019</td>
<td>0.083</td>
</tr>
<tr>
<td></td>
<td>DA(DeAngelo)</td>
<td>1180</td>
<td>-0.033</td>
<td>0.122</td>
<td>0.194</td>
<td>-1.135</td>
<td>1.522</td>
</tr>
<tr>
<td></td>
<td>Asset</td>
<td>1180</td>
<td>83,770</td>
<td>298,242</td>
<td>4,667</td>
<td>0.001</td>
<td>2,555,579</td>
</tr>
<tr>
<td></td>
<td>DE</td>
<td>1180</td>
<td>0.314</td>
<td>0.823</td>
<td>0.064</td>
<td>0.001</td>
<td>14.297</td>
</tr>
<tr>
<td></td>
<td>EPS</td>
<td>1180</td>
<td>3.868</td>
<td>59.885</td>
<td>0.040</td>
<td>-5.740</td>
<td>1,129,120</td>
</tr>
<tr>
<td></td>
<td>ROA</td>
<td>1180</td>
<td>0.029</td>
<td>0.045</td>
<td>0.011</td>
<td>-0.076</td>
<td>0.275</td>
</tr>
<tr>
<td></td>
<td>TR</td>
<td>1180</td>
<td>0.116</td>
<td>0.147</td>
<td>0.090</td>
<td>0.000</td>
<td>2.321</td>
</tr>
<tr>
<td>Japan</td>
<td>DA(Jones)</td>
<td>4879</td>
<td>-0.148</td>
<td>0.186</td>
<td>-0.134</td>
<td>-6.226</td>
<td>2.207</td>
</tr>
<tr>
<td></td>
<td>DA(Modified Jones)</td>
<td>4879</td>
<td>-0.109</td>
<td>0.152</td>
<td>-0.109</td>
<td>-1.256</td>
<td>2.210</td>
</tr>
<tr>
<td></td>
<td>DA(Healy)</td>
<td>4879</td>
<td>0.000</td>
<td>0.000</td>
<td>-0.001</td>
<td>-0.002</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>DA(DeAngelo)</td>
<td>4879</td>
<td>-0.042</td>
<td>0.160</td>
<td>0.479</td>
<td>-1.256</td>
<td>2.214</td>
</tr>
<tr>
<td></td>
<td>Asset</td>
<td>4879</td>
<td>36,462</td>
<td>150,955</td>
<td>8,441</td>
<td>0.000</td>
<td>2,692,589</td>
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<tr>
<td></td>
<td>DE</td>
<td>4879</td>
<td>1.487</td>
<td>3.344</td>
<td>0.725</td>
<td>0.000</td>
<td>82,355</td>
</tr>
<tr>
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<td>EPS</td>
<td>4879</td>
<td>5.056</td>
<td>69.261</td>
<td>1,360.800</td>
<td>-513.820</td>
<td>3,235,420</td>
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<tr>
<td></td>
<td>ROA</td>
<td>4879</td>
<td>0.017</td>
<td>0.029</td>
<td>0.159</td>
<td>-0.121</td>
<td>0.439</td>
</tr>
<tr>
<td></td>
<td>TR</td>
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<td>0.410</td>
<td>9.569</td>
<td>332.143</td>
<td>0.000</td>
<td>664,286</td>
</tr>
<tr>
<td>Country</td>
<td>Variables</td>
<td>N</td>
<td>Mean</td>
<td>Std. Dev</td>
<td>Median</td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
<td>------</td>
<td>-------</td>
<td>----------</td>
<td>--------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DA(Jones)</td>
<td>5999</td>
<td>0.083</td>
<td>0.706</td>
<td>0.009</td>
<td>-34.391</td>
<td>6.372</td>
</tr>
<tr>
<td></td>
<td>DA(Modified Jones)</td>
<td>5999</td>
<td>-0.099</td>
<td>0.723</td>
<td>0.009</td>
<td>-40.752</td>
<td>4.638</td>
</tr>
<tr>
<td></td>
<td>DA(Healy)</td>
<td>5999</td>
<td>-0.085</td>
<td>6.496</td>
<td>0.000</td>
<td>-503.125</td>
<td>0.106</td>
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<td>0.267</td>
<td>0.000</td>
<td>3.562</td>
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<tr>
<td><strong>Canada</strong></td>
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<td></td>
<td>DA(Jones)</td>
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<td>0.007</td>
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<td>DA(DeAngelo)</td>
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<td>108.334</td>
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<td>EPS</td>
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<td>73.350</td>
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<td>1.492</td>
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<td>47.052</td>
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</table>
Table 4.1 (continued)

<table>
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<th>Country</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
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<tr>
<td>United States</td>
<td>DA(Jones)</td>
<td>5999</td>
<td>0.073</td>
<td>0.295</td>
<td>-2.696</td>
<td>-11.479</td>
<td>6.086</td>
</tr>
<tr>
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<td>DA(Modified Jones)</td>
<td>5999</td>
<td>0.073</td>
<td>0.295</td>
<td>-2.696</td>
<td>-11.479</td>
<td>6.086</td>
</tr>
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<td>DA(Healy)</td>
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<td>0.477</td>
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<tr>
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<td>0.570</td>
<td>13.808</td>
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<td>27.615</td>
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</table>

Variables

DA = Discretionary Accruals
ASSET = Total assets (in millions of US dollars)
DE = Book debt to book equity ratio
EPS = Earnings per share in dollars
ROA = Return on Assets (net income divided by total assets)
TR = Effective tax rate (total tax expense divided by income before taxes)
4.2 Correlation Analysis among the Independent Variables

Table 4.2 presents the Spearman (non-parametric) correlation coefficients for the independent variables. Table 4.2 shows that Outside Investor Right is highly correlated with Uncertainty Avoidance and Individualism. Also, Regulation is highly correlated with Outside Investor Rights as well. The correlation between these variables is highly significant. However, none of remaining independent variables are highly correlated, neither positively or negatively. Although there are few independent variables are highly correlated with each other, the result from this table suggests that multicollinearity is not a concern.
Table 4.2
SPEARMAN CORRELATION COEFFICIENTS FOR THE INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th></th>
<th>DE</th>
<th>FS</th>
<th>FP</th>
<th>BC</th>
<th>EPS</th>
<th>TR</th>
<th>UA</th>
<th>IND</th>
<th>PD</th>
<th>OIR</th>
<th>ENF</th>
<th>REG</th>
<th>LEG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DE</strong></td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
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<td><strong>FS</strong></td>
<td>0.540**</td>
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<tr>
<td><strong>FP</strong></td>
<td>0.005</td>
<td>0.008</td>
<td>1.000</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BC</strong></td>
<td>-0.029**</td>
<td>-0.108**</td>
<td>-0.009</td>
<td>1.000</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EPS</strong></td>
<td>0.114**</td>
<td>0.437**</td>
<td>-0.046**</td>
<td>-0.010</td>
<td>1.000</td>
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</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>0.099**</td>
<td>0.057**</td>
<td>-0.065**</td>
<td>-0.007</td>
<td>-0.026**</td>
<td>1.000</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UA</strong></td>
<td>0.313**</td>
<td>0.394**</td>
<td>0.000</td>
<td>0.000</td>
<td>0.186**</td>
<td>0.059**</td>
<td>1.000</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>IND</strong></td>
<td>-0.176**</td>
<td>-0.244**</td>
<td>0.000</td>
<td>0.000</td>
<td>0.071**</td>
<td>-0.153**</td>
<td>-0.277**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PD</strong></td>
<td>0.089**</td>
<td>-0.135**</td>
<td>0.000</td>
<td>0.000</td>
<td>0.012*</td>
<td>0.185**</td>
<td>-0.400**</td>
<td>-0.587**</td>
<td>1.000</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OIR</strong></td>
<td>-0.350**</td>
<td>-0.449**</td>
<td>0.000</td>
<td>0.000</td>
<td>-0.088**</td>
<td>-0.065**</td>
<td>-0.754**</td>
<td>0.607**</td>
<td>-0.460**</td>
<td>1.000</td>
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<tr>
<td><strong>ENF</strong></td>
<td>0.011**</td>
<td>0.116**</td>
<td>0.000</td>
<td>0.000</td>
<td>0.21**</td>
<td>-0.197**</td>
<td>0.239**</td>
<td>0.654**</td>
<td>0.380**</td>
<td>0.255**</td>
<td>1.000</td>
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<td></td>
</tr>
<tr>
<td><strong>REG</strong></td>
<td>-0.224**</td>
<td>-0.173**</td>
<td>0.000</td>
<td>0.000</td>
<td>0.097**</td>
<td>-0.208**</td>
<td>-0.594**</td>
<td>0.718**</td>
<td>-0.624**</td>
<td>0.687**</td>
<td>0.532**</td>
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<tr>
<td><strong>LEG</strong></td>
<td>0.356**</td>
<td>0.445**</td>
<td>0.000</td>
<td>0.000</td>
<td>0.067**</td>
<td>0.071**</td>
<td>0.768**</td>
<td>-0.627**</td>
<td>0.452**</td>
<td>-0.094**</td>
<td>-0.256**</td>
<td>-0.039**</td>
<td>1.000</td>
</tr>
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</table>

**Coefficient is significant at the 0.01 level (2-tailed).

*Coefficient is significant at the 0.05 level (2-tailed).

Notes:
DE - Debt to Equity Ratio
FS - Firm Size
FP - Financial Performance
EPS - Earnings Per share
TR - Tax Rate
BC - Business Cycle
UA - Uncertainty Avoidance
IND - Individualism
PD - Power Distance
OIR - Outside Investor Rights
ENF - Legal Enforcement
REG - Securities Regulations
LEG - Legal System
4.3 Descriptive Cluster Analysis

Table 4.3 reports the result of the cluster analysis by using Hosftede’s cultural dimension indices. Panel A in this table lists the countries comprising of each cluster ranked from low to high according to their aggregate earnings management found in Timothy’s (2008) paper. Also, the seven countries are divided into three clusters by using Hosftede’s (1980) method. Hofstede identified nine distinct cultural areas based on the patterns of cultural dimension across countries\(^1\). According to Hofstede, Clusters 1 is comprised of countries that are described as the Anglo, Nordic and Germanic cultural areas; Cluster 2 consists of countries that are in the Asian-Colonial and less developed areas; and Cluster 3 consists of countries from a variety of cultural areas, including several more developed Latin countries.

Panel B in Table 4.3 reports the mean value of each cultural dimension by cluster. The P-values in this table are from a one-way ANOVA and they indicate that a significant difference exists across the clusters on each of the cultural dimensions. Post hoc comparisons indicate that each cluster differs significantly from the other clusters on each of the cultural dimensions. Cluster 1 has the highest average for Individualism and lowest average for Power Distance. Cluster 2 has the highest Power Distance and lowest Uncertainty Avoidance. Cluster 3 has the highest Uncertainty Avoidance and median scores from Individualism and Power Distance.

\(^1\) See Hofstede (1980, P.336) for the composition of each of the nine cultural areas.
Table 4.3

RESULTS OF CLUSTER ANALYSIS USING HOFSTED'S CULTURAL DIMENSION INDICES

Panel A: Cluster Membership of Countries

<table>
<thead>
<tr>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Hong Kong</td>
<td>France</td>
</tr>
<tr>
<td>Canada</td>
<td>India</td>
<td>Japan</td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Mean Values of Hofstede's Cultural Dimension Indices by Cluster

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty Avoidance (UA)</td>
<td>43.0</td>
<td>34.5</td>
<td>89.0</td>
<td>.002 **</td>
</tr>
<tr>
<td>Individualism (IND)</td>
<td>86.7</td>
<td>36.5</td>
<td>58.5</td>
<td>.004 **</td>
</tr>
<tr>
<td>Power Distance (PD)</td>
<td>38.0</td>
<td>72.5</td>
<td>61.0</td>
<td>.006 **</td>
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</tbody>
</table>

Panel C: Earnings Management by Cluster

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healy Model</td>
<td>0.039</td>
<td>0.011</td>
<td>0.001</td>
<td>.004 **</td>
</tr>
<tr>
<td>DeAngelo Model</td>
<td>0.029</td>
<td>0.008</td>
<td>0.020</td>
<td>.006 **</td>
</tr>
<tr>
<td>Jones Model</td>
<td>0.054</td>
<td>0.135</td>
<td>0.097</td>
<td>.001 **</td>
</tr>
<tr>
<td>Modified Jones Model</td>
<td>0.007</td>
<td>0.064</td>
<td>0.044</td>
<td>.001 **</td>
</tr>
</tbody>
</table>

Panel D: Test of difference in Earnings Management by Cluster

<table>
<thead>
<tr>
<th></th>
<th>C1 vs. C2</th>
<th>C2 vs. C3</th>
<th>C1 vs. C3</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healy Model</td>
<td>0.028</td>
<td>0.010</td>
<td>0.038</td>
<td>.001 **</td>
</tr>
<tr>
<td>DeAngelo Model</td>
<td>0.021</td>
<td>-0.012</td>
<td>0.020</td>
<td>.003 **</td>
</tr>
<tr>
<td>Jones Model</td>
<td>-0.081</td>
<td>0.038</td>
<td>0.097</td>
<td>.004 **</td>
</tr>
<tr>
<td>Modified Jones Model</td>
<td>-0.057</td>
<td>0.020</td>
<td>0.044</td>
<td>.009 **</td>
</tr>
</tbody>
</table>

**Coefficient is significant at the 0.01 level (2-tailed).**

Panel C in Table 4.3 reports the earnings management results from four different models of discretionary accruals in each cluster. The results do not provide a clear indication of which cluster resulted in a higher level of earnings management. However, the p-value indicates that there is a significant difference in earnings management between each model that was used to estimate discretionary accruals. One explanation for this deviation is the difference in accounting standards amongst each cluster.
Panel D in Table 4.3 reports results based on the difference in means. The result suggests that significant differences exist in earnings management between each cluster. One possible explanation is that each cultural dimension might play an important role in earnings management. In the following section of this study, we will use a series of regression analyses to demonstrate the significance of the cultural variable in earnings management.

4.4 Regression Analysis

4.4.1 Regression Results based on Individual Countries

Table 4.4 reports the regression results by country. Four discretionary accruals serve as the dependent variables for the regression. As an example, column 3 reports the regression results that use discretionary accruals from the Healy model as the dependent variable.

4.4.1.1 Regression Results from the Three Asian Countries

Results from Table 4.4 panels A to C suggest that the relationship between firm performance (FP) and earnings management is negative among the Asian countries. This result suggests that we should reject hypothesis number 4. Consistent with our findings, Gong et al. (2008) documented a significant negative association between the abnormal accrual and both future operating performance and future stock performance post IPO. One explanation for this negative relationship is that Indian firms used the earnings management to report higher earnings and show investors the growth opportunity during
the pre-IPO stage. Firms then reversed the income increasing accruals after the IPO and, therefore, the profitability of the firm significantly decreased post-IPO.

Results from Table 4.4 panels B and C show a significant relationship between debt to equity ratio (D/E) and earnings management in Hong Kong and Japan. As we discussed in Chapter Three, when a firm’s debt to equity ratio is high, firms would report higher earnings to avoid breach of bank covenants. Therefore, we accept hypothesis number 1.

Results from Table 4.4 panel C show a significant relationship between business cycles and earnings management. Therefore, we cannot reject hypothesis 4 that discretionary accruals are higher during the contraction period.

The adjusted $R^2$ is relatively high for the Jones and Modified Jones models in India. The high adjusted $R^2$ suggests that the percentage of variation in the dependent variables can be explained well by the independent variables. The F statistics suggest that most of the Jones and Modified Jones models in the three countries are significant. In other words, Jones and Modified Jones models better explain earnings management in the Asian countries.
### Table 4.4

**RELATIONSHIP BETWEEN FINANCIAL VARIABLES AND EARNINGS MANAGEMENT BASED ON COUNTRIES**

**Panel A – INDIA**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Healy</th>
<th>DeAngelo</th>
<th>Jones</th>
<th>Modified Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.001</td>
<td>0.008</td>
<td>0.043</td>
<td>0.029</td>
</tr>
<tr>
<td></td>
<td>(0.890)</td>
<td>(0.858)</td>
<td>(0.370)</td>
<td>(0.518)</td>
</tr>
<tr>
<td>Debt to Equity Ratio</td>
<td>-0.01</td>
<td>-0.013</td>
<td>0.007</td>
<td>0.014</td>
</tr>
<tr>
<td></td>
<td>(0.945)</td>
<td>(0.780)</td>
<td>(0.171)</td>
<td>(0.767)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>8.2E-9</td>
<td>6.4E-7</td>
<td>7.2E-6</td>
<td>8.4E-6</td>
</tr>
<tr>
<td></td>
<td>(0.990)</td>
<td>(0.937)</td>
<td>(0.378)</td>
<td>(0.286)</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>-0.005</td>
<td>0.003</td>
<td>-26.026</td>
<td>-22.226</td>
</tr>
<tr>
<td></td>
<td>(0.908)</td>
<td>(0.996)</td>
<td>(0.001)</td>
<td>** (0.001)</td>
</tr>
<tr>
<td>Business Cycle</td>
<td>0.002</td>
<td>0.021</td>
<td>-0.060</td>
<td>-0.044</td>
</tr>
<tr>
<td></td>
<td>(0.634)</td>
<td>(0.654)</td>
<td>(0.246)</td>
<td>(0.374)</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>-0.001</td>
<td>-0.025</td>
<td>0.049</td>
<td>0.038</td>
</tr>
<tr>
<td></td>
<td>(0.945)</td>
<td>(0.468)</td>
<td>(0.193)</td>
<td>(0.281)</td>
</tr>
<tr>
<td>Tax rate</td>
<td>-0.002</td>
<td>-0.035</td>
<td>-0.050</td>
<td>-0.128</td>
</tr>
<tr>
<td></td>
<td>(0.820)</td>
<td>(0.773)</td>
<td>(0.703)</td>
<td>(0.304)</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.001</td>
<td>0.002</td>
<td>0.447</td>
<td>0.397</td>
</tr>
<tr>
<td>F Statistics</td>
<td>0.073</td>
<td>0.217</td>
<td>36.306</td>
<td>56.529</td>
</tr>
</tbody>
</table>

**N = 1539**

**Notes:**

**Coefficient is significant at the 0.01 level (2-tailed).**

* Coefficient is significant at the 0.05 level (2-tailed).

Top number is the coefficient, number below in brackets is the p-value.
## Panel B - Hong Kong

<table>
<thead>
<tr>
<th>Variable</th>
<th>Healy</th>
<th>DeAngelo</th>
<th>Jones</th>
<th>Modified Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.009</td>
<td>0.008</td>
<td>-0.012</td>
<td>-2.876</td>
</tr>
<tr>
<td></td>
<td>(0.350)</td>
<td>(0.351)</td>
<td>(0.462)</td>
<td>(0.403)</td>
</tr>
<tr>
<td>Debt to Equity Ratio</td>
<td>0.001</td>
<td>0.011</td>
<td>0.015</td>
<td>0.511</td>
</tr>
<tr>
<td></td>
<td>(0.857)</td>
<td>(0.016)</td>
<td>*</td>
<td>(0.089) *</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-6.4E-9</td>
<td>-2.5E-8</td>
<td>8.3E-9</td>
<td>201E-6</td>
</tr>
<tr>
<td></td>
<td>(0.671)</td>
<td>(0.114)</td>
<td>(0.749)</td>
<td>(0.698)</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>-0.303</td>
<td>-0.539</td>
<td>-0.079</td>
<td>-0.08</td>
</tr>
<tr>
<td></td>
<td>(1.4E-4)</td>
<td>**</td>
<td>(1.3E-14)</td>
<td>**</td>
</tr>
<tr>
<td>Business Cycle</td>
<td>-0.009</td>
<td>-0.024</td>
<td>-0.007</td>
<td>2.879</td>
</tr>
<tr>
<td></td>
<td>(0.354)</td>
<td>(0.003)</td>
<td>**</td>
<td>(0.664) **</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>5.7E-6</td>
<td>1.6E-5</td>
<td>-2.0E-5</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.937)</td>
<td>(0.801)</td>
<td>(0.871)</td>
<td>(0.945)</td>
</tr>
<tr>
<td>Tax rate</td>
<td>0.035</td>
<td>-0.004</td>
<td>-0.063</td>
<td>-12.098</td>
</tr>
<tr>
<td></td>
<td>(0.251)</td>
<td>(0.882)</td>
<td>(0.216)</td>
<td>(0.266)</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.008</td>
<td>0.056</td>
<td>0.007</td>
<td>0.006</td>
</tr>
<tr>
<td>F Statistics</td>
<td>2.492</td>
<td>12.684</td>
<td>1.064</td>
<td>2.247</td>
</tr>
</tbody>
</table>

N = 1178

**Notes:**

** Coefficient is significant at the 0.01 level (2-tailed).
* Coefficient is significant at the 0.05 level (2-tailed).

Top number is the coefficient, number below in brackets is the p-value.
### Panel C – Japan

<table>
<thead>
<tr>
<th>Variable</th>
<th>Healy</th>
<th>DeAngelo</th>
<th>Jones</th>
<th>Modified Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.1E-06</td>
<td>-0.022</td>
<td>-0.114</td>
<td>-0.084</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>**(2.4E-5)</td>
<td>**(2E-78)</td>
<td>**(1E-64)</td>
</tr>
<tr>
<td>Debt to Equity Ratio</td>
<td>2.7E-7</td>
<td>0.001</td>
<td>0.003</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(7.5E-2)</td>
<td>**(7E-2)</td>
<td>**(1.2E-5)</td>
<td>**(4E-10)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-8E-13</td>
<td>-1.2E-8</td>
<td>7.8E-8</td>
<td>2.4E-8</td>
</tr>
<tr>
<td></td>
<td>(0.792)</td>
<td>(0.413)</td>
<td>(8.9E-6)</td>
<td>(0.091)</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>-9.4E-5</td>
<td>0.010</td>
<td>-0.923</td>
<td>-0.415</td>
</tr>
<tr>
<td></td>
<td>(2.2E-7)</td>
<td>**(0.900)</td>
<td>(1E-22)</td>
<td>**(6.5E-8)</td>
</tr>
<tr>
<td>Business Cycle</td>
<td>-3.4E-6</td>
<td>-0.024</td>
<td>-0.022</td>
<td>-0.017</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>**(0.001)</td>
<td>**(0.001)</td>
<td>**(0.001)</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>6.2E-9</td>
<td>-1.7E-5</td>
<td>-6.5E-6</td>
<td>-9.5E-5</td>
</tr>
<tr>
<td></td>
<td>(0.411)</td>
<td>(0.609)</td>
<td>(0.867)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Tax rate</td>
<td>2.3E-8</td>
<td>1.1E-4</td>
<td>9.3E-5</td>
<td>1.7E-4</td>
</tr>
<tr>
<td></td>
<td>(0.666)</td>
<td>(0.648)</td>
<td>(0.735)</td>
<td>(0.463)</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.006</td>
<td>0.004</td>
<td>0.027</td>
<td>0.017</td>
</tr>
</tbody>
</table>

N = 4878

Notes:

**Coefficient is significant at the 0.01 level (2-tailed).**

*Coefficient is significant at the 0.05 level (2-tailed).*

Top number is the coefficient, number below in brackets is the p-value.
4.4.1.2 Regression results from the two European countries

Healy and Jones's model suggests there is a positive relationship between firm performance and earnings management in the UK using the DeAngelo model, and the Jones model suggests the same relationship in France. Moreover, the regression result indicates there are more discretionary accruals during the contraction period in France. The results suggest we should accept hypotheses 3 and 4.

The F-statistic value indicates the Jones model provides the most statistical power to explain the determinants of earnings management in the two European countries. While Dechow et al. (1995) concluded that the Modified Jones model provides the most powerful test of earnings management, we add to the current literature in concluding that the Jones model is the best model to use to explain earnings management in European countries.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Healy</th>
<th>DeAngelo</th>
<th>Jones</th>
<th>Modified Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Debt to Equity Ratio</strong></td>
<td>(0.487)</td>
<td>(0.752)</td>
<td>(3.7E-7) **</td>
<td>(1.2E-7) **</td>
</tr>
<tr>
<td></td>
<td>-0.001</td>
<td>-4.1E-4</td>
<td>0.002</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.976)</td>
<td>(0.935)</td>
<td>(0.657)</td>
<td>(0.572)</td>
</tr>
<tr>
<td><strong>Firm Size</strong></td>
<td>2.0E-6</td>
<td>-1.4E-7</td>
<td>-8.1E-7</td>
<td>5.3E-7</td>
</tr>
<tr>
<td></td>
<td>(0.899)</td>
<td>(0.952)</td>
<td>(0.625)</td>
<td>(0.758)</td>
</tr>
<tr>
<td><strong>Firm Performance</strong></td>
<td>4.333</td>
<td>0.284</td>
<td>0.746</td>
<td>0.251</td>
</tr>
<tr>
<td></td>
<td>(0.001) **</td>
<td>(0.144)</td>
<td>(4.5E-8) **</td>
<td>(0.073)</td>
</tr>
<tr>
<td><strong>Business Cycle</strong></td>
<td>-0.092</td>
<td>-0.020</td>
<td>-0.042</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>(0.634)</td>
<td>(0.497)</td>
<td>(0.046)</td>
<td>(0.947)</td>
</tr>
<tr>
<td><strong>Earnings Per Share</strong></td>
<td>-1.9E-4</td>
<td>-3.4E-6</td>
<td>-7.0E-5</td>
<td>2.81E-5</td>
</tr>
<tr>
<td></td>
<td>(0.866)</td>
<td>(0.984)</td>
<td>(0.563)</td>
<td>(0.824)</td>
</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>9.74E-5</td>
<td>5.22E-5</td>
<td>2.00E-4</td>
<td>-3.91E-5</td>
</tr>
<tr>
<td></td>
<td>(0.988)</td>
<td>(0.958)</td>
<td>(0.771)</td>
<td>(0.956)</td>
</tr>
<tr>
<td><strong>Adjusted R^2</strong></td>
<td>0.001</td>
<td>-0.001</td>
<td>0.005</td>
<td>-4E-4</td>
</tr>
<tr>
<td><strong>F Statistics</strong></td>
<td>2.052</td>
<td>0.442</td>
<td>5.891</td>
<td>0.602</td>
</tr>
</tbody>
</table>

**Notes:**

** Coefficient is significant at the 0.01 level (2-tailed).
* Coefficient is significant at the 0.05 level (2-tailed).

Top number is the coefficient, number below in brackets is the p-value.
Panel E – France

<table>
<thead>
<tr>
<th>Variable</th>
<th>Healy</th>
<th>DeAngelo</th>
<th>Jones</th>
<th>Modified Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.105)</td>
<td>(0.699)</td>
<td>(4E-6)</td>
<td>** (0.031)</td>
</tr>
<tr>
<td>Debt to Equity Ratio</td>
<td>-4.4E-4</td>
<td>9.5E-09</td>
<td>-0.006</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.878)</td>
<td>(0.973)</td>
<td>(0.048)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>(0.973)</td>
<td>1E-12</td>
<td>-1.6E-8</td>
<td>(0.737)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>6E-10</td>
<td>(0.367)</td>
<td>(0.405)</td>
<td>(3.9E-5) **</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>-0.079</td>
<td>0.000</td>
<td>0.419</td>
<td>0.109</td>
</tr>
<tr>
<td></td>
<td>(0.671)</td>
<td>(0.004)</td>
<td>(0.029)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>(0.973)</td>
<td>(0.367)</td>
<td>(0.405)</td>
<td>(0.490)</td>
</tr>
<tr>
<td>Business Cycle</td>
<td>-0.032</td>
<td>-3.4E-6</td>
<td>-0.025</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.009)</td>
<td>(0.070)</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.009)</td>
<td>(0.070)</td>
<td>**</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>-5.0E-4</td>
<td>-5.9E-8</td>
<td>-3.4E-3</td>
<td>-4.4E-4</td>
</tr>
<tr>
<td></td>
<td>(0.510)</td>
<td>(0.438)</td>
<td>(1.4E-5)</td>
<td>**</td>
</tr>
<tr>
<td>Tax rate</td>
<td>0.026</td>
<td>4.3E-7</td>
<td>0.027</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.321)</td>
<td>(0.868)</td>
<td>(0.312)</td>
<td>(0.960)</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.001</td>
<td>0.014</td>
<td>0.022</td>
<td>0.016</td>
</tr>
<tr>
<td>F Statistics</td>
<td>1.221</td>
<td>3.307</td>
<td>4.795</td>
<td>3.670</td>
</tr>
</tbody>
</table>

N = 998

Notes:

** Coefficient is significant at the 0.01 level (2-tailed).
* Coefficient is significant at the 0.05 level (2-tailed).

Top number is the coefficient, number below in brackets is the p-value
4.4.1.3 Regression Results from the Two North American Countries

Table 4.4 panels F and G suggest a negative relationship between firm size, firm performance and earnings management. Panel F also indicates that the discretionary accruals are higher during the contraction period. These results are consistent with our findings in the Asian and European countries.

Although we did not find significant results from the tax rate variable in the Asian and European countries, the relationship between the tax rate variable and earnings management is highly significant in Canada and the US. Our findings are consistent with Dhaliwal et al. (2004), who found evidence that reported taxes are used to determine earnings management in United States and Canada. The resulting difference in tax variables might be due to the cultural difference among the countries. The North American countries have the highest Individualism and lowest Power Distance. These two cultural factors have likely contributed to differences among these countries.

F statistic results from Canada and the United States clearly indicate that the Jones and Modified Jones models provide more powerful tests of earnings managements. Our result is consistent with Dechow’s (1995) findings.
### Panel F - Canada

<table>
<thead>
<tr>
<th>Variable</th>
<th>Healy</th>
<th>DeAngelo</th>
<th>Jones</th>
<th>Modified Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1.2E-6)</td>
<td>(2.0E-10)</td>
<td>(2.6E-4)</td>
<td>(4.0E-5)</td>
</tr>
<tr>
<td>Debt to Equity Ratio</td>
<td>1.1E-5</td>
<td>-7.6E-5</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.555)</td>
<td>(0.946)</td>
<td>(0.554)</td>
<td>(0.473)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-5.0E-10</td>
<td>-1.3E-8</td>
<td>-1.6E-7</td>
<td>-1.7E-7</td>
</tr>
<tr>
<td></td>
<td>(0.420)</td>
<td>(0.721)</td>
<td>(1.1E-05)</td>
<td>(5.7E-06)</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>-0.012</td>
<td>-0.498</td>
<td>-0.179</td>
<td>-0.268</td>
</tr>
<tr>
<td></td>
<td>(1.0E-32)</td>
<td>(1.3E-16)</td>
<td>(0.002)</td>
<td>(5.0E-6)</td>
</tr>
<tr>
<td>Business Cycle</td>
<td>-2.8E-4</td>
<td>0.022</td>
<td>-0.013</td>
<td>-0.014</td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
<td>(0.002)</td>
<td>(0.072)</td>
<td>(0.046)</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>-2.2E-8</td>
<td>1.0E-5</td>
<td>-1.2E-5</td>
<td>-1.3E-5</td>
</tr>
<tr>
<td></td>
<td>(0.975)</td>
<td>(0.806)</td>
<td>(0.775)</td>
<td>(0.758)</td>
</tr>
<tr>
<td>Tax rate</td>
<td>1.7E-4</td>
<td>0.006</td>
<td>0.014</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>(4.6E-7)</td>
<td>(0.003)</td>
<td>(2.7E-11)</td>
<td>(1.5E-9)</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.035</td>
<td>0.046</td>
<td>0.034</td>
<td>0.083</td>
</tr>
</tbody>
</table>

**N = 1879**

**Notes:**

** Coefficient is significant at the 0.01 level (2-tailed).
* Coefficient is significant at the 0.05 level (2-tailed).

Top number is the coefficient, number below in brackets is the p-value.
### Panel G - United States

<table>
<thead>
<tr>
<th>Variable</th>
<th>Healy</th>
<th>DeAngelo</th>
<th>Jones</th>
<th>Modified Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.441)</td>
<td>(0.002)</td>
<td>(3E-12)</td>
<td>(3E-15)***</td>
</tr>
<tr>
<td><strong>Debt to Equity Ratio</strong></td>
<td>-2.2E-5</td>
<td>-1.4E-3</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.687)</td>
<td>(0.042)</td>
<td>(0.091)</td>
<td>(0.065)</td>
</tr>
<tr>
<td><strong>Firm Size</strong></td>
<td>6E-10</td>
<td>-1.9E-8</td>
<td>-7.5E-8</td>
<td>-8.4E-8</td>
</tr>
<tr>
<td></td>
<td>(0.815)</td>
<td>(0.593)</td>
<td>(0.015)</td>
<td>(0.012)</td>
</tr>
<tr>
<td><strong>Firm Performance</strong></td>
<td>-0.019</td>
<td>-0.004</td>
<td>-0.280</td>
<td>-0.267</td>
</tr>
<tr>
<td></td>
<td>(4.4E-5)</td>
<td>(0.943)</td>
<td>(6.4E-8)</td>
<td>(2.1E-6) **</td>
</tr>
<tr>
<td><strong>Business Cycle</strong></td>
<td>-5.3E-04</td>
<td>-0.010</td>
<td>-0.001</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.472)</td>
<td>(0.281)</td>
<td>(0.874)</td>
<td>(0.903)</td>
</tr>
<tr>
<td><strong>Earnings Per Share</strong></td>
<td>-3.4E-8</td>
<td>1.0E-5</td>
<td>6.2E-6</td>
<td>5.6E-6</td>
</tr>
<tr>
<td></td>
<td>(0.979)</td>
<td>(0.530)</td>
<td>(0.660)</td>
<td>(0.712)</td>
</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>-1.8E-4</td>
<td>-0.010</td>
<td>0.019</td>
<td>0.022</td>
</tr>
<tr>
<td></td>
<td>(0.757)</td>
<td>(0.142)</td>
<td>(2.1E-3)</td>
<td>(1.3E-3) **</td>
</tr>
<tr>
<td><strong>Adjusted R^2</strong></td>
<td>0.002</td>
<td>3.8E-4</td>
<td>0.008</td>
<td>0.007</td>
</tr>
<tr>
<td><strong>F Statistics</strong></td>
<td>2.897</td>
<td>1.377</td>
<td>8.781</td>
<td>7.898</td>
</tr>
</tbody>
</table>

N = 5998

**Notes:**

** Coefficient is significant at the 0.01 level (2-tailed).
* Coefficient is significant at the 0.05 level (2-tailed).

Top number is the coefficient, number below in brackets is the p-value

In summary, the results from Table 4.4 suggest there is a difference on determinants of earnings management amongst different countries. Overall, we found that the Jones and Modified Jones models provide the most statistical power to explain the determinants of earnings management. One explanation of this difference between countries might be due to the difference in accounting principles. For example, US and Canadian firms use Generally Accepted Accounting Principle to report their financial statements. The European firms use International Financial Reporting Standards. Besides
the variations in accounting standards, cultural and institutional factors play an important role in explaining earnings managements. In the following section, we will use multiple regression methods to examine if a country's cultural and institutional variables contribute to the international difference in earnings management.

**4.4.2 Regression Analysis amongst Seven Countries**

The Cluster Analysis suggests a systematic relationship exists between cultural variables and earnings management across a sample of seven countries. In addition, the regression results from individual countries suggest many of the financial variables are determinants of earnings management. Finally, an OLS multiple regression analysis was conducted to further examine the relationship between financial, cultural, and institutional variables and earnings management. Table 4.5 reports the regression results from equation 3.1 to 3.4 (Model 1 to 4) for the period 1992-2011. The relatively low adjusted $R^2$ suggests that the percentage of variation in the dependent variables is not explained well by the independent variables. However, the F statistic results suggest most of the models developed in this study are highly significant.

**4.4.2.1 Regression Results with DA (Jones) as a Dependent Variable**

Table 4.5 Panel A uses discretionary accruals from the Jones Model as a dependent variable. The results from all models are consistent. As expected, among the financial variables, there is a positive correlation between the D/E ratio and earnings management (hypothesis 1). Also, there is a positive relationship between firm performance and discretionary accruals (hypothesis 4). Furthermore, business cycle and discretionary accruals are negatively correlated (hypothesis 3). The smaller-sized firms
require high leverage to finance the operations and investments during contraction periods because the cost of additional equity financing might be too high and investors are not looking to invest in the small companies during recession periods. Therefore, managers are motivated to report higher earnings and show they have sufficient cash flow to banks, and to demonstrate that they are able to repay the loan in the near future in order to obtain additional debt financing.

The cultural and institutional variables are significant in these models. As expected, there is a positive relationship between Uncertain Avoidance (hypothesis 6), Individualism (hypothesis 7), Power Distance (hypothesis 8) and earnings management. These results indicate that cultural factors are significant in explaining a portion of the variation in earnings management even after controlling for the mitigating effect of institutional factors. The above findings are consistent with the findings of Leuz et al. (2003) and Timothy (2008). The F-statistics suggest that all the models (Model 1 to 4) are significant.

4.4.2.2 Regression results with DA (Modified Jones) as a dependent variable

Table 4.5 Panel B reports the results of the regression analysis when discretionary accruals from the Modified Jones model were used. Consistent with our finding in section 4.4.2.1, Firm Performance (FP) is a significant determinant of earnings management. However, most of the cultural and institutional variables were not found to be significant. Moreover, F statistics suggest the equation 3.1 to 3.4 (Model 1 to Model 4) were not significant when measuring discretionary accruals from the Modified Jones model as a dependent variable. This finding is opposite to Dechow’s (1995) result which suggested
that the Modified Jones model provides the most powerful test of earnings management. One explanation is that the accounting standard difference contributes to the low power of the Modified Jones model. At least two sets of accounting standards were used in our samples, and the Modified Jones model was unable to detect earnings manipulation on revenue through misstatement of accounts receivable in Asian and European countries.

4.4.2.3 Regression results with DA (Healy) and DA (DeAngelo)

Table 4.5 panel C uses discretionary accruals from the Healy Model as a dependent variable. The relationship between firm performance and earnings management is positive (hypothesis 4). No other variables are significant. Table 4.5 panel D uses the DeAngelo model of discretionary accruals as a dependent variable. All hypotheses are rejected from this table. F-statistics suggest that equations developed in this study are not significant when the Healy and DeAngelo accrual models served as dependent variables. This result is consistent with many prior studies.

In summary, the Jones model provides the most statistically significant results when financial, cultural and institutional variables are used to explain earnings management on the international level.
Table 4.5
REGRESSION RESULTS ON EARNINGS MANAGEMENT MODELS

Panel A: Regression results with DA (Jones) as dependent variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.009</td>
<td>-0.128</td>
<td>-0.131</td>
<td>-1.255</td>
</tr>
<tr>
<td>(0.102)</td>
<td>(0.001)</td>
<td>**</td>
<td>(0.001)</td>
<td>**</td>
</tr>
<tr>
<td>Debt to Equity Ratio (D/E)</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>(0.041)</td>
<td>(0.409)</td>
<td>(0.441)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size (FS)</td>
<td>-3E-9</td>
<td>-2.883</td>
<td>-3E-9</td>
<td></td>
</tr>
<tr>
<td>(0.001)</td>
<td>(0.887)</td>
<td>(0.899)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Performance (FP)</td>
<td>0.395</td>
<td>0.305</td>
<td>0.313</td>
<td></td>
</tr>
<tr>
<td>(0.001)</td>
<td>(9E-11)</td>
<td>(4E-11)</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Business Cycle (BC)</td>
<td>-0.013</td>
<td>-0.011</td>
<td>-0.012</td>
<td></td>
</tr>
<tr>
<td>(0.006)</td>
<td>(0.050)</td>
<td>**</td>
<td>(0.049)</td>
<td>*</td>
</tr>
<tr>
<td>Earnings Per Share (EPS)</td>
<td>-4E-06</td>
<td>-7E-06</td>
<td>-7E-06</td>
<td></td>
</tr>
<tr>
<td>(0.826)</td>
<td>(0.729)</td>
<td>(0.705)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax rate (TR)</td>
<td>1E-04</td>
<td>2E-04</td>
<td>2E-04</td>
<td></td>
</tr>
<tr>
<td>(0.662)</td>
<td>(0.487)</td>
<td>(0.488)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance (UA)</td>
<td>0.002</td>
<td>0.002</td>
<td>0.005</td>
<td></td>
</tr>
<tr>
<td>(0.001)</td>
<td>(5E-65)</td>
<td>**</td>
<td>(2E-08)</td>
<td>**</td>
</tr>
<tr>
<td>Individualism (IND)</td>
<td>0.003</td>
<td>0.003</td>
<td>0.005</td>
<td></td>
</tr>
<tr>
<td>(0.001)</td>
<td>(1E-32)</td>
<td>**</td>
<td>(3E-10)</td>
<td>**</td>
</tr>
<tr>
<td>Power Distance (PD)</td>
<td>0.001</td>
<td>0.001</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td>(0.001)</td>
<td>(8E-05)</td>
<td>**</td>
<td>(3E-04)</td>
<td>**</td>
</tr>
<tr>
<td>Outside Investor Rights (OIR)</td>
<td></td>
<td></td>
<td></td>
<td>0.132</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.004)</td>
</tr>
<tr>
<td>Legal Enforcement (ENF)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.013)</td>
</tr>
<tr>
<td>Securities Regulations (REG)</td>
<td></td>
<td></td>
<td></td>
<td>(0.691)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.001)</td>
</tr>
<tr>
<td>Legal System (LEG)</td>
<td>0.315</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.002)</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.004</td>
<td>0.046</td>
<td>0.047</td>
<td>0.048</td>
</tr>
<tr>
<td>F Statistics</td>
<td>15.299</td>
<td>374.436</td>
<td>130.440</td>
<td>98.707</td>
</tr>
</tbody>
</table>

** Coefficient is significant at the 0.01 level (1-tailed).
* Coefficient is significant at the 0.05 level (1-tailed).
Table 4.5 (continued)

**Panel B: Regression results with DA (Modified Jones) as dependent variable**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.149</td>
<td>2.166</td>
<td>1.949</td>
<td>-12.398</td>
</tr>
<tr>
<td></td>
<td>(0.342)</td>
<td>(0.022) **</td>
<td>(0.042)</td>
<td>(0.254)</td>
</tr>
<tr>
<td>Debt to Equity Ratio (D/E)</td>
<td>-0.002</td>
<td>0.001</td>
<td>5E-04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.933)</td>
<td>(0.965)</td>
<td>(0.980)</td>
<td></td>
</tr>
<tr>
<td>Firm Size (FS)</td>
<td>-2.3E-8</td>
<td>1.4E-8</td>
<td>-3.5E-7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.969)</td>
<td>(0.981)</td>
<td>(0.610)</td>
<td></td>
</tr>
<tr>
<td>Firm Performance (FP)</td>
<td>3.457</td>
<td>3.556</td>
<td>3.120</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4.2E-5) **</td>
<td>(3.3E-5) **</td>
<td>(3.4E-5) **</td>
<td></td>
</tr>
<tr>
<td>Business Cycle (BC)</td>
<td>0.124</td>
<td>0.125</td>
<td>0.117</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.457)</td>
<td>(0.452)</td>
<td>(0.481)</td>
<td></td>
</tr>
<tr>
<td>Earnings Per Share (EPS)</td>
<td>-3.3E-5</td>
<td>-2.5E-5</td>
<td>-3.2E-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.947)</td>
<td>(0.975)</td>
<td>(0.952)</td>
<td></td>
</tr>
<tr>
<td>Tax rate (TR)</td>
<td>-3.2E-4</td>
<td>-2.8E-4</td>
<td>-1.5E-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.972)</td>
<td>(0.979)</td>
<td>(0.991)</td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance (UA)</td>
<td>-0.009</td>
<td>-0.009</td>
<td>-0.034</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.012) *</td>
<td>(0.014) *</td>
<td>(0.178)</td>
<td></td>
</tr>
<tr>
<td>Individualism (IND)</td>
<td>-0.016</td>
<td>-0.016</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.015) *</td>
<td>(0.015) *</td>
<td>(0.697)</td>
<td></td>
</tr>
<tr>
<td>Power Distance (PD)</td>
<td>-0.011</td>
<td>-0.010</td>
<td>0.065</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.220)</td>
<td>(0.261)</td>
<td>(0.137)</td>
<td></td>
</tr>
<tr>
<td>Outside Investor Rights (OIR)</td>
<td></td>
<td></td>
<td></td>
<td>0.920</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.461)</td>
</tr>
<tr>
<td>Legal Enforcement (ENF)</td>
<td></td>
<td></td>
<td></td>
<td>0.617</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.010) **</td>
</tr>
<tr>
<td>Securities Regulations (REG)</td>
<td></td>
<td></td>
<td></td>
<td>-4.533</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.450)</td>
</tr>
<tr>
<td>Legal System (LEG)</td>
<td></td>
<td></td>
<td></td>
<td>2.068</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.450)</td>
</tr>
<tr>
<td>N</td>
<td>23,473</td>
<td>23,473</td>
<td>23,473</td>
<td>23,473</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.001</td>
<td>0.03</td>
<td>0.04</td>
<td>0.08</td>
</tr>
<tr>
<td>F Statistics</td>
<td>1.270</td>
<td>3.043</td>
<td>1.901</td>
<td>2.508</td>
</tr>
</tbody>
</table>

**Coefficient is significant at the 0.01 level (2-tailed).**

*Coefficient is significant at the 0.05 level (2-tailed).*
### Table 4.5 (continued)

**Panel C: Regression results with DA (Healy) as dependent variable**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.047</td>
<td>-0.175</td>
<td>-0.216</td>
<td>-1.586</td>
</tr>
<tr>
<td></td>
<td>(0.298)</td>
<td>(0.535)</td>
<td>(0.448)</td>
<td>(0.625)</td>
</tr>
<tr>
<td>Debt to Equity Ratio (D/E)</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.872)</td>
<td>(0.918)</td>
<td>(0.922)</td>
<td></td>
</tr>
<tr>
<td>Firm Size (FS)</td>
<td>4.2E-8</td>
<td>2.4E-8</td>
<td>2.3E-8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.788)</td>
<td>(0.913)</td>
<td>(0.883)</td>
<td></td>
</tr>
<tr>
<td>Firm Performance (FP)</td>
<td>1.579</td>
<td>1.620</td>
<td>1.614</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4.8E-5) **</td>
<td>(3.2E-5) **</td>
<td>(5.3E-0) **</td>
<td></td>
</tr>
<tr>
<td>Business Cycle (BC)</td>
<td>-0.019</td>
<td>-0.020</td>
<td>-0.020</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.697)</td>
<td>(0.693)</td>
<td>(0.694)</td>
<td></td>
</tr>
<tr>
<td>Earnings Per Share (EPS)</td>
<td>-1.4E-5</td>
<td>-1.5E-5</td>
<td>-2.3E-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.925)</td>
<td>(0.931)</td>
<td>(0.908)</td>
<td></td>
</tr>
<tr>
<td>Tax rate (TR)</td>
<td>8.4E-6</td>
<td>7.7E-6</td>
<td>3.4E-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.998)</td>
<td>(0.998)</td>
<td>(0.992)</td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance (UA)</td>
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<td>0.001</td>
<td>0.001</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.530)</td>
<td>(0.506)</td>
<td>(0.717)</td>
</tr>
<tr>
<td>Individualism (IND)</td>
<td>0.001</td>
<td>0.001</td>
<td></td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>(0.806)</td>
<td>(0.832)</td>
<td>(0.761)</td>
<td></td>
</tr>
<tr>
<td>Power Distance (PD)</td>
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<td>0.002</td>
<td></td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>(0.527)</td>
<td>(0.440)</td>
<td>(0.602)</td>
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</tr>
<tr>
<td>Outside Investor Rights (OIR)</td>
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<td></td>
<td>0.140</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>(0.706)</td>
</tr>
<tr>
<td>Legal Enforcement (ENF)</td>
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<td></td>
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<td>(0.691)</td>
</tr>
<tr>
<td>Securities Regulations (REG)</td>
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<td></td>
<td>-0.090</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.960)</td>
</tr>
<tr>
<td>Legal System (LEG)</td>
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<td></td>
<td></td>
<td>0.041</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.960)</td>
</tr>
<tr>
<td>N</td>
<td>23,473</td>
<td>23,473</td>
<td>23,473</td>
<td>23,473</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.005</td>
<td>0.007</td>
<td>0.004</td>
<td>0.04</td>
</tr>
<tr>
<td>F Statistics</td>
<td>2.888</td>
<td>0.430</td>
<td>2.151</td>
<td>1.720</td>
</tr>
</tbody>
</table>

**Coefficient is significant at the 0.01 level (2-tailed).**

*Coefficient is significant at the 0.05 level (2-tailed).*
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.013</td>
<td>-0.109</td>
<td>-0.101</td>
<td>0.339</td>
</tr>
<tr>
<td></td>
<td>(0.130)</td>
<td>(0.047)</td>
<td>* (0.067)</td>
<td>* (0.588)</td>
</tr>
<tr>
<td>Debt to Equity Ratio (D/E)</td>
<td>-0.002</td>
<td>-0.001</td>
<td>-0.001</td>
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</tr>
<tr>
<td></td>
<td>(0.150)</td>
<td>(0.286)</td>
<td>(0.286)</td>
<td></td>
</tr>
<tr>
<td>Firm Size (FS)</td>
<td>-2.8E-8</td>
<td>-1.4E-8</td>
<td>-7.3E-9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.579)</td>
<td>(0.664)</td>
<td>(0.841)</td>
<td></td>
</tr>
<tr>
<td>Firm Performance (FP)</td>
<td>0.011</td>
<td>0.015</td>
<td>0.038</td>
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</tr>
<tr>
<td></td>
<td>(0.878)</td>
<td>(0.844)</td>
<td>(0.611)</td>
<td></td>
</tr>
<tr>
<td>Business Cycle (BC)</td>
<td>-0.010</td>
<td>-0.010</td>
<td>-0.010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.300)</td>
<td>(0.305)</td>
<td>(0.319)</td>
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</tr>
<tr>
<td>Earnings Per Share (EPS)</td>
<td>5E-6</td>
<td>6E-6</td>
<td>8E-6</td>
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<tr>
<td></td>
<td>(0.867)</td>
<td>(0.853)</td>
<td>(0.792)</td>
<td></td>
</tr>
<tr>
<td>Tax rate (TR)</td>
<td>3E-05</td>
<td>6E-05</td>
<td>4E-05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.950)</td>
<td>(0.915)</td>
<td>(0.937)</td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance (UA)</td>
<td>-4E-04</td>
<td>-4E-04</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.047)</td>
<td>* (0.066)</td>
<td>(0.097)</td>
<td></td>
</tr>
<tr>
<td>Individualism (IND)</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.102)</td>
<td>(0.107)</td>
<td>(0.695)</td>
<td></td>
</tr>
<tr>
<td>Power Distance (PD)</td>
<td>0.001</td>
<td>0.001</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.009) **</td>
<td>(0.009) **</td>
<td>(0.799)</td>
<td></td>
</tr>
<tr>
<td>Outside Investor Rights (OIR)</td>
<td></td>
<td></td>
<td></td>
<td>-0.015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.835)</td>
</tr>
<tr>
<td>Legal Enforcement (ENF)</td>
<td></td>
<td></td>
<td></td>
<td>-0.021</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.122)</td>
</tr>
<tr>
<td>Securities Regulations (REG)</td>
<td></td>
<td></td>
<td></td>
<td>-0.254</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.463)</td>
</tr>
<tr>
<td>Legal System (LEG)</td>
<td></td>
<td></td>
<td></td>
<td>0.116</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.463)</td>
</tr>
<tr>
<td>N</td>
<td>23,472</td>
<td>23,473</td>
<td>23,473</td>
<td>23,473</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.01</td>
<td>0.05</td>
<td>0.03</td>
<td>0.09</td>
</tr>
<tr>
<td>F Statistics</td>
<td>0.580</td>
<td>4.693</td>
<td>1.835</td>
<td>2.711</td>
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</table>

**Coefficient is significant at the 0.01 level (2-tailed).**

*Coefficient is significant at the 0.05 level (2-tailed).*
CHAPTER FIVE

CONCLUSION

This study documents systematic differences in earnings management across seven countries in the time period from 1992 – 2011. We performed a descriptive cluster analysis to identify groupings of countries with similar cultural dimensions and then showed how earnings management varies systematically across these countries. We also found significant results from our regression analyses which indicate that traditional financial, cultural and institutional variables are key determinants to explain earnings management.

In contrast to most of the existing research, we included four discretionary accrual models to examine which model has the greatest statistical power to explain earnings managements on the international level. Our results suggest that although the Modified Jones model provides the most significant results for US and Canadian firms, the Jones model provides better explanatory power on earnings management in the international context.

While most prior studies were done on North American firms and meaningful results were found, the accounting theory developed in Northern America may not be appropriate for explaining earnings management in other countries. We did not obtain many significant results in Hong Kong, the United Kingdom, or India in our single country regression analysis. One explanation is that the accounting standard differences caused insignificant results. Another explanation is cultural difference. India and Hong Kong were colonies of the United Kingdom for a very long period of time. Although they
are located in different parts of the world, the United Kingdom had a significant cultural impact on both India and Hong Kong. The above findings suggest that there is significant variation amongst the countries due to different cultural dimensions. The results indicate that cultural dimensions cannot be ignored in future earnings management studies.

This paper adds to the literature by suggesting that culture is a potentially important factor to explain international difference in earnings management. Although most of the countries with large securities markets were included in this sample, an obvious extension of this (Hofstede G., National Culture in Four Dimensions, 1983) paper is to expand the number of countries in order to test if the hypotheses developed here will hold true in a larger sample of countries. Future research could investigate the cultural effects of earnings management by comparing the differences that exist on the seven continents.
Bibilography


Hofstede, G. (s.d.).


Levitt, A. I. (s.d.). Remakes by Chairman Arthur Levitt, The" Number Game", *Securities and Exchange Commission, NYU, Centre for Law and Business*.


