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The Effect of Information Asymmetry and Environmental Uncertainty on Earnings Management Practices among Malaysian Technology-Based Firms

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Abstract
This study examines the factors influencing firms to practice earnings management. Specifically, this study examines the effect of information asymmetry and environmental uncertainty on earnings management practices among technology-based firms listed in Bursa Malaysia. Using the annual reports of 83 firms over a period of two years from 2011 to 2012, this study found no significant relationship between information asymmetry and uncertainty environment on the occurrences of earnings management among the firms. Such results indicate that these two factors are not important factors for decision-making. The findings in this study contribute to the users of financial reports particularly the stakeholders in defining the determinants of earnings management practices among firms when it comes to decision-making.

Key words: Information Asymmetry, Environmental Uncertainty, Technology-Based Firms, Malaysia.

1.   Introduction

Financial corporate issues nowadays are becoming of a great concern attributed by the inefficient capital market that is relevant financial reports transparency. These issues implicate the users of financial statements in decision-making in terms of accuracy and accountability of financial information reported by firms. The lack of transparency in financial information provides opportunities for managers to practice earnings management. The managers practice earnings management in manipulating accounting information for their

benefits. That is, managers use earnings management as a tool for manipulating accounting information in order to gain profit through trading capital or share markets.

From the academic perspective, study on earnings management has attracted the interest of many researchers (Ball & Shivakumar, 2008; Dechow & Dichev, 2002; Dechow, Sloan, & Sweeney, 1995; Jones, 1991; Kang & Sivaramakrishnan, 1995; S. P. Kothari, Leone, & Wasley, 2005; Teoh, Welch, & Wong, 1998). Earnings management is defined as manipulation of accounts and financial reports by the management of a firm in order to present a view of the firm which does not accurately reflect its financial position or performance (Fong, 1999). Earnings management often occurs when a firm is unable to meet investor expectations or in periods of volatile earnings and most of the time, is materially misleading. Firms also tend to use earnings management to smooth out fluctuations in earnings and meet stock analysts' earnings projections (Ali & Hwang, 1995; Kothari, 2001; Lev, 1988; Wang, Swift, & Lobo, 1994). The occurrences of earnings management among firms however is one of the disadvantages on their performances as it gives bad impact if such unethical activities are detected by the stakeholders. However, despite the disadvantages of such practices, there are firms that are still involved. In Malaysia, such scenario is not an exception.

Over the last decade, Malaysian firms have been caught with corporate issues and accounting irregularities involving earnings management such as the Transmile Bhd, Megan Media Holdings Bhd and Welli Multi Corp Bhd. These firms were involved with fictitious transactions appearing in the financial statements because of trying to meet their stakeholder's expectation and achieve performance (Selahudin, Zakaria, Sanusi, & Budsaratragoon, 2014). Of consequence, this has led to the increased difficulty in sustaining business operation among the firms due to loss of confidence among the users of the financial statements. The financial information is important for firms in presenting the condition of their operation but consistent to agency theory, conflicting interest of managers may lead to irregularities in reporting financial statements particularly in the rapid development in technology and competitive advantage. However, factors that influence firms to practice earnings management has yet to be fully examined.

This study aims to examine the factors influencing firms to practice earnings management. Specifically, this study examines the effect of information asymmetry and environmental uncertainty on earnings management practices among technology-based firms listed in Bursa Malaysia. The findings in this study would hopefully provide some understanding to the stakeholders and interested parties on the importance of certain factors contributing to earnings management practices. The remainder of this paper is structured as follows. The next section, Section 2 provides a review of relevant literature. Section 3 outlines the research design. The results of this study are presented in section 4. Summary and conclusion are provided in the last section.

2.   Literature Review

Healy and Wahlen in 1999, p.368 has defined earnings management as *"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the firm or to influence* contractual *outcomes that depend on reported accounting numbers"*. The concept of earnings management is the process by which financial information is manipulated to present the financial position and performance of the company, which does not reflect its true position and performance.

Earnings management can be in positive or negative depending on the managers' intention. It provides positive consequences if the managers practice earnings management for the benefit of the firm. On the other hand, it provides negative consequences if the managers practice earnings management practice for their own benefits (Dutta & Fan, 2014). However, studies have suggested information asymmetry could management to practice earnings management (Bhattacharya, Desai, & Venkataraman, 2013; Chaney & Lewis, 1995; Chang, Chen, & Lin, 2004; Dadbeh & Mogharebi, 2013; Dai, Kong, & Wang, 2013; Richardson, 2000). Similarly, studies have also suggested that earnings management could occur in an environment which is uncertain. These two factors have yet to be examined in a Malaysian context. It would be interesting to research further on this issue in order to provide further understanding on the impact of these factors on earnings management practices and consequently, organisational performance.

2.1   Information Asymmetry

Information asymmetry has often been a concern to securities of regulators since it could give significant impact to decisions (Loss & Seligman, 2001; Loss, 1983). Scott (2003) refers information asymmetry as advantage of certain parties in business transactions in obtaining information advantage. These parties such as the managers would use their discretion in preparing and reporting accounting information for their own advantage due to the information differences received between the managers and the external (Guadalupe & Perez-Gonzalez, 2006). For example: In the case of an automobile market between prospective buyers and sellers of cars. A buyer of the car would not be able to know the reasons of seller wanting to sell their cars. The buyer would have to rely on some market statistic measure to determine the value of a class of cars and subsequently, determine the average of the whole market. On the other hand, the seller would have more knowledge of the car. This creates information differences and subsequently, information asymmetry (Akerlof, 1970).

Information asymmetry could cause markets to become inefficient since all market participants do not have access to the information for decision making processes. In that sense, it creates an imbalance of power in transactions which can sometimes cause the transactions to go awry, a kind of market failure in the worst case such as adverse selection, moral hazard and information monopoly (Yeen & Ming, 2000). Information asymmetry could

also be misinforming and affect communication processes. In this situation, it would create unbalanced information between the shareholders, outsiders, investors and management and cause mispricing and not knowing the true value of the firms (Christozov, Chukova, & Mateev, 2006). Of consequence, such situation could affect the financial performance due to decrease in investor's investments and other contributors.

Information can be categorised into informed and non-informed information and lead to information asymmetry between of them. Informed traders such as large shareholders, financial analysts, creditors, and managers at competing firms possess superior price-relevant firm-specific information. On the other hand, such information is not available for non-informed traders (Copeland & Galai, 1983; Glosten & Milgrom, 1985). As such, information asymmetry reduces the information reliability between traders and users.

A group of studies in the analytical model literature have examined the effect of information asymmetry on earnings management practices (Chaney & Lewis, 1995; Dye, 1988; Schipper, 1989; Trueman & Titman., 1988; Warfield, Wild, & Wild., 1995). These studies found that firm's information characteristics lead to the occurrences of earnings management practices. This is because shareholders lack of sufficient resources, incentives or access to relevant information coupled with the difficulty of monitoring manager's actions in the organisations. Of consequence, the existence of information asymmetry between the firm and shareholders would enhance the practices of earnings management. Richardson (2000) provides some empirical evidence that the greater information asymmetry between management and shareholders would increase the likelihood of the firm to manage its accruals and earnings.

Other groups of studies that have used a different setting have also provided similar findings (Beatty & Harris, 1999; Cheng, 2006; Erickson & Wang, 1999). For example: Beatty and Harris (1999) investigated the public and private banks' realisations of securities gains and losses to detect how their earnings management varies. They reported that public banks were consistently involved in earnings management practices as compared to private banks. Apart from that, the portion of public banks current period of securities gains and losses attributable to earnings management was more positively associated with next period's earnings before securities gains and losses. All of these involve because of the management in the public banks have greater information asymmetry rather than to their users like shareholders, stakeholders and investors.

Bushee (1998) found firms with greater institutional ownership are less likely to manipulate earnings by cutting the research and development expenditures because the monitoring by institutional investors reduces the effectiveness of earnings management. Similarly Frankel, Richard, and Li (2004) found that the profit of insider trading is strongly related with characteristics of firms' information environment. This because of the insiders has larger gains when the degree of information asymmetry is greater. Thus, the

effectiveness of earnings management to mislead investors may depend on the information environment of the firm. However, these studies were not conducted in a technology-based setting.

With this argument, this study aims to examine whether information asymmetry influence the occurrences of earnings management practices among technology-based firms listed in Bursa Malaysia. Therefore, since most studies that examined the link between information asymmetry and earnings management have provided positive relationship, the following hypothesis is developed:

H1: *Information asymmetry has positive association with the occurrences of earnings management among technology-based firms.*

2.4   Environmental Uncertainty

Lack of information and knowledge in decision-making might create uncertainty situation (Duncan, 1972; Lawrence & Lorsch, 1967). Uncertainty is equally viewed as a product of unpredictable (Cyert & March, 1963), environmental turbulence (Emery & Trist, 1965), and complexity of influential variables (Galbraith, 1973). Uncertainty is also perceived as a physical feature of the external environment and as a clarification of the perceptual method through which managers interpret their decision situation (Miliken, 1987). Hatch (1997) defined environmental uncertainty through the organisation theorists, which explain that the managers would feel uncertain when they judge the environment to be unpredictable, and this occurs when they lack the information to make the decision.

A body of the earnings management literature has also examined the link between environmental uncertainty and earnings management practices (Duru & Tsitinidis, 2013). These studies suggested that environmental uncertainty is as a rate of change or variability in the organization's external environment, comprising primarily customers, competitors, government regulations and labor unions (Tung, 1979). Environmental uncertainty is high when decentralization and management accounting system characteristics of broad scope and aggregation that cause high managerial performance (Gul & Chia, 1994).

Another group of studies have examined the link between environmental uncertainty and management control system (Schulz, Wu, & Chow, 2010). These studies found that such link create less reliance on incentive-based pay and non-accounting styles of performance evaluation (Bloom, 1998), and more reliance on a budget constrained or profit oriented style (Ross, 1995) of management and participative budgeting (Govindarajan, 1984). Thus, the environmental uncertainty can be linked to the management's consideration in performing their operation business.

Environmental uncertainty is a significant constraint for firms as it affects the strategy and decision making (Child, 1972; Williamson, 1975). Environmental uncertainty can be explained by many research initiatives that focused on the features of the association between a firm and its surroundings (Smirchic & C. Stubbard, 1985), with the continuing rise in environmental dynamism and complexity. The complex environment is an interactive relationship relevant for decision making, which require for a high degree of abstraction in order to produce manageable mappings. While the dynamism environment, it is one of the relevant factors for decision making are in a constant state of change. Although the firms are constrained by the nature of their environment, management team (managers) does have their opportunities, which one of the opportunities is earnings management to respond strategically to uncertainty (Ghosh & Olsen, 2009). According to Dye (1988) and Trueman and Titman (1988) the extent of opportunistic earnings management is likely to be higher when information asymmetry is high.

A body of the literature has suggested that firms involving in high uncertain environments would suffer an acute information asymmetry problem which consequently discourages uninformed traders from trading with the informed traders (Qaqaya & Lipimile, 2008). The managers would also try to engage in income smoothing revealing a stable earnings stream and allows outsiders to make an accurate forecast about future payoffs. Thus, the higher of uncertain environment would give positive association between information asymmetry and the future earnings of smoothers operating (McInnis, 2007). Therefore, there are possibilities of gap in the environmental uncertainty that could affect the earnings management practices among the firms. There are two components of environmental uncertainty namely, dynamism environment and complexity environment.

Environmental dynamism refers to the rate of change (Mohd, Idris, & Momani, 2013) and instability of the environment (Dess & Beard, 1984). Dynamic environments may be characterised by changes in various market elements, such as customer preferences, technology, and competitor structure. Dynamism environment also similar wit turbulence or volatility and are related to the degree of changes of sales (Ansoff, 1981). However, investing in research and development may respond to such uncertainty. According to Aboody and Lev (2000), they found that the relative of research and development investments makes the difficulty for the investors or outsiders to learn the performance of firms. High dynamism environment frequently give the changes of customer demand, technology, and business practices in order to continuously modify the products or services to remain competitiveness. Therefore, the dynamism environment will give effect to information asymmetry for the firms' intention to practice earnings management.

Environmental complexity, on the other hand, is defined as the number of components in a firm's environment and the extent of the firm's knowledge about those components. For example: Agrawal, Jaffe, and Mandelker (1992) found the negative relationship in firms that are motivated by diversification or financial motives such as asset-

stripping and also decreasing their acquisition have an experience of superior long term performance than acquisitions which are focus preserving or increasing. Moreover, Jiraporn, Miller, Yoon, and Young Sang (2008) found that diversified firms do not suffer more severe information asymmetry compared with non-diversified firms. In Lim, Ding, and Thong (2008), they found the relationship between diversification and earnings management, and found that the current abnormal accruals are higher among diversified firms than in non-diversified ones. Therefore, the increasing in difficulty for investors to assess earnings quality in diversified firms; the expected abnormal accruals are lesser share price volatility and stock market valuation.

In sum, environmental uncertainty would induce the variability of a firm's reported earnings. Therefore, firms with high environmental uncertainty would reduce such variability in earnings by smoothing the income numbers. This would give positive relationship between the environmental uncertainties to earnings management in the firms. Since the environmental uncertainty is providing an emphasis towards earnings management, therefore the following hypothesis is developed:

H2: *The uncertainty environment (dynamism and complexity) has positive association with the occurrences of earnings management among technology-based firms.*

3. Research Design

The objective of this study is to examine the factors influencing earnings management practices among technology-based firms in Malaysia. Specifically, this study aims to determine:

i. The influence of information asymmetry on earnings management practices among technology-based firms in Malaysia.
ii. The influence of environmental uncertainty on earnings management practices among technology-based firms in Malaysia.

These objectives are achieved by way of content analyses.

3.1 Sample Selection

Technology-based firms listed in the Bursa Malaysia are chosen as the sample in this study. Such sample is chosen because of two reasons. First, firms in this industry are categorised as specialised industry and susceptible to high uncertainty due to rapid technological advances and highly competitive markets (Balkin, Markman, & L. R. Gomez-Mejia, 2000; Carey & A. Nahavandi, 1996; Schilling & Hill, 1998). Due to its high uncertainty environment, firms in this industry may likely be involved in high information asymmetry that leads to occurrences of earnings management.

Secondly, firms in this industry this industry varies in terms of information asymmetry and environmental uncertainty. In total, there are 93 technology-based firms actively traded on the public stock exchange. Upon reviewing the annual reports of the 93 firms, 10 firms are excluded from this study due to the absence of relevant information, making a feasible sample at 83. The significant selected samples are consistent with the independent variables that are used in this study, which refer to the uncertainty environment and information asymmetry that reflect with the industry environment.

3.2 Research Instrument and Data Collection

This study used content analysis on the annual reports of the technology-based firms using DataStream system as the source of information. The annual reports are the foremost sources of information that can be used to forecast the firm performance, which very useful to the stakeholders in making their decision (Beretta & Bozzolan, 2008). Information for financial disclosure was extracted from the financial statement in the annual report such as the information on total assets, trade receivables and also revenue of the firms

The sample data from technology firms was conducted by cross-sectional over a two year period from year 2011 and 2012, which reflected to the robustness of the development process/program in the country. This industry is involved with the rapid development on the changes of technological advances and is competitive advantage.

3.3 Variable Measurements

The variable measurements are divided by two variables namely, the dependent variable and the independent variables. The dependent variable in this study is earnings management practices and the independent variables are information asymmetry and environmental uncertainty.

3.3.1 Earnings management practices

In measuring this variable, this study used the modified Jones model for interpreting earnings management practices. Modified Jones Model is a powerful model that has been widely used and accepted model in detecting earnings management practices (Dechow et al., 1995; DeFond and Park, 1997; Teoh et al., 1998). The model is presented as follow:

$$E\,(AC)_t = \alpha_0 + \alpha_1\,(\Delta REV_t - \Delta REC_t) + \alpha_2\,(PPE_t)$$

Where:

$E\,(AC)_t$ = Expected normal accrual;

ΔREV_t = Net revenues in year;

ΔREC_t = Net receivables in year t less net receivables in year t – 1;

PPE_t = Property plant and equipment at time t.

3.3.2 Information Asymmetry

Information Asymmetry is measured using a model developed by (Venkatesh & Chiang, 1986). This model is to determine the range of price for stock exchanges for the firms. This model also has been used by several researchers such as by (Ahmadpour & Raeesiyan, 2006; Ghaemi & Watanparadst, 2008). The model is presented as follows:

$$SPREADit = [AP – BP / [(AP + BP) /2]] \times 100$$

Where:

SPREAD = the difference range of the price proposed for exchanging the stocks.

t = year investigated.

BP = the average proposed price for purchasing the stocks of firm I during the period t.

AP = the average proposed price for selling the stocks of firm I during the period t.

According Lo (2012), the model interprets that the greater amount of the range of the difference of the prices proposed for stock exchanges will represent higher information asymmetry.

3.3.3 Environmental Uncertainty

Environmental uncertainty is measured by using a model used by previous studies such as (Habib, Hossain, & Jiang, 2011) and (Garkaz & Mayvan, 2014). They used one equation in order to measure the level of environmental uncertainty. The equation is as follow:

$$CV(Zt) = \frac{\left[\dfrac{\sqrt{(\Sigma(Zt - Zt)2]}}{5}\right]}{Z}$$

Where:

CV = the coefficient of variation (standard deviation of sales / expected return of sales)

Z = the sales observation for each company in each year and the mean of sales value.

t = the year that investigated.

This equation is to determine how much volatility (risk) which assuming in comparison to the amount of returns that is expected from the sales.

4.   Results and Discussion

This section presents the results based on the data analyses. A normality test based on Skewness and Kurtosis was performed to determine the data normality. According to Field (2009), the value of Skewnesss should be on average +2 to -2 and Kurtosis average +3 to -3 in order for the data to be normally distributed. The result in this study shows that the value of Skewness is 0.486 to -1.502 whilst for Kurtosis is 2.555 to -0.019, an indication that the data in this study is normally distributed.

4.1   Descriptive Statistics

Table 1 shows the descriptive statistics for all variables: earnings management (EM), information asymmetry (IA) and environmental uncertainty (EU). Table 1 shows that earnings management practices have faced some changes as a result of management's accounting decision representing managerial interventions into the financial reporting process. This includes all adjustments that allow firms to change from cash basis to accrual basis on the accounting methods or policies (Islam, Ali, & Ahmad, 2011). The results show that the mean change is 6.9890, while the minimum and maximum of the changes that are occurs are between 5.20 and 8.44 respectively. Such results indicate that the changes in management's decision on using the new accounting methods and policies are not too high in this type of industry. This might be because the nature of the industry which is considered high risk if changes are made.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
EM	166	5.20	8.44	6.9890	0.64624
SPREADIT	166	0.67	2.30	1.7329	0.30117
CV	166	-2.70	-.35	-1.3228	0.47356

Table 1 also presents the results on information asymmetry (SPREADIT) and environmental uncertainty (CV). The results show that the mean value for information asymmetry is 1.7329, whilst the minimum and maximum values are 0.67 and 2.30

respectively. The standard deviation for of this variable is represents 0.30117. The results indicate that the information on share price to the investors is considered moderate. Such results indicate that the technology-based firms disclose accurate information to their stakeholders particularly their investors for decision-making purposes. In relation to environmental uncertainty (CV), the results show that the mean value for this variable is -1.3228, whilst the minimum and maximum value is -2.70 and -0.35 respectively. The standard deviation for environmental uncertainty is 0.47356. Such results indicate that the firms in the technology industry have incurred more uncertainty, which involve in competitive advantages among their company, diversification on the products and also demanded from their customers.

4.2 Correlation Analysis

To measure the relationship between the independent variables and dependent variable, the Pearson Product-Moment Correlation Coefficient was used. The results are shown in Table 2.

Table 2: Correlation Analysis

	EM	SPREADIT	CV
EM	1		
SPREADIT	-0.108	1	
CV	-0.148	0.047	1

Table 2 shows that there is a high and positive significant correlation between the variables used in this study. The results show that there are relationships between information asymmetry and environmental uncertainty with the earnings management practices. However, the relationships between these variables are negative. The value of correlation for the variables are -0.108 for the relationship on the occurrences of earnings management and information asymmetry involvement and the relationship between the earnings management in the firm with the environmental uncertainty is -0.148. However, there is no significant correlation between each other.

4.3 Regression Analysis

There are two hypotheses in this study to represent the factors influencing earnings management practices. This study used multiple regression analysis in examining the association between the variables based on the following equation:

$$EM = \beta_0 + \beta_1 SPREADIT + \beta_2 CV + \varepsilon$$

Where,

EM = Earnings management

SPREADIT   = Information asymmetry

CV   = Environmental uncertainty
ε   = Error

Table 3: Regression Analysis

Variables	Coefficient	t-statistics	P-value
(Constant)		0.629	0.532
SPREADIT	-0.067	-0.665	0.508
CV	-0.026	-0.266	0.792
R^2	47.3%		
Adj. R^2	42.6%		
F-statistics (P-value)	10.050 (0.000)**		
df	165		

Note: **. Significant at the 0.01 level; and *. Significant at the 0.05 level

Based on the result shown in table 3, the overall explanatory factors of earnings management practices are recorded at adjusted R-squared of 42.6% (F-value = 10.050; p-value = 0.000). The result indicates that 42.6% of the occurrences of earnings management practices can be explained in this study. However, the results show no significant relationship between information asymmetry and occurrences of earnings management (t-statistics = -0.665; p-value=0.508). The results also show no significant relationship between uncertainty environment and occurrences of earnings management (t-statistics = -0.266; p-value = 0.792. Therefore, the hypothesis 1 and 2 in this study could not be supported. Such results are not consistent with the results found in (Chaney & Lewis, 1995; Dye, 1988; Schipper, 1989; Trueman & Titman., 1988; Warfield et al., 1995). It is because the dynamic and complex environment weakens the occurrences of earnings management which is considered a lot of advances occur since the technology industry in Malaysia is under growing stage. While, the information asymmetry is because the thinness of stock transactions on the Stock Exchange for technology industry in Malaysia. This implies that the decision of investors in buying shares is not affected by the presence or absence of earnings management practices undertaken by the company. However, in Malaysia research on earnings management and information asymmetry is still very little.

5.0   Summary and Conclusion

Earnings management overthrows the value of information in financial report that helps the communication among investors, shareholders and the public. The user of financial report should be convinced on the reliability and high quality information provided in order to make financial decision. In view of this, this study examines the influence of one possible factor, firm characteristics on earnings management practices.

The results in this study show that there are no significant relationship between information asymmetry and environmental uncertainty. Such results are in contrast to previous studies that supported the influence of information asymmetry and environmental uncertainty on earnings management practices. Such results indicate that the technology industry in Malaysia is still under the development stage since there is a need for these firms to show their financial information in good condition in order to attract more investors. Using earnings management practices in a correct way would enhance the performance of firms although it could be worst if the management falls to comply with the standard of accounting (GAAP).

This study is not without limitations. First, this study only used two variables namely in examining earnings management practices for technology-based firms. These variables are information asymmetry and environmental uncertainty. Perhaps, further research could be conducted by including more related factors in order to provide more robust evidence on the significance of earnings management practices.

Secondly, this study was conducted based on a two year data of annual reports of the firms. This study only focuses on the development years for technology-based firms in a Malaysian context. This study did not observe the pattern of the occurrences of earnings management across number of year. If the sample could be extended to several years or industries, the findings maybe more generalisable and hence provide better picture to the stakeholders and interested parties as a whole.

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