

## **DETERMINANTS OF EARLY ADOPTION OF FRS 114 (SEGMENT REPORTING) IN MALAYSIA**

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### **ABSTRACT**

*This study seeks to find out whether there are systematic differences between early adopters and a matched control group of non early adopters of FRS 114 (Segment Reporting) based on the following company characteristics: (1) firm size, (2) board characteristics, (3) leverage, (4) audit firm size, and (5) firm growth rate. Using a sample of 32 early adopters and without differentiating whether they disclose the required segment information in full or partially and a control group of 32 non early adopters, our findings indicate company with higher proportion of non executive directors, particularly non independent non executives, is more likely to adopt FRS 114 before the effective date. When early adopters are further classified into full or partial adopters, the result shows that full early adopters are significantly larger (in terms of total assets) than non early adopters. However, when comparing between partial early adopters and non early adopters, the evidence suggests that partial early adopters are significantly smaller in size than non early adopters. We find no evidence to indicate that there are significant differences between full early adopters, partial early adopters and non early adopters in terms of board size, board leadership, independent directors, audit firm size, leverage and firm growth rate.*

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### **INTRODUCTION**

When an accounting standard permits alternative accounting methods (for example, LIFO vs. FIFO inventory valuation) or allows flexible presentation

format (for example, direct or indirect method to describe cash flows from operation), management is presented with a voluntary accounting choice. There are extensive studies on discretionary accounting choice made by management. These studies largely focus on two fundamental research questions, namely: (1) what motivate managers to choose a particular accounting method, and (2) what are the implications of the choice made. Fields et al. (2001) provide a critical review of the empirical research on accounting choice by giving emphasis on research published in the 1990s. They conclude that the evidence on the motivations behind accounting methods choice is largely circumstantial and direct and compelling evidence is still elusive.

Early adoption of an accounting standard prior to its effective date is another dimension of a voluntary accounting choice. In most cases, early adoption affects the income statement or balance sheet accounts. In other cases, early adoption affects the level of disclosure or merely changes the format of the financial statements without affecting the account balances. Studies on early adoption to date invariably use accounting standards in the United States (US) such as SFAS 8, SFAS 52, SFAS 86, SFAS 87, SFAS 96 and SFAS 106 that have income and balance sheet ramifications. Ayres (1986), Trombley (1989), Tung and Weygandt (1994), and Amir and Livnat (1996) examine the characteristics of early adopters. Salatka (1989), and Amir and Ziv (1997) investigate the economic consequences of early adoption and Gujarathi and Hoskin (1992), Balsam et al. (1995), and Karmon and Lubwama (1997) document opportunistic behavior motivates managers to be early adopters.

This study extends the literature on the timing of accounting standard adoption on two fronts. Firstly, it examines early adoption in a non-US setting by focusing on Malaysia and secondly it uses an accounting standard that leads to greater information disclosure without affecting income or balance sheet accounts. Although there are several studies that examine factors that motivate accounting method choice and voluntary disclosures in Malaysia, we are not aware of any empirical studies that seek to explain early adoption of accounting standards in Malaysia. In addition, segment reporting is clearly a deserving area to study following recent calls for improvement in segment disclosures (see for example the OECD's White Paper on Corporate Governance in Asia, 2003; AIMR Corporate Disclosure Survey, 2000).

In Malaysia, since 1987 and up until recently, companies listed on Bursa Malaysia (formerly known as the Kuala Lumpur Stock Exchange or KLSE) were required to comply with the original International Accounting Standard (IAS) 14. The revised IAS 14 which became effective for periods beginning on or after 1 July 1998 is not adopted in Malaysia. With the introduction of MASB 22: Segment Reporting in 2001 (renamed FRS 114 with effect from 1 January 2005),

listed companies in Malaysia are now required to disclose segment data similar to the requirements under the revised IAS 14 for the periods beginning on or after 1 January 2002. The FRS 114-cum-IAS 14 (revised) presents major departures from the original IAS 14. The differences include the adoption of two-tier segmentation with either the business segment or the geographical segment as the dominant basis of segment reporting (primary) and the other secondary, differential information disclosure for primary segment (full disclosure) and secondary segment (less disclosure), consistent use of accounting policies across segments and standardized measure of segment results across companies.

By electing to adopt FRS 114 prior to its effective date, companies voluntarily disclose more information especially for the primary basis of segment reporting since they have to provide additional disclosures such as depreciation and amortization expenses and other significant non-cash expenses by reportable segments to enable users to "predict the overall amounts, timing, or risks of a complete enterprise's future cash flows". In addition, unlike the original IAS 14, FRS 114 also requires disclosures of segment liabilities in the primary segment reports and capital expenditure in both the primary and secondary segment reports, if any.

Given that early adoption of FRS 114 is similar to providing voluntary disclosures, this study seeks to find out whether there are systematic differences between early adopters and a matched control group of non early adopters of FRS 114 based on the following company characteristics: (1) firm size, (2) board characteristics, (3) leverage, (4) audit firm size, and (5) firm growth rate. Recent studies seeking to explain the determinants of specific disclosures which are similar to ours include Prencipe (2004) which examines voluntary segment disclosures in Italy, Watson et al. (2002) which examines disclosure of accounting ratios in the United Kingdom (UK) and Wallace et al. (1999) which examines the comprehensiveness of cash flow reporting in the UK.

Using a sample of 32 early adopters and without differentiating whether they disclose the required primary segment information in full or partially and a control group of 32 non early adopters, our findings indicate that firm with higher proportion of non executive directors, particularly non independent non executives, is more likely to adopt FRS 114 earlier. Inspired by Powell (1997), when early adopters are further classified into full or partial adopters, the result shows that the likelihood to early adopt FRS 114 in full is greater for larger firm (based on total assets). However, when comparing between partial early adopters and non early adopters, the evidence suggests that partial early adopters are significantly smaller in size than non early adopters. Furthermore, full and partial early adopters also tend to have significantly greater proportion of non independent non executive directors than non early adopters. We find no

evidence to indicate that there are significant differences between full early adopters, partial early adopters and non early adopters in terms of board size, board leadership, proportion of independent directors, audit firm size, leverage and firm growth rate.

The paper is structured as follows. In the next section, we provide a brief review of the relevant literature and formulate the hypotheses. The methodology section describes the identification of early adopters, procedure adopted to match early adopters against non early adopters, data collection, regression methods used and the sample characteristics. The findings discuss results from univariate and multivariate analysis. The final section contains conclusion, limitations and suggestions for future research.

## **LITERATURE REVIEW**

Empirical studies investigating the determinants of extensiveness of segment disclosures, levels of voluntary disclosures or comprehensiveness of mandatory disclosures around the world invariably consider company specific factors such as firm size, board composition, financial leverage, audit firm size, firm growth rate and earnings volatility to explain the varying levels of disclosures. Ahmed and Courtis (1999) provide a meta-analysis of 29 comprehensive disclosure studies between 1968 and 1997 and conclude that disclosure levels have positive relationships with firm size and leverage.<sup>1</sup> They conclude the lack of conclusive findings between other company attributes and corporate disclosure is due to differences in disclosure index construction and definition of the explanatory variables.

We present below the arguments on how the above company-specific factors may influence the level of disclosures, the empirical evidence to date and testable hypotheses.

### **Firm Size**

Firth (1979) and Dye (1985) note that large firms are less susceptible to competitive disadvantages through greater disclosures of proprietary information. Watts and Zimmerman (1986) argue that large firms are generally exposed to political costs imposed by governmental regulatory bodies, tax agencies and interest groups in the forms of price controls, higher corporate taxes and adherence to socially responsible behavior. Crasswell and Taylor (1992) suggest

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<sup>1</sup> They exclude studies that examine specific disclosures such as segment reporting and corporate social reporting.

that to minimize the political attacks and reduce the political costs large firms can enhance their corporate image through comprehensive disclosure of information. Barry and Brown (1986), and Lang and Lundholm (1996) posit that larger firms have an incentive to disclose more than smaller firms because the annual reports of the larger firms are more likely to be scrutinized by financial analysts.

The results of empirical studies are generally supportive of a positive relationship between firm size and level of disclosure. Singhvi and Desai (1971), Firth (1979), Chow and Wong-Boren (1987), McKinnon and Dalimunthe (1993), Mitchell et al. (1995), Herrmann and Thomas (1996), Ahmed and Courtis (1999), Eng and Mak (2003), and Prencipe (2004) find a positive relationship between company size and level of disclosure. A study in Malaysia by Chow and Susela Devi (2001) also indicates that segment disclosure is positively related with firm size.

Based on the above discussion, the relationship between firm size and the level of disclosure is expected to be positive and thus we formulate the following hypothesis:

H1: *Ceteris paribus*, there is a positive association between firm size and early adoption of FRS 114.

### **Board Composition**

A Chief Executive Officer (CEO) who is also Chairman of the Board usually signifies that the management is controlled by a dominant personality (Molz, 1988). The person who occupies both roles, i.e., duality board leadership, tends to withhold information to external users. Fama and Jensen (1983), and Forker (1992) assert that the larger the proportion of outside or non executive directors on the Board, the more effective they are in monitoring management and corporate boards resulting in lower managerial opportunism and tendency to withhold information. Thus, outside or non executive directors on the Board would improve the quality of financial disclosure. Similarly, Chen and Jaggi (2000) argue that greater representation of independent non executive directors on corporate board enable them to exert greater influence on management and encourage better compliance with mandatory disclosure requirements. Likewise, Eng and Mak (2003) assert that outside directors who are less aligned to management have greater tendency to encourage firm to disclose more voluntary information to outside investors.

Forker (1992) finds a significant negative relationship between the existence of a dominant personality and the quality of share option disclosure in the UK. Contrary to expectation, Haniffa and Cooke (2002) show that the presence of non

executive chairman on board is negatively associated with the extent of voluntary disclosure in Malaysia. Chen and Jaggi (2000) find a positive relationship between the proportion of independent directors on board and comprehensiveness of mandatory financial disclosure in Hong Kong. However, Eng and Mak (2003) find that higher outside directorship reduces voluntary disclosure.

In Malaysia, the role of independent directors in improving corporate governance is also recognized. The voluntary Malaysian Code on Corporate Governance released in 2000 recommends: (1) the separation of Board Chairman and CEO, and (2) at least one third of corporate board is made up of independent directors. Based on the foregoing discussion, we hypothesized that:

H2a: *Ceteris paribus*, there is a negative association between CEO duality and early adoption of FRS 114.

H2b: *Ceteris paribus*, there is a positive association between the proportion of non executive directors and early adoption of FRS 114.

### **Financial Leverage**

Agency theory predicts a positive relationship between leverage and disclosure. Fama and Miller (1972), and Jensen and Meckling (1976) state that agency costs are higher for firms with high level of debts in their capital structure due to the potential wealth transfer from debtholders to shareholders. Smith and Warner (1979) suggest that by supplying more information to debt suppliers, voluntary disclosure can reduce these agency costs. In the same vein, McKinnon and Dalimunthe (1993) argue that by providing segment information, debt suppliers can make better predictions about the growth, risks and return prospects of diversified company, or group of companies.

The results that emanate from a number of empirical studies that investigate the relationship between financial leverage and corporate disclosures are conflicting. Trotman and Bradley (1981), Tung and Weygandt (1994), and Ahmed and Courtis (1999) find there is a positive relationship between financial leverage and the level of disclosures. Chow and Wong-Boren (1987) find no significant association between leverage and voluntary disclosures. On the other hand, Eng and Mak (2003) find that disclosure decreases with leverage. In the area of segment reporting, studies by Bradbury (1992), Mitchell et al. (1995), and Chow and Susela Devi (2001) show that there is a positive relationship between financial leverage and the level of segment disclosure.

We expect that companies with high leverage would provide more information in their annual reports such as segment liabilities so that creditors can make a better prediction about the ability of the companies to settle their debt and to assure debtholders that their claims are not diluted. Accordingly, we hypothesized:

H3: *Ceteris paribus*, there is a positive association between leverage and early adoption of FRS 114.

### **Audit Firm Size**

Titman and Trueman (1986) argue that prestigious auditor has a reputational capital at stake and to preserve this capital, the quality of services they provide has to be maintained through the accuracy of audited information provided by their clients. Watts and Zimmerman (1986) suggest that the choice of external auditors serves as a mechanism to lessen the agency costs arising from the conflicts of interest between the principal and agents. Although large audit firm is expected to enhance corporate disclosure, the evidence on the influence of audit firm size on the level of disclosure is inconclusive. Chow and Wong-Boren (1986), and Ettredge et al. (1988) show that larger audit firms are significantly associated with better quality audit and disclosure. However, Firth (1979), Ahmed and Courtis (1999), and Eng and Mak (2003) find that there is no relationship between audit firm size and the level of disclosure.

As a large audit firm is perceived to provide higher quality audit than small firm, we expect that company audited by "Big 4" audit firm would disclose more information and is encouraged to elect for early adoption of FRS 114, thus:

H4: *Ceteris paribus*, there is a positive association between audit firm size and early adoption of FRS 114.

### **Growth Rate**

The proprietary costs or discretionary disclosure theory asserts that companies have incentives to voluntarily disclose relevant information to the market in order to reduce information asymmetry and the cost of capital (Verrecchia, 1983). Furthermore, the theory states that companies limit voluntary disclosure when costs of preparing, disseminating, auditing and disclosing information are greater than the expected benefits. The discretionary costs that disclosing firms have to bear include competitive disadvantage or bargaining disadvantage from providing strategic information to existing or potential competitors, suppliers and customers.

In the case of segment reporting, segment information may reveal the existence of business opportunities to competitors and harm the disclosing firm's competitive position. Thus the competitive costs arising from disclosing segment information tend to be particularly high for growing companies. Surveys by Susela Devi and Veerinderjeet (1992), and Edwards and Smith (1996) among audit managers and financial directors respectively indicate that the fear of competitive disadvantage from disclosing segmental information is real. However, an empirical study by Prencipe (2004) finds that there is an insignificant relationship between the extent of segment reporting and firm growth rate. Given that the proprietary costs theory predicts a negative relationship between firm growth rate and disclosure, our last hypothesis is:

H5: *Ceteris paribus*, there is a negative association between growth rate and early adoption of FRS 114.

## **METHODOLOGY**

### **Sample Selection and Data Source**

A total of 64 companies comprising 32 early adopters of FRS 114 and a control group of 32 non early adopters are examined in this study. Early adopters are mainly identified by searching the 2001 and 2002 annual reports and/or annual audited accounts (excluding financial statements ended on 31 December 2002) in the Bursa Malaysia database (available at <http://announcements.bursamalaysia.com>) for distinguishing phrases such as "primary reporting", "segment liabilities", "MASB 22", "standard 22" and "standard no 22". The early adopters are matched on a paired basis with non early adopters based on similar board of exchange (main or second board), sectoral classification, financial year end and number of business segments (plus or minus one is acceptable if exact matching is not possible).

For all the sample companies, we hand collected information from the annual reports relating to board composition [size of board, number of non executives (NONEXE) comprising independent directors (INDEP) and non independent non executive directors (GRAY)], board leadership and auditor. The number of business and geographical segments for the sample companies are obtained from the segment disclosures in the notes to the financial statements. Financial data such as total assets (TA), total liabilities, profit before tax (PBT) are taken from the KLSE-RIS (available at <http://www.klse-ris.com.my>).

As described in Wan Hussin et al. (2003), we scrutinized the early adopters' segment disclosures and coded the accounting treatments for the ten mandatory



items in the primary segment reporting format as follows: (A) allocated to segments; (U) disclosed in aggregate in segment report without allocating to segments, i.e., unallocated; (NA) not applicable (since the items are also not disclosed elsewhere in the consolidated financial statements); and (ND) not disclosed in segment report although they are disclosed elsewhere in the consolidated financial statements. Early adopters with at least one item designated "ND" are deemed not complying fully with FRS 114 disclosures and categorized as partial early adopters, and the remaining are labeled full early adopters. These procedures yield 15 full and 17 partial early adopters.

### **Early Adoption Model**

We run two logistic regression models; binary and multinomial. In the binary model, the dependent variable is dichotomous and takes the value of either 1 (early adopters) or 0 (non early adopters) and in the multinomial model, the dependent variable is trichotomous and takes the value of 0 (full early adopters), 1 (partial early adopters) and 2 (non early adopters). The motivation to run both binary and multinomial models comes from Powell (1997). He shows that in modeling the relationship between firm's characteristics and its takeover likelihood more insight can be gained from segregating takeover targets into hostile or friendly than treating them as homogeneous. He cautions that:

The use of a binomial specification to model takeover likelihood is likely to be incorrect and conclusions based on such a model are likely to be misleading and result in incorrect inferences regarding the characteristics of firms subject to takeover (Powell, 1997: 1026).

The independent variables used in both models are: company size (SIZE), board composition (DUALITY and NONEXE), leverage (LEVERAGE), audit firm size (BIG-4), firm growth rate (GROWTH) and earnings volatility (VOLATILE). Although it is a priori not clear how earnings volatility is associated with the level of disclosure, we include it in our study as a control variable. Waymire (1985) shows that companies that issue management's earnings forecast more frequently have lower earnings volatility than companies that issue management's forecasts on an infrequent basis, consistent with Imhoff (1978) and Ruland (1979).

The variables are measured as follows. SIZE is proxied by natural log of total assets. DUALITY takes a value of 1 if the same person/family members hold(s) both the posts of chairman and CEO. NONEXE is the proportion of non executive directors. LEVERAGE is measured as total liabilities divided by total assets. BIG-4 takes a value of 1 if the company is audited by a "Big 4" firm (Arthur Andersen, Ernst and Young, KPMG and PricewaterhouseCoopers). GROWTH is measured by taking the difference of total assets (TA) at year t and

year  $t-1$  ( $TA_t - TA_{t-1}$ ) and divided by  $TA_{t-1}$ . In common with previous study by Mitchell et al. (1995), earnings volatility is measured by taking the difference between maximum and minimum profit before tax for five years divided by average profit before tax.

### **Sample Characteristics**

A summary of the characteristics of sample companies is reported in Table 1. Panel A shows the characteristic of sample by board of exchange. Twenty-two (68.75%) early adopters are from the Main Board and the other 10 (31.25%) are from the Second Board. With respect to sector, nearly 70% come from four sectors namely construction, consumer products, industrial products and plantation. Panels C and D display information on number of business segments and geographical segments. The early adopters have, on average, four business segments and 70% of them have not more than two geographical segments. Panel E shows that 20 early adopters adopted FRS 114 for their financial years ended on or before 31 December 2001 while another 12 adopted for financial years ended between 31 January 2002 and before 31 December 2002. The "Big 4" audits three quarter of early adopters. It is coincidental that the proportion of Big 4 auditor among the non early adopters is identical to early adopters. In terms of board leadership, 12 early adopters (about 37%) have duality board leadership structure where the same person or family members hold(s) both the CEO and Chairman roles.

## **RESULTS**

### **Univariate Analysis**

Table 2 gives the descriptive statistics of continuous independent variables included in the study, partitioned by full early adopters, partial early adopters and non early adopters. Comparing between full early adopters and non early adopters shows that full early adopters are significantly larger, are more profitable, have significantly higher proportion of non independent non executive directors, and have lower leverage than non early adopters. The three subgroups, full early adopters, partial early adopters and non early adopters, are significantly different in terms of their sizes, profitabilities and proportions of non independent non executive directors.

TABLE 1  
SAMPLE CHARACTERISTICS

|  | Early adopter | Non-early adopter | Total |
|--|---------------|-------------------|-------|
| Panel A: By Board of Exchange                    |               |                   |       |
| Main board                                       | 22            | 22                | 44    |
| Second board                                     | 10            | 10                | 20    |
| Panel B: By Sector                               |               |                   |       |
| Construction                                     | 6             | 6                 | 12    |
| Consumer products                                | 7             | 7                 | 14    |
| Finance  | 2             | 2                 | 4     |
| Industrial products                              | 6             | 6                 | 12    |
| Plantation                                       | 5             | 5                 | 10    |
| Properties                                       | 3             | 3                 | 6     |
| Technology                                       | 1             | 1                 | 2     |
| Trading/services                                 | 2             | 2                 | 4     |
| Panel C: By Number of Business Segments          |               |                   |       |
| 1  | 1             | 1                 | 2     |
| 2  | 4             | 4                 | 8     |
| 3  | 11            | 11                | 22    |
| 4  | 4             | 7                 | 11    |
| At least 5                                       | 12            | 9                 | 21    |
| Panel D: By Number of Geographical Segments      |               |                   |       |
| 1  | 12            | 17                | 29    |
| 2  | 10            | 7                 | 17    |
| 3  | 3             | 5                 | 8     |
| 4  | 1             | 2                 | 3     |
| At least 5                                       | 6             | 1                 | 7     |
| Panel E: By Year                                 |               |                   |       |
| 2001   | 20            | 20                | 40    |
| 2002   | 12            | 12                | 24    |
| Panel F: By Auditor                              |               |                   |       |
| Big 4  | 24            | 24                | 48    |
| Non Big 4  | 8             | 8                 | 16    |
| Panel G: By Duality                              |               |                   |       |
| Chairman and CEO same individual or family       | 12            | 10                | 22    |
| Chairman and CEO different individual and family | 20            | 22                | 42    |

TABLE 2  
DESCRIPTIVE STATISTICS OF CONTINUOUS INDEPENDENT VARIABLES

|   | Mean  | T-statistic<br>Full vs. Non early<br>Full vs. Partial<br>Partial vs. Non early | F-statistic |
|---|-------|--|-------------|
| TA (total asset in RM billion):             |       |  |             |
| Full Adopter                                | 2.49  | 2.098**  |             |
| Partial Adopter                             | 0.46  | 2.287**  |             |
| Non early Adopter                           | 0.64  | -0.889   | 7.078**     |
| SIZE (natural log of total asset)           |       |  |             |
| Full Adopter                                | 20.71 | 2.257**  |             |
| Partial Adopter                             | 19.24 | 2.908**  |             |
| Non early Adopter                           | 19.67 | -1.210   | 5.573**     |
| PBT (profit before tax in RMmillion)        |       |  |             |
| Full Adopter                                | 154.0 | 2.112*   |             |
| Partial Adopter                             | 45.6  | 1.312  |             |
| Non early Adopter                           | -13.1 | 1.548  | 4.535**     |
| Board Size:                                 |       |  |             |
| Full Adopter                                | 8.13  | 1.322  |             |
| Partial Adopter                             | 7.65  | 0.671  |             |
| Non early Adopter                           | 7.25  | 0.740  | 1.100       |
| NONEXE – % of non executives:               |       |  |             |
| Full Adopter                                | 0.71  | 1.744*   |             |
| Partial Adopter                             | 0.65  | 0.671  |             |
| Non early Adopter                           | 0.59  | 1.146  | 1.882       |
| INDEP – % of independent directors:         |       |  |             |
| Full Adopter                                | 0.36  | -0.831   |             |
| Partial Adopter                             | 0.37  | -0.323   |             |
| Non early Adopter                           | 0.39  | -0.507   | 0.419       |
| GRAY – % of non independent non executives: |       |  |             |
| Full Adopter                                | 0.35  | 2.751**  |             |
| Partial Adopter                             | 0.28  | 0.959  |             |
| Non early Adopter                           | 0.20  | 1.410  | 3.567**     |
| LEVERAGE (total liabilities/total assets):  |       |  |             |
| Full Adopter                                | 0.39  | -2.011*  |             |
| Partial Adopter                             | 0.50  | -0.832   |             |
| Non early Adopter                           | 0.62  | -0.836   | 1.379       |

(Continued on next page)

TABLE 2. (Continued)

|   | Mean  | T-statistic<br>Full vs. Non early<br>Full vs. Partial<br>Partial vs. Non early | F-statistic |
|---|-------|--|-------------|
| GROWTH $((TA_t - TA_{t-1})/TA_{t-1})$ :   |       |  |             |
| Full Adopter  | 0.03  | -0.437   | 0.143       |
| Partial Adopter   | 0.02  | 0.282  |             |
| Non early Adopter   | 0.07  | -0.572   |             |
| VOLATILE (max(PBT) minus min(PBT)<br>divide by average PBT over 5-year period). |       |  |             |
| Full Adopter  | -0.01 | -0.125   | 0.660       |
| Partial Adopter   | 2.44  | -1.198   |             |
| Non early Adopter   | 0.20  | 0.950  |             |

Full (n=15) and partial adopters (n=17) are subset of early adopters (n=32). There are 32 non early adopters.

\*\*significant at 5% level or better (two-tailed and assuming unequal variances).

\* significant at 10% level or better (two-tailed and assuming unequal variances).

### Multivariate Analysis

The Pearson and Spearman correlations between the variables are shown in Table 3. The proportion of non executive directors is positively correlated with firm size and Big 4 auditor whilst leverage is negatively correlated with earnings volatility. However, none of the correlation coefficients among the independent variables are greater than 0.5.

TABLE 3  
PEARSON AND SPEARMAN CORRELATION MATRIX

|          | SIZE   | DUALITY | NONEXE | LEVERAGE | BIG-4  | GROWTH | VOLATILE |
|----------|--------|---------|--------|----------|--------|--------|----------|
| SIZE     | 1.00   | 0.01    | 0.35** | -0.12    | 0.22   | -0.18  | -0.14    |
| DUALITY  | 0.00   | 1.00    | -0.10  | 0.02     | -0.04  | -0.13  | 0.03     |
| NONEXE   | 0.37** | -0.10   | 1.00   | -0.19    | 0.33** | 0.01   | 0.07     |
| LEVERAGE | 0.03   | -0.14   | -0.21  | 1.00     | 0.08   | -0.16  | -0.38**  |
| BIG-4    | 0.24   | -0.04   | 0.34** | 0.04     | 1.00   | -0.18  | -0.09    |
| GROWTH   | 0.06   | -0.21   | 0.12   | -0.32*   | 0.02   | 1.00   | -0.01    |
| VOLATILE | -0.08  | -0.10   | 0.24   | -0.48**  | -0.06  | 0.39** | 1.00     |

Pearson (Spearman) correlation is at diagonal up (down)

\*\* indicates significant at 1% level or better

\* indicates significant at 5% level or better

Table 4 presents parameter estimates of binomial and multinomial models with corresponding coefficient values and standard errors. For the binomial regression (model 1), positive sign on a parameter indicates that an increase in the corresponding variable increases the likelihood of early adoption and a negative sign indicates the opposite. For the multinomial regression (model 2), the parameters are interpreted as indicating the probability of an event, either being a full adopter or partial adopter, relative to the probability of being non early adopter.

TABLE 4  
PARAMETER ESTIMATES OF THE BINOMIAL AND MULTINOMIAL MODELS

| Variables                 | Binomial – Model 1 |                | Multinomial – Model 2 |                |                       |                |
|---------------------------|--------------------|----------------|-----------------------|----------------|-----------------------|----------------|
|                           | Full sample        |                | Full early adopter    |                | Partial early adopter |                |
|                           | Coefficient        | Standard error | Coefficient           | Standard error | Coefficient           | Standard error |
| Constant                  | -0.658             | 4.118          | -11.758**             | 5.869          | 8.739                 | 5.909          |
| SIZE                      | -0.013             | 0.214          | 0.520*                | 0.298          | -0.544*               | 0.317          |
| DUALITY                   | 0.340              | 0.570          | 1.032                 | 0.749          | -0.484                | 0.753          |
| NONEXE                    | 2.478*             | 1.528          | 2.279                 | 2.122          | 2.674                 | 1.879          |
| BIG-4                     | -0.389             | 0.658          | -0.810                | 0.898          | 0.042                 | 0.810          |
| LEVERAGE                  | -0.843             | 0.720          | -1.554                | 1.277          | -0.622                | 0.844          |
| GROWTH                    | -0.669             | 0.938          | -0.298                | 1.497          | -1.052                | 1.180          |
| VOLATILE                  | -0.004             | 0.041          | -0.038                | 0.071          | 0.018                 | 0.045          |
|                           | <i>Model 1</i>     | <i>Model 2</i> |                       |                |                       |                |
| Likelihood Ratio          | 82.441             | 110.768*       |                       |                |                       |                |
| Nagelkerke R <sup>2</sup> | 0.125              | 0.335          |                       |                |                       |                |
| McFadden R <sup>2</sup>   | -                  | 0.167          |                       |                |                       |                |
| Hosmer and Lemeshow       | 8.271              | -              |                       |                |                       |                |
| Percentage Correct        | 59.4%              | 60.9%          |                       |                |                       |                |

In model 1, the dependent variable is dichotomous and takes the value of either 1 (early adopters) or 0 (non early adopters). In model 2, the dependent variable is trichotomous and takes the value of 0 (full early adopters), 1 (partial early adopters) and 2 (non early adopters). \*\* indicates significant at 5% level or better and \* indicates significant at 10% level or better.

For model 1, the Nagelkerke R<sup>2</sup> of 0.125 indicates mild relationship between dependent variable and independent variables. In addition the Hosmer and Lemeshow goodness of fit gives a chi-square of 8.271 (level of significance is 0.407) which indicates a good model fit between the actual and predicted value of the dependent variable. The percentage of correct classification for model 1 is 59.4%. The result reveals NONEXE is significant at 10% level with positive direction. This suggests that the higher the composition of non executive directors on the board the higher the likelihood for company to early adopt FRS 114. Although not reported in Table 4, interesting evidence is found when replacing NONEXE with INDEP and GRAY. INDEP is found to be insignificant, whilst GRAY is significant at 5% level with positive direction. This indicates that

the so-called gray or affiliated directors, rather than independent directors, may play important role in influencing early adoption. The results are consistent with the univariate analysis that shows early adopters have significantly higher percentage of gray directors than non early adopters, whilst the proportions of independent directors are almost identical for early and non early adopters.

For model 2, the likelihood ratio is 110.768 and significant at ten percent level. When early adopters are partitioned into full adopters and partial adopters, the strength of the relationship as indicated by the Nagelkerke  $R^2$  is higher than model 1. Thus the multinomial model has a better explanatory power than the binary model that treats full and partial early adopters as homogeneous group. For full early adopters, SIZE is found to be significant at 10% level with positive coefficient which suggests that larger firm is more likely to early adopt FRS 114 (with full disclosure) and less likely to delay adoption of FRS 114. For partial early adopters, SIZE is found to be significant at 10% level but has negative coefficient which suggests that smaller firms tend to adopt FRS 114 early, albeit not in full compliance, as opposed to delay adopting FRS 114. However, in the binary model there is no evidence that firm size is an important characteristic that distinguishes between firms that elect early adoption versus defer adoption until the mandatory date. Thus, the model that pools full and partial early adopters as homogeneous is probably misspecified and yields spurious result that obscures the effect of firm size. Although not reported in Table 4, when NONEXE is replaced with GRAY in model 2, the results are qualitatively similar except that GRAY is now significant at 10% level with positive coefficients for both full early adopters and partial early adopters.

## **CONCLUSION, LIMITATIONS AND FUTURE RESEARCH**

The study reveals some distinguishing characteristics of early adopters of FRS 114. First, full early adopters have larger assets than non early adopters. Second, company with smaller assets size also made early adoption but they only complied partially with the required segment disclosures. Third, the evidence suggests that non executive directors do play some role towards early adoption of FRS 114. However, the evidence indicates that it is the gray rather than independent directors who probably make the difference between electing for early adoption or delaying adoption. This echoes the view expressed in *The Economist* (2004) that shareholders might feel they were being better served by the presence of non executive directors who are affiliated with the company. One of the criticisms leveled against independent directors is that they may not behave independently. In addition, unlike affiliated non executive directors, the independent directors may lack the necessary knowledge as *The Economist* (2004) aptly put it: *the price of independent is ignorance*. More recently, the

Asian Shadow Financial Regulatory Committee has expressed doubt on the efficacy of "amateur part-timers" independent directors and further suggested that controlling shareholders should be excluded from voting for independent directors to ensure that the minority shareholders are protected (Statement No. 3 released during the 16<sup>th</sup> Asian Finance Association Conference, July 2005).

The study is not without its limitations. Apart from small sample size and not considering geographical segment disclosures, the low  $R^2$  suggests that there may be other important variables that are left out. One possibility is ownership structure. Recent studies which show that ownership structure influences the level of disclosure include Chau and Gray (2002), and Leung and Horwitz (2004). It is interesting to see whether the inclusion of ownership variable would improve the model, and to compare the determinants of early adoption for standard that affect the extent of disclosure only against standard that affect income and balance sheet figures, such as FRS 136 on Impairment of Assets.

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