REAL EARNINGS MANAGEMENT IN FAMILY-AFFILIATED FIRMS: EMPIRICAL EVIDENCE FROM MALAYSIA

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ABSTRACT

Research aim: This paper examines the effects of size and complex structure of family-affiliated business groups on Real Earnings Management (REM) practices in Malaysian listed firms.

Design/Methodology/Approach: Family-affiliated business groups listed on Bursa Malaysia during the years 2006 to 2015 filtered using specific criteria were selected as the sample. STATA software was used to analyse the panel data, and two different regression models were run for the empirical testing to examine the effects of size and group complexity.

Research finding: It is evidenced that the size and complexity structure of family-affiliated business groups are positively associated with REM, measured by abnormal cash flow from operations and abnormal discretionary expenses, but negatively associated with abnormal production cost.

Theoretical contribution/Originality: Since previous studies based on Malaysian public listed firms focus on Accruals Earnings Manipulation (AEM), this study broadens the scope by providing empirical evidence on the relationship between family-affiliated firms' characteristics and REM.

Practitioner/ Policy implication: Investors, auditors, analysts and practitioners should consider family-affiliated firms as a factor that significantly induces earnings manipulation. The result is also relevant for regulators in regulating takeover rules or tax policy to affiliated groups in order to create incentives for them to maintain a specific size or complexity structure, or otherwise, be penalised for exceeding the size or complexity characteristics.

Research limitation/ Implication: The results from this study may apply to Asian countries with similarities in family ownership to that in Malaysia. The findings, however, may not apply to developed countries where family concentration and pyramidal structure are not significant.

Keywords: Real Earnings Management, Family-Affiliated Firms, Emerging Market, Entrenchment Effect, Malaysia.

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1. Introduction

All capital markets aim to achieve high financial reporting quality. Among others, studies have shown that the adoption of International Financial Reporting Standards (IFRS) in emerging economies has improved earnings quality and reduced earnings management (Ismail, Kamarudin, Van Zijl, & Dunstan, 2013; Zhou, Xiong, & Ganguli, 2010). In Malaysia, however, issues of low financial reporting quality and earnings management among listed firms remain unresolved even though the equivalent of IFRS, known as the Malaysian Financial Reporting Standards (MFRS), has been fully implemented. There is also a growing trend for large firms to appoint professional forensic accountants to reduce the risk of fraud (Abdullahi & Mansor, 2018).

Earnings management can be categorised into Accrual Earnings Management (AEM) and Real Earnings Management (REM). The former refers to earnings manipulation using accounting estimates and methods which do not have a real impact on cash flows. The latter, on the other hand, reflects manipulations of earnings via operational activities and produce direct effects on a firm's cash flows. REM is generally preferred to AEM, possibly because it is less detectable, even though it is costly for firms to perform (Cohen, Dey, & Lys, 2008). Furthermore, according to a survey by Hamid, Hashim and Salleh (2016) of Malaysian auditors, REM is hard to detect and perceived as less unethical compared to AEM.

Globally, studies on family firms generally focus on both AEM and REM (e.g. Achleitner, Günther, Kaserer, & Siciliano, 2014; Chi, Hung, Cheng, & Yu, 2015; Ishak, Haron, Mohamad, Nik, & Rashid, 2011; Razzaque et al., 2016). However, there has been minimal discussion about the effect of family-affiliated business groups on earnings management. To date, very few studies have examined whether family-controlled businesses have a direct impact on REM (Razzaque, Ali, & Mather, 2016). Mindzak and Zeng (2018) also reveal that empirical studies on the effect of pyramidal ownership on earnings management activities are scant. Among others, Abdullah and Wan Hussin (2015), Mohd Saleh, Mohd Iskandar, and Rahmat (2007), Mohd Suffian, Sanusi, and Mastuki (2015) suggest that studies of REM are lacking in Malaysia.

According to an in-depth analysis by Razzaque (2015), research on earnings management of family firms in developed economies has led to different conclusions than those in developing countries. Generally, studies in the former provide support for the alignment hypothesis while those in the latter corroborate with the entrenchment hypothesis. The inconsistent findings could be linked to poor investors' protection and weak legal institutions in emerging markets where authorised controlling

owners could effectively assert control over many firms by controlling and holding a small part of each firm in the pyramidal structure. The variations in the findings between the developed and developing economies are consistent with the work of Faccio and Lang (2002) who report minimal use of pyramidal and holdings through multiple control chains in developed countries.

Meanwhile, Fan and Wong (2002) argue that the entrenchment effect is further multiplied by pyramidal and cross-holding patterns of firms' ownership in developing economies. In these markets where investors' protection and law enforcement are generally weak, insiders are susceptible to acquire private rent-seeking benefits and thus, motivated to manage earnings using REM. Managers may opt to sacrifice future profits for higher current period income to meet short-term earnings targets. For instance, sales in the current year may rise due to price discounts and lenient credit terms but result in low future cash inflows and cash collections. Therefore, family firms in such market characteristics and ownership structure may suffer from negative consequences of REM and destruction of long-term firm value.

This research addresses the current interest in family-affiliated business groups concerning REM by extending the work of Abdul Rahman and Mansor (2018). We argue that in an emerging economy characterised by a weak legal system and low enforcement of legal matters, family-affiliated firms with high concentrated ownership play active roles in impairing REM. Our results are consistent with previous findings in developing countries and provide additional evidence that these firms practice REM through sales manipulation and discretionary expense reduction.

The results, however, suggest a downward manipulation of production, probably to reduce cash flow associated with warehousing and holding cost. The results provide further support for tunnelling and entrenchment hypotheses. Accordingly, we conclude that family-affiliated firms in Malaysia suffer from increased agency problem, particularly the Type II agency problem.

This paper is organised as follows. Section 2 provides the literature review and develops the proposed hypotheses. Section 3 explains the research methodology, while Section 4 presents the empirical analyses and results. Section 5 concludes the paper.

2. Literature Review and Hypotheses Development

The agency problem exists when there exists conflicting goals or desires in the contractual relationship between two parties (i.e., principal and agent).

Any discrepancy in the information received by the agent and the principal may create an imbalance which is referred to as information asymmetry. The agency problem stems from the conflict between majority and minority shareholders due to complex organisation structures and complicated ownerships such as pyramidal, dual-class of shares or cross-holding controlling mechanism. It is termed the Type II agency problem (Claessens, Djankov, Fan, & Lang, 2002; Claessens, Fan, & Lang, 2006). As a result, family firms in developing countries are more likely to be subject to the Type II agency problem.

Using dataset from Korean *chaebol* from the year 1993 to 2007, Choi and Kim (2012) examined factors related to group characteristics including family ownership, ownership-control disparity, and group industry diversification. They reported that family group firms are more likely to engage in REM than AEM. A direct result of the pyramid structure is a separation of actual ownership and control rights (Malan, Salamudin, & Ahmad, 2014). The separation may enhance controlling shareholders' ability and incentives to expropriate the wealth of the minority shareholders (Claessens, Djankov, & Lang, 2000). The structure could also induce opportunistic earnings management activities in family-affiliated business firms. However, whether family firms reduce or increase agency problems remains unanswered.

According to Wang (2006), the earnings manipulation behaviour of family firms depends on the influence of the alignment and the entrenchment effects. Demsetz and Lehn (1985) and Shleifer and Vishny (1997) suggest that concentrated ownership triggers an alignment effect which motivates controlling owners to monitor the firms effectively and helps achieve high earnings quality. Firms with high family ownership may be less likely to engage in opportunistic earnings manipulation as they are expected to preserve their family's reputation, wealth, and long-term firm performance (Wang, 2006). Similarly, Achleitner et al. (2014) suggest that family firms are more likely to avoid REM engagement as this practice might negatively affect the firm's future value as well as their trans-generational sustainability. Furthermore, Abdullah and Wan Hussin (2015) argue that family firms are less likely to engage in earnings management, as it could impair the family firm's performance, wealth and reputation and thus provide support for Achleitner et al. (2014). In an emerging economy like Bangladesh, when family ownership exceeds 25 per cent, the alignment effect dominates the entrenchment effect (Razzaque et al., 2016).

Contrary to the alignment effect, the entrenchment effect argues that firms with high ownership concentration suffer from low-efficiency level

since concentrated owners tend to expropriate wealth from the other shareholders using earnings management. Fan and Wong (2002) report that in most East Asia countries, including Malaysia, the agency conflicts due to ownership concentration are triggered by the behaviour of self-interest. Similarly, a study in Taiwan by Chi et al. (2015) indicates a lower earnings quality among family-controlled firms than non-family-controlled firms. The entrenchment effect could influence the earnings quality as a result of managerial opportunistic behaviour and weak governance mechanisms. Therefore, it can be concluded that earnings manipulation behaviour by family firms depends on the influence of the alignment and the entrenchment effects. Consistent with the entrenchment hypothesis, this study assumes that the size and complexity of family-affiliated firms trigger the incentives for earnings management and manipulations.

2.1. Group Size and Earnings Management

Family-affiliated firms dominate many developing economies in East Asian countries, including Malaysia. These family groups are more likely to practice tunnelling than non-family group firms (Claessens et al., 2002, 2006). Despite the growing research of resource expropriation in family firms (e.g., Anderson, Mansi, & Reeb, 2003; Bhaumik & Gregoriou, 2010; Kim & Yi, 2006; Sani & Mastuki, 2012), studies which examine the effect of group-affiliated size and REM are still lacking.

Kim and Yi (2006) claim that business groups operate through several firms which provide group-affiliated firms with the flexibility to manage earnings. A large number of these affiliated groups contribute to complex group structures (Abdul Rahman & Mansor, 2018). Furthermore, large business groups combined with complex structures may increase the opportunity for controlling shareholders to expropriate wealth since transactions in the internal market can be easily concealed and remain undiscovered (Huei, 2014). Therefore, the entrenchment may take place in the form of intragroup income shifting from the high-performance affiliates to those of low performance. The incidence of income shifting or other financial transactions imply an expropriation act that might discriminate against minority shareholders at the benefits of the entrenched manager (Johnson, LaPorta, Lopez-de-Silanes, & Shleifer, 2000). Thus, it is postulated that, in Malaysia, with a relatively small economy and low legal protection of minority shareholders, the influence of family-affiliated group size on the REM is likely to be positive. Hence, the following hypothesis is proposed:

H_1: The size of family-affiliated business groups positively affects REM.

2.2. Group Complexity and Earnings Management

The entrenchment perspective suggests that tunnelling activities from the separation of ownership and control inherent in pyramidal ownerships motivate the controlling shareholders to manage earnings in order to avoid external interventions (Haw, Hu, Hwang, & Wu, 2004; Kim & Yi, 2006). As asserted by Claessens et al. (2002), the act of tunnelling could be significant in developing countries with a large number of pyramidal firms. Kim and Yi (2006) claimed that complex business group structures resulting from pyramidal ownership might smooth self-dealing transactions, which then reduces the outside investors' ability to monitor the transactions. In Italy, Zingales (2008) documents that firms with complex group structures are also confronted with the risk of tunnelling due to weak investors' protection and minority shareholders' expropriation

To date, studies have not yet provided conclusive findings regarding the effect of group complexity on earnings management. In Korea, Bae and Jeong (2007) report negative earnings quality by Korean *chaebol* affiliated firms. These businesses are usually engaged in complex and secret inter-firm financial transactions to support weak member firms. A study by Beuselinck and Deloof (2014) in Belgium indicates that due to the difficulty in monitoring the complex intragroup transactions, group-affiliated firms aggressively engage in earnings management in response to tax incentives. On the other hand, Mindzak and Zeng (2018) conclude that in Canada, the evidence suggests that pyramidal-affiliated firms perform less than non-affiliated firms in both AEM and REM.

Complex ownership structures may trigger opportunities for controlling shareholders to expropriate the minority shareholders' wealth through earnings management, especially when inadequate legal protection and weak investor protection exist. Hence, the following hypothesis is proposed:

H_2: The complex structure of family-affiliated business groups positively affects REM.

3. Methodology

3.1. Sample Selection

The sample in this study is drawn from publicly listed firms in Bursa Malaysia and filtered using specific criteria. Firstly, all listed Malaysian

firms over the period from 2006 to 2015 were identified, giving a total of 652 firms. These years were chosen since it represents a stable period following the Asian financial crisis of 1997/1998 since the significant reformation of the economy has been accomplished (Chang & Shin, 2007). Secondly, 28 financial firms such as banks and insurance companies were removed from the list as they are governed under different acts and regulations which make them incomparable to firms in other sectors. Thirdly, an additional 19 firms from various sectors such as hotel, mining, closed-end funds, REIT, infrastructure project companies (IPC) and Special Purpose Acquisition Companies (SPAC) were excluded since they represent a small number of firms to provide any meaningful analysis. Finally, another 22 firms with incomplete data had to be removed. Thus, a total of 583 firms form the population. Following Krejcie and Morgan (1970) with 95 per cent confidence level, a sample size of 232 is required.

Following past studies (e.g. Claessens, Djankov, & Lang, 2000; Huei, 2014; La Porta, De Silanes, & Shleifer, 1999), only family-controlled firms with one or more family members identified as the ultimate controlling owners and own at least 10 per cent equity stake of the firms were included. For that reason, 22 government-owned, foreign firms, widely-held corporations without ultimate owners were removed from the sample. Furthermore, 93 firms that are independent or unaffiliated to any business groups were also taken out and with these restrictions, a total of 1,170 observations for 117 family-affiliated firms made-up the final sample.

3.2. Family Ownership

This study is related to pyramidal and cross-shareholding because it involves firms in the control chain with the ultimate owner. The focus is on a family or an individual as the ultimate controlling shareholders. Hence, specific criteria of family ownership are necessary. Following two most prominent studies, (Claessens et al., 2000; La Porta et al., 1999), a family or an individual is deemed as the 'controlling family' when the entity mutually owns at least 10 per cent of the firm's total shares and he(she)/they serve(s) as the largest shareholder of the firm.

In Malaysia, family ownership data is inaccessible and not recorded, hence requiring manual data collection and estimation. They are determined using the fraction of equity ownership and family ownership based on direct and indirect interests. Prior studies (e.g. Fan & Wong, 2002; Johnson et al., 2000; Lins, 2003) document that corporate ownership in Malaysia is concomitant with indirect/ultimate ownership. Direct ownership alone is insufficient to estimate the size of family ownerships

since many of the family members hold indirect ownership in other firms within their owned private firms.

The ownership and control data were collected manually from the year 2006 until 2015 under the section 'Analysis of Shareholdings' firm's annual report. According to Bursa Malaysia Listing Requirement, in the annual report, each director must disclose information regarding their family relationship with any director or major shareholder. Any information regarding the director's family relationship could be acquired from "Board of Directors and Corporate Information" Sections of the firm's annual reports. Direct ownership is calculated from the percentage of the equity shares owned by the owner. Meanwhile, indirect ownership is traced further through indirect interest from the number of shares held.

3.3. Dependent Variables

Following previous work (e.g. Cohen et al., 2008; Cohen & Zarowin, 2010; Roychowdhury, 2006; Zang, 2012), this study uses six models to determine the effects of REM as explained below:

3.3.1. Abnormal Cash Flow from Operations (AB_CFO)

Managers may choose different techniques to reduce selling prices and offer price markdowns and lenient credit terms in order to report higher current period earnings. These real actions reduce cash flow from current period sales as well as loss towards forthcoming profitability when the firms re-establish the old prices (Roychowdhury, 2006). Thus, a negative cash flow from operations is considered as evidence of income-increasing REMs. The AB_CFO is derived from the difference between the actual CFO and the predicted normal level of CFO. Consistent with Roychowdhury (2006), the normal level of cash flow from operations is estimated using the following model:

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}}\right) + \alpha_2 \left(\frac{SALES_{it}}{A_{it-1}}\right) + \alpha_3 \left(\frac{\Delta SALES_{it}}{A_{it-1}}\right) + \varepsilon_{it}$$

Where, CFO_t = cash flow from operations at period *t;* A_{it-1} = total assets at the end of period *t;* $SALES_{it}$ = total sales at period *t*; $\Delta SALES_{it}$ = change in total sales from period *t-1* to period *t.*

3.3.2. Abnormal Production Costs (AB_PROD)

When firms manufacture more units of products than necessary, the fixed overhead costs may be spread towards greater units and thus, reduces the

cost per unit. As long as the reduction of the unit cost of goods sold could offset both the marginal production and additional inventory holding cost, firms may enjoy greater latitude of reporting higher earnings. According to Roychowdhury (2006), reported production cost at an unusually higher than the normal amount is a sign of REM. The AB_PROD is resulted from the difference between the actual and expected normal production cost level. The subsequent model is used to assess the actual and estimated level of production costs:

$$\frac{PROD_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}}\right) + \alpha_2 \left(\frac{SALES_{it}}{A_{it-1}}\right) + \alpha_3 \left(\frac{\Delta SALES_{it}}{A_{it-1}}\right) \left(\frac{\Delta SALES_{it-1}}{A_{it-1}}\right) + \varepsilon_{it}$$

Where; $PROD_{it}$ = the sum of the cost of goods sold and the change in inventory at period *t*; A_{it-1} = total assets at the end of period *t*; $SALES_{it}$ = total sales at period *t*; $\Delta SALES_{it}$ = change in total sales from period *t-1* to period *t*.

3.3.3. Abnormal Discretionary Expenses (AB_DIS)

Firms enjoy greater flexibility in ascertaining expenses such as research and development (R&D), maintenance, marketing, advertising and selling, general and administrative (SGA). Firms would significantly report greater earnings by intentionally omitting these expenses in the current period. Hence, firms with REM normally exhibit a negative discretionary expense. The actual discretionary expenses minus the predicted normal level of discretionary expenses is the answer to the AB_DIS. Consistent with Roychowdhury (2006) and Cohen et al. (2008), the following model is used to assess the predicted discretionary expenses (AB_DIS).

$$\frac{DISC\_EXP_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}}\right) + \alpha_2 \left(\frac{SALES_{it-1}}{A_{it-1}}\right) + \varepsilon_{it}$$

Where; $DISC\_EXP_{it}$ = the sum of discretionary expenses in period *t;* A_{it-1} = total assets at the end of period t and $SALES_{it-1}$ = total sales at period *t-1*.

In line with recent studies by Cohen and Zarowin (2010), Zang (2012) and Abdullah and Wan Hussin (2015), we multiplied AB_CFO and AB_DIS with negative 1 to represent higher manipulation through price reduction and intentionally omitted discretionary expenses. However, we do not multiply AB_PROD with negative 1 as additional unit of production to reduce the cost of goods sold per unit is a sign of higher

production costs. Furthermore, in order to estimate the overall effect of REM as well as to be parallel with global studies (i.e. Cohen et al., 2008; Cohen & Zarowin, 2010; Razzaque et al., 2016; Zang, 2012), this study report another three proxies of REM namely REM_1, REM_2 and REM_ALL. The first measure, REM_1 is equal to abnormal cash flow from operation plus abnormal discretionary expenses (AB_CFO+AB_DIS). The second measure, REM_2 is derived from the combination of abnormal production cost and abnormal discretionary expenses (AB_PROD+AB_DIS). REM_ALL as the last measure is derived from the combination of three individual REM proxies from AB_CFO, AB_PROD and AB_DIS. Hence, this study interprets that the higher (lower) the value of these aggregate measures, the more (less) likely the firm is involved in REM.

3.4. Independent Variables

A business group is a collection of individual firms which are managed under the same administrative and financial controls. Firms are considered affiliated to the business group if they are governed under similar ultimate controlling owner. This study specifies group-affiliated firms as firms that are controlled by an identical controlling family. Family-controlled firms can control other firms by either direct or indirect shareholding through another public listed or privately held firm. Bursa Malaysia Listing Requirements demand the disclosure of multiple directorships held by the board of directors including firm name if it is publicly listed to link the affiliated firms. Firms that are associated with the same business group can be identified if a director is a member of the controlling family. The information pertaining to the family-affiliated business group is obtained from the firm's annual report under the "Corporate Structure" and "Director's Profile" sections.

To analyse the effect of business group size, this study uses number of firms as a measure of group size and there are split into three group dummies namely; GR_S=dummy 1 if the firm is affiliated with a business group with only two publicly listed affiliates, zero otherwise; GR_INT=dummy 1 if the firm is affiliated with a business group with three to four publicly listed affiliates, zero otherwise; GR_LARGE= dummy 1 if the firm is affiliated with a business group with five or more publicly listed affiliates; zero otherwise. The classification of group size in this study is similar to Huei (2012).

Meanwhile, under the business group complexity measure, group-affiliated firms are categorised into three different dummy variables based on the group complexity structure namely, GC_SS=dummy 1 if the firm is

affiliated with a business group without a pyramidal structure, zero otherwise; GC_PS=dummy 1 if the firm is affiliated with a business group with a pyramidal structure (at least one publicly listed firm in the group that is indirectly controlled by the family through another publicly listed firm), zero otherwise; GC_CPS=dummy 1 if the firm is affiliated with a business group with a complicated pyramidal structure (at least one publicly listed firm in the group that is controlled by two or more publicly listed firms belonging to the same group), and zero otherwise. The reference to group complexity measurement is based on the previous studies of Huei (2012) and Gomez (1999).

3.5. Control Variables

To test the hypotheses, this study includes CEO duality, the board size, independent director, related party transactions, audit quality and firm size as the control variables for the firm effect.

4. Empirical Analysis

4.1. Empirical Model

Group size is not the same as group complexity. The reason for the difference is straightforward as the total number of affiliated firms is the result of group size. Meanwhile, the divergence of cash flow to control right is the results of a complex pyramidal structure of ownership. Model 1 investigates the effect of size of the family-affiliated group on REM while Model 2 examines the effect of complex structure on REM. These models opted for six proxies of REM as dependent variables, and they are regressed over the dummy variables of GROUP_SIZE and GROUP_COMPLEXITY. GROUP SIZE and GROUP COMPLEXITY are examined in separate regression models as the inclusion of too many dummy variables may increase multicollinearity in the regression. Variables CEO_DUAL, B_SIZE, IND_DIR, RPT_TA, AUD_Q, PROF, and F_SIZE are included to control the effects of CEO and Chairman dual function, the number of the board, independent directors, related party transactions, and audit quality among the Big-4 auditors, profitability and size of a firm. Both models are estimated with firm fixed effect to control for the unobserved effect of heterogeneity.

Model 1

$$REM_{i,t} = \alpha_0 + \beta_1 GROUP\_SIZE_{i,t} + \beta_2 CEO\_DUAL_{i,t} + \beta_3 B\_SIZE_{i,t} + \beta_4 IND\_DIR_{i,t} + \beta_5 RPT\_TA_{i,t} + \beta_6 AUD\_Q_{i,t} + \beta_7 PROF_{i,t} + \beta_8 F\_SIZE_{i,t} + \sum Firm\ Fixed\ Effect + \varepsilon_{it}$$

Model 2

$$REM_{i,t} = \alpha_0 + \beta_1 GROUP\_COMPLEXITY_{i,t} + \beta_2 CEO\_DUAL_{i,t} + \beta_3 B\_SIZE_{i,t} + \beta_4 IND\_DIR_{i,t} + \beta_5 RPT\_TA_{i,t} + \beta_6 AUD\_Q_{i,t} + \beta_7 PROF_{i,t} + \beta_8 F\_SIZE_{i,t} + \sum Firm\ Fixed\ Effect + \varepsilon_{it}$$

Where REM=real earnings management proxies AB_CFO, AB_DIS, AB_CFO, REM_1, REM_2 and REM_ALL; GROUP_SIZE=dummy variable, coded 1 if the firm is small with two listed affiliates, otherwise is coded zero. Similarly, GROUP_SIZE=dummy variable, coded 1 if the firm is medium with three to four listed affiliates, otherwise is coded zero. GROUP_SIZE=dummy variable, coded 1if the firm is large with five or more listed affiliates; otherwise is coded. In the same manner, GROUP_COMPLEXITY=dummy variable coded 1 if the firm has a simple structure, pyramidal structure or complicated structure, and coded 0 otherwise; B_SIZE=the total number of board members; IND_DIR=the percentage of independent directors on the board; RPT_TA=related party transactions; PROF=ratio of the net income before extraordinary items to total assets; F_SIZE=natural logarithm of total assets.

In both models, the test variables are GROUP_SIZE and GROUP_COMPLEXITY. β_1 in both models are expected to be significant and positive. B_SIZE, IND_DIR and AUD_Q are expected to reduce the magnitude of REMs in family-affiliated firms and hence, a negative association with REMs is predicted. CEO_DUAL, RPT_TA, PROF and F_SIZE is expected to have positive association with the magnitude of REMs.

4.2. Method

Panel data provides a greater degree of robust information and variability, higher degrees of freedom, additional efficiency and less collinearity among variables (Baltagi, 2005). Himmelberg, Hubbard, and Palia (1999) demonstrate that the option for ownership structure rely on unobserved firm characteristics commensurate to contractual, regulatory, or informational environments. Accordingly, panel data may treat these unobserved firm characteristics using one fixed effect estimation, known as least square dummy variable (LSDV) analysis (Baltagi, 2005;

Wooldridge, 2002). LSDV build on the advantages of panel data and reduce the estimation error.

The LSDV fixed-effect model has constant slope coefficients with varying intercepts and allows for heterogeneity. It concludes that each intercept has specific characteristics that may influence the independent variables. Hence, in our model, we introduce 117 dummy variables, allowing for a firm's individual specific effect without time effect to control something within the individual effect that may bias the outcome variables. By including the dummy for each firm, the model regresses the pure effect of family-affiliated group and complex structure on REMs, by controlling for unobserved heterogeneity. Each dummy variable is created for each firm, except one in order to avoid the dummy variable trap, and regressed simultaneously in the model.

4.3. Results

4.3.1. Descriptive Statistics

Table 1 presents the descriptive information for the dependent and control variables studied over a period of ten years. It indicates that pertaining to the dependent variables, family-affiliated firms in Malaysia report high AB_CFO and AB_DIS. This indicates an average tendency for abnormally high cash flow from operations and abnormally high discretionary expenses. On the other hand, the mean and median for AB_PROD and REM_2 (aggregate of AB_PROD and AB_DIS) display a dissimilar trend. The negative sign asserts an average tendency for unusually lower earnings management through overproduction in these firms. Meanwhile, the mean and median for REM_1, REM_2 and REM_ALL, which is meant to capture the combination of REM methods, show both positive and negative signs. The positive and negative values suggest that firms engage in upward REM and, downward REM respectively.

Table 1 also provides information regarding the mean, standard deviation, minimum, and maximum values for the control variables. As reported in Table 1, it shows that the number of family firms that have the same person as CEO and Chairman (CEO_DUAL) is relatively low, with the mean of 12 per cent, asserting that the majority of them follow the recommendation in MCCG 2000 concerning the deviation of CEO and Chairman's roles. With regards to the board size (B_SIZE), the average size is seven people, with a maximum of 14 and a minimum of four members. In our sample, the results indicate that the average percentage of independent non-executive directors (IND_DIR) is 45 per cent with a minimum of three and maximum of eight directors.

The table also shows that the mean for related party transactions (RPT_TA), measured by related party transactions to total assets is .136 with a zero minimum which asserts that there is at least one firm with no related party transactions at all. The maximum ratio of related party transactions to total assets is 1.076, demonstrating that there is a firm with high RPT value. Table 1 also reveals that firms audited by the Big 4 (AUD_Q) represent 63.2 per cent of the sample. Another characteristic being examined in this study is profitability, measured by the ratio of total net income to total assets. The mean value for profitability is at .580 with the minimum and maximum at .471 and 2.475, respectively. The results in Table 1 also provide information regarding firm size (F_SIZE) as measured by the logarithm of total assets. The minimum firm size is 7.60, and the maximum is 1.68, while the average size is 8.92.

For the normality test, both skewness and kurtosis were examined to ensure they fall between ± 3 and ±10 (Kline, 2011). In this study, the range for skewness is within -1.46 to 2.319. Meanwhile, the range for kurtosis is 1.298 to 8.758. Thus, all of the data is within the normality range, confirming that the mean of the proxies is none- zero.

Table 1. Descriptive Statistics for Dependent and Control Variables

Variables	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
AB_CFO	.020	.094	-.237	.299	.239	4.646
AB_PROD	-.005	.124	-.387	.462	.513	6.033
AB_DIS	.002	.046	-.187	.099	-1.457	7.093
REM_1	.022	.110	-.281	.324	.144	4.987
REM_2	-.003	.140	-.421	.424	-.072	5.753
REM_ALL	.016	.182	-.464	.577	.426	5.311
CEO_DUAL	.121	.327	.000	1.000	2.319	6.378
B_SIZE	7.486	1.801	4	14	.845	4.519
IND_DIR	.450	.119	.250	.750	.604	2.571
RPT_TA	.136	.189	.000	.981	2.317	8.758
AUD_Q	.632	.483	.000	1.000	-.546	1.298
PROF	.580	.471	.037	2.475	1.523	5.850
F_SIZE	8.917	.649	7.604	1.684	.546	3.308

Notes: This table reports the descriptive statistic information of all the variables under study. For the definition of variables, see the Appendix.

In addition, the variance inflation factor (VIF) indicates that all values are less than 2.5. Since the acceptable values are less than 10 (Neter, Wasserman, & Kutner, 1989), multicollinearity is not a problem. In addition, all variables, as well as REM proxies, are winsorised at the level of 1per cent and 99 per cent to control for potential outliers.

Table 2 presents the descriptive statistics for the independent variables except for dummies. Panel A shows that small business groups which are affiliated with only two publicly listed affiliates (GR_S)

represent 68.4 per cent (80) while 27.4 per cent (32 companies) is intermediate size affiliated with three to four listed firms. The remaining five firms (4.3%) are large size, affiliated with five or more public listed firms.

Panel B provides a summary of group complexity. Firms categorised as simple structure business group (GC_SS) constitute 58.1 per cent, followed by pyramidal structure (GC_PS) at 34.2 per cent and complicated structure (GC_CPS) at 7.9 per cent of the total firms.

Table 2. Descriptive statistics for Independent Variables

Panel A: Group Size				
Group Size	Yes (1)	Percentage	No (0)	Percentage
GR_S	80 Firms	68.4%	37 Firms	31.6%
GR_INT	32 Firms	27.4%	85 Firms	72.6%
GR_LARGE	5 Firms	4.3%	112 Firms	95.7%
Panel B: Group Complexity				
Group Complexity	Yes (1)	Percentage	No (0)	Percentage
GC_SS	68 Firms	58.1%	49 Firms	41.9%
GC_PS	40 Firms	34.2%	77 Firms	65.8%
GC_CPS	9 Firms	7.7%	108 Firms	92.3%

Notes: This table reports the descriptive statistic for the dependent variables used in this study. For the definition of variables, see the Appendix.

4.3.2. Correlation Matrix

Table 3 reports the pair-wise Pearson correlation coefficients among the variables in this study. The correlations between all REMs proxies are positive. This is in line with the study by Matsuura (2008), Gunny (2010) and Alqerm and Obeid (2013) who report that managers appear to conduct more than one type of REMs sequentially and simultaneously to smooth their earnings and make them difficult to be detected.

4.3.3. Regression Results for H1

Tables 4 and 5 present the results of the effects of size and complexity of family-affiliated groups' size on REM. All the models were estimated using the LSDV fixed effect estimations, including dummies to account for the individual fixed effect. The p-values (two-tailed) reported in our regression results are based on a robust cluster firm standard error. All of the REM models show good explanatory power with R^2 higher than 30 per cent (Abdullah & Wan Hussin, 2015; Chi, Lisic, & Pevzner, 2011; Gunny, 2010).

Table 3. The Pair-Wise Pearson Correlation Coefficients among the Variables

		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*
AB_CFO	*1*	1																		
AB_PROD	*2*	.16*	1																	
AB_DIS	*3*	.14*	.17*	1																
REM_1	*4*	.91*	.2*	.54*	1															
REM_2	*5*	.19*	.95*	.48*	.36*	1														
REM_ALL	*6*	.66*	.81*	.44*	.74*	.86*	1													
GR_S	*7*	.13*	.12*	.19*	.19*	.17*	.20*	1												
GR_INT	*8*	-.11*	-.09*	-.14*	-.16*	-.13*	-.16*	-.90*	1											
GR_LARGE	*9*	-.05	-.07	-.12*	-.09*	-.11*	-.10*	-.31*	-.13*	1										
GC_SS	*10*	.05	-.07	-.04	.02	-.07*	-.03	.21	-.10*	-.25*	1									
GC_PS	*11*	-.05	.12*	.08*	.02	-.14*	.08*	.03*	.04	-.15*	-.85*	1								
GC_CPS	*12*	.00	-.09*	-.09*	-.03	-.11*	-.08*	-.42*	.11	.73*	-.34*	-.21*	1							
CEO_DUAL	*13*	-.05	-.13*	-.13*	-.09*	-.16*	-.14*	.06	-.05	.03	-.08*	.05	.06*	1						
B_SIZE	*14*	.00	.10*	.08*	.03	.12*	.09*	-.01	-.11*	.23*	-.15*	.10*	.1*	-.02	1					
IND_DIR	*15*	-.02	-.03	-.12*	-.07	.07	-.07	-.17*	.22*	-.10*	-.14*	.10*	.06	.11*	-.33*	1				
RPT_TA	*16*	.13*	-.05	.04	.12*	.03	.04	.00	.04	-.08*	.06	-.10*	.08*	-.08*	-.03	.06	1			
AUD_Q	*17*	-.06	.03	.01	-.05	.03	.01	-.05	-.02	.16*	.30*	.15*	.19*	.07	.16*	.11*	.15*	1		
PROF	*18*	.31*	-.03	.04	.28*	-.02	.15*	.09*	-.11*	.03	.04	-.06	.03	-.06	.02	-.12*	.33	.00	1	
F_SIZE	*19*	-.27*	.10*	-.04	-.25*	-.08*	-.08*	-.36*	.27*	.24*	-.51*	.36*	.3*	.06	.28*	.15*	-.11*	.21*	-.26*	1

Notes: This table reports the pair-wise Pearson correlation coefficient among the variables used in this study. Bold figures in the table are significant at $p < .05$. For the definition of variables, see the Appendix.

.

Table 4. Least Square Dummy Variables (LSDV) Estimates for the Relationship between the Sizes of Family-Affiliated Business Group and REMs

Variables	(1) AB_CFO	(2) AB_PROD	(3) AB_DIS	(4) REM_1	(5) REM_2	(6) REM_ALL
GR_S	.211***	-.593***	.061**	.243***	-.532***	-.299**
	(.061)	(.113)	(.028)	(.056)	(.108)	(.116)
GR_INT	.172***	-.613***	.022	.229***	-.581***	-.292**
	(.062)	(.120)	(.034)	(.062)	(.122)	(.127)
GR_LARGE	.187***	-.627***	.040	.218***	-.580***	-.330**
	(.067)	(.126)	(.031)	(.062)	(.118)	(.130)
CEO_DUAL	.000	-.045***	-.032***	-.044***	-.074***	-.115***
	(.010)	(.013)	(.007)	(.011)	(.018)	(.026)
B_SIZE	.007***	-6.09e-05	.002*	.003	.001	.005
	(.002)	(.003)	(.001)	(.002)	(.003)	(.003)
IND_DIR	.048*	.021	.007	.042	.024	.053
	(.028)	(.038)	(.008)	(.033)	(.042)	(.052)
RPT_TA	-.000	-.014	-.001	.014	-.016	.001
	(.007)	(.010)	(.004)	(.009)	(.012)	(.014)
AUD_Q	.049**	-.013	-.007	.025	-.030	.009
	(.024)	(.037)	(.014)	(.027)	(.040)	(.052)
PROF	-.001	-.008	.006	.001	.008	-.008
	(.008)	(.016)	(.006)	(.015)	(.020)	(.030)
F_SIZE	-.028***	.067***	-.007**	-.029***	.060***	.029**
	(.007)	(.014)	(.003)	(.007)	(.013)	(.013)
Firm effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,170	1,170	1,170	1,170	1,170	1,170
R-squared	.398	.371	.469	.403	.482	.427

Note: Figures in parentheses are robust standard errors clustered by firm. For the definition of variables, see the Appendix. Superscripts ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.
Firm dummies were jointly significant but not tabulated here to save space.

Based on the arguments stated in the hypotheses development, higher expropriation activities might increase gradually with the size of business groups due to the lack of transparency activities in these firms. As expected, the results in Table 6 suggest that most of the group proxies show a significant relationship with REMs at p-value<.05. A positive effect is expected between group size and REM proxies because as the size of family-affiliated business groups increases, the more complex they become and possess more operations, the higher the incentives for earnings mismanagement.

Specifically, the results show a positive and significant relationship between small group size (GR_S) and REM proxies, namely AB_CFO, AB_DIS and REM_1 in Table 4. Meanwhile, the intermediate (GR_INT) and large groups (GR_LARGE) behave almost similar and show a significant positive relationship with AB_CFO and REM_1. Further, the results also indicate that all sizes of firms have a significant negative

relationship with overproduction (AB_PROD) as well as another two REM proxies in columns (5) and (6) that are derived from AB_PROD aggregate measures with a p-value at <.05. The results infer strong evidence of the opportunistic use of REMs proxies for manipulating earnings regardless of the size of family-affiliated firms. The possible reason regarding downward overproduction is presumably due to firms' unwillingness to bear high inventory costs in the form of warehousing costs, costs of obsolescence, insurance and interest costs which may reduce firm's cash flow from operations during the current accounting period. Our results are inconsistent with those of Thomas and Zhang (2000) and Cook, Huston, and Kinney (2012), who found that firms, especially manufacturers are engaged in overproduction to report higher earnings. In particular, this finding partially supports H1.

The control variables suggest that family-affiliated firms with bigger board size, more independent directors and firms audited by the Big-4 auditors tend to engage in greater level of AB_CFO. Meanwhile, the existence of CEO and Chairman duality (CEO_DUAL) in family-affiliated firms seems capable to reduce all REMs except AB_CFO. Table 4 also reveals that F_SIZE is significantly related to all of REMs model. However, the LSDV fixed effect results only show the significant positive relationship (p-value<.05) of F_SIZE and REMs proxies in columns (2), (5) and (6), and negative relationship with the rest of the models.

4.3.4. Regression Results for H2

As for the association between group complexity and REMs in Table 5, our study provides strong evidence that cross-holding ownerships and complex pyramidal structures are important attributes in exacerbating REM (i.e. AB_CFO, AB_DIS, and REM_1). The coefficients of all group complexity structures in columns (1), (3) and (4) are positive and significant with p-value < .01. Thus, indicating that in the presence of direct-controlled as well as a pyramidal structure, family-affiliated firms have the propensity to substantiate earnings manipulation in the form of sales acceleration, price discount, as well as a reduction in discretionary expenses. Consistent with the finding in Table 4, the results demonstrate that group complexity is negatively related to AB_PROD and all its aggregate measurements as indicated in columns (2) and (5). This finding serves as evidence to partially support the *H2* on the positive relationship between complex structures of family-affiliated business groups and REMs.

Table 5. Least Square Dummy Variables (LSDV) Estimates for the Relationship between the Complexity Structures of Family-Affiliated Business Group and REMs.

Variables	(1) AB_CFO	(2) AB_PROD	(3) AB_DIS	(4) REM_1	(5) REM_2	(6) REM_ALL
GC_SS	.288***	-.332***	.087***	.253***	-.417***	-.113
	(.054)	(.078)	(.023)	(.065)	(.080)	(.126)
GC_PS	.328***	-.283***	.098***	.296***	-.339***	-.018
	(.059)	(.079)	(.026)	(.070)	(.080)	(.131)
GC_CPS	.340***	-.313***	.079***	.288***	-.361***	-.042
	(.062)	(.086)	(.028)	(.073)	(.085)	(.140)
CEO_DUAL	-.0163**	-.080***	-.035***	-.059***	-.090***	-.147***
	(.007)	(.012)	(.010)	(.014)	(.016)	(.026)
B_SIZE	.003	.003	.003***	.004*	-.003	.009**
	(.002)	(.002)	(.001)	(.002)	(.003)	(.004)
IND_DIR	.001	.036	-.004	.045	.038	.046
	(.029)	(.036)	(.009)	(.030)	(.040)	(.051)
RPT_TA	-.001	-.009	-.003	.008	-.010	-.001
	(.006)	(.009)	(.003)	(.008)	(.014)	(.015)
AUD_Q	.039	-.028	-.007	.031	.014	.0115
	(.023)	(.038)	(.013)	(.028)	(.041)	(.057)
PROF	.016*	-.024	-.005	.005	.013	.007
	(.009)	(.016)	(.007)	(.014)	(.025)	(.029)
F_SIZE	-.036***	.034***	-.011***	-.035***	.042***	.001
	(.006)	(.009)	(.003)	(.008)	(.009)	(.014)
Firm effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,170	1,170	1,170	1,170	1,170	1,170
R-squared	.405	.367	.469	.388	.486	.409

Note: Figures in parentheses are robust standard errors clustered by firm. For the definition of the variables, see the Appendix. Superscripts ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively. Firm dummies were jointly significant but not tabulated here to save space.

The control variables underpinned that firms with high profit (PROF) tend to engage more in REMs. Next, a larger board size (B_SIZE) was found to be significantly positively related to AB_DIS, REM_1 and REM_ALL. This is consistent with Mansor, Che-Ahmad, Ahmad-Zaluki, and Osman (2013) which report that board size is associated with higher earnings management. Since board members would be appointed from family members, greater coalition among them could ease the earnings manipulations. Furthermore, the presence of CEO and Chairman duality (CEO_DUAL) in family-affiliated firms is likely to attenuate all REMs. Similar to group size argument in Table 4, family-affiliated firms that hold cross-holding and pyramidal ownership are also inclined to apply earnings manipulation with overproduction element in order to report high earnings.

Overall, the regression results in Tables 4 and 5 partially support the hypotheses that family-affiliated business group in Malaysia engage in

REM. One unanticipated finding is that these firms are less likely to engage in overproduction. This result may be explained by the fact that this particular type of manipulation would incur costs for warehousing and holding that might eventually reduce the firm's cash flow. Although these results differ from the published study of Achleitner et al. (2014), they are consistent with those of Razzaque et al. (2016).

The contrary results to prior studies in developed countries may be explained by factors such as differences in economic circumstances. Wang (2006) and Ali, Chen, and Radhakrishnan (2007) have argued that family firms in developed economies with strong legal procedures and high-quality enforcement exhibit less earnings management and better earnings quality. On the other hand, studies in Asian economies conclude a strong link between family firms and low earnings quality (Fan & Wong, 2002) and greater earnings management (Ding, Qu, & Zhuang, 2011).

5. Conclusion

This study examines the relationship between family-affiliated firms and the practice of REM in Malaysia. We use the entrenchment effect of the agency theory, which suggests that family ownership is related to greater information asymmetry between controlling and minority shareholders. This may result in an opportunity for wealth expropriations by the controlling shareholders. Consequently, the entrenchment effect motivates the controlling owners to opportunistically manage earnings in order to camouflage their self-serving behaviour. We predict that, in the context of emerging economies, where law, legal enforcement and investor protection is often weak, the size and complex group structures of family-affiliated firms may foster greater opportunities for the controlling shareholder to expropriate wealth and conceal this practice through opportunistic earnings management activities.

While past studies investigate the impact of family ownership on earnings management, this study advances the existing literature on family firms by showing that there is positive effect between size and complex structures on REM in the form of operating cash flows and discretionary expenses. Nevertheless, further investigation shows that family-affiliated firms tend to manage overproduction downward. A possible explanation for this behaviour is that such action may avoid them from bearing inventory-related costs such as warehousing and holding.

The presence of strong family ownership and weak investors' protection may facilitate expropriations of minority shareholders by the family owners. Moreover, REMs can take place at any time during the year, whereas accruals manipulations are usually carried out at the end of

the fiscal year. Therefore, REMs offer greater flexibility from the managerial perspective. Even though REM enables managers to meet short-term earnings targets they are, however, unlikely to increase long-term firm value mainly because the deviations from real activities have an abundant impact on future cash flows (Cohen & Zarowin, 2010). For example, the introduction of lenient credit terms may increase sales tremendously in the current year but result in slow or reduced collections in subsequent periods, which in turn, would adversely impact future cash flows.

Above all, the findings partially support the first and second hypotheses. The results of the two hypotheses are consistent with past studies which indicate that family firms with pyramidal and cross-holding structures in emerging market are likely to increase the likelihood of earnings management, either accrual or real (Fan & Wong, 2002; Razzaque et al., 2016). Additionally, our empirical results also provide evidence that family-affiliated firms in Malaysia suffer from increased agency problem, particularly the Type II agency problem where this evidence is in line with tunnelling and entrenchment hypotheses.

For this reason, investors, auditors, analysts and practitioners should consider family-affiliated firms as a factor that significantly induces earnings manipulation. This result is also relevant for regulators to consider minor reform in the capital market. As part of the initial reform, the regulators need to regulate takeover rules or tax policy for affiliated groups in order to create incentives for them to maintain a certain size or complexity structure, or otherwise, they might be penalised if and when exceeding the specified level of size or complexity. Other than that, the government may also introduce additional incentives to encourage controlling families with majority ownership to dispose of some of their shareholdings to free up more shares for foreign investors which subsequently may increase the free float level.

The findings of this study, however, are subject to several limitations and may provide a path for further research. Firstly, the results may be generalised to developing countries only and not apply to developed countries with less concentrated ownership or without the pyramidal structure. Hence, to increase the generalisation of the findings of this study, future research could be performed using diverse industries as well as multiple countries with parallel institutional context and governance mechanisms. Secondly, our results might be weakened as we relied solely on REM as earnings management proxies. In order to improve the understanding of the opportunistic use of earnings management, future research on family-affiliated firms and earnings management could shed

additional light by examining the influence of AEM as well in the earnings manipulations.

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Appendix

Definition of variables and measurement

Variables	Definition	Measurement
AB_CFO	Abnormal cash flow from operations	The difference between the actual CFO and the estimated normal level of CFO.
AB_PROD	Abnormal production costs	The difference between the actual production costs and the expected normal level.
AB_DIS	Abnormal discretionary expenses	The difference between the actual discretionary expenses and predicted normal level of discretionary expenses.
REM_1	Aggregate of AB_CFO and AB_DIS	The sum of abnormal cash flow from operations and abnormal discretionary expenses.
REM_2	Aggregate of AB_PROD and AB_DIS	The sum of abnormal productions cost and abnormal discretionary expenses.
REM_ALL	The aggregate of real earnings management	The sum of abnormal cash flow, abnormal production cost and abnormal discretionary expenses.
GR_S	Small size business group	1 if the firm is affiliated with a business group with only two publicly listed affiliates; 0 otherwise.
GR_INT	Intermediate size business group	1 if the firm is affiliated with a business group with three to four publicly listed affiliates; 0 otherwise.
GR_LARGE	Large sized business group	1 if the firm is affiliated with a business group with five or more publicly listed affiliates; 0 otherwise.
GC_SS	Simple structure business group	1 if the firm is affiliated with a business group without a pyramidal structure; 0 otherwise.
GC_PS	Pyramidal structure business group	1 if the firm is affiliated with a business group with a pyramidal structure (at least one publicly listed firm in the group that is indirectly controlled by the family through another publicly listed firm); 0 otherwise.
GC_CPS	Complicated pyramidal structure business group	1 if the firm is affiliated with a business group with a complicated pyramidal structure (at least one publicly listed firm in the group that is controlled by two or more other publicly listed firms belonging to the same group); 0 otherwise.
CEO_DUAL	CEO duality	1 if the chairman also holds the position of CEO and 0 otherwise.
B_SIZE	Board size	Total number of members on the board.
IND_DIR	Independent directors	The percentage of independent directors on the board.
AUD_Q	Audit quality	1 if the firm is audited by Big 4, 0 otherwise.
PROF	Profitability	The ratio of total net income to total assets.
RPT_TA	Related party transaction	The ratio of related party transaction to total assets.
F_SIZE	Firm size	The logarithm of total assets.