EXTERNAL DEBT FINANCING AND REAL EARNINGS MANAGEMENT: EVIDENCE FROM MALAYSIAN FAMILY GROUP AFFILIATION

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ABSTRACT

The role of external debt in an emerging country with highly concentrated ownership is expected to raise the expropriation risk by the controlling shareholders as wider separation between cash flow and control rights might increase borrowing cost. This study investigates external debt financing role in exacerbating real earnings management (REM) in family group affiliation firms with complex pyramidal structure. A sample of 1,170 firm-year observations was collected covering 2006 until 2015. The Hausman test was used to determine the estimation method of fixed and random effects regression of each REM activity of the suspected firms towards short-term debt (STD) and long-term debt (LTD). We found a significant positive relationship between STD and REM. STD might motivate stringent monitoring by lenders and encourage family firms to manipulate earnings, possibly to avoid violating debt covenants and to portray healthy financial conditions to mask their entrenchment behavior. We have also found less manipulation of REM with LTD, as lack of tight monitoring by lenders might less likely trigger earnings manipulation. This study provides additional input to users of financial information in making informed decisions. This study, however, only documents the results in family group affiliation firms. Hence, causality of debt in non-family group affiliation firms also requires further theoretical and empirical examination. We argue that this is the first study to examine external debt financing effect on REM in family group affiliation firms in Malaysia.

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1. INTRODUCTION

According to positive accounting theory, financially distressed firms that closely approach debt covenant violations are likely to engage in manipulation to relieve their debt (Watts and Zimmerman, 1986, 1990). This study investigates whether external debt financing, which acts as a substitute for insufficient internal capital markets in family group affiliation firms, exacerbates real earnings management (REM). The entrenchment effect view suggests that earnings management sensitivity to debt levels is expected to be high for affiliated business groups with pyramidal structure (Wang and Lin, 2013). Most global recent research tested the difference issue in family firms towards real earnings management (REM) (Eng et al., 2019; Razzaque, Ali, and Mather, 2016; Achleitner et al., 2014). Zamri, Rahman, and Isa (2013) have examined effect of debt on REM in Malaysian non-affiliated firms and find that debt acts as a controlling system which limits REM. Yet, very few studies have examined the same issue in family affiliated firms. Hence, this study added to the scarce literature by addressing the external debt financing impact on REM in family group affiliation firms characterized by pyramidal and cross-holding ownership structures.

The World Bank (2012) assessment of corporate governance in Malaysia stated that traditional family groups remain an important part of Malaysia's corporate landscape, with most firms still having controlling shareholders. In Malaysia, 25% of market capitalization was controlled by the top-ten wealthiest families (Carney, 2008; Claessens, Djankov, and Lang, 2000). Family business groups dominate over 56% of the market (Claessens, Fan, and Lang, 2006) and this dominance by controlling families intensifies the agency problem opportunity by reason of pyramidal structure, entrenchment[1] by controlling families and tunnelling (Almeida and Wolfenzon, 2006). As mentioned by Claessens et al. (2002), firms with controlling shareholders among Malaysian public listed firms (PLCs) exhibit higher levels of expropriations[2] activities compared to listed firms in other countries.

A deep pyramidal structure generates significant separation between ownership and control. As a result, family members may enhance their control rights and preserve their ultimate control in order to smooth wealth expropriations of non-controlling shareholders' funds (Claessens et al., 2000). From an agency theory perspective, higher ownership concentration firms are related to lower earnings quality due to entrenchment effects (Morck, Shleifer, and Vishny,

1988; Fama and Jensen, 1983). Controlling shareholders may conceal the entrenchment behavior by using earnings manipulation to circumvent outside interference and regulatory penalties (Kim and Yi, 2006; Leuz, Nanda, and Wysocki, 2003).

The average external debt is relatively high in Malaysian family firms with cronies where CEOs, Board members, Chairman of the Board or Vice-Chairman also represent the controlling owners who could trigger managerial opportunism and moral hazard problems (Driffield, Mahambare, and Pal, 2007). Therefore, it is interesting to examine the relationship between and REM in family group affiliation firms in Malaysia as prior study focused mostly on debt within non-pyramidal firms and tend to ignore the focus on complexity structures such as the pyramidal effect (Ghazali, Shafie, and Sanusi, 2015; Selahudin, Zakaria, and Mohd Sanusi, 2014; Zamri et al., 2013). In addition, prior studies such as Wang and Lin (2013) and Zamri et al. (2013) attempt to associate short-term debt (STD) with long-term debt (LTD). We therefore extend prior work by investigating attributes with respect to family group affiliation, namely, debt in the form of STD and LTD to determine whether this factor influences REM.

Our study contributes to the literature in the following ways. First, this study adds to the emerging research on the alarming aspects of group affiliation, especially complex pyramidal effects. We extend prior work by empirically investigating whether external debt financing advantages in family affiliated firms can exacerbate REM. Second, this study adds to understanding of agency theory by examining the association between external debt and REM across concentrated ownership held by family members.

The rest of the paper is organized as follows. Section 2 reviews past literature and develops hypotheses under study. Section 3 describes the sample selection and model estimation, and section 4 discusses the empirical results. Finally, Section 5 summarizes the paper with several recommendations for future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Previous studies evidenced that managers are more likely to substitute from accounting accrual to real economic decision due to accounting standard restrictions (Cohen, Dey, and Lys, 2008) and related cost of manipulation (Zang, 2012). A study by Mahyuddin (2017) shows that Malaysian firms substitute REM with AEM (accrual earnings management) especially during post IFRS convergence and also due

to the revised Malaysian Code of Corporate Governance (MCCG) and Audit Oversight Board (AOB) in 2010. Accrual earnings management is costless as it involves manipulations of firm's earnings without a cash flow effect. In contrast, REM is costly as it consists of earnings manipulation through real business operations which affects the economic transactions, and ultimately change the firm's free cash flow as it sacrifices some value maximizing activities (Zang, 2012). REM not only disturbs normal operational activities, but it also impairs company future value (Cohen and Zarowin, 2010). Comparing the concealment of these two earnings managements, REM is second to none due to its nature, which bestows a unique blend with normal business operations (Gunny, 2010). Hence, REM is preferred because it is more difficult to detect by outsiders, auditors, and regulatory scrutiny and yet relatively easy to implement. Managers' goals in REM are to deceive financial statement users into believing the published financial reports. REM involves financing, investment, and operating activity to enhance incomes in financial reporting. Hence, through REM, managers exploit one or multiple tools for REM to meet the desired financial reporting benchmarks and avoid reporting losses (Roychowdhury, 2006). A recent study by Enomoto, Kimura, and Yamaguchi (2015) states that REM is preferred in countries with stronger investor protection but weak legal enforcement. Using data from the year 1991 until 2010, they report that Malaysian firms engage in REM relatively more than in AEM.

In Malaysia, only a limited number of studies are closely related to the current research investigating the impact of debt on earnings management. For example, a literature review on earnings management by Ghazali et al. (2015) suggests that debt exacerbates AEM as defaulting firms prefer to make accounting changes to avoid debt covenant violation and try to convey that lender firms are not running into loss. On the contrary, prior studies suggest that high debt even decreases opportunistic earnings management as firms are subject to scrutiny by lenders. Furthermore, managers are responsible for debt payment as a consequence of avoiding insolvency (Zakaria, Mohd Sanusi and Mohamed, 2013; Zamri et al., 2013). Nevertheless, Selahudin et al. (2014) and Aman et al. (2009) found insignificant results between debt and earnings management suggesting that debt is not being manipulated to cover earnings manipulation activities. In another study conducted in Malaysia, Mohamad Kamal and Khazalle (2021) find that debt in turn has an inverse relationship with earnings management.

Unlike the present study, prior research uses random sampling and does not focus on family group affiliation firms. The motivation of this study is inspired from empirical evidence coupled with the limited research of similar kind that focused on debt in family business groups with pyramidal and complicated ownership in Malaysia. Furthermore, findings from developed countries could not be generalized to the Malaysian market as the countries differ in the institutional settings context including the legal systems and regulations as well as the accounting disclosure requirements.

For business group firms, capital may come from both internal and external capital markets. Group firm's internal capital structure is influenced by several factors such as group member profitability and size (Manos, Murinde, and Green, 2007). Byun et al. (2013) show that firms belonging to business groups with large resources can potentially use their funds to support financially troubled member firms. The study reports that *Chaebol* business groups in Korea experience lower cost of public debt than stand-alone firms because risk-sharing helps in reducing debt and default risk costs.

Where internal capital is insufficient to support operation, however, external debt shall become a substitute. Stulz (1990) reveals that discrepancy in free cash flow is the reason for using external funds; thus, this explains a high debt ratio and the capital structure of the business group (Verschueren and Deloof, 2006). Furthermore, banks are willing to lend to group firms as they are less likely to default on loans because of cross debt guarantees among member firms (Kim, 2004; Gopalan, Nanda, and Seru, 2007). It is also reported that business group affiliation firms have a higher level of debt than stand-alone firms. This condition can be explained by factors such as better access to external funding due to an excellent reputation (Chang and Hong, 2000), reduction in agency cost of debt and creation of an internal capital market by business groups (Chakraborty, 2011).

Using debt as an expropriation mechanism is carried out by forcing subsidiaries to acquire more external debt and rearranging it through intercompany transactions to avoid being easily discovered by outsiders. Lin et al. (2011) show that the relationship between external debt cost and ownership structure depends mainly on the influence of risk of expropriation by the ultimate shareholders, which are facilitated by their excessive control rights. Hence, an increase in lender monitoring and credit risk cost, in turn, raise the cost of debt for borrowers.

From the agency theory perspective, the role of external debt in an emerging country with highly concentrated ownership is

expected to raise the expropriation risk (Shleifer and Vishny, 1997). Prior study claims that debt is eventually utilized by owners for their favored projects (Atanasov, Boone, and Haushalter, 2010). Faccio, Lang, and Young (2007) ascertain that in highly concentrated ownership firms, where management is often drawn from controlling shareholders, debt is used as an expropriation mechanism to expand private gains. Controlling shareholders mask such expropriation behavior via opportunistic earnings management to avoid external intervention and disciplinary action by lenders and regulators (Kim and Yi, 2006). Diamond (2004) notes that when legal enforcement is weak and the enforcement costs outweigh the benefits, punishing borrowers would also hurt lenders. Thus, lender enforcement absenteeism could motivate improper borrower behavior and encourage earnings manipulation.

DeAngelo and DeAngelo (2000) conducted a case study using US firms to examine the role of debt as a disciplinary mechanism. They reveal that controlling family ownership did not function as a useful device in disciplining the management because of the personal relationship between the management and family members. Several studies also claim that debt is not as effective a disciplinary device in pyramidal structure firms as in stand-alone firms since the complex ownership structures and control-ownership separation in pyramidal firms create severe expropriation risk (Bertrand and Mullainathan, 2003; Faccio et al., 2007). Consistent with this argument, Paligorova and Xu (2012) suggest that pyramidal firms have higher debt than non-pyramidal firms, and debt use is associated with expropriation risk by the ultimate owners. Jiang, Lee, and Yue (2010) disclose that intra-group loans act as a potential tunnelling device used by the ultimate owners to expropriate non-controlling shareholders.

Tunnelling can be harmful and may decrease firm performance and market value. Accordingly, deteriorating performance may increase the possibility of covenant violations, increase the interest rates and decrease allowable loans in the future (Beneish and Press, 1993). Creditors prefer STD to LTD since the former requires a contract renewal between borrowers and banks upon every maturity (Stulz, 1990; Petersen and Rajan, 1995). This allows creditors to monitor borrowers with the least effort and could curtail their opportunistic behavior. Firms are probably exposed to certain drawbacks from the short debt maturity such as liquidity and refinancing risk (Chou et al., 2011). Wang and Zheng (2020) claim that the intensive compliance requirement may motivate managers to

engage in REM to exaggerate financial performance to reduce likelihood of default.

On the other hand, comprehensive study by Roberts and Sufi (2009) concluded that almost 90% of LTD contracts are renegotiated before the maturity date because of severity of debt covenant violations. LTD would be used as a backup financial capital element for STD by the family group affiliation managers to safeguard firm sustainability to obscure solvency problems in case of insufficient internal capital. Compared to the two different debts of STD and LTD, however, the drawback of the liquidity risk for long maturity debt is less obvious and to some extent, free from the recurrent lender scrutiny. Firms engaging in aggressive earnings management usually have greater incentives to issue LTD than STD, and in so doing, reduce frequency of outside monitoring (Chou et al., 2011).

In summary, the agency theory suggests a positive effect of external debt on REM. At present, a systematic understanding of how LTD and STD in family group affiliation firms with pyramidal and complicated ownership contribute to REM is still lacking. Based on the discussion, it is argued that separation of control and ownership due to the pyramidal structure enhance expropriation activities by family affiliation group members in Malaysia. Therefore, the following hypotheses are formulated:

$H1_a$: Short-term debt financing in family group affiliation has a positive effect on REM.

$H1_b$: Long-term debt financing in family group affiliation has a positive effect on REM.

3. DATA AND METHODOLOGY

3.1 DATA AND SAMPLE SELECTION

The initial sample data covers 744 public listed companies (PLCs) in Bursa Malaysia from 2006 until 2015. The final sample involved 117 firms after excluding those firms that failed to meet the criteria set for this study. The sample excludes finance sector firms as they are governed under different regulations. In addition, sectors with very few observations and firms with largest ultimate owners are state, foreign, widely held, without ultimate owners, independent and non-affiliated were also removed from the sample. The final sample consists of 1,170 firm-year observations involving a longitudinal data

analysis which met the classification of family-affiliated and controlled firms.

Data relating to the corporate governance attributes are gathered from the firm's annual report which are accessible and downloadable from the Bursa Malaysia website. Financial data were obtained from Thomson Reuters Eikon DataStream. Any missing financial value from DataStream is obtained from the annual report.

This study focuses on a sample firm that is owned and controlled by a family, or an individual. Consistent with prior literature, this study terms family or an individual as the 'controlling family' when they serve as largest shareholders and own at least 10% of the firms' equity shares either directly or indirectly (La Porta, De Silanes, and Shleifer, 1999; Claessens et al., 2000). The ownership information can be traced from annual reports under the section "Directors' Shareholdings". The family ownership is calculated through the fraction of equity ownership involving direct and indirect equity holdings. In keeping with Bursa Malaysia Listing Requirement, all directors are required to disclose their family relationship with any director or largest shareholder in the annual reports. Therefore, the information pertaining to the director's family relationship could be retrieved under the section 'Board of Directors and Corporate Information' of the firms' annual reports.

3.2 DEPENDENT VARIABLE

To test for the existence of REM, following previous research (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012) we assess cash flow manipulation, overproduction and reduction in discretionary expenses as REM tactics. The REM is calculated as the actual expense minus the predicted normal level expense. In accordance with Roychowdhury (2006) and Cohen and Zarowin (2010), firms that practice real earnings manipulation are likely to experience partly or entirely of these accounting effects:

Abnormally lower than the expected normal level of cash flow from operation acts as a signal of income-increasing REM due to abnormal price markdown or expansive credit terms to reach high reported earnings in the recent period. The potential consequences of sales manipulation include decrease in cash flows from current period sales and damage in future profitability once the firms revert to the old price. Consistent with Roychowdhury (2006), the normal level of cash flow from operations is estimated using the following model:

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

Abnormally lower discretionary expenses may result following intentional omission of research and development (R&D), advertising and selling, general and administrative (SGA) expenses to boost current period earnings and cash flows. The following model is used to determine the actual and estimated level of production costs:

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

Abnormally higher production cost is reported from the reduction in Cost of Goods Sold (COGS) that offset marginal production and inventory holding cost which in turn increased the reported earnings in the current period. Consistent with Roychowdhury (2006) and Cohen et al. (2008), the following model is used to estimate the predicted (AB_DIS):

(3) $$\frac{DIS_{it}}{TA_{it-1}} = \alpha_1 \left(\frac{1}{TA_{it-1}}\right) + \alpha_2 \left(\frac{SALES_{it-1}}{TA_{it-1}}\right) + \varepsilon_{it}$$

Where CFO_{it} = cash flow from operations; TA_{it} = total assets; $SALES_{it}$ = total revenue; $\Delta SALES_{it}$ = change in revenue computed as $revenue_t$ minus $revenue_{t-1}$; $PROD_{it}$ = production cost, the sum of the cost of goods sold and the change; DIS_{it} = the sum of discretionary expenses including research and development (R&D), marketing, advertising, and selling, general and administrative (SGA); ε is error term, i is firm and t is year, respectively.

AB_PROD normally exhibits a positive expense, while suspected firms with AB_CFO and AB_DIS normally exhibit a negative expense. Specifically, to align with other previous recent studies (Cohen and Zarowin, 2010; Zang, 2012; Abdullah and Wan Hussin, 2015), we multiply them with negative 1 to represent higher values of manipulation through sales manipulation using price discounts and reduction in discretionary expenses. Nevertheless, we do not multiply AB_PROD with negative 1 since an additional unit of production to reduce the unit COGS indicates an increase in production costs.

For an in-depth comprehension on the combination effects of all these three REM variables, we follow global studies (Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012; Razzaque et al., 2016) and report three other individual REM variables by combining the single variables. The first REM measure, REM_1 is derived from the combination of AB_CFO and AB_DIS, REM_2 is measured through AB_PROD+AB_DIS, while REM_ALL is the combination of all REM proxies. In this regard, three separate variables underlying REM_ALL have diverse implications for earnings that may possibly weaken any results from REM_ALL regression alone (Cohen and Zarowin, 2010). Hence, the results of REMs are reported relative to the single REM as well as the combination of REM variables. This study interprets that the higher the value, the more likely REMs are used opportunistically.

3.3 INDEPENDENT VARIABLES

Debt data is derived from the ratio of STD and LTD to total assets. Both ratios are known as solvency ratios and the debt measures the percentage of the firm's asset that would need to be liquidated to pay off the firm's short-term debt (Fung and Goodwin, 2013; Park, 2016) and long-term debt (Gupta, Khurana, and Pereira, 2008; Croci, Doukas, and Gonenc, 2011).

3.4 CONTROL VARIABLES

This study also included control variables that could influence the extent of REM practices. These are the short and long term debt (DEBT), board size (B_SIZE) which is proxied by the total number of board members (Jensen, 2010). Audit quality (AUD_Q) is used as a proxy for firms audited by acclaimed auditors, and represented by dummy variables coded one if the firm is audited by a Big-4 auditor, otherwise 0 (Becker et al., 1998; Defond and Jiambalvo, 1994). Independent director (IND_DIR is represented by the percentage of independent directors on board (Xie, Davidson III, and Dadalt, 2003). In addition, this study also controls for profitability (PROF) and firm size (F_SIZE) by taking a ratio of the net income before extraordinary items to total assets and a natural logarithm of total assets (Wan Abdullah, 2013b).

3.5 ESTIMATION MODEL

To test hypotheses, an equation model is developed with REM as the dependent variables to analyze the causal relationship with the independent variables, namely STD and LTD, as the proxy for external debt financing. We also use several control variables; hence, we run the following equation:

$$REM_{i,t} = \beta_0 + \beta_1 DEBT_{i,t} + \beta_2 B\_SIZE_{i,t}$$
$$+ \beta_3 AUD\_Q_{i,t} + \beta_4 IND\_DIR_{i,t} + \beta_5 PROF_{i,t}$$
$$+ \beta_6 F\_SIZE_{i,t} + \varepsilon_{it}$$

Where REM = AB_CFO, AB_DIS, AB_CFO, REM_1, REM_2 and REM_ALL; DEBT = STD and LTD; B_SIZE = board size; AUD_Q = audit quality; IND_DIR = independent director; PROF = profitability; F_SIZE = firm size. A significant and positive β_1 supports the hypotheses that debts are more prone to REM. Meanwhile, B_SIZE, IND_DIR and AUD_Q are expected to lower the magnitude of REM, hence a negative association with REMs is predicted. On the other hand, PROF and F_SIZE is expected to have a positive association with the magnitude of REMs.

4. RESULTS

4.1 DESCRIPTIVE STATISTIC

The descriptive statistics of REM, independent and control variables used in the study are presented in Table 1. As shown in Table 1, the magnitude of REMs in the sample has a high mean value for AB_CFO, REM_1 and REM_ALL, at 0.020, 0.022 and 0.016 respectively. The results provide evidence that on average, the affiliated group firms show a high tendency of REM using cash flow from operation and the combination of REM methods, whereas the minimum value AB_PROD, at -0.005, claims a lower tendency for earnings management using overproduction. By contrast, the results contradict prior research of positive AB_PROD mean value (Zamri et al., 2013; Mohd Suffian, Sanusi, and Mastuki, 2015). The results of AB_DIS and REM_ALL are consistent with the findings of prior research in Malaysia, which show positive mean values (Kalgo et al., 2015).

As in Table 1, the mean for STD and LTD are 11.2% and 12.5%, respectively. Salim and Yadav (2012) document that on average, Malaysian firms finance their assets using both STD and LTD. From the sample, however, the percentage is higher for LTD

than STD. A higher mean of LTD is consistent with evidence by Ameer (2011) who found that firms in emerging markets with higher concentrated ownership use more LTD. Moreover, Croci et al. (2011) also reveals that family-controlled firms in developed countries use more LTD than STD which signal that lenders ascertain them as more risk-averse firms than non-family firms.

TABLE 1
Descriptive Statistics of Independent, Dependent, and Control Variables

Variables	Mean	St. Dev	Min	Max
AB_CFO	0.020	0.091	-0.237	0.299
AB_PROD	-0.005	0.124	-0.387	0.462
AB_DIS	0.002	0.046	-0.187	0.099
REM_1	0.022	0.106	-0.281	0.324
REM_2	-0.003	0.135	-0.421	0.424
REM_ALL	0.016	0.176	-0.464	0.577
STD	0.112	0.104	0.000	0.438
LTD	0.125	0.137	0.000	0.763
B_SIZE	7.486	1.801	4.000	14.000
AUD_Q	0.632	0.483	0.000	1.000
IND_DIR	0.450	0.119	0.250	0.750
PROF	0.580	0.471	0.035	2.475
F_SIZE	8.917	0.644	7.604	10.684

Notes: AB_CFO = abnormal cash flow from operations; AB_PROD = abnormal production costs; AB_DIS = abnormal discretionary expenses; REM_1 = AB_CFO+AB_DIS; REM_2 = AB_PROD+AB_DIS; REM_ALL =n AB_CFO+AB_PROD+AB_DIS. STD = short-term debt; LTD = long-term debt; B_SIZE = board size; AUD_Q = audit quality; IND_DIR = number of independent directors; PROF = profitability; F_SIZE = firm size.

The correlation coefficient is further determined to investigate the relationship and the extent to which dependent and independent variables are related. The results presented in Table 2 show positive correlations between all REM proxies. The correlation is consistent with prior research which shows that managers often use multiple REM methods sequentially and simultaneously that may likely be less detectable REM strategies (Matsuura, 2008; Gunny, 2010; Alqerm and Obeid, 2013). The correlation matrix in Table 2 confirms that there is multicollinearity among several REM variables above 0.8 and 0.9. Higher correlations between most REM proxies are mechanical because the correlation is derived from the sum of two proxies.

TABLE 2
Pearson Correlation Analysis of Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. AB_CFO	1												
2. AB_PROD	0.16*	1											
3. AB_DIS	0.17*	0.16*	1										
4. REM_1	0.90*	0.23*	0.54*	1									
5. REM_2	0.19*	0.94*	0.45*	0.37*	1								
6. REM_ALL	0.64*	0.80*	0.44*	0.75*	0.86*	1							
7. STD	0.24*	0.10*	0.10*	0.23*	0.10*	0.19*	1						
8. LTD	-0.11*	0.02	-0.14*	-0.15*	-0.02	-0.08*	0.06*	1					
9. B_SIZE	0.07	0.09*	-0.03	0.01	0.07*	0.06*	0.04	0.01	1				
10. AUD_Q	0.00	0.04	0.00	0.00	0.04	0.01	0.15*	0.10*	0.17*	1			
11. IND_DIR	-0.02	-0.03*	0.01	-0.02	-0.02	-0.04	-0.05	-0.01	-0.34*	0.11*	1		
12. PROF	0.13*	-0.02	-0.00	0.06*	-0.01	0.02	0.13*	-0.04	0.05	0.01	0.10*	1	
13. F_SIZE	-0.30*	0.11*	-0.01*	-0.27*	0.07*	0.07*	-0.02	-0.23*	0.20*	0.14*	0.03	0.09*	1

Notes: AB_CFO = abnormal cash flow from operations; AB_PROD = abnormal production costs; AB_DIS = abnormal discretionary expenses; REM_1 = AB_CFO+AB_DIS; REM_2=AB_PROD+AB_DIS; REM_ALL=AB_CFO+AB_PROD+AB_DIS; STD = short-term debt; LTD = long-term debt; B_SIZE = board size; AUD_Q = audit quality; IND_DIR = number of independent directors; PROF = profitability; F_SIZE = firm size.

In addition, there are no predictor variables that generate a variance inflation factor above 10, validating that collinearity is not a problem in this study. Furthermore, as illustrated in Table 2, for debt, the correlations indicate that only STD is positive and significantly related with all REM. Notwithstanding this, a few observations demand further elaboration. This indicates that as LTD increases, the level of REMs decreases. In addition, the results of Pearson correlation estimate also report that several REM proxies are only statistically significant with control variables.

4.2 MULTIVARIATE ANALYSIS

Prior to performing the parametric test, the data must satisfy the normality requirement. To increase data reliability and validity, any abnormal distributed data are transformed using normal scores approach to fulfil the normality assumption. Data normalization is referred to as the Van der Waerden approach (Haniffa and Cooke, 2002; Wan Abdullah, 2013a) where the ranks are replaced with scores by the normal distribution, and the normal scores are reflected to represent an extension of the rank method.

Subsequently, two different data techniques namely fixed effect (FE) and random effect (RE) model are used to explain the relationship between the dependent and independent variable. FE estimation is applied to eliminate the potential effect of serial correlation problem, while RE assumes that the variation across entities is random with mean zero and uncorrelated with the explanatory variables. Those models will benefit the researcher as they are able to help in avoiding bias estimates of the standard error for each firm in the sample within the study period (Greene, 2007). To decide between FE or RE, a Hausman Test is performed. The results are in favor of the FE method for AB_PROD, REM_2 and REM_ALL where the Hausman Test shows significant results.

As a conclusion, the results of the Hausman (1978) Test in Table 3 suggest that the REM in Model 1 should be regressed using both the FE and the RE models. For REM regressions with FE method, Wooldridge (2002) Test and Modified Wald Statistic Test are then applied to overcome the issue of serial correlation and heteroscedasticity (Doukas and Lang, 2003). The detected heteroscedasticity and serial correlation problems in FE models were corrected using the Ordinary Least Square Regression (OLS) with cluster (firms) code command. While, for the heteroscedasticity issue

without autocorrelation, the robust command was used to correct them.

Moreover, the Breusch and Pagan (1980) Lagrangian Multiplier (LM) Test is used to discriminate between the Pooled OLS and the RE model for REM proxies namely AB_CFO, AB_DIS and REM_1. Overall, the results suggest that the RE model is more appropriate than the Pooled OLS for those REM models since LM tests are significant and there are firm-specific effects in the data.

As illustrated in Table 3, a multivariate regression analysis is performed to estimate the explanatory power of the independent variables towards REM proxies[3]. The findings are reported separately for all six REM measures. Table 3 presents the results for hypotheses H1a and H1b. This study predicts a significant positive (negative) coefficient for debt when firms engage in high (low) levels of REM.

4.3 REGRESSION RESULTS

Consistent with the hypothesis H1a, the result in column (1) of Table 3 indicates that STD financing in family affiliation group firms is positively associated with sales manipulation to report higher earnings. The coefficient between STD and AB_CFO is 0.20 and in a positive direction at a 1% significance level, indicating that for every 1% increase in STD, sales manipulation to report higher earnings (AB_CFO) increases by 20%.

Results, however, differ from a study in Malaysia by Zamri et al. (2013), who found that debt limits REM in the form of AB_CFO from operations. The inconsistent result with previous study could imply that when family firms face internal capital problems, the tightness of debt motivates managers to engage in REM in terms of sales acceleration to avoid debt covenant violations and portray an image of healthy firms besides their entrenchment activities.

Meanwhile, results for AB_DIS in column (3) show a positive and significant effect of STD. The results align with findings from a previous study concluding that Malaysian firms with higher debt tend to manipulate discretionary expenses (Amran, Ishak, and Abdul Manaf, 2016). STD is expected to have a positive effect on magnitude of aggregate REM. From the results in columns (4) and (6), it is apparent that firms with STD have high association with the combination of REM in the form of REM_1 and REM_ALL, respectively. This results in greater degree of REMs composite in family firms with higher debt in forms of suppressing cash flow, overproduction and intentionally omitting discretionary expenses.

TABLE 3

Fixed and Random Effect Regression Results on the Effect of Debt towards REM

	(1)	(2)	(3)	(4)	(5)	(6)
	AB_CFO	AB_PROD	AB_DIS	REM_1	REM_2	REM_ALL
STD	0.20 ***(0.04)	0.07 (0.05)	0.06* (0.03)	0.19*** (0.04)	0.07 (0.05)	0.16*** (0.05)
LTD	0.02 (0.03)	-0.02 (0.04)	-0.06** (0.03)	-0.02 (0.03)	-0.05 (0.04)	-0.08* (0.05)
B_SIZE	0.05 (0.04)	0.07 (0.06)	0.00 (0.04)	0.05 (0.04)	0.05 (0.06)	0.07 (0.06)
AUD_Q	-0.06 (0.06)	-0.00 (0.08)	0.06 (0.06)	-0.04 (0.06)	0.01 (0.09)	-0.02 (0.09)
IND_DIR	0.00 (0.03)	-0.01 (0.06)	-0.00 (0.03)	-0.01 (0.03)	-0.01 (0.06)	-0.00 (0.05)
PROF	0.05 (0.04)	-0.02 (0.07)	0.00 (0.04)	0.01 (0.04)	-0.02 (0.08)	-0.02 (0.07)
F_SIZE	-0.25*** (0.05)	0.10 (0.06)	-0.13** (0.05)	-0.24*** (0.05)	0.07 (0.07)	-0.08 (0.07)
Specific effect	Random	Fixed	Random	Random	Fixed	Fixed
Number of obs.	1,170	1,170	1,170	1,170	1,170	1,170
Overall R-squared	0.145		0.025	0.127		
Adj. R-squared		0.027			0.021	0.053

Notes: Robust standard error clustered by firms due to heteroscedasticity and serial correlations problem are reported in parentheses for fixed effect (FE) model; AB_CFO = abnormal cash flow from operations; AB_PROD = abnormal production costs; AB_DIS = abnormal discretionary expenses; REM_1 = AB_CFO+AB_DIS; REM_2 = AB_PROD + AB_DIS; REM_ALL = AB_CFO + AB_PROD + AB_DIS; STD = short-term debt; LTD = long-term debt; B_SIZE = board size; AUD_Q = audit quality; IND_DIR = number of independent directors; PROF = profitability; F_SIZE = firm size. Superscripts ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

In columns (2) and (5) of Table 3, the coefficients of STD are both at 0.07. Among all, AB_PROD and REM_2 are the third and second lowest coefficients from the six REM measures, respectively. However, both coefficients are insignificant. The results contradict the extant literature by Zamri et al. (2013), showing that in Malaysian firms AB_PROD plays a pivotal role in manipulation activities, especially when the debt-equity ratio increases. It is possible that family affiliation group firms with STD do not avoid losses by engaging in AB_PROD and REM_2 results in improved margins.

According to García-Teruel, Martínez-Solano, and Sánchez-Ballesta (2010), the lender usually imposes tighter monitoring on risky firms with high information opacity and charge them higher cost of monitoring, since these firms are subject to severe problems of moral hazard. Faccio et al. (2007) ascertain that in highly concentrated ownership firms where the management is often drawn from the controlling shareholders, debt is commonly used as an expropriation mechanism to expand private gains.

A plausible explanation for the positive relationship between STD and REM proxies may be based on the information asymmetry due to cross-holding and pyramidal structure that led to high agency costs for external financing. Furthermore, the literature states that a financial contract with a short-term maturity improves creditor ability to monitor borrowers through the implicit threat of restricted access to future credit (Rey and Stiglitz, 1993). Thus, problems such as liquidity risks, technical default and financial distress due to seasonal imbalance or unrealized profits from projects funded using STD may induce firms to manipulate earnings to avoid acceleration of debt maturity and heavy re-contracting cost (Defond and Jiambalvo, 1994; Sweeney, 1994), circumvent lender enforcement (Gupta et al., 2008; Fung and Goodwin, 2013; Ilmas, Tahir, and Asrar-ul-haq, 2018) and prepare them to obtain funds from other financing sources (Jaggi and Lee, 2002). Hence, it is possible that stringent monitoring by lenders might encourage family firms to manipulate earnings to avoid violating debt covenants and to portray firms' healthy financial conditions to mask their entrenchment activities.

Overall, consistent with the expectations, this study demonstrates a significant positive effect of STD on all the REM proxies except for AB_PROD and REM_ALL. The results from the FE/RE regressions partially support *H1a* that STD exacerbates family affiliation group firm's REM behavior.

Hypothesis *H1b* proposes a positive relationship between LTD and REM. The regression results in Table 3, however, reveal

LTD has mixed relationships with different REM proxies. The coefficients of AB_DIS and REM_ALL are negative and statistically significant while the other REM proxies show no significant signs. This suggests that LTD is opposite to STD as LTD reduces REM behavior and as a result, demonstrates a negative relationship with REM measures. This implies that increase in LTD is associated with a decrease in AB_DIS and REM_ALL.

Croci et al. (2011) highlight that family firms invest less in high-risk projects, suggesting low risk taking because they fear loss of control. Therefore, banks are prone to offer LTD to family firms since it is a lower risk investment than STD. As García-Teruel et al. (2010) indicate, banks and other financial providers prefer shorter terms to monitor the management closely. Shareholders also favor a strict monitoring system from lenders that can help to protect their rights. In contrast, managers prefer LTD as a consequence to evade lender outside monitoring (Chou et al., 2011). Therefore, it is possible that family affiliation group firms in Malaysia are less likely to manipulate REM when they bear LTD than STD, as less manipulation by firms is attributable to tight monitoring. This rather contradictory result may be due to the lower effect of liquidity risk on LTD than STD as all REM opportunistic behaviors are only worthwhile in the short-term period (Januarsi, Badina, and Febrianti, 2014).

Results of LTD and REM go against Othman and Zeghal (2006) and Chou et al. (2011) who report a positive effect of debt on REM due to contractual debt costs. The contradictory effects are possibly due to liquidity risks being lower for LTD than STD. Thus managers are reluctant to apply discounts, cut discretionary spending or decrease production costs for the long term since these manipulations would only be valuable in the short-term (Januarsi et al., 2014). Thus *H1b* is not supported.

Among control variables, only F_SIZE is found significantly related to REM. Thus, the results portray that the larger the firm, the lower the earnings manipulation, consistent with past studies (Xie et al., 2003; Abdul Rahman and Mohamed Ali, 2006; Wan Abdullah, 2013b). The findings, on the other hand, are inconsistent with Thomas and Zhang (2002) and Cook, Huston, and Kinney (2012) who found that large firms, especially manufacturing firms manipulate production activities to produce high earnings. As argued by scholars, large firms are closely followed by markets and stakeholders. Therefore, the monitoring and strict scrutiny hinder these firms from performing earnings manipulation (Klein, 2002; Park and Shin, 2004; Benkel, Mather and Ramsay, 2006).

5. CONCLUSIONS AND IMPLICATIONS

Inspired by the entrenchment effect of complex pyramidal structure on the debt-earnings manipulation relationship in family affiliated business groups, we investigate the consequence of external debt financing in Malaysian family affiliated firms towards REM. The basis for the synthesis is the notion that complex ownership structures and control-ownership separation in pyramidal firms could create severe expropriation risk, especially if the management is often drawn from controlling shareholders, as inside shareholders could strategically issue debt as a mechanism for wealth expropriation (Harvey, Lins, and Roper, 2004; Faccio et al., 2007). The study uses STD and LTD to represent external debt. Prediction made about how debt could exacerbate opportunistic REMs was found to be partially inaccurate. Regression analysis provides evidence that STD is positively related to REM, thus implying that STD might motivate stringent monitoring by lenders and encourage earnings manipulation in family firms to avoid debt covenants violation and to portray healthy finances by masking entrenchment activities.

Conversely, a plausible explanation for the insignificant relationship between LTD and REM namely AB_PROD and REM_2 could be that stakeholders, including lenders, view profitability and R&D as a signal of future earnings growth and firm performance. Managers wanting to avoid short-term loan renewal will not necessarily reduce R&D and profitability due to excessive inventory holding as a practical REM tool. On the other hand, the effect of LTD on REM proxies (AB_DIS and REM_ALL) are negatively significant. There is a possibility for less manipulation of REM with LTD, as lack of tight monitoring by lenders might less likely trigger firms for earnings manipulation.

Hence it can be concluded that STD in the family affiliation group encourages REM by managers but discourages LTD financing. Although this study argues that debt partially alleviates REM, findings from the causal analysis only document the results in family affiliated business groups. Therefore, the causality of debt in non-family affiliated firms also requires further theoretical and empirical examination.

ENDNOTES

1. Entrenchment occurs when managers gain power and use it for their own interest rather than the non-controlling shareholders' interest to pursue their own objectives.
2. Used interchangeably with tunneling. Expropriation refers to the transfer of resources out of firms to controlling shareholders at the expense of non-controlling shareholders.
3. Although the overall and adjusted R^2's seems low, it is considered not particularly problematic as according to Lev (1989), most of earnings studies exhibit low R^2.

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