

EARNING MANAGEMENT STRATEGIES OF LEVERAGED FAMILY AND NON-FAMILY CONTROLLED FIRMS: AN EMPIRICAL EVIDENCE

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ABSTRACT

We examine whether the choices of real and accrual base earning management of family and non-family firms are associated with the leverage? We also investigate the role of family control on the relation of leverage with real and accrual base earning management. We address this important question in the setting of Pakistan, an emerging market where family controlled businesses are dominated and where a weak external corporate governance mechanism increases the payoffs from family controlled businesses. We find that leverage is positively associated with real earning management. Further, leveraged firm is negatively associated with accrual base earning management due to higher litigation risk of accrual based earning management. Moreover, the impact of leverage on real and accrual earning management is stronger for family controlled businesses than non-family controlled businesses.

Keywords: Leverage; Family Controlled Business; Real Earning Management; Accrual Earning.

1. INTRODUCTION

Earning management is a widely discussed topic in the accounting literature. The role of family ownership in determining earning management has also been widely discussed. However, prior literature on the association of family ownership with earning management is specifically in context of discretionary accruals. Mostly, these studies use agency theory as a theoretical framework to explain their findings. This theory also provides two perspectives; i.e. Alignment and Entrenchment effects. Research shows that alignment view is more prevailed in developed economies where it is tough for family firms to expropriate the wealth of minority shareholder and hence alignment of shareholder and manger in family firms leads to lesser accrual based earning management as compared to non-family firms (Cascino et al. 2010; Prencipe et al., 2011; Chen et al., 2014). However, entrenchment view would prevail in underdeveloped economy where poor external corporate governance mechanism allow and

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facilitate family firms to steal the wealth of minority shareholder for their personal interest and then used earning management as a tool to hide that expropriation (Yang, 2010; Ding et al. 2011). However, most recent research tested the difference across family and non-family firms in terms of real earning management (Achleitner et al. 2014; Enomoto et al.2015; Razzaque et al. 2016; Francis et al. 2016). This recent and prior research on earning management, either in terms of real or accrual, reports the difference in family and non-family firm.

A recent stream of literature shows that family control is central in most countries of the world (Yeh et al., 2001; Prencipe et al., 2014; Mutakin et al., 2015). Being the most widely held corporate ownership type across the globe, family businesses have a significant impact on the economic growth. For instance, studies show that family ownership accounts for 90% economic growth in the USA, 66% in East Asia (Claessens et al., 2000), 44% in Western Europe (Faccio and Lang, 2002), 79% in Germany, 83% in France, 73% in Italy (Prencipe et al., 2014), and 71% in Taiwan (Yang, 2010). Famous family-owned companies include Walmart, Marriott Corporation, Dupont, Dell, Microsoft, and Ford (Gomez-Mejia et al., 2011). Since family owned businesses are likewise popular in Pakistan, Tahir and Sabir (2014) report that the majority of companies publicly listed on the Karachi Stock Exchange are family controlled.

We make a number of contributions to the earning management literature. First, in response to the future call (Walker, 2013), we explore the determinants of real earning management. Second, we extend the literature on the economic consequences of leverage in terms of real and accrual based earning management (Alsharairi and Salama, 2012; Januarsi et al. 2014; Anagnostopoulou and Tsekrekos,2016). Third, to the best of our knowledge, this is the first study which investigates the moderating impact of family controlled business on the relation of leverage with real and accrual based earning management. Recently, a few studies investigated the relation of leverage with real and accrual based earning management, such as Januarsi et al. (2014), Anagnostopoulou and Tsekrekos (2016). These studies claim that leverage has important economic consequences for real and accrual based earning management. However, the relation of leverage with real and accrual based earning management is not ex ante clear in context of family and nonfamily controlled businesses. Fourth, we employ a Pakistani listed firm as a sample between the periods of 2007-2014 to investigate our hypothesis. The unique institutional settings of Pakistan provide us with an appropriate context to examine our research questions, as these institutional settings are entirely different from the developed economies. Since Pakistan has a poor corporate information environment and weak property protection rights (Hu et al., 2014) family firms have been allowed to expropriate the wealth of minority shareholders. These institutional settings play a vital role in determining and shaping the performance outcome in family controlled businesses (Liu et al., 2012). Fifth, the study takes care of cross sectional dependence, as the existence of cross sectional dependence within the error term makes the earlier findings questionable. Therefore, it would be interesting to examine the relation while keeping in view these issues.

We found strong evidence to suggest that leverage limit the opportunistic behavior of the management in terms of discretionary accrual. However, management finds a new way in from of real action to get the desirable target when they are highly leveraged. We discuss that lower detection risk of real earning management, as compared to accrual earning management, motivates companies to choose real action as a safe passage to achieve their set goals. Furthermore, we also examine the presence of real and accrual based earning management in leveraged family and nonfamily controlled business. We find that the institution setting in Pakistan allows and facilitates leveraged family firm to have more engagement in real and accrual based earning management as appose to leveraged non family controlled business. When the set-up is judicially inefficient and the corruption level is high, it is easier for a family

controlled business to expropriate the wealth of minority shareholder and then hide it either through real or accrual based management (Leuzet al. 2003; Enomoto et al. 2015). Our study employs estimation techniques, such as the Feasible Generalized Least Square regression (FGLS) to capture the presence of heteroscedasticity, autocorrelation, and cross-sectional dependence within the company's error term. Our study has significant implications for both investors and regulators as it provides a theoretical framework for studying the influence of the two monitoring mechanisms: family control and leverage.

1.1. Institutional Settings in Pakistan

Pakistan is a country with unique features in terms of religion and institutional settings as compare to any other developed and emerging countries as well. These unique characteristics provide a great motivation to the scholars to conduct empirical investigation in such settings.

In 1947, Islamic Republic of Pakistan was established. The main goal is to provide opportunity to the people of Pakistan to conduct their life according to the Islamic laws whereas it also provides space to other people who belong to other religion. In Pakistan, dominate religion is Islam and one of the main Islamic laws is that it prohibits the use of Riba in every walk of life. However, one of the key principle of the Islam, it motivates business to earn profit without the exploitation of others (Arjoon, 2016). Rehman and Shahzad (2014) argue that major source of companies financing in Pakistan is debt as stock market is inactive. Hence, it would be interesting to examine the association of leverage with earning management where most of the times company's management use debt as a source of financing which is against the laws of Islam and what if companies with high leverage urge to earn profit without the exploitation of other or vice versa. As Li and Cai (2016) finds that religion reduce the stock price crash risk by mitigating the earning management and also reduce the propensity of excessive perk. However, they linked this positive effect with two factors i.e quality governance and efficiency of legal system.

On to the contrary, if we look at the World Governance Indicators (WGI)¹ of Pakistan. We find that Pakistan got the low governance score in terms of Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption which is -0.76, -2.54, -0.66, -0.62, -0.79, and -0.76, respectively. Similarly, in past La porta et al. (1999) also pointed out the weak external governance mechanism of Pakistan in terms of judicial efficiency, risk of repudiation, investor protection and law enforcement. Furthermore, Pakistan is a country where business is owned and controlled by families (Tahir and Sabir, 2014). Prior literature has been widely discussed that the propensity of agency problem 1 is low in family owned business whereas Agency problem 2 is high (Ali et al. 2007; Ding et al. 2011). Liu et al. (2012) argue that the economic consequences of agency problem 2 in family owned business is more severe in weak governance mechanism.

However, SECP in Pakistan make it mandatory for companies to adopted code of corporate governance 2002 and International Financial Reporting Standard 2005 to strengthen the corporate governance mechanism and enhance the quality of financial reporting. Therefore, such unique settings also established a Pakistan as a unique test case to examine the earning management strategies in Leveraged family and non-family controlled companies.

The rest of the study is organized as follows. Section 2 explains the theoretical rationale for leverage and the moderating impact of family controlled business on the relation of leverage with real and accrual

¹The Worldwide Governance Indicators (WGI) project reports aggregate and individual governance indicators for over 200 countries and territories over the period 1996–2015, for six dimensions of governance. www.govindicators.org.

based earning management. Section 3 presents the research methodology to examine the earlier set hypotheses. Section 4 discusses the results. Finally, Section 5 concludes and provides recommendations for future research.

2. THEORETICAL FRAMEWORK AND RELATED LITERATURE

2.1. *Leverage and Earnings Management*

Agency theory considers leverage as a mechanism which disciplines the management and hence curbs the opportunistic behavior of the management which is sometimes in forms of enjoying excessive perks, empire building, and facilitating their relative by posting them on key position (Jensen, 1986). This mechanism limits the opportunistic behavior and hence management has no need to hide or manipulate their actions through earnings management. For example, Jelinek (2007) finds that an increase in leverage limits the opportunistic behavior and hence results in lower earnings management. Lee et al. (2007) discusses that a leveraged firm is controlled by creditor which leaves less room for the company management to engage in earning management.

However, another perspective regarding leverage is explaining the negative outcomes of leverage. This view argues that management uses earning management strategy to avoid strict restriction from creditor and manipulates information to get loans at favorable rates. Beatty and Webber (2003) discusses that leveraged firms do not want to breach the contractual agreement and present the strong financial position through accrual based earning management. Similarly, Alsharairi and Salama (2012) found that high leveraged firms present rosy picture through upward accrual earning management practices prior to the mergers announcements. Januarsi et al. (2014) founds that higher leveraged firms have more involvement in accrual based earning management, as higher earning management in leveraged firms provide incentive in form of bargaining power to negotiate the debt agreements. Mamedova (2008) founds that higher scrutiny motivates leveraged firms to mask its earning through cashflow from operations. Ge and Kim (2014) find that management engages in real activities manipulation in order to get loan at lower interest rate.

This contradictory view is explained by differentiating earning management into two groups. Recent literature on earnings management has divided it in two forms (Roychowdhury, 2006; Gunny, 2010). First, accrual earning management and second is real earning management. Several scholars have reported that higher scrutiny either in form of auditor, regulator or by financier puts pressure on management to use real earning management instead of accrual earning management (Cohen et al. 2008; Chi et al. 2011; Anagnostopoulou and Tsekrekos, 2016). Further, lower litigation and detection risk of real earnings management over accrual earning management also motivates management to use real earning management especially when they are highly leveraged. Zang (2012) argues that higher cost associated with accrual earning management (in form of litigation risk) motivates managers to use real earning management. Furthermore, Chi et al. (2011) founds that firms use real earning management instead of accrual earning management when they are audited by BIG 4. Anagnostopoulou and Tsekrekos (2016) argue that lower detection risk of REM motivates managers to use real earning management instead of accrual earning management when they are highly scrutinized by outside financiers sincereal manipulation is properly recorded in the financial statements and it is very tough for regulators, auditors and creditors to differentiate real earning management from the daily ongoing business activities. Further, real actions like sale of assets generate extra cash for business and hence it is easier for the management to pay its loan. On the other side, accrual earning management just increases the earning and it would not help out the management especially when they have to pay heavy

installments to creditors (Sellami, 2015). Overall the lower detection and litigation risks in the present of higher scrutiny by debt financier motivate managements to be more involved in real earnings management. Based on the above discussion we hypothesize that

H₁: Leverage is positively associated with Real Earnings Management.

H₂: Leverage is negatively associated with Accrual Earnings Management.

2.2. Leverage, Family Controlled Business, and Earnings Management

Prior literature examines the differences of earning management in terms of accrual earning management between family and non-family firms (Fan and Wong, 2002; Wang, 2006; Ali et al., 2007; Yang, 2010; Cascino et al., 2010; Ding et al., 2011). However, findings on the relation of accrual earning management with family ownership are mixed. Several scholars tested the relation of family ownership with accrual earning management and report negative association of family ownership with accrual earning management (Ali et al., 2007; Tong, 2007; Jiraporn and Dadalt, 2009; Prencipe et al., 2011; Chen et al., 2014). They argued that due to the alignment effect, family owned businesses curb the opportunistic behavior of management and limit the classical agency problem between principal and agent (Jensen and Meckling, 1976; Demsetz and Lehn, 1985) and hence result in lesser accrual earning management. On the other side, there is also an evidence of positive association of accrual earning management with family ownership (Yang, 2010; Ding et al., 2011). These scholars argued that ownership and control by family members in family owned businesses provide a window of opportunity to them which will allow expropriation of wealth from minority shareholders (Morck et al., 1988; Shleifer and Vishny, 1997; Fan and Wong, 2002). This entrenchment effect can lead to conflict between majority and minority shareholders, something known as a type II agency problem (Villalonga and Amit, 2006) and hence results in higher accrual earning management.

Roychowdhury (2006) explained that managements may also employ real actions to manipulate or hide accounting information. With the emerge of this concept, various scholars examine the association of family ownership with real earning management (Achleitner et al. 2014; Enomoto et al. 2015; Razaque et al. 2016; Francis et al. 2016). Like accrual earning management, there is also mixed evidence on the relation of real earning management with family ownership. For example, Achleitner et al. (2014) examined the association of real earning management with family ownership in context of Germany and he found that family firms have less engagement in real earning management as compared to non-family firm. On the other side, Razaque et al. (2016) found that family firms have more involvement in real earning management as compared to non-family firms in context of Bangladesh.

These differences in result, whether it is real or accrual, based earning management is best explain by institutional context (Liu et al. 2012). He believes that severity of agency problem I or II is based on the institutional setting of a country. Countries with higher investor protection, low risk of expropriation, and judicial efficiency limit the opportunistic behavior of majority shareholders. Hence, agency problem II is less damaging in such institutional context. Therefore, severity of agency problem I in non-family firms is high as opposed to the severity of agency problem II in family firms. On the other side, countries with lower investor protection, high risk of expropriation, and judicial inefficiency provide more space to the opportunistic behavior of majority shareholders. His argument is examined and tested by Enomoto et al. (2015) in context of real and accrual based earning management and reported that higher investor protected institution settings are more prone to real earning management. On similar grounds, Francis et al. (2016) found that a strong legal system discourages accrual earnings management whereas it encourages real earning management.

Overall, the above evidences and arguments suggest that differences prevail in family and non-family firms in context of real and accrual based earning management. Therefore, these differences influence the relation of leverage with real and accrual based earning management. As it is easier for the leveraged family firms to engage in real and accrual earning management as opposed to leveraged non-family firms under unique institutional settings of Pakistan where the efficiency of the judicial system and corruption are worse and the risk of expropriation and content repudiation is also very high. An updated survey conducted by Hu et al. (2014) reported that Pakistan has weaker property protection rights and a poor corporate information environment. In sum, in a weak regulatory environment, leveraged family firms are in the best position to take advantage of the institutional environment because of the strong alignment of incentives between managers and owners within the firm. Hence, leveraged family firms are likely to perform real earning management than leveraged non-family firms. Based on the above discussion, we hypothesize that

H₃: Leverage family controlled business has more involvement in real earning management as compare to leverage nonfamily controlled business.

H₄: Leverage family controlled business has more involvement in accrual based earning management as compare to leverage nonfamily controlled business.

3. RESEARCH METHODOLOGY

3.1. Data

All publicly listed companies (excluding finance stocks) listed on the Pakistan Stock Exchange over the period 2007-2014 are included in the population. However, a total number of 95 companies are randomly selected as a sample. Hence, the sample size is 760 firms/year. The choice of timeframe for the study is driven by a series of changes in the accounting standards that took place in 2006 when Pakistan switched from GAAP to IFRS (Rehman and Shahzad, 2014). According to Ma et al. (2017), choosing post reformed standards data as the starting point for the study increases the accuracy of the research findings. Firms specific data were collected from the banker Thomson data stream, and corporate governance data was obtained from the annual company reports available on company websites.

3.2 Variables

3.2.1 Dependent Variable

i. Real Earnings Management (REM)

Real Earnings Management (REM) is a dependent numerical variable in the study. First in line with the (Roychowdhury, 2006) we find the residuals of abnormal cashflow from production and discretionary expense using equation (1) and (2) respectively.

$$PC_t / A_{it-1} = \alpha_0 + \beta_1 (1 / A_{it-1}) + \beta_1 SR_t / A_{it-1} + \beta_2 \Delta SR_t / A_{it-1} + \beta_3 \Delta SR_{t-1} / A_{it-1} + \varepsilon_t \quad (1)$$

PC_t represents production cost. SR_t represents the Sales Revenue at time t. ΔSR_t represents the change in Sales Revenue at time t to t-1. ΔSR_{t-1} represents the change in Sales Revenue at time t-1 to t-2. In the

above equation, all the variables are scaled by lagged of total assets (A_{t-1}). The residual obtained from this cross-section ordinary least squares regression represents abnormal production cost.

$$DE_t / A_{t-1} = \alpha_0 + \beta_1(1 / A_{t-1}) + \beta_2 SR_{t-1} / A_{t-1} + \varepsilon_t \quad (2)$$

DE_t is the discretionary expenses at time t . SR_t is the sales revenue at time $t-1$. In this equation, all variables are scaled by a lag of total assets (A_{t-1}). The residual obtained from this cross-section ordinary least squares regression represents abnormal discretionary expenses. We follow the approach adopted by (Cohen and Zarowin, 2010; Anagnostopoulou and Tsekrekos, 2016) to measure Real earning management. For that, we first multiply residuals of abnormal discretionary expense obtained by equation (2) by -1 and then we sum it in to residuals of abnormal production cost obtained by equation (1) and find comprehensive measure of *Real Earnings Management (REM)*.

ii. Accrual Based Earnings Management (ABEM)

We measure Accrual Based Earning Management (ABEM) using a Kasznik (1999) model outlined as equation 3. This model has been widely used in the accounting field to measure *ABEM* (Gomraiz and Sánchez Ballesta, 2014). Kasznik (1999) argued that excluding cash flow from the operation of Jones' model would increase the estimation error. Given that change in cash flow from operations is negatively correlated with accruals, Kasznik (1999) therefore included a change in cash flow from the operation in the model of Jones' (1991). The following equation is used to compute *ABEM*.

$$TA_{i,t} = \alpha_{i,t} + \beta_1 \Delta sales_{i,t} + \beta_2 PPE_{i,t} + \beta_3 \Delta CFO_{i,t} + \varepsilon_{i,t} \quad (3)$$

Whereas, TA_{it} represents total accrual; $\Delta Sales_{it}$ is the change in sales from year t to $t-1$. PPE_{it} is the property plant and equipment. ΔCFO_{it} is the change in cash flow from operation from year t to $t-1$ and ε_{it} represents error term. We stored the absolute values of residuals obtained from *equation (3)* as *ABEM*.

3.2.2 Independent Variables

The study has two independent variables: *family controlled Business (FCBs)* and *leverage (LEV)*. Consistent with the previous studies, *family controlled business* is a dummy variable and is coded 1, if the majority of the family members are present on the company's board of directors; otherwise it is coded zero (Cascino et al., 2010; Bonilla et al., 2010; Prencipe et al., 2011; Jain and Shao, 2014; Attig et al., 2015; Vandemaele and Vancauteran, 2015). The second variable, *leverage*, is as a continuous variable which is a ratio of total debt to total assets (Anagnostopoulou and Tsekrekos, 2016).

3.2.3 Control Variables

Following the previous literature, we also account for many control variables which may affect the relationship of family control business (FCB) and leverage (LEV) on real earnings management (REM) (Zang, 2012; Cheng et al. 2015; Anagnostopoulou and Tsekrekos, 2016). Control variables may strongly influence experimental results and are held constant during the experiment in order to test the relative relationship between dependent and independent variables. The control variables included in this study are: *firm size*, *cost of real earnings management*, *growth opportunities*, and *return on assets*. All control variables used in the study are numerical. *Table 1* below describes dependent, independent and control variables in details.

Table 1: Description of Variables

Variable	Label	Nature of Variable	Description
<i>Dependent Variables</i>			
Real Earnings Management	REM	Numerical	Residuals of abnormal cash flow from discretionary expense are multiplied by -1 and then add it abnormal cash flow from production.
Accrual Based Earning Management	ABEM	Numerical	Residuals of abnormal discretionary accrual obtained by Kasznik model (1999).
<i>Independent Variables</i>			
Family Controlled Business	FCB	Categorical	Coded '1' if family members own majority seats on the board of directors; otherwise coded '0'
Leverage	LEV	Numerical	Leverage is the ratio of total debt divided by total asset
<i>Control Variables</i>			
Firm size	FS	Numerical	Natural logarithm of total assets
Cost of real earning management	CREM	Numerical	CREM is measured by Altman Z score
Growth opportunity	GROP	Numerical	GROP is the Ratio of market to book ratio
Return on Asset	ROA	Numerical	ROA is the ratio of total profit divided by total asset
Audit Quality	AQ	Categorical	Firm Audit by BIG 4 coded as 1 otherwise=0.

3.3 Estimation Technique

We test *Hypotheses 1, 2, 3, and 4* by applying Feasible Generalized Least Square Regression (FGLS) estimation approaches.

3.4 Econometric Model

First, we test whether leverage (LEV) is associated with higher real earning management and lower accrual based earning management by using *equation (4)* and *equation (5)*, respectively. We employ the model of Anagnostopoulou and Tsekrekos (2016). We predict that the lower deduction risk of real earning management allows highly leveraged firms to engage more in real earning management and less in accrual based earning management. To examine the effect of leverage (LEV) on real earning management (REM) and accrual based earning management (ABEM), we employ FGLS model to estimate *Equation (4)* and *(5)*, respectively.

$$REM_{i,t} = \beta_{1,i,t} + \beta_2 LEV_{i,t} + \beta_3 COREM_{i,t} + \beta_4 GO_{i,t} + \beta_5 ROA_{i,t} + \beta_6 FS_{i,t} + \beta_7 GO_{i,t} + \beta_8 AQ_{i,t} + \beta_{12} \sum INDUDUMS_{i,t} + \beta_{13} \sum YEARDUM_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$ABEM_{i,t} = \beta_{1,i,t} + \beta_2 LEV_{i,t} + \beta_3 COREM_{i,t} + \beta_4 GO_{i,t} + \beta_5 ROA_{i,t} + \beta_6 FS_{i,t} + \beta_7 GO_{i,t} + \beta_8 AQ_{i,t} + \beta_{12} \sum INDUDUMS_{i,t} + \beta_{13} \sum YEARDUM_{i,t} + \varepsilon_{i,t} \quad (5)$$

In the *Equation* above, LEV represents leverage and is measured by the ratio of total debt to total asset. COREM represents cost of real earning management and is measured by Altman Z score (1968). GO represents growth opportunity and is measured by market value to book value. ROA represents firm performance and is measured by the ratio of net profit after tax to total assets. FS is firm size measured by the natural log of total assets (lnFS). AQ is a dummy variable which is coded as 1 if firm audit by BIG 4 otherwise=0. Industry dummies represent the sector, and year dummies represent the year. Subscript *i* denotes firm *i* and *t* denotes the fiscal year *t*, where *t*=1,2,3,.....10. We expect the sign of the coefficient estimates on LEV to be positive for *equation (4)* and to be negative on *equation (5)*. This implies that LEV enhances the propensity of real earning management and decreases the propensity of accrual based earnings management.

Second, we also test the impact of leverage on real and accrual based earning management for family and nonfamily controlled business using *equation (6)* and *equation (7)* below. We extend the model of Anagnostopoulou and Tsekrekos (2016) and add interaction term (FCB*LEV) as an additional explanatory variable in *equation (6)* and *equation (7)* below. We predict that the impact of leverage on real and accrual based earning management is stronger for family controlled businesses than non-family controlled businesses. We expect the sign of the co-efficient *equation (6)* and *equation (7)* on (FCB*LEV) is higher than the sign of the coefficient estimates on leverage. This implies that family control moderates the relationship of leverage with real earning management.

$$REM_{i,t} = \beta_{1i,t} + \beta_2 FCB_{i,t} + \beta_3 LEV_{i,t} + \beta_4 FCB*LEV + \beta_5 \ln COREM_{i,t} + \beta_6 GO_{i,t} + \beta_7 ROA_{i,t} + \beta_8 FFS_{i,t} + \beta_9 GO_{i,t} + \beta_{10} AQ_{i,t} + \beta_{11} \sum INDUDUMS_{i,t} + \beta_{12} \sum YEARDUM_{i,t} + \varepsilon_{i,t} \quad (6)$$

$$ABEM_{i,t} = \beta_{1i,t} + \beta_2 FCB_{i,t} + \beta_3 LEV_{i,t} + \beta_4 FCB*LEV + \beta_5 \ln COREM_{i,t} + \beta_6 GO_{i,t} + \beta_7 ROA_{i,t} + \beta_8 FFS_{i,t} + \beta_9 GO_{i,t} + \beta_{10} AQ_{i,t} + \beta_{11} \sum INDUDUMS_{i,t} + \beta_{12} \sum YEARDUM_{i,t} + \varepsilon_{i,t} \quad (7)$$

In equation 6 and 7 above, FCB*LEV is an interaction term which is used to find out the moderating effect of family controlled businesses on the relationship of real and accrual based earning management with leverage. All other explanatory variables are exactly the same as the ones in *equation (4)*. Further, β_2 is the coefficient of the family controlled business in equation 6 and 7 which represents the choices earning management in family and non-family controlled business. If the β_2 is significant and positive. It means real and accrual based earning management is high in family controlled business as compare to non-family controlled business.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

We reported summary statistics of key variables presented in *Table 2*. The descriptive statistics separately report the results for three different categories: full sample (N=760 firms), FCBs (N=254 firms) and Non FCBs (N=506 firms). The summary statistics include the mean, standard deviation, minimum, and maximum for different key measures. According to the findings presented in *Table 2* below, out of the 760 firms included in the sample, 254 publicly listed companies are family controlled, while 506 firms are non-family controlled and use the 50% family member board presence threshold criteria. The mean difference analysis is conducted to find out the significance of mean differences of main and controlled variable across FCBs and NFCBs. *Table 2* shows that family controlled businesses have more involvement in real earnings management when compared to non-family controlled businesses, as mean values of REM for FCBs is 0.162 whereas for NFBs it is -0.080. Furthermore, *table 2* reports that family controlled businesses have more involvement in accrual based earnings management when compared to non-family controlled businesses, as mean values of ABEM for FCBs is 0.002 whereas for NFBs it is -0.001. *Table 2* reports that, on average, family firms have more utility of debt financing as opposed to non-family firms.

Table 3 below reports the significance of mean differences of key variables between FCBs and NFCBs. We use t-test to check the mean differences. Results in *Table 3* suggest that there is a significant mean difference between family and non-family controlled companies for different control variables, at the conventional level of 1%, 5%, and 10%. *Table 3* also confirms the mean difference of real earning

Table 2: Descriptive Statistics

Variable	Mean	SD	Min	Max
<i>Full sample (N=760 firms)</i>				
Real Earning Management(REM)	0.0004	0.913	-13.45	4.73
Accrual Based Earnings Management (ABEM)	0.0001	0.097	-0.36	0.59
Leverage (LEV)	29.6	23.6	0	102.67
Cost of Real Earning Management (COREM)	.0345	2.43	0	42.38
Growth Opportunity(GO)	1.973	8.955	-7.42	207.9
Return on Asset(ROA)	8.943	9.772	-26.26	53.95
Firm Size (FS)	4.517	1.556	-0.094	8.522
<i>FCBs (N=254 firms)</i>				
Real Earning Management(REM)	0.162	0.492	-1.37	2.23
Accrual Based Earnings Management (ABEM)	0.002	0.093	-0.28	0.5
Leverage (LEV)	33.55	22.90	0	97
Cost of Real Earning Management (COREM)	0.258	0.682	0	5.89
Growth Opportunity(GO)	1.671	5.547	-7.42	76.94
Return on Asset (ROA)	9.159	9.179	-21.66	53.95
Firm Size (FS)	3.990	1.169	1.595	8.032
<i>NFCBs (N=506 firms)</i>				
Real Earning Management (REM)	-0.080	1.054	-13.45	4.73
Accrual Based Earnings Management (ABEM)	-0.001	0.100	-0.36	0.59
Leverage (LEV)	27.63	23.80	0	100
Cost of Real Earning Management (COREM)	0.388	2.948	0	42.38
Growth Opportunity(GO)	2.125	10.249	-7.42	207.9
Return on Asset (ROA)	8.835	10.063	-26.2	38.51
Firm Size (FS)	4.781	1.657	-0.094	8.522

Table 3: Differences of Mean Test

Variable	Family Controlled Business (FCB)	Nonfamily Controlled Business (NFCB)	Differences
Real Earning Management(REM)	0.162	-0.080	-0.243***
Accrual Based Earning Management(ABEM)	0.002	-0.001	-0.003*
Leverage (LEV)	33.551	27.636	-5.915***
Cost of Real Earning Management (COREM)	0.258	0.388	0.130
Growth Opportunity(GO)	1.671	2.125	0.454
Return on Asset (ROA)	9.159	8.835	-0.323*
Firm Size (FS)	3.990	4.781	0.790***

Note: * represents significance at 1%, ** represents significance at 5%, and *** represents significance at 10%.

management (REM), Accrual based earning management and Leverage (Lev) across family and non-family controlled businesses. Razzaque et al. (2016) argues that lower detection risk of real earnings management in less protected investors economy motivates family controlled businesses to have their higher engagement in real earnings management. Further, Gomez-Mejia et al. (2007) argues that family firms strongly do not prefer to dilute their ownership. As obtaining more equity financing may dilute ownership and loosen family control, the FC shareholders carefully guard the firm's capital structure. Therefore, FCs tend to rely on debt financing more than their NFC counterparts. Enomoto et al. (2015) argues that lower investor protect economy motivates family firms to expropriate the wealth of minority shareholders and then use accrual management as a tactics to hide that stealing. *Table 3* below highlights this trend and shows that family controlled firms tend to be smaller in size compared to non-family firms. Further, the results indicate that Return on assets (ROA) rate is higher in FCBs than in NFCBs.

Table 4 below reports the results of the Pearson correlation matrix. The correlation between Family Control Businesses (FCB) and Real Earnings Management(REM) is positive and significant. Further, there is a significant positive correlation between Leverage(LEV) and Real Earnings Management (REM). This supports the proposition that family control businesses and leverage enhance Real Earnings Management (REM). In addition, Table 4 highlights a significant degree of correlation of other variables with Real Earnings Management (REM). However, the observed correlation between independent variables is not more than 0.5, therefore the estimates survive the problem of multicollinearity.

Table 4: Correlation Matrix of Real Earning Management and Leverage

	REM	LEV	FCB	COREM	GO	ROA	FS	AQ
Real EarningManagement(REM)	1							
Leverage (LEV)	0.040**	1						
FCB	0.120**	0.104	1					
COREM	-0.020	-0.026	0.005*	1				
Growth Opportunity(GO)	-0.007*	-0.031**	-0.028	-0.035	1			
Return on Asset (ROA)	-0.006*	-0.432	0.034**	0.031	-0.045	1		
Firm Size (FS)	-0.182*	-0.047*	-0.244	0.089*	0.089*	0.106*	1	
Audit Quality	-0.066*	-0.199	-0.241	0.062	-0.030	0.211	0.159*	1

Note: * represents significance at 1%, ** represents significance at 5%, and *** represents significance at 10%.

Table 5 below reports the results of the Pearson correlation matrix. The correlation between Leverage (LEV) and Accrual Based Earnings Management (ABEM) is negative and significant.

Table 5: Correlation Matrix of Accrual Based Earning Management and Leverage

	ABEM	LEV	FCB	COREM	GO	ROA	FS	AQ
Accrual EarningManagement(ABEM)	1							
Leverage (LEV)	-0.064**	1						
FCB	0.017*	0.118*	1					
COREM	-0.010	-0.007*	-0.025*	1				
Growth Opportunity(GO)	-0.040	-0.027	-0.024	-0.022*	1			
Return on Asset (ROA)	0.247	-0.433	0.015	0.017*	-0.044	1		
Firm Size (FS)	0.012*	-0.048	-0.239	0.078*	0.087*	0.112*	1	
Audit Quality	0.043**	-0.119*	-0.241	0.062*	-0.030*	0.211*	0.159*	1

In addition, Table 5 highlights a significant degree of correlation of other variables with ABEM. However, the observed correlation between independent variables is not more than 0.5, therefore the estimates survive the problem of multicollinearity.

4.2. Regression Analysis

We estimate Equation (4) and Equation (5) using the Feasible Generalized Least Square (FGLS) regression method in order to test Hypotheses 1 and 2. Model 1 in Table 6 reports the estimation of Equation (4) and takes into account the effect of control variables, whereas Model 2 in Table 6 reports the estimation of Equation (5) and also takes into account the effect of control variables. The results of the study of Model 1 suggest that Real Earnings Management (REM) is positively associated with Leverage (LEV) as the coefficient in LEV is positive (Lev=0.002***) and significant at 1% level. These findings support Hypothesis 1 in that higher utility of debt financing placed more scrutiny on business by creditors and real earnings management is not easy to detect as opposed to accrual earning management. Therefore, higher leverage firms make choice of real earnings management to manipulate

information (Anagnostopoulou and Tsekrekos, 2016). The results of the study of Model 2 suggest that Accrual based Earnings Management (ABEM) is negatively associated with Leverage (LEV) as the coefficient in LEV is negative (LEV= -0.004***) and significant at 1% level. These findings support Hypothesis 2.

Table 6: Feasible Generalized Least Square Regressions on Real and Accrual Based Earnings Management (ABEM)

	Model 1 (REM)	Model 2 (ABEM)
<i>Independent variables</i>		
Leverage (LEV)	0.002*** (7.61)	-0.004*** (-4.49)
<i>Control variables</i>		
COREM	0.001 (0.01)	-0.002 (-0.98)
Growth Opportunity(GO)	0.002** (2.33)	-0.000 (-0.83)
Return on Asset (ROA)	-0.001* (-1.67)	-0.001 (-0.57)
Firm Size (FS)	-0.099*** (-9.13)	0.013** (0.02)
Audit Quality (AQ)	0.097*** (7.88)	0.076** (2.31)
Constant	0.371*** (14.62)	0.008 (0.82)
Industry Dummy	Yes	Yes
Year Dummy	Yes	Yes
N	760	760
WALD Chi	955.33***	25.80***
Pesaran Test	7.017***	1.372
Wald Test	4.700***	5705.9***
Wooldridge Test	34.208***	6.156**

Notes: We measure Family Controlled (FCB) business as a categorical variable and regress it on Real Earnings Management with considering control variables. FCB is a categorical variable, which is coded as 1 if family controlled at least 50% shares otherwise=0. *, **, *** represents the significant at 10%, 5%, and 1%, respectively. t-statistics are presented in parentheses

We estimate *Equation (6) and Equation (7)* using the Feasible Generalized Least Square (FGLS) regression method in order to test *Hypotheses 3 and 4*. Model 3 in *Table 7* reports the estimation of *Equation (6)* and takes into account the effect of control variables. The results of the study of Model 3 suggest that impact of Leverage (LEV) on Real Earnings Management (REM) is higher in FCBs than in NFCBs as the coefficient in LEV is ($\beta_2=0.001$ ***) and the coefficient of LEV*FCB is ($\beta_4=0.071$ *) and are significant at 1% and 10% level, respectively. Further, Model 4 in *Table 7* reports the estimation of *Equation (7)* and also takes into account the effect of control variables. The results of the study of Model 4 suggest that impact of Leverage (LEV) on accrual based earnings management (ABEM) is higher in FCBs than in NFCBs as the coefficient in LEV is ($\beta_2=-0.003$ ***) and the coefficient of LEV*FCB is ($\beta_4=-0.006$ *) and significant at 1% and 10% level, respectively. These findings support Hypothesis 3 and 4 in that higher expropriation of minority shareholders in family controlled businesses than in non-family controlled businesses and also family businesses have greater concern of loss of family control specially if they take a loan to finance their projects. Therefore, leveraged family firms have greater propensity to engage in real earning management and higher in accrual earning management as opposed to leverage non-family controlled businesses. Further, presence of family

members in board, and lesser detection risk make it easy for companies to engage in real earnings management.

Table 7: Feasible Generalized Least Square Regressions on Real and Accrual Based Earnings Management (ABEM) with Interaction.

	Model 3	Model 4
<i>Independent variables</i>		
Leverage (LEV)	0.001*** (4.41)	-0.006** (-2.38)
Family control Business (FCB)	0.065** (3.13)	0.019** (2.30)
FCB*LEV	0.071* (1.80)	-0.003* (-1.74)
<i>Control variables</i>		
COREM	-0.003 (-0.39)	-0.002 (-0.98)
Growth Opportunity(GO)	0.001* (1.74)	-0.000 (-0.76)
Return on Assets (ROA)	0.312 (0.45)	0.342 (0.89)
Firm Size (FS)	-0.001** (-1.96)	-0.001 (-0.75)
Audit Quality (AQ)	-0.094*** (-16.51)	0.015** (2.45)
Constant	0.745*** (4.56)	0.004 (0.47)
Industry Dummy	Yes	Yes
Year Dummy	Yes	Yes
N	760	760
WALD Chi	705.29***	30.44***
Pesaran Test	2.041**	1.072
Wald Test	1.000***	5456.2***
Wooldridge Test	45.806***	7.005**

Notes: We measure Family Controlled (FCB) businesses as a categorical variable and regress it on Real Earnings Management with considering control variables. FCB is a categorical variable, which is coded as 1 if family controlled at least 50% shares otherwise=0. *, **, *** represents the significant at 10%, 5%, and 1%, respectively. t-statistics are presented in parentheses.

5. CONCLUSION AND FUTURE RESEARCH

We examine the influence of leverage on real and accrual based earning management over the period of 2007-2014 for the public listed firms listed in Pakistan Stock Exchange. Furthermore, we also focus on the association of leverage with real and accrual based earning management for family and non-family controlled businesses. Using FGLS technique, we provide evidence to suggest that higher leverage is positively (negatively) associated with real (accrual) earning management. Our results show that impact of leverage on real and accrual based earning management is stronger for family controlled businesses than for non-family controlled businesses. These results are consistent with the view that greater scrutiny motivates firms to engage in real earning management due to its lower detection risk. Further, our study supports that entrenchment view of the agency theory, which argues that weak external corporate governance mechanism in developing economy allows and facilitates family firms

to expropriate the wealth of minority shareholders and then hide it using earning management practices especially when they are financed by debt. Our study leaves several avenues open to future research. First, this paper used earning management as economic consequence of leverage; future research may address other economic consequences like, investment efficiency and find out the influence of leverage on investment efficiency for family and non-family controlled businesses. Second, future research may also find out the influence of leverage on real and accrual based earning management with other moderating variables like IFRS, religion, national culture and ownership structure (e.g. politically connected firms).

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