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Influence of Family-Owned Firms on the Relationship between Capital Structure and Earning Management

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Abstract

Based on the agency, stewardship and pecking-order theories, the aim of this study is to explore the effect of firm's capital structure on earning management as well as the moderating role of family-owned firms. The sample spams 250 manufacturing firms listed on Pakistan Stock Exchange over the period from 2012 to 2024. The discretionary accruals are employed as a proxy of earning management. The ordinary least square is used first to estimate the regression parameters that are then used to calculate the nondiscretionary accruals. Based on nondiscretionary accruals the discretionary accruals are then estimated. For further analysis this study employs fixed effect regression. The findings of this study reveal that firm's capital structure have significantly positive impact on earning management and family-owned firms significantly weaken the relationship between capital structure and earning management. This study provides guidelines for the investing decisions of stakeholders as well as for the regulators to take protective measures to reduce the manipulation of financial statements. This study will also help regulators to make financial markets efficient.

Introduction

Capital structure (CS) choices made by firms are very important in influencing the financial status as well as the profitability of the firms. During the process of earnings management (EM) where a firm's financial statements are manipulated to achieve a certain objective, a number of factors can play a role, among them being capital structure. It is a phenomenon used for maneuvering financial data to achieve predetermined targets. One of these targets is to show stable earnings to influence the stakeholders (Le & Nguyen, 2023; Micah and Chinwe 2014). EM is more about the accounting practice that may or may not follow the accounting standards but violates the intentions for which these standards are enacted. In other words, EM is the maneuvering of actual financial accounting figures to the preparer's desired figures by manipulating the loopholes available in financial standards (M. Bhasin, 2010; M. L. Bhasin, 2010; Bhasin, 2014; Jian et al., 2024; Abualhassan et al., 2024). One of the fundamental differences between family-owned and non-family-owned firms is that in family-owned firms ownership is more highly concentrated and this may also be associated with a distinct governance structure therefore suggesting possible variation in EM in relation to CS dynamics (Murni et al., 2023; Naz & Sheikh, 2023). To make well-informed decisions by stakeholders the reliability and accuracy of financial statements are required. The key

performance indicators shown in financial statements are the main source for individuals, potential investors, regulators and creditors (Wokukwu, 2015). However, the credibility of financial statements has been questioned after financial scandals exposed in recent decades like Enron, WorldCom, and Satyam etc. These scandals inherited the accounting manipulations and also exposed the failure of regulators and auditors. Despite the strict measures taken by the regulators like the Sarbanes Oxley Act (SOX), accountants are still sometimes misleading the users of financial statements to portray a greener picture of the company on demand of the management (Susmuş & Demirhan, 2013). EM is one of the tools that is being used by accountants to make financial statements attractive (Gupta & Kumar, 2020). Companies sometimes use creative EM to influence competitors, and this is quite evident in large US firms (Brown et al., 2015; Browne, 2015). According to Ali Shah et al. (2011), Managers do the EM to meet internal objectives and external opportunities while providing window dressing and income smoothing etc. They argue that creative accounting is not a bad practice but it can become bad if misused. As Gupta & Kumar (2020) concluded that creative accounting practices have a long history and despite the strict measures taken by the regulators, these practices cannot be controlled. They suggest that to control this problem, the implementation of professional ethics is to be taken into account and some capital punishments are needed to be introduced. The CS and its determinants have been focused on by a considerable number of academic researchers in accounting and finance studies for years. However, until the early last decade, the relationship between EM and CS has not attracted the attention of researchers in the accounting field. Nevertheless, since then, accounting researchers have not given enough attention to this issue. Few studies e.g. Beatty & Weber (2003); Dichev & Skinner (2002); Lang et al. (2012); Sweeney (1994) and An et al. (2016) evidenced the positive/negative association between CS and EM in their studies. The association of family concentrated firms and EM has also been investigated in the studies e.g. (Abdullah & Ismail, 2016; Saleem Salem Alzoubi, 2016; Chi et al., 2015; Duréndez & Madrid-Guijarro, 2018; Eng et al., 2019; Ghaleb et al., 2020; Rodriguez-Ariza et al., 2016; Razzaque et al., 2016; Srinidhi et al., 2014; Teh et al., 2017; Tsao et al., 2019; Wang, 2006). Similarly, some studies e.g. Baek et al. (2016); Gottardo et al. (2019) and Jensen & Meckling (2019) evidenced the association between family-concentrated firms and CS. On the best of authors' knowledge, prior studies have investigated the impact of CS on EM. They proposed various mechanisms through which firms may have the motivations to undertake EM practices in order to carry out and/or maintain a preferred leverage ratio or meet expectations of financial analysts (Duréndez & Madrid-Guijarro, 2018; Eng et al. 2019; Ghaleb et al., 2020). But the impacts of family ownership on this relationship are still unelaborated. Agency theory states that family-controlled companies have reduced agency costs and as such they would indulge in less EM than non-family owned companies. On the other hand, stewardship theory predicts that family owners are more likely to have an orientation towards sustainable shareholder value and tend to use EM for their benefits. Additionally In the future directions given by Ghaleb et al. (2020); Al-Duais et al. (2022); Murni et al. (2023), who investigated the relationship between family-concentrated firms and real EM, proposed that this relationship can be investigated in other Asian countries having similar ownership structures as in Malaysian firms. Motivated by the study of Ghaleb et al. (2020); Al-Duais et al. (2022) and Murni et al. (2023), this study not only investigates the relationship between family-owned firms, CS and EM but also goes one step further to investigate the moderating role of family-owned firms between the relationship of CS and EM. This is because the moderating role of family-controlled firms between the relationship of CS and EM has not been found in literature in general and in the context of Pakistan in particular. In Pakistan Majority of firms have roots in family startups and around 67% of firms are controlled by families (Khan et al., 2025; Khan et al., 2019). As Chi et al. (2015) stated weak corporate governance, high ownership concentration, less transparency, and

weak judicial systems in East Asian countries offer more chances for the concentrated groups to be involved in EM practices. So there is a dire need for the literature to investigate the moderating role of family-controlled firms between the relationship of CS and EM to provide empirical evidence for the stakeholders to make well-informed financial decisions. Based on the efficient monitoring hypothesis, agency cost of free cash flows theory, and pecking order theory, this study deals with the question of whether EM which further worsens the information asymmetry of cash flows is affected by increasing or decreasing the financial leverage of the firms. More specifically, this study intends to provide empirical evidence on this issue by examining the association between EM practices and CS and the role played by family-owned firms to strengthen or weaken this association. This study makes reference to three theories: agency theory; stewardship theory and the pecking order theory of CS. Agency theory articulated the relationship between shareholders and managers and claims that the existence of such a relationship creates the potential for both parties to engage in opportunistic behavior such as EM. Stewardship theory may imply that family firms take a more considerate interest in the welfare of other company stakeholders and are less involved in EM. The pecking order theory offers explanations about decisions on how to finance firms' operations from within or outside organizations.

A Plethora of research has been conducted on the CS and EM relationship in general but, too few can be found in the context of Pakistan. However, the moderating role of family firms between CS and EM has not been found in literature in the context of Pakistan. This study provides guidelines for the investing decisions of stakeholders as well as for the regulators to take protective measures to reduce the manipulation of financial statements. This study will also help regulators to make financial markets efficient. This study will contribute to the body of literature and will have reasonable input for the stakeholders and financial statement users.

Literature Review

EM appears when judgments in financial reporting are used and transactions are structured in a way to modify financial reports thus, misrepresenting the underlying economic performance to deceive stakeholders (Healy & Wahlen, 1999). To meet financial reporting targets, managers manipulate the financial statements as well as the operating and financing activities of their firms. Graham et al. (2005) further confirmed this idea through the survey of financial officers, which found that chief financial officers (CFOs) are often willing to show better earnings in the short run by reducing discretionary costs like research & development and advertisement. As Baskaran et al. (2020) concluded EM is an exercise to maintain a positive firm's value by following corporate laws and accounting standards. Prior studies which addressed the relationship between EM and CS based their hypothesis on the agency cost of free cash flows theory. This theory predicts that firms having higher debt-to-equity ratios are more inclined to higher earning maneuvering practices. The studies of Lang et al. (2012) and An et al. (2016) state that EM is often used as a proxy for agency conflict between owners and managers. As An et al. (2016) report the evidence of a significant positive relationship between EM and CS based on agency conflict of information asymmetry between principals and agents. They posit that most of the studies in the past test the debt hypothesis which states that firms having higher leverage tend to keep their income better to make them attractive to creditors. The studies of Beatty & Weber (2003); Dichev & Skinner (2002) and Sweeney (1994) concluded that higher financial leverage increases the likelihood of EM activities to avoid violations of debt covenants. In the same manner Sweeney (1994) also confirmed support of the debt hypothesis that the firms with greater leverage are more likely to be engaged in income-increasing practices. The early empirical studies regarding the association between CS and EM include the work of (Zhang & Liu, 2009) which used a sample of listed firms

in China from 2003-2007. This study managed to establish an association between CS and EM practices. The empirical results of this study show that there is a significant positive association of the relationship between earnings management and debt ratio. This study also indicates that the equity proportion of executives and EM has a weak but positive association. However, Naz et al. (2011) investigated the impact of CS and firm size on the EM of listed firms in Pakistan from the 2006-2010 period and found a significant negative association between CS and EM. Moreover, Al-Mohareb & Alkhalaileh (2019) conducted a study of a sample of 119 non-financial listed firms in the Tehran Stock Exchange and found that both firm size and discretionary accruals are positively associated with CS. The studies conducted by Exchange (2019); Obeidat (2016) and An et al. (2016) to examine the impact of CS on EM found a significant positive relationship between leverage and EM practices. According to Lazzem & Jilani (2018) while examining the impact of leverage on accrual-based EM practices concluded, that high leverage causes the increase in earnings manipulation by managers. Similarly Dechow et al. (2011) found that firms which are practicing EM reported an unusual market-to-book ratio. According to Dang et al. (2021) firms having high-EM activities have a high leverage ratio. Based on the above piece of literature, the first hypothesis is then developed as follows.

Hypothesis 1: Capital structure and earning management have significant positive/negative relationships.

On the other hand, the Efficient monitoring hypothesis as cited by Swai & Mbogela (2016), ownership concentration causes less EM. The fact behind this is that, due to high monitoring costs, small shareholders would not prefer to go for monitoring the management activities, but only share a little contribution. Therefore, shareholders holding relatively a small fraction of outstanding shares have large incentives to free-ride in the monitoring process. Prior studies e.g. Dechow et al. (1996) and Shleifer & Vishny (1986) have suggested that shareholders having a large proportion of outstanding shares, have significant influence over firm management and hence, they can actively monitor the management activities, which in turn reduces the possibilities of EM activities. However, in the literature, many researchers claimed that ownership structure affects the likelihood of EM practices. Concentrated ownership structure prevailed in family firms Srinidhi et al. (2014) and according to Duréndez & Madrid-Guijarro (2018), the quality of financial reporting is largely influenced by concentrated ownership structure. Some studies like Rodriguez-Ariza et al. (2016) and Tsao et al. (2019) concluded that family-owned firms are careful about their value and reputation and hence, they do not prefer EM practices. Similar results are found from the study of Saleem Salem Alzoubi (2016) that family owners are quite sensitive regarding their family status and values. Similarly Boonlert-U-Thai & Sen (2019) also reported a high earning quality in family firms as compared to non-family firms as indicated by (Hashmi et al., 2018). However, according to Abdullah & Ismail (2016) controlling shareholders tend to exploit the interests of non-controlling shareholders and encourage accounting manipulations. Similarly Wang (2006) posits that family members mostly possess key positions in upper management and on the board hence, the weekend of the monitoring process leads to the opportunity for accounting manipulation available. Moreover, Chi et al. (2015); Eng et al. (2019); Razzaque et al. (2016) and Teh et al. (2017) found a positive relationship between family firms and EM however, this association reduces, in the existence of independent directors in the board. Additionally, Teh et al. (2017) reported in their study of the Malaysian market that because of significant power and control over decision-making, family-concentrated firms practice more EM. Similarly Razzaque et al. (2016) also reported that family firms in Bangladesh engaged in more real EM practices than non-family-owned firms. Similarly, Eng et al. (2019) in their study of Chinese and US markets also posit that real EM is largely practiced by family firms rather than non-family concentrated

firms. However, Ghaleb et al. (2020) concluded in their recent study that family firms and real EM have significant negative associations.

According to Gottardo et al. (2019) many theories related to the CS have been offered to investigate the distinct features of family business choices with the trade-off theory presented by (DeAngelo & Masulis, 1980) and (Titman, 1984) and the pecking order theory presented by (Myers & Majluf, 1984). Trade-off theory indicates that firms follow an optimum CS in their financing decisions, which causes an increase in the value of a firm. However, Pecking Order Theory is based on the information asymmetries between principals and agents. This theory claims that firms prefer to meet their financial needs from internal resources rather than external resources. In addition, Gottardo et al. (2019) concluded that despite the capabilities of self-financing, family firms are highly leveraged. Consistent with the Pecking Order Theory, family firms prefer to use debt financing to maintain control once self-financing is utilized. However, Hansen & Block (2021) posit that theories do not make clear the relationship between leverage and family firms. In family firms agency costs from principal-agent conflict are lower than in non-family firms (Jensen & Meckling, 2019), this is because the management positions are normally held by family members and hence, the interests of management and owners are often managed to be aligned (Fama & Jensen, 1983) Due to lower agency costs, family firms do not need to borrow and hence report less leverage ratio as compared to non-family firms. Family firms having family members serving as managers or directors report lower leverage ratios (Baek et al., 2016). The literature has shown that family-owned firms have a significant relationship with CS and EM. It means that family firms can moderate the relationship between the structure of the capital and EM. The above portion of the literature leads to the following hypothesis.

Hypothesis 2: Family-owned firms significantly moderate the relationship between capital structure and earning management.

Methodology

Sample

The population of this study is non-financial firms listed on the Pakistan Stock Exchange. Data is acquired from the financial statements of the firms from 2012 to 2023. The sample of this study includes 250 manufacturing firms, listed on the Pakistan Stock Exchange (PSX) during the sample period of 2012-2023. The firms are taken from a wide range of industries like agriculture, chemical, pharmaceutical, textile, cement, paper, automotive, sugar, energy and sports etc. However, the sample of this study is limited to the availability of the data. The motivation behind choosing the manufacturing firms is that EM is mostly practiced in manufacturing firms (Brown et al., 2015; Ge & Kim, 2014). Furthermore, as directed by Järvinen & Myllymäki (2016) among others overproduction is often used as an EM strategy that is only available in manufacturing firms.

Data Estimation

This study investigates the relationship between CS and EM and the moderating role of family-owned firms. Most of the past studies used the Jones Model and Modified Jones Model as a proxy of EM. Jones Model is proposed Jones (1991) and the Modified Jones Model is developed by Dechow et al. (1996). However, the empirical results obtained by Guay et al. (1996) and Dechow et al. (1996) revealed that the estimates of the Jones Model and the Modified Jones Model are biased. To tackle this issue and adjust the Modified Jones Model Kothari et al. (2005) employ ROA and a regression-based approach, which successfully reduced the estimation bias. To measure the discretionary accruals (DA) as a proxy of EM, this study used regression analysis

following the methodology of (Kothari et al., 2005). This approach has also been used by Cohen & Zarowin (2010) to measure real EM and estimate the degree of EM. This method was recently employed by Chen & Hung (2021) to estimate DA in their study of corporate CSR impact on real EM and DA. Motivated by the approach of Chen & Hung (2021) and Kothari et al. (2005) to estimate DA, this study first ran the ordinary least square to estimate the regression parameters in Equation I. These regression parameters are then used in Equation II to calculate the nondiscretionary accruals (NDA). Then, equation III is used to estimate discretionary accruals (DA).

$$\boldsymbol{TAC_{it}/A_{it-1} = \propto_1 * 1/A_{it-1} + \propto_2 * \Delta REV_{it} - \Delta AR_{it}/\ AR_{it-1} + \propto_3 * PPE_{it}/A_{it-1} + \propto_4 * ROA_{it}} + \varepsilon_{it} \quad \textbf{Eq. (I)}$$

$$\boldsymbol{NDA_{it} = \propto_1 * 1/A_{it-1} + \propto_2 * \Delta REV_{it} - \Delta AR_{it}/A_{it-1} + \propto_3 * PPE_{it}/A_{it-1} + \propto_4 * ROA_{it}} + \varepsilon_{it} \quad \textbf{Eq. (II)}$$

$$\boldsymbol{DA_{it} = TAC_{it}/\ A_{it-1} - NDA_{it}} \quad \textbf{Eq. (III)}$$

In Equation I, TAC_{it} is the total accruals of firm 'i' at year 't', which equals the Net income less operating cash flows. A_{it-1} is the total lagged assets of firm 'i'; ΔREV_{it} is the change in revenue of firm 'i' from year t-1 to 't' year; ΔAR_{it} represents the changes in account receivables of firm 'i' from year t-1 to 't' year, and PPE_{it} indicates the property, plant and equipment of firm 'i' at year 't'. ROA_{it} is the return on assets of firm 'i' at year 't' and ε_{it} is the residual. NDA_{it} represents the non-discretionary accruals of firm 'i' at year 't' in equation 2, which is the actual value of Total Accruals minus its predicted value. The results obtained from equation I are used in equation II as a regression parameter, which calculates (NDA). The DA_{it} is then calculated in equation III.

$$\boldsymbol{DA_{it} = \beta_0 + \beta_1\ CS_{it} + \sum Controls_{it}} + \varepsilon_{it} \quad \textbf{Eq. (IV)}$$

$$\boldsymbol{DA_{it} = \beta_0 + \beta_1\ CS_{it} + \beta_2 FOF_{it}\ + \sum Controls_{it}} + \varepsilon_{it} \quad \textbf{Eq (V)}$$

$$\boldsymbol{DA_{it} = \beta_0 + \beta_1\ CS_{it} + \beta_2 FOF_{it}\ + \beta_3 FOF_{it} * CS_{it} + \sum Controls_{it}} + \varepsilon_{it} \quad \textbf{Eq (VI)}$$

Where: CS_{it} is a CS ratio measured as Total debt to Shareholder's Equity for a firm 'i' at year 't' as estimated by (Tahir et al., 2011). DA_{it} is the discretionary accruals of the firm 'i' at year 't', obtained from equation-3 above.

FOF_{it} in equation V and equation VI is a Dummy variable used for family-owned firms having a value of 1 if a family holds more than 20% shares and 0 otherwise. Prior studies e.g. Abdullah & Ismail (2016); Ghaleb et al. (2020) and Khan et al. (2019) used 20% family ownership concentration and posit that this percentage is enough for effective control. Therefore, this study also takes 20% of shares held by a family as a family-owned business.

In Equation 6 the interaction variable of CS and Dummy of family firms ($FOF_{it} * CS_{it}$) is created to estimate the moderating role of family firms between the relationship of CS and EM.

Results:

Table 1 represents the results of the Hausman test for three equations. Based on the significant P values of the test, the Null hypothesis is rejected and therefore, a fixed effect is used to estimate the model.

Table 1. Hausman Test of Equations IV, V and VI.

	Cross Section Random		
Test Summary	**Equation IV**	**Equation V**	**Equation VI**
Probability	0.0000	0.0000	0.0000
Chi-Sq. Statistics	45.244192	35.853758	36.699248
Chi-Sq. d. f.	4	4	5

H0: The random effect model is a preferred model. H1: The fixed effect model is a preferred model.

Tables 2 and 3 show the regression results of equations IV, V and VI. Capital structure is significantly and positively associated in all three regression results with DA which is the proxy of EM. Results show that firms with high leverage ratios are more likely to be involved in EM practices. These results are according to this study's predictions and prior studies' findings e.g. Al-Mohareb & Alkhalaileh (2019) among others, also found a positive association between CS and EM. These results confirm our first hypothesis as well as the prior studies' results which examined the predictions of the debt hypothesis and concluded that an increase in leverage increases the likelihood of EM practices to fulfil debt covenants. The regression results of equation V depicted in table 2 and 3 show a significant positive association of family-owned firms with DA, consistent with the studies e.g. (Eng et al., 2019; Razzaque et al., 2016; Wang, 2006 and Teh et al., 2017). However these results are inconsistent with studies e.g. Boonlert-U-Thai & Sen (2019); Ghaleb et al. (2020); Hashmi et al. (2018); Tsao et al. (2019), which predicted the negative association between the family firms and EM. Our results also reject the predictions of efficient monitoring hypotheses as cited by (Swai & Mbogela, 2016). Our results depict that EM is practiced more in family firms than in non-family firms.

Table 2. Regression results of equation IV and equation V.

Dependent Variable is DA (Proxy of earning management)				
	Equation IV		**Equation V**	
Variables	**Coefficients**	**t-statistics**	**Coefficients**	**t-statistics**
C	-0.10***	-6.77	-0.03***	-2.46
CS	4.77E-05***	5.57	4.33E-05*	1.64
FOF	----	-----	0.007***	2.87
ROA	0.06**	1.83	-0.08	-1.46
ROE	-0.004***	-7.53	-0.002	-0.80
SIZE	0.006***	7.26	0.001***	2.43
R-square	22%		8%	

t values are in parenthesis. *, **, *** are significance levels at 90%, 95% and 99% respectively.

The results of our second hypothesis are shown in Table III. Results indicate that family-owned firms significantly moderate the relationship between CS and EM. The interaction variable of family-owned firms and capital structure (FOF*CS) is created in our third equation with all other variables remaining the same. The negative coefficient value (-7.59E-05) of our interaction variable having a significant P value depicted that family-owned firms weakened the relationship between CS and EM. The result of the second equation also confirms the predictions of the Pecking

Order Theory, which states that family firms prefer to utilize their internal resources for financial needs, which ultimately ends up with a lower debt-to-equity ratio and less EM practices. The regression results of control variables like ROA, ROE and SIZE are significant in our first equation however, in equations V and VI, only the SIZE variable has a significantly positive effect on EM. These results are inconsistent with the studies of Abdullah & Ismail (2016) and Ghaleb et al. (2020), which predicted an insignificant association between SIZE and EM. ROA and ROE have insignificant and negative effects on EM in equations V and VI however, in equation IV, ROA shows the significance at 95% level with a positive coefficient. ROE is highly significant but has a negative association with EM in our equation IV. These results are also inconsistent with the studies of (Ghaleb et al., 2020).

Table 3. Regression results of equation VI

(Dependent Variable is DA)	Equation VI	
Variables	**Coefficients**	**t-statistics**
C	-0.026***	-2.47
CS	0.010***	2.76
FOF	0.008***	2.96
FOF*CS	-7.59E-05***	-2.64
ROA	-0.08	-1.45
ROE	-0.04	-1.34
SIZE	0.002***	2.42
R-Square	8.09%	

t values are in parenthesis. *, **, *** are significance levels at 90%, 95% and 99% respectively.

Conclusion

This study attempts to highlight the role of family firms in the relationship between CS and EM. Thus the moderation role of family-owned firms between the underlying relationships is closely examined in this research, which as per our knowledge has never been addressed in EM literature. While addressing the transparency of financial statement issues, this study takes a sample of manufacturing firms listed on the Pakistan Stock Exchange from diversified industries. Our results indicate that CS has a significantly positive impact on EM. Family-owned firms are more likely to have higher EM practices as compared to non-family-owned firms. The interaction of family-owned firms and CS however weakens the relationship between CS and EM. Our results show that the family firms significantly moderate the relationship between CS and EM. This study has a few limitations that need to be addressed. Firstly, our sample comprises 250 manufacturing firms only due to missing data during the sample period, which is not enough to have a valid empirical analysis. So, future research can be conducted with a bigger sample size and more control variables. Secondly, this relationship can also be investigated with the ratio of capital structure instead of dummy variables with 0 & 1. This study will provide guidelines for the investing decisions of stakeholders as well as for the regulators to take protective measures to reduce financial statement manipulations. This study will also help regulators to make financial markets efficient. This study will contribute to the body of literature and will have reasonable input for the stakeholders and users of financial statements. This study will have a bearing on the issue of corporate governance; it will also highlight problems associated with specific standards of financial reporting and assist investors in making decisions. Analyzing the relationship between CS and EM may assist those who are responsible for policy formulation and for regulating corporate governance in ensuring that there are appropriate interventions in order to reduce agency costs and increase disclosure. In addition, investors can include data on firm leverage and family

status in their decision-making, and use it to analyze the effectiveness of financial reporting and governance. One would also want to consider limiting factors in this study; these may include data constraints and the challenge in modelling firm behavior. Future researches may further investigate other relevant factors related to CS and EM, including the development of specific industries and the degree of regulation within an economy. Longitudinal studies might also be helpful if they offer information about changes in EM practices over time in family-owned firms.

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