

Family Ownership and Real Earnings Manipulations in Emerging Economies: Evidence from Jordanian Firms

Lara Al-Haddad¹, Ali Meftah Gerged², Zaid Saidat³ & Anas Al Qudah⁴

¹Department of Banking and Finance, Yarmouk University, Irbid, Jordan

²Sheffield University Management School, The University of Sheffield, Sheffield, UK

³Department of Finance and Accounting, Al Yamamah University, Riyadh, Saudi Arabia,

⁴Department of Banking and Finance, Yarmouk University, Irbid, Jordan

Abstract

Purpose – This study explores how family ownership influences real earnings manipulations (REM) in Jordan. It also examines whether engaging in REM correlates with diminished future profitability in family-owned companies in Jordan.

Methodology – The analysis is based on a sample of 95 Jordanian firms listed on the Amman Stock Exchange from 2010 to 2023. Hypotheses are tested using Feasible Generalized Least Squares (FGLS) regression, with additional robustness checks performed using a two-step Generalized Method of Moments (GMM) approach to address potential endogeneity concerns.

Findings – The results reveal that Jordanian family-owned companies are more prone to engaging in REM by manipulating sales, overproducing inventory, and reducing discretionary expenditures. Moreover, family-owned companies involved in REM experience significantly lower future operating performance in the succeeding year compared to companies not involved in such practices.

Practical Implications – This study provides valuable insights for policymakers, regulators, investors, and academics aiming to curb real earnings manipulations in family-owned companies and to enhance the financial reporting quality within the Jordanian context.

Originality – To the best of our knowledge, this is the first empirical study in Jordan to examine the relationship between family ownership and REM, thereby filling a gap in the literature on corporate governance and earnings management in emerging economies.

Keywords: Entrenchment theory, Family ownership, Jordan, Real earnings manipulations, agency problem, performance.

1. Introduction

The issue of earnings management has garnered significant attention in recent years, particularly in the aftermath of notable instances of corporate financial collapse and fraud involving major companies like Enron, WorldCom, and Pharmalat. Earnings management, while it is legal, is deemed unethical due to its impact on the trustworthiness of businesses and the integrity of the capital market. The unscrupulous nature arises from the management's purposeful intent to deceive certain stakeholders or manipulate contractual outcomes through alterations to the company's financial accounts (Healy and Wahlen, 1999). Considerable research has been devoted to inspecting earnings management practices in publicly traded companies (i.e. Al-Haddad and Whittington 2019; Gerged et al., 2020). Nonetheless, according to Salvato and Moores (2010), there has been limited examination of earnings manipulations in family-owned firms relative to non-family ones. Given their significance and prevalence among listed firms globally (constituting about 80% of companies) and their unique features that differentiate them from conventional public companies, family companies might offer an intriguing context for studying the quality of their earnings.

Previous research explored the earnings quality of family-owned businesses with a focus on accrual-based earnings management (i.e. Fan and Wong, 2002; Wang, 2006; Ali et al., 2007; Ding et al., 2011; Adıgüzel, 2013; Bataineh et al. 2018; Kim and An. 2019; Widagdo et al. 2021). However, Graham et al. (2005) presented findings indicating that managers exhibit a preference for participating in real earnings management (REM) over accrual-based methods. Real earnings management or manipulation is described as *“management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds”* (Roychowdhury 2006, p. 336). Companies employ various real earnings manipulation techniques to fulfil specific financial reporting requirements and avoid reporting annual losses, including offering price discounts or more flexible credit conditions to boost short-term sales, overproducing inventory to reduce reported costs, and reducing discretionary expenses to enhance reported income (Roychowdhury, 2006). Interestingly, there is a scarcity of research focusing on the involvement of family companies in REM, notwithstanding their potential as an intriguing experimental setting for investigating such engagement. One might argue that REM activities could be more readily facilitated within family-owned businesses. Conversely, the potential

negative consequences of straying from typical operational and investment practices might serve as a deterrent to real earnings manipulations in these companies.

Achleintner et al. (2014) contend that family-owned companies are less inclined to manipulate their earnings through real activities in Germany suggesting that family shareholders are less willing to compromise the long-term prospects of their investments in these companies. Though this result might not hold true in environments vastly different from Germany. Previous research has demonstrated that insiders are more inclined to practice earnings manipulations to ease personal benefit consumption, particularly in environments with weaker investor protection (Leuz et al. 2003). Therefore, the real earnings manipulation issue in family businesses within a weaker investor protection framework warrants empirical inspection. The limited academic focus on REM in family firms represents a critical gap in the literature, despite the fact that these firms may be uniquely predisposed to such practices. Therefore, in this study, we aim to assess whether family-owned businesses in Jordan engage in real earnings manipulations. Additionally, we aim to investigate whether engaging in REM is associated with reduced future profitability in family-owned companies in Jordan.

In fact, Jordan provides a compelling context for investigating real earnings manipulations in family-controlled firms for several reasons. Firstly, family-owned businesses represent a significant portion of the corporate landscape in Jordan, accounting for over 90 percent of the market. The dominance of family-controlled firms in sectors such as manufacturing, and services provides an ideal setting for examining how family ownership influences corporate practices, particularly in the realm of financial reporting. This governance structure raises unique concerns about managerial discretion, intergenerational control, and financial transparency. That is, both manufacturing and services sectors have greater flexibility in managing operational activities, such as altering production schedules, adjusting service delivery timelines, or modifying discretionary spending. These characteristics make them inherently more susceptible to REM strategies that involve manipulating real business decisions rather than accounting estimates (Roychowdhury, 2006). Moreover, these two sectors are among the largest contributors to Jordan's GDP and private-sector employment (Jordan Department of Statistics, 2023), which elevates the practical importance of examining their financial reporting behavior. In addition, these sectors tend to operate in less regulated and more opaque environments compared to other sectors, like the

financial sector. This lower regulatory oversight increases the opportunity for managerial discretion. Therefore, understanding earnings manipulation in these sectors makes them ideal for exploring how family ownership influences REM under limited accountability and offers meaningful implications for market participants and policymakers.

Secondly, the corporate governance framework in Jordan is evolving, with concentrated ownership and family control being common (Yaseen, 2017). This creates a fertile ground for exploring agency conflicts, especially the type II agency problem, which arises between controlling and minority shareholders. In such environments, the controlling shareholders may have incentives to manipulate earnings to serve their own interests (Morck et al., 1988). Furthermore, while Jordan has made strides in developing its regulatory environment, challenges in enforcement and transparency persist, which may provide family-controlled firms with greater opportunities for manipulating earnings (Shubita, 2017). This regulatory landscape offers an important area of inquiry into how external governance structures may mitigate or exacerbate earnings manipulation behavior. Additionally, the socio-economic and cultural context of Jordan plays a significant role in shaping corporate practices, especially in family-controlled firms, where personal relationships and family ties can have a strong influence on business decisions (Basly, 2007). These cultural factors may affect how earnings manipulation is carried out, providing a distinctive angle for research in comparison to other regions.

This study provides several key contributions to the expanding scholarship on earnings management. First, it fills a significant void in current research by exploring the under-examined area of real earnings manipulation in family-controlled firms. While prior investigations have predominantly concentrated on accrual-based strategies in such firms (e.g., Adıgüzel, 2013; Alzoubi, 2016; Bataineh et al., 2018; Kim and An, 2019; Widagdo et al., 2021), this research shifts the focus toward real activity-based earnings manipulations, thereby enriching this limited strand of literature. Second, whereas much of the existing work has centered on firms operating in developed markets (e.g., Achleitner et al., 2014; Cherif et al., 2020), our findings contribute new international evidence by examining the context of Jordan, a developing economy marked by concentrated ownership and relatively weak protections for investors (World Bank, 2020). Lastly, in alignment with the findings of Graham et al. (2005), Roychowdhury (2006), and Razzaque et al. (2016), the study reveals that real earnings manipulation strategies employed by Jordanian

family firms tend to impair future firm performance, as reflected in reduced return on assets in subsequent periods.

The organization of the paper is as follows: In Section 2, we review relevant literature and define the research hypotheses. Section 3 describes the methodology used in the study. The empirical results and their analysis are presented in Section 4. Lastly, Section 5 offers the conclusions of the paper.

2. Literature Review and Hypotheses Development

2.1. Family Ownership and Real Earnings Manipulations

After reviewing the prior academic literature, it has been shown that there are two theories that can describe the family ownership and earnings manipulation relationship: the interest alignment theory and the entrenchment theory. The interest alignment theory regarding family ownership posits that as the level of family ownership increases, the interests of both the family and other shareholders become more closely aligned, prompting management to prioritise efforts towards maximising shareholders' wealth (Demsetz and Lehn, 1985). Conversely, the entrenchment theory suggests that in cases where family ownership is perceived as dominant or controlling, the family may prioritize maximizing its own wealth over the interests of minority shareholders (Morck et al., 1988; Claessens et al., 2002). As noted by Morck et al. (1988) and Shleifer and Vishny (1997), family-owned firms are more prone to elevated levels of type II agency conflict, which mainly stems from the tension between controlling shareholders and minority shareholders. In other words, controlling shareholders may pursue actions that serve their own interests, often to the detriment of minority shareholders. To obscure the impact of such expropriation, managers in family firms might manipulate their earnings. Gopalan and Jayraman (2012) proved a strong correlation between managing earnings and consuming personal benefits, particularly, in countries with relatively weaker investor protection.

Achleitner et al. (2014) investigated the earnings management behavior of family firms in Germany. Analyzing a sample of 402 German family firms from 1998 to 2008 and comparing them with 436 non-family firms, the study found that family-controlled firms are less likely to engage in real earnings manipulation and more inclined to adopt earnings-decreasing accrual-based earnings management strategies. The findings further indicated that, unlike non-family

firms, family enterprises tend to treat REM and ABEM as substitutable, not complementary, tools for managing reported earnings.

Furthermore, Razzaque et al. (2016) examined Bangladeshi companies between 2006 and 2016 and discovered that family-owned businesses tend to engage in more real earnings manipulations than their non-family counterparts. They also found a curvilinear relationship between the level of family ownership and the extent of earnings manipulation. Specifically, family firms with lower levels of ownership concentration showed higher instances of real earnings manipulation, but this behavior decreased once family ownership surpassed a particular point. Further, they found that real earnings manipulations in the current period are related to diminished future operating performance.

In the same vein, Alhebri and Al-Duais (2020) inspected the real and accrual earnings manipulations in family-owned businesses during the period that ranges from 2014-2018. Their results revealed that Saudi family-owned companies engage in real and accrual earnings manipulations. This finding proves the entrenchment hypothesis, which states that the quality of earnings in family-owned companies is considered low due to earnings manipulations. Moreover, Ghaleb et al. (2020) explored the effect of family ownership concentration on real earnings manipulations for 264 manufacturing corporations listed on Bursa Malaysia. Based on the Feasible Generalized Least Square Estimation during the 2013 to 2016 period, their findings revealed that family ownership is adversely associated with real earnings manipulations. In addition, based on a sample of 92 manufacturing firms listed on the Indonesia Stock Exchange over the 2016-2019 period, Savitri (2021) analyzed the influence of politics and family ownership on earnings manipulations. Using Multiple linear regression, the findings revealed that political connections affect profits. The firm places significant emphasis on preserving its reputation and sustaining the benefits derived from its established political ties with the government. Moreover, family ownership appeared to influence earnings manipulations in Indonesia.

In addition, based on a sample of French companies listed in the CAC All-Tradable index during the 2014 to 2016 period, Cherif et al. (2020) explored the effect of family ownership on real and accrual earnings manipulations. Using the Generalised Least Squares technique, they reported that family ownership has no significant impact on accrual earnings manipulations. However, it has a

positive and significant influence on real earnings manipulations. Moreover, French family companies showed more involvement in upward earnings manipulations than non-family companies. In the same vein, Purba and Umboh (2021) investigated the earnings management preference performed by family and non-family companies for a sample of 336 Indonesian companies. Based on the results of Logistic regression, their findings confirmed that family companies prefer utilizing accrual earnings manipulations. Nevertheless, as the company size increases, family companies in Indonesia progressively shift to real earnings manipulations.

Furthermore, Phan et al. (2022) explored the role of family ownership in shaping earnings management practices in Vietnam by comparing the behavior of family and non-family firms. The study revealed that family-controlled firms are significantly more prone to engage in both accrual-based and real earnings manipulation. This tendency is attributed to the concentrated control and personal incentives typical of family enterprises, which often prioritize long-term control and private benefits over transparent financial reporting. Most recently, Helal et al. (2025) examined how family-controlled firms influence managerial choices between accrual-based earnings management and real earnings manipulation, using data from 109 non-financial companies listed on the Egyptian Stock Exchange. Drawing on 2,711 quarterly observations from 2015 to 2022, the authors estimated REM through abnormal cash flows, discretionary expenditures, and production costs. The study found that family firms exhibit a clear preference for REM as a primary tool for meeting internal targets, whereas the use of AEM is not statistically significant

Within the Jordanian context, Bataineh et al. (2018) examined the influence of family ownership and board characteristics on accrual manipulations in Jordan. Based on a sample of 43 Jordanian industrial companies listed on the Amman Stock Exchange over the 2011-2016 period, they employed the Modified Jones Model (1991) and documented a significant and positive association between family ownership and accrual earnings manipulations. Nevertheless, the size of the board, board education and CEO-duality did not designate any significant relationship with earnings manipulations.

From the previous literature, it is clear that earnings manipulations in family-owned businesses might differ substantially from those in non-family owned businesses, particularly in environments with inadequate investor protection. Family-owned businesses might be more motivated to use

real earnings manipulations because it suits environments with low investor protection (Calabrò et al., 2022). Family owners, with their strong control and involvement in management, can more easily collaborate to engage in real earnings manipulations especially because it can be used at any time during the fiscal year, offering managers more flexibility.

Given the relatively weak enforcement of legal codes in Jordan and the limited protection for investors, we expect that family ownership might ease the process of expropriating minority shareholders. This minority expropriation creates more incentives for earnings manipulations in family-owned companies. From an opportunistic managerial perspective, real earnings manipulations give excessive flexibility in execution timing and a lower risk of detection. Therefore, real earnings manipulations are supposed to be more prevalent among family-owned companies in Jordan compared to non-family ones. Hence, we propose the following hypothesis:

H1: Family-owned companies in Jordan are more likely to employ real earnings manipulations compared to non-family ones.

2.2. Real Earnings Manipulations and Subsequent Year's Performance

Real earnings manipulations involve modifying regular investment and operational activities. If these activities are purely motivated by optimal economic reasons, no future negative effect from such activities is expected. Nevertheless, these altered actions might also result from managerial opportunism, not aligned with the firm's best interests. This perspective is also supported by the agency theory, which suggests that managers may engage in REM to serve short-term personal or reputational goals at the expense of shareholder interests (Jensen and Meckling, 1976). Such misaligned incentives can distort investment and operating decisions, ultimately harming firm value. Graham et al. (2005) report that, to boost earnings, CFOs might delay their investment decisions, despite knowing the harmful future outcomes. Moreover, Roychowdhury (2006) contends that earnings manipulations via adjusting real activities have a future value-destroying effect. For example, managers might offer attractive price discounts to manipulate sales, which affects customer expectations and might push the company to lower its normal prices in the future. Real earnings manipulations using overproduction increase carrying costs and require additional sales efforts.

Cohen and Zarowin (2010) reported that firms engaging in REMs during seasoned equity offerings experience a considerable decrease in future performance. Though Gunny (2010) documented that companies utilising real earnings manipulations to meet critical earnings benchmarks have superior future performance than those that do not practice real earnings manipulations and fail to meet the benchmarks by a reasonable margin. This result supports the argument that real earnings manipulations are not constantly attributed to opportunistic managerial behavior. However, this strategic use of REM is more likely to be popular in contexts with stronger governance and institutional oversight conditions that are notably absent in Jordan.

In the current research, we examined the real earnings manipulations of family-owned businesses in Jordan, which has a somewhat weak corporate governance system. In such an environment, altering the ordinary decisions of the company is more likely to be driven by managers' personal intentions. Therefore, such activities are likely to be categorised as opportunistic managerial activities and are expected to produce harmful outcomes. Thus, we propose the following hypothesis:

H2: Family-owned companies that employ real earnings manipulations in Jordan experience lower future performance.

3. Research Methodology

3.1. Sample and Data

To examine our hypotheses, we utilized a dataset comprising Jordanian companies listed on the Amman Stock Exchange spanning from 2010 to 2023. More specifically, we focused on two primary sectors in Jordan: the industrial sector and the service sector. we excluded the financial sector, per prior research, due to its distinct financial reporting practices compared to other industries. This exclusion results in a dataset containing 133 firms. After applying these selection criteria, the final sample consists of 95 companies, comprising 1330 firm-year observations. Of these, 45 companies operate in the industrial sector, while 50 companies operate in the service sector.

It is worth noting that the Amman Stock Exchange categorises service-sector firms into eight distinct industries and manufacturing sector firms into eleven industries. However, several of these

sub-industries include only a small number of listed firms, with some falling below the generally accepted minimum threshold (e.g., 6–10 observations) necessary for reliable regression estimation. To address this limitation and to ensure sufficient variation within each industry category, we followed established precedent in the literature (e.g., Cohen et al., 2015, and Al-Haddad and Whittington, 2019) by reclassifying firms using the one-digit Standard Industrial Classification (SIC) code. This approach consolidates industries into broader groups, thereby improving the robustness of estimation and aligning with standard empirical practices in similar contexts. In addition, we winsorized the top and bottom 1% of the variables to remove outlier bias. Our final sample includes six consolidated industry categories, each with a minimum of five observations, which meets the data sufficiency requirements for panel regression.

3.2. Real Earnings Manipulations Mesurment

To assess the extent of real earnings manipulations, our research followed Roychowdhury (2006), and we employed three metrics: abnormal levels of cash flows from operations, production costs, and discretionary expenditures. As per Roychowdhury (2006), managers might manipulate sales by accelerating them through tactics like price discounts or more flexible credit provisions in the present period. While extra sales enhance total earnings in the present period, they lead to lower profit margins due to factors such as price reductions, flexible credit terms, and elevated production costs relative to the standard level. Accordingly, we anticipate an abnormally low cash flow from operations in the current period as a result of sales manipulation. Besides, to artificially inflate earnings, companies may overproduce inventory to document a high operational margin, as fixed overhead costs per unit decline with increased production volume. Hence, we posit that a higher value of the residual derived from Equation (2) designates a higher degree of manipulation through overproduction. Additionally, managers might alter earnings by curtailing discretionary expenditures to bolster current earnings. Accordingly, based on Equation (3), we anticipate lower abnormal discretionary expenses when REM is at play.

The expected levels of cash flows from operations, production costs, and discretionary expenses are determined annually and within each industry group using the specified models, provided there are at least six data points available for analysis.

$$\frac{CFO_{it}}{TA_{it-1}} = a_0 + \beta_1 \frac{1}{TA_{it-1}} + \beta_2 \frac{S_{it}}{TA_{it-1}} + \beta_3 \frac{\Delta S_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (1)$$

$$\frac{PRO_{it}}{TA_{it-1}} = a_0 + \beta_1 \frac{1}{TA_{it-1}} + \beta_2 \frac{S_{it}}{TA_{it-1}} + \beta_3 \frac{\Delta S_{it}}{TA_{it-1}} + \beta_4 \frac{\Delta S_{it-1}}{TA_{it-1}} + \varepsilon_{it} \quad (2)$$

$$\frac{DISC_{it}}{TA_{it-1}} = a_0 + \beta_1 \frac{1}{TA_{it-1}} + \beta_2 \frac{S_{it-1}}{TA_{it-1}} + \varepsilon_{it} \quad (3)$$

In this context, CFO_{it} represents the cash flow from operations for company i in year t , A_{it-1} signifies total assets at the end of year $t - 1$, S_{it} is net sales for company i in year t , ΔS_{it} is changes in net sales for company i between year $t - 1$ and year t , and ε_{it} is the regression residuals which signify our proxy for abnormal cash flow from operations. PRO_{it} reflects the company's production costs in year t , which equals the costs of goods sold added to changes in inventory, and ε_{it} is the regression residuals which signify our proxy for abnormal production costs. on the other hand, $DISC_{it}$ encompasses discretionary expenses, including selling, general and administrative expenses, research and development, and advertising costs for company i in year t , and ε_{it} represents the regression residuals used as a proxy for abnormal discretionary expenditures.

Furthermore, we constructed an overall proxy by merging the three individual proxies in order to detect the overall impressions of real earnings manipulations. It is worth noting that we multiplied the abnormal operational cash flow and abnormal discretionary expenses by -1 . Consequently, high values for these proxies designate greater degrees of managing earnings through real activities. The overall real activities manipulations proxy is articulated as follows:

$$REALL = -ABCFO + ABPRO - ABDISC \quad (4)$$

Where, $REALL$ is the overall proxy for real activities manipulations; $ABCFO$ is the abnormal cash flow from operations; $ABPRO$ is the abnormal production costs; $ABDISC$ is the abnormal discretionary expenses.

3.3 Family Ownership Measurement

Following previous literature (i.e. Razzaque et al. 2016; Alhebri and Al-Duais, 2020; Cherif et al. 2020; Helal et al., 2025; among others), family ownership, is a dummy variable that has a value of 1 if a company is classified as family-owned company, zero otherwise. In this study, a firm is classified as a family firm if two or more family members are collectively identified as the largest shareholders, holding a minimum of 10% equity ownership in the company. In instances where the largest shareholder is a single individual, we further investigate the composition of the board of directors. If another board member shares the same family name, we infer a familial relationship. In such cases, the firm is also categorized as family-owned, on the basis that at least two family members are actively involved in the firm's ownership or governance. This approach aligns with prior literature that defines family firms based on both ownership concentration and involvement in managerial or board roles (e.g. Saidat et al., 2020; Alhaddad et al., 2023).

3.4 Control variables

To ensure robust estimation of the relationship between family ownership and REM, we include a set of control variables commonly used in the literature to account for firm-specific characteristics that may influence earnings management behavior (i.e. firm size, growth opportunities, return on assets (ROA), leverage, and audit quality (BIG4)). These variables have been employed in recent empirical work, including Cherif et al. (2020), Alhebri and Al-Duais (2020), Salem et al. (2023), Almarayeh (2024), Bawuah (2024), Helal et al. (2025), among others. Firm size was measured as the natural logarithm of total assets. According to Dechow and Dichev, (2002), larger firms often attract greater scrutiny from investors and regulators, which may reduce the likelihood of earnings manipulation. Growth opportunities, proxied by the annual percentage change in sales, capture firms' incentives to meet or exceed market expectations. Firms with high growth potential may face greater pressure to report favorable results, increasing the likelihood of engaging in REM (Roychowdhury, 2006). Return on assets, representing firm profitability, controls for financial performance. Prior research suggests that less profitable firms may be more inclined to engage in earnings management to mask underperformance (Gunny, 2010). Leverage, defined as the ratio of total debt to total assets, is included to reflect financial pressure and debt covenant considerations. Firms with higher leverage may have a greater incentive to manipulate earnings to avoid violating

contractual obligations (Jelinek, 2007). Further, we included an indicator variable for BIG4 audit firms, which equals 1 if the firm is audited by a Big Four accounting firm and 0 otherwise. Audit quality is expected to constrain earnings manipulation, as Big Four auditors are generally associated with greater independence and more rigorous oversight (Cohen and Zarowin, 2010). Finally, in addition to firm-level controls, we included year and industry dummy variables in our regression models to account for unobserved heterogeneity across time and sectors.

3.5 Empirical Model

Following prior studies (i.e. Razzaque et al. 2016; Alhebri and Al-Duais, 2020; Cherif et al. 2020; Helal et al. 2025; among others), to inspect how family ownership affects real earnings manipulations, the present study implements the following model:

$$REM_{it} = \alpha_0 + \beta_1 FAMOWN_{it} + \beta_2 FSZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 BIG4_{it} + \beta_{6-15} YEARDUM_{it} + \beta_{16-22} INDDUM_{it} + \varepsilon_{it} \quad (5)$$

Where; REM is real earnings manipulations determined by ABCFO, ABDISC, ABPRO, and REMALL. FAMOWN is a dummy variable that has a value of 1 if a company is classified as a family-owned company, zero otherwise. FSZE is the natural logarithm of total assets. GROWTH is the sales growth rate for the current period. ROA is the net income before extraordinary items divided by total assets. LEV is a ratio of total debt to total assets. BIG4 is a dummy variable that equals 1 if a Big 4 audit firm audits the company and 0 otherwise. YEARDUM stands for year dummy variables. INDDUM stands for industry dummy variables.

Further, to examine whether engaging in real earnings manipulations correlates with diminished future profitability in family-owned companies in Jordan, we adopt the following model:

$$ROA_{it+1} = \beta_0 + \beta_1 REMDUM_{it} + \beta_2 FSZE_{it} + \beta_3 ROA_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} + \beta_6 LOSS_{it} + \beta_{7-16} YEARDUM_{it} + \beta_{17-23} INDDUM_{it} + \varepsilon_{it} \quad (6)$$

Where; REMDUM is a dummy variable that has a value of one if the aggregate real earnings manipulations proxy is above the industry median, zero otherwise; LOSS is a dummy variable that has a value of 1 if the company incurs a loss in the previous year, zero otherwise. The definitions of all other variables remain consistent with those provided earlier. The coefficient β_1 designates

the extent of the performance difference in the subsequent year between firms suspected of engaging in real earnings manipulation and those not suspected of such practices in the current period.

4. Empirical Results and Discussions

4.1 Descriptive Statistics

Table I exhibits the descriptive statistics of the key variables for family-owned and non-family-owned companies in Jordan. As can be shown from the table, around 63% of the observations in our sample have been categorized as family-owned companies. The average family ownership in Jordanian companies is about 56%. The average values of earnings manipulation proxies are nearly zero, indicating that the models align well with the data. As can be shown from the table, family-owned companies report higher ABCFO, ABDISC, ABPRO, and REMALL compared to their non-family counterparts, signifying a greater probability of real earnings manipulations. This offers preliminary evidence supporting our first research hypothesis. With regards to firm size, family-owned companies appeared to have somewhat smaller size than that of non-family ones. However, family-owned companies exhibited higher sales growth, lower ROA, and higher leverage ratios compared to their non-family counterparts. Finally, the percentage of family-owned companies audited by BIG4 audit companies in Jordan is lower than that of non-family firms. One possible reason for the lower percentage of family-owned companies audited by BIG4 firms in Jordan is the tendency of family-controlled businesses to prioritize maintaining control over their operations and reducing external scrutiny.

INSERT TABLE I RIGHT HERE

Table II illustrates the correlation matrix for the primary variables employed in our model. As shown from the table, the highest pair-wise correlation coefficient observed is 0.48, denoting that there is no multicollinearity problem in this study. Moreover, family ownership is significantly and positively correlated with real earnings manipulations, suggesting that family-owned companies tend to engage in these manipulations more frequently.

INSERT TABLE II RIGHT HERE

4.2 Regression Results

4.2.1 Family Ownership and Real Earnings Manipulations

The first model of this study inspects the impact of family ownership on real earnings manipulations. The regression results presented in Table III are derived from the Feasible Generalized Least Squares estimation method, which accounts for and corrects issues related to heteroscedasticity and serial correlation within the research model.

INSERT TABLE III RIGHT HERE

As shown in Table III, the highly significant Wald chi-square statistic confirms the robustness and validity of the model. Family ownership (FAMOWN) has a significant and positive relationship with abnormal cash flow from operations (coefficient =0.51, and $p<0.01$), denoting that family-owned companies are more likely to engage in real earnings manipulations through sales manipulations by offering sales discounts or more flexible credit terms. Moreover, there is a significant and positive relationship between family firms and abnormal discretionary expenses (coefficient =0.24, and $p<0.01$), designating that family-owned companies in Jordan are more likely to cut their discretionary expenses to manipulate their earnings. This could be because boards in Jordanian family-owned companies are governed by members of a particular family or a group of closely connected families who are deeply engaged in the management of the company. These individuals are frequently appointed to board positions or senior management roles based on kinship or personal relationships rather than their educational background or professional experience. As a result, the board's effectiveness in monitoring and coordination is weakened due to the lack of managerial talent and expertise among family members. This, in turn, increases managerial discretion over company earnings. Regarding ABPRO, Table III shows a significant and positive relationship between family-owned companies and overproduction (coefficient = 0.13, $p < 0.01$), implying that family-owned companies in Jordan tend to overproduce inventory to achieve a high operational margin. Similar results appeared for the aggregate proxy of real earnings manipulations. Our findings align with those of Razzaque et al. (2016), Eng et al. (2019), Alhebri and Al-Duais (2020), and Cherif et al. (2020). However, our results contradict those of Achleitner et al. (2014), who documented in Germany that family firms engage less in real earnings manipulations due to reputational concerns and a long-term orientation. The weaker legal

enforcement in Jordan seems to incentivise short-term opportunistic practices over long-term value preservation.

Overall, consistent with the entrenchment theory, family domination within a firm frequently results in using the firm's resources to secure jobs, perks, and privileges for family members that they might not otherwise obtain (Schulze et al. 2003). Such dominance allows these groups to exert significant influence over management decisions, potentially undermining the board's ability to supervise and coordinate effectively. Further, real earnings manipulations can be implemented at any point during the fiscal year, and are less likely to be detected by external parties, providing managers with greater flexibility. Weak governance structures in Jordan strengthen such manipulations, providing family members with greater control over managerial decisions and opportunities to engage in opportunistic behaviors. As a result, Jordanian boards may struggle with maintaining independence from family shareholders who could manipulate accounting information for personal gain, thereby incentivizing managers to engage in earnings manipulations that inflate income.

With regards to control variables, the firm size appeared to have a significant and negative relationship with ABCFO, ABDISC, ABPRO, and REMALL, implying that large companies in Jordan are less inclined to manage their earnings using REM. This might be because such firms are subject to tighter monitoring by analysts and investors. This result aligns with the results of Goh et al. (2013), Ge and Kim (2014), and Al-Haddad and Whittington (2019). However, consistent with Roychowdhury (2006), Growth has a significant and positive relationship with ABDISC, ABPRO, and REMALL. This might be attributed to the fact that high-growth firms, in emerging economies like Jordan, are often under intense scrutiny from investors, creditors, and stakeholders who expect consistent financial performance and earnings momentum. To meet or exceed these expectations, managers may resort to real earnings manipulation tactics, which manipulate actual business activities without altering accounting policies, thus appearing less detectable than accrual-based manipulations (Roychowdhury, 2006). Return on assets showed a significant and negative association with ABCFO, ABDISC, ABPRO, and REMALL, denoting that firms with stronger financial performance have fewer incentives to distort real operations for earnings management purposes, likely because they are better positioned to meet earnings benchmarks without resorting to opportunistic behavior. These findings align with prior research

indicating that lower profitability increases managerial motivation to manipulate earnings to mask underperformance (e.g., Gunny, 2010; Cohen and Zarowin, 2010; Alhebri and Al-Duais, 2020; Ghaleb et al., 2020; Cherif et al., 2020, and Helal et al., 2025).

Conversely, leverage showed a significant and positive association with ABCFO, ABDISC, ABPRO, and REMALL, signifying that highly leveraged companies are more inclined to manipulate their real activities to avert violating debt covenants. This finding is consistent with the findings of Razzaque et al. (2016), Cherif et al. (2020), and Helal et al. (2025). Finally, firms audited by BIG4 companies experience lower earnings manipulations through the three real earnings manipulation methods. One plausible explanation for the negative association between Big Four auditors' REM in Jordan lies in the institutional trust and reputation premium these firms offer within emerging markets. In Jordan, where regulatory oversight and enforcement mechanisms may be comparatively less stringent than in developed economies, firms often rely on the perceived credibility of external auditors to signal transparency and reliability to investors and stakeholders (Al-Akra et al., 2010). Big Four audit firms, due to their international standards, extensive experience, and risk-averse audit procedures, are more likely to implement rigorous auditing practices that deter aggressive managerial behavior, including real earnings manipulation (DeAngelo, 1981; Francis, 2004). Moreover, the reputational risk associated with auditing misconduct incentivizes Big Four auditors to scrutinize financial reporting more intensively, thereby acting as an effective external governance mechanism within the Jordanian corporate environment (Choi et al., 2010).

4.2.2 Real Earnings Manipulations and Subsequent Year's Performance

The second model of this study tests whether engaging in real earnings manipulations correlates with diminished future profitability in family firms in Jordan. To maintain consistency with the dependent variable, the study industry-adjusts all the continuous control variables before performing the regression analysis.

Table IV exhibits the empirical findings of the Feasible Generalized Least Squares regression. As shown from the table, the sign of the REMALL coefficient is negative and significant (coefficient = -0.11, and $p < 0.01$), which implies that family-owned companies with lower than or equal to the industry median value of REMALL experience lower return on assets in the succeeding year

compared to companies with higher than the industry median value of REMALL. This highlights the detrimental consequences of real earnings manipulations. This finding emphasize the critical role of institutional and governance contexts in shaping the behavior of family-owned firms, particularly in countries with limited legal enforcement and investor protections. This result aligns with the results of Graham et al. (2005), Roychowdhury (2006), and Razzaque et al. (2016).

INSERT TABLE IV RIGHT HERE

Regarding control variables, in line with Razzaque et al. (2016), the firm size (FSZE) appeared to have a significant and positive relationship with the subsequent year's performance (coefficient =0.91, and $p<0.05$). Similarly, ROA has a significant and positive relationship with the subsequent year's performance (coefficient =0.61, and $p<0.01$). However, leverage (LEV) appeared to have a significant and negative relationship with the subsequent year's performance (coefficient =-0.42, and $p<0.10$). GROWTH appeared to have a significant and positive relationship with the subsequent year's performance (coefficient =0.75, and $p<0.10$). Finally, LOSS appeared to have a significant and negative relationship with the subsequent year's performance of family-owned firms in Jordan (coefficient =-0.60, and $p<0.01$).

To sum up, our findings support the second hypothesis which asserts that family-owned firms that are presumed to practice real earnings manipulations by cutting their cash flows from operations, reducing their discretionary expenditures, overproducing, and by a mixture of all these activities have notably lower operating performance in the succeeding year than other companies that are not expected for such earnings-manipulation activities.

4.2.3 Robustness Checks

To further explore how family ownership influences real earnings manipulation and to strengthen the reliability of our findings, we employed the two-step Generalized Method of Moments (GMM) as a dynamic panel model, as reported in Table V. This method incorporates the lagged value of the dependent variable (REM) to control for potential dynamic endogeneity, addressing issues such as reverse causality and omitted variable bias. The GMM approach effectively accounts for unobserved firm-specific effects and mitigates measurement error by using internal instruments

derived from past observations. These features enhance the credibility of our estimates and ensure more robust inference compared to traditional estimation techniques (Roodman, 2009). The Sargan test results indicated no problems with over-identification restrictions in our models. Furthermore, the AR (1) and AR (2) tests showed no signs of autocorrelation in the model. The Wald-Chi2 test also confirmed the statistical significance of the two-step estimation model. The two-step GMM results indicated a significant positive correlation between family ownership and real earnings manipulations, consistent with our previous findings.

5. Conclusion

This research investigated the impact of family ownership on real earnings manipulations of 95 Jordanian companies listed on the Amman Stock Exchange over the 2010 to 2023 period. Also, it investigated whether engaging in real earnings manipulations correlates with diminished future profitability in family-owned companies in Jordan. In line with the predictions of the entrenchment theory, which suggests that dominant family shareholders exploit their control to extract private benefits at the expense of minority shareholders, our results showed that family-owned companies in Jordan are more inclined to practice real earnings manipulations by altering their sales, overproduction, and reducing their discretionary expenditures. Probably, because family domination within a firm frequently results in using the firm's resources to secure jobs, perks, and privileges for family members that they might not otherwise obtain. Such dominance allows these groups to exert significant influence over management decisions, potentially undermining the ability of the board to coordinate and supervise effectively. Further, real earnings manipulation can occur at any time throughout the fiscal year, offering managers greater flexibility in its execution and making it less likely to be detected by external parties. In addition, our results revealed that family-owned companies in Joran that are presumed to participate in real earnings manipulations experience significantly lower future operating performance in the succeeding year than other companies that are not suspected of such earnings manipulation activities, highlighting the detrimental effects of real earnings manipulations. Our results emphasize the critical role of institutional contexts in shaping the behavior of family-owned businesses, offering empirical insights from Jordan that complement findings from other regions.

Our study has several implications for policymakers, regulators, and investors in their efforts to inhibit real earnings manipulations in family-owned companies and improve the financial

reporting quality within the Jordanian context. Policy makers and regulators are advised to establish clear guidelines that limit real earnings manipulations and impose strict penalties on companies that do not follow these guidelines. Moreover, stronger governance frameworks need to be imposed, such as enhancing board independence and improving disclosure requirements. Investors have to be more careful when investing in family-owned companies in Jordan. They need to scrutinise the financial statements of family companies, and have greater awareness of the risks associated with REM, which can help them in making informed decisions and protect their interests. While this study offers valuable contributions, it is not free from limitations; first, it has focused exclusively on non-financial companies in Jordan, so our results cannot be generalized to financial companies such as banks and insurance companies, where governance structures and reporting practices differ substantially. Second, as with research focused on earnings management, there is a risk that some variables may be subject to inaccuracies in measurement. The extent to which earnings management proxies effectively represent manipulation activities continues to be a matter of debate. These limitations open several avenues for future research. First, expanding the scope of the research to include financial companies could provide comparative insights and improve the robustness of the findings. Second, developing or refining proxies that better reflect real earnings manipulation activities. Third, incorporating corporate governance mechanisms such as board size or board independence might offer different insights into the governance-REM relationship in emerging markets.

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Table I: Descriptive Statistics

Variables	Family Companies (840 firm-year observations)					Non-family Companies (490 firm-year observations)				
	Mean	Median	Standard Deviation	25%	75%	Mean	Median	Standard Deviation	25%	75%
ABCFO	-0.0031	-0.0021	0.0783	-0.0441	0.0472	0.0010	-0.0020	0.0014	-0.0500	0.0450
ABDISC	-0.0012	0.0069	0.0918	-0.0396	0.0553	0.0011	-0.0035	0.0728	-0.0331	0.0415
ABPRO	-0.0041	0.0133	0.0677	-0.0177	0.0330	-0.003	0.0170	0.0422	-0.0761	0.0611
REMALL	0.0416	0.0437	0.1291	-0.0811	0.1041	0.0381	0.0353	0.1332	-0.0553	0.9962
FAMOWN	0.5637	0.5012	0.4910	0.4725	0.6939	0.0000	0.0000	0.0000	0.0000	0.0000
FSZE	15.8198	15.8435	1.2290	14.5122	17.7538	16.9412	16.9335	1.3275	15.4230	18.1140
GROWTH	1.3156	0.9900	0.9112	0.6800	1.6700	1.2286	0.9330	0.9147	0.4607	1.5212
ROA	0.0052	0.0151	0.0821	-0.0261	0.0510	0.0055	0.0159	0.0831	-0.0264	0.0512
LEV	0.3516	0.3101	0.2161	0.1660	0.4492	0.3180	0.3000	0.2071	0.1431	0.4022
BIG4	0.3677	0.0000	0.4741	0.0000	1.0000	0.3852	0.0000	0.4952	0.0000	1.0000

This table presents the descriptive statistics of the variables used in the regression models. The sample consists of 1330 firm-year observations during the period ranging from 2010 to 2023. As shown from the table, family firms constitute 840 firm-year observations, while non-family firms constitute 490 firm-year observations.

Refer to Appendix A for variables definitions.

Table II Correlation Matrix

Variables	ABCFO	ABDISC	ABPRO	REMALL	FAMOWN	FSZE	GROWTH	LEV	BIG4
ABCFO	1								
ABDISC	0.1157**	1							
ABPRO	0.1042*	0.6330	1						
REMALL	0.2086**	0.5713*	0.3852	1					
FAMOWN	0.2731**	0.4129***	0.3915**	0.3113**	1				
FSZE	-0.5521**	-0.3792*	-0.4023*	-0.2271*	-0.0264**	1			
GROWTH	0.0429*	0.4837*	0.3750*	0.5112*	0.1491*	0.2491	1		
ROA	-0.0194	-0.2940	-0.2151	-0.3181**	-0.1530*	0.2381			
LEV	0.5031*	0.1139**	0.3362**	0.3676**	0.1796*	0.5290** *	0.3678	1	
BIG4	-0.2947***	-0.1181	-0.6110**	-0.4043***	-0.2242*	-0.1329	0.2418	0.317 0	1

***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Refer to Appendix A variables definitions.

Table III Regression Results

Variables	ABCFO	ABDISC	ABPRO	REMALL
FAMOWN	0.5165 3.81***	0.2418 2.73***	0.1382 2.39**	0.6283 2.26**
FSZE	-1.2459 -2.43**	-1.5817 -1.96**	-2.1081 -2.53**	-1.7250 -1.97*
GROWTH	0.8825 1.98**	0.1638 1.79*	0.1963 1.69*	0.6295 1.96**
ROA	-0.0934 -1.87*	-0.0176 -2.22**	-0.0261 -2.36**	-0.0589 -2.71***
LEV	0.671 1.96*	0.811 2.57**	0.671 1.96*	0.810 2.16**
BIG4	-0.073 -2.63***	-0.192 -1.63	-0.037 -2.43**	-0.281 -2.83***
Constant	1.8145 2.38**	2.1640 2.41**	1.3016 2.27**	1.1640 2.50**
YEARDUM	Inc.	Inc.	Inc.	Inc.
INDDUM	Inc.	Inc.	Inc.	Inc.
Wald chi2	267.45***	258.23***	221.34***	311.52***
Prob > chi2	0.0000	0.0000	0.0000	0.0000

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The parameter estimates are based on the following model:

$$REM_{it} = \alpha_0 + \beta_1 FAMOWN_{it} + \beta_2 FSZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 BIG4_{it} + \beta_7 YEARDUM_{it} + \beta_8 INDDUM_{it} + \varepsilon_{it} \dots (5)$$

Refer to Appendix A for variables definitions.

Table IV Real Earnings Manipulations and Subsequent Year's Performance

Variables	Coefficients	t. Statistic	p-value
REM DUM	-0.1139	-2.98***	0.000
FSZE	0.9125	2.36**	0.039
ROA	0.6116	3.33***	0.000
LEV	-0.4255	-1.89*	0.093
GROWTH	0.7529	1.88*	0.059
LOSS	-0.6074	-2.63***	0.001
Constant	2.1452	2.38**	0.023
YEARDUM	Inc.	Inc.	Inc.
INDDUM	Inc.	Inc.	Inc.
Wald chi2		303.71***	
Prob > chi2		0.0000	

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

The parameter estimates are based on the following model:

$$ROA_{it+1} = \beta_0 + \beta_1 REMDUM_{it} + \beta_2 FSZE_{it} + \beta_3 ROA_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} + \beta_6 LOSS_{it} + \beta_7 -16 YEARDUM_{it} + \beta_{17-23} INDDUM_{it} + \varepsilon_{it} \dots (6)$$

Refer to Appendix A for variables definitions.

Table V: Results of the Two-step Generalized Method of Moments

	ABCFO	ABDISC	ABPRO	REALL
REM _{t-1}	0.5220 3.72***	0.2450 2.64***	0.1408 2.73***	0.6390 4.23***
FAMOWN	0.6500 2.73***	0.6350 2.62***	0.7800 2.32**	0.3706 2.20**
FSZE	-1.2500 -2.44**	-1.5800 -1.97**	-2.1100 -2.54**	-1.7307 -1.91*
GROWTH	0.8907 1.99**	0.1740 1.80*	0.2000 1.70*	0.6305 1.97**
ROA	-0.0907 -1.88*	-0.0206 -2.23**	-0.0372 -2.37**	-0.0604 -2.72***
LEV	0.6703 1.92*	0.8205 2.58***	0.6802 1.975*	0.8109 2.17**
BIG4	-0.0702 -2.64***	-0.1970 -1.64	-0.0430 -2.44**	-0.2861 -2.84***
Constant	1.5807 1.89*	2.1707 2.42**	1.3105 2.28**	1.1702 2.51**
YEARDUM	Inc.	Inc.	Inc.	Inc.
INDDUM	Inc.	Inc.	Inc.	Inc.
Wald-Chi2			P=0.039	
Arellano-Bond test for AR (1)			p = 0.570	
Arellano-Bond test for AR (2)			p = 0.831	
Sargan test for over-identification			p = 0.714	

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The parameter estimates are based on the following model:

$$REM_{it} = \alpha_0 + \beta_1 REM_{t-1} + \beta_2 FAMOWN_{it} + \beta_3 FSZE_{it} + \beta_4 GROWTH_{it} + \beta_5 ROA_{it} + \beta_6 LEV_{it} + \beta_7 BIG4_{it} + \beta_8-16 YEARDUM_{it} + \beta_17-23 INDDUM_{it} + \varepsilon_{it}, \dots (5)$$

Refer to Appendix A for variables definitions.

Appendix A: Operational Definition of Research Variables

Variables	Definition
ABCFO	Abnormal cash flows from operations, measured as deviations from the predicted values from the corresponding industry-year regression.
ABPRO	Abnormal production costs, measured as deviations from the predicted values from the corresponding industry-year regression.
ABDISC	Abnormal discretionary expenses, measured as deviations from the predicted values from the corresponding industry-year regression.
REBALL	Aggregate real earnings manipulations proxy, the sum of the additive inverse of abnormal cash flows from operations, the additive inverse of abnormal discretionary expenses, and abnormal production costs.
REMDUM	A dummy variable that has a value of one if the aggregate real earnings manipulations proxy is above the industry median, zero otherwise.
FAMOWN	Family ownership, is a dummy variable that has a value of 1 if a company is classified as family-owned company, zero otherwise.
FSZE	Firm size, measured by the natural log of total assets.
GROWTH	Growth, is the sales growth rate for the current period.
ROA	Return on assets, measured as net income divided by total assets.
LEV	Leverage, is a ratio of total debt to total assets.
BIG4	Big four audit firm, is a dummy variable that equals 1 if the auditor is a Big4 and 0 otherwise.
LOSS	Loss, is a dummy variable that has a value of one if the firm incurs a loss in the previous year, zero otherwise.
YEARDUM	Year dummy variables.
INDDUM	Industry dummy variables.