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Internal Controls in Family-Owned Firms

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ABSTRACT This study investigates the relationship between family ownership and material weaknesses in internal controls over financial reporting. Recent Sarbanes-Oxley (SOX) regulation and mandatory disclosure of family relations among block shareholders and directors in Israel offer an ultimate setting for exploring this relationship. The findings reveal that (i) family ownership is significantly associated with less material weaknesses in internal controls, (ii) material weaknesses in internal controls are associated with lower earnings quality in family-owned firms than in non-family-owned firms, and (iii) investors find weaknesses in internal controls to be more serious in their potential to lessen future performance in family-owned firms than in non-family-owned firms. The contribution of the study is threefold. First, the findings expand our understanding of how ownership structure influences financial reporting procedures. Second, they suggest that family-owned firms use internal controls as a mechanism to enhance earnings quality. Third, they extend the literature on the implications of the SOX legislation by highlighting the joint effect of family ownership and effective internal controls in achieving high-quality financial reports.

1. Introduction

Although the importance of effective internal controls over financial reporting has long been recognised (Kinney *et al.*, 1990; Kinney, 2001), the effectiveness of internal controls in family-owned firms has not yet been investigated. Before the Sarbanes-Oxley (SOX) era, researchers did not empirically explore the effectiveness of internal controls because public firms were not required to disclose material weaknesses in their internal controls. The SOX legislation, which has been adopted in a number of countries, mandates public firms to report weaknesses in their internal controls.¹ I utilise information on material weaknesses in internal controls to gain insights into the relationship between family ownership and the effectiveness of internal controls.

Two competing effects play a role in how family ownership influences the effectiveness of internal controls over financial reporting. On the one hand, as Pérez-González (2006) demonstrates, family ownership gives rise to an entrenchment effect because family shareholders have incentives to expropriate wealth from other shareholders. Therefore, incentives and opportunities in family-owned firms lead to low quality of internal controls (Morck *et al.*, 1988;

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¹The SOX legislation in the USA was followed by similar laws in Canada, France, Germany, Italy, India, Japan, South Africa, Australia, and Israel.

Shleifer and Vishny, 1997). Hence, the entrenchment effect leads to a positive association between family ownership and weaknesses in internal controls.

On the other hand, an alignment effect creates the intention to preserve the family reputation, wealth, and long-term performance for future generations (Bennedson *et al.*, 2007). The motivation to sustain a lucrative family-owned firm over time generates incentives to report financial statements in good faith. Therefore, family shareholders and managers have incentives to forgo short-term benefits from manipulations of financial statements and to enhance the effectiveness of internal controls. As a result, the alignment effect is likely to induce a negative association between family ownership and weaknesses in internal controls.

Given these opposing forces, public Israeli firms provide an ultimate setting for an empirical examination of the relationship between family ownership and internal controls for two reasons. First, they are mandated to explicitly report family relations among all stakeholders, directors, and managers as an integral part of the annual financial statements they file. This information makes it simple to reliably identify family-owned firms.² Second, the Israeli regulator has generally followed the SOX legislation in mandating public firms to report material weaknesses in their internal controls over financial reporting.

The findings of the present study are based on 573 firm-year observations over a two-year period of a sample in which 53.1% of the firms are family-owned. They indicate that only 3.0% of the family-owned firms reported material weaknesses in their internal controls, whereas 10.1% of the non-family-owned firms did so. The difference is significant (p -value < 0.01). Results from regression analyses reveal a significant negative association between family ownership and material weaknesses in internal controls, when controlling for firm size, firm performance, firm complexity, growth, board independence, and audit by big-4 accounting firms. These findings are found to be robust to different definitions of family-owned firms: (i) at least two board members belong to the controlling family (an indicator variable) and (ii) ownership comprises family equity holdings (a continuous variable). Overall, the empirical evidence suggests that family-owned firms have significantly less material weaknesses in their internal controls than non-family-owned firms.

I follow Doyle *et al.* (2007a) in examining a potential disparity in the severity of material weaknesses in internal controls. Interestingly, findings indicate that family-owned firms tend to report serious company-wide control weaknesses, whereas non-family-owned firms are likely to report narrow account-specific control weaknesses. In sum, family-owned firms tend to have fewer material weaknesses in their internal controls than other firms, but such weaknesses when they do occur are more acute.

Next, I examine whether family ownership influences the relationship between material weaknesses in internal controls and earnings quality. On the one hand, Doyle *et al.* (2007b) showed that material weaknesses in internal controls reduce earnings quality. On the other hand, Wang (2006), Ali *et al.* (2007), and Cascino *et al.* (2010) report that family ownership is associated with greater earnings quality. I integrate the two streams of studies and find that material weaknesses in internal controls reduce earnings quality to a greater extent in family-owned firms than in non-family-owned firms.

Finally, I find that investors react, on average, significantly and negatively to reports on material weakness in internal controls (-0.41% , p -value < 0.01), consistent with Beneish *et al.* (2008) and with Hammersley *et al.* (2008). More importantly, this response to material

²In contrast, the reliability of the methods used in prior studies on US firms to identify the family relations in family-owned firms has never been tested. These studies are generally based on information collected by performing textual searches for family relations in proxies filed with the SEC, on corporate history collected from the Lexis-Nexis and the Hoovers databases and from firms' websites, as well as on additional voluntary information sources.

weaknesses in internal controls reported by family-owned firms is stronger than for non-family-owned firms. Specifically, the market response to material weaknesses reported by a family-owned firm is about twice as large (more negative) as the market response to material weaknesses reported by a non-family-owned firm. I conclude that investors perceive a material weakness in internal controls to have a more negative impact on the future performance of family-owned firms than on the future performance of non-family-owned firms.

The contribution of the findings is threefold. First, the results expand our understanding on why family-owned firms have high earnings quality, corroborating the association between family ownership and earnings quality reported by Ali *et al.* (2007) and Cascino *et al.* (2010). Importantly, they indicate the role of internal controls in attaining earnings quality in family-owned firms, an issue that has not been explored in previous studies.

Second, the findings contribute to the ongoing research on the implications of SOX. Doyle *et al.* (2007b) report that weaknesses in internal controls are associated with low earnings quality, arguing that this relation is driven by company-wide weaknesses which are difficult to audit. Going a step further, the results suggest that material weaknesses in internal controls reduce earnings quality more in family-owned firms than in non-family-owned firms. That is, the evidence draws attention to the joint effect of family ownership and effective internal controls in achieving high-quality financial reports.

Third, this study extends the growing literature on the implications of ownership structure on financial reporting (Fan and Wong, 2002; Srinivasan, 2005; Patelli and Prencipe, 2007; Bowen *et al.*, 2008; Bona-Sanchez *et al.*, 2011). The findings suggest that family ownership reduces the frequency of internal control problems. I conclude that family ownership matters in determining the quality of firms' internal controls over financial reporting.

The study is organised as follows. The hypotheses are developed in Section 2. The data and sample are presented in Section 3. Section 4 presents the empirical findings and Section 5 summarises.

2. Hypothesis Development

Internal controls over financial statements have been a major issue of recent worldwide regulatory changes.³ Post-SOX, if management identifies a material weakness in its internal controls, it must disclose the weakness and is precluded from reporting that the controls are effective (Securities and Exchange Commission, 2002, 2003, 2004). Section 404 requires a firm to disclose information in its annual reports concerning the scope and adequacy of its internal control over financial reporting. It is also required to assess the effectiveness of such internal controls and procedures. The firm's public accountants are required to attest and to report on the effectiveness of the internal control structure and procedures for financial reporting. Following the SOX Act in the USA, regulators in many countries require disclosure of weaknesses in internal controls.

³Internal control over financial reporting

includes those policies and procedures that: (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements. (PCAOB, 2004)

In order to explore how family ownership affects the quality of internal controls, I build on prior studies on determinants of internal control deficiencies reported by firms in the post-SOX period.⁴ Based on material weaknesses in internal controls reported in the Security and Exchange Commission (SEC) filings required by the SOX Act, Ge and McVay (2005) find that poor internal controls are usually related to an insufficient commitment of resources for accounting controls. They also examine common internal control problems and find that account-specific problems are the most frequent internal control deficiencies. Doyle *et al.* (2007a) confirm the results in Ge and McVay (2005), but also document that firms reporting serious, company-wide material weaknesses in internal controls tend to be smaller, younger, financially weaker, more complex, growing rapidly, or undergoing restructuring. In contrast, firms with account-specific control problems, which tend to be less serious than company-wide control problems, are healthy financially but have complex, diversified, and rapidly changing operations. Taking a different point of view, Wang (2006), Ali *et al.* (2007), and Cascino *et al.* (2010) find that family ownership enhances high-quality accounting earnings, though they provide no clue on the quality of the internal controls underlying high-quality accounting earnings. Indeed, no prior studies have explored the potential effect of family ownership on the effectiveness of internal controls over financial reporting.

2.1 The Entrenchment Effect

Agency theory indicates that concentrated ownership generates incentives to expropriate wealth from other shareholders (Shleifer and Vishny, 1997). Family-owned firms are the foremost example of a corporation controlled by large entrenched shareholders, who can extract private benefits at the expense of small shareholders (Leuz *et al.*, 2003).

Focusing on family-owned firms, Florou (2010) utilises a Greek setting to document that family board members shift their personal tax liabilities to outside shareholders. Similarly, Hillier (2005) reports that CEOs are more likely to cater to the preferences of family members on the board than to those of the other investors, while Principe and Bar-Yosef (2011) document a weaker impact of board independence on earnings management in family-controlled firms.

The ability to extract private benefits motivates family firm owners, who usually hold positions on both the executive team and the board of directors, to opportunistically reduce the quality of internal controls. This is consistent with the traditional view that family firms are less efficient because concentrated ownership creates incentives for controlling shareholders to expropriate wealth from other shareholders (Morck *et al.*, 1988).

Another source of the entrenchment effect is the potentially great information asymmetry between families and other shareholders. Families are likely to privately hold information on growth opportunities as well as strategic plans, increasing information asymmetry between the family shareholders and other shareholders (Ajinkya *et al.*, 2005). Fan and Wong (2002)

⁴Prior to the disclosure of material weaknesses in internal controls required by the SOX Act, a number of studies opted to provide indirect evidence on internal controls. Kinney and McDaniel (1989) examine characteristics of firms that correct previously reported quarterly earnings. McMullen *et al.* (1996) use both SEC enforcement actions and corrections of previously reported earnings as proxies for internal control problems. Krishnan (2005) examines 128 internal control deficiencies reported from 1994 to 2000 in the 8-Ks of firms that changed auditors. She reports a positive association between audit committee quality and internal control quality. Ashbaugh-Skaife *et al.* (2007) find that firms making early disclosures of internal control deficiencies typically have more complex operations, recent changes in organisation structure, more accounting risk exposure, and fewer resources to invest in internal control (relative to firms not disclosing deficiencies).

argue that family ownership limits information flows to small investors. Thus, family members, with both the incentive and the opportunity to forestall effective internal controls, may prefer an environment that allows extraction of private benefits, which is at odds with establishing high-quality internal controls.

Overall, family shareholders face wide-ranging opportunities to extract rents from other shareholders, which are likely to exacerbate the entrenchment effect (Pérez-González, 2006). Therefore, the entrenchment effect leads to low quality of internal controls in family-owned firms.

2.2 The Alignment Effect

The alignment effect is based on the view that family ownership reduces agency conflicts between shareholders and managers (Chen *et al.*, 2008). That is, an alignment of interests between the family controlling owners and managers implies that this concentrated ownership creates greater monitoring by controlling owners (Shleifer and Vishny, 1997). Therefore, family ownership encourages joint efforts of managers and owners to implement strong monitoring mechanisms for the protection of firm assets. In particular, effective internal controls are likely to serve as such a mechanism.

Families owning a business are known for their strong interest in preserving the family reputation, wealth, and long-term performance for future generations (Bennedsen *et al.*, 2007). The alignment effect implies that families have a greater stake in the firm than minority shareholders or non-family professional executives. Similarly, family ownership generates greater incentives to preserve a firm in good shape for future generations than non-family ownership. Therefore, concentrated ownership by families is likely to generate incentives to report financial statements in good faith.

Another noteworthy issue in establishing internal controls in family-owned firms is the key responsibility of the board of directors to require the establishment of internal controls over financial reporting. Board members who are also family members have higher ownership stakes and greater firm-specific expertise than non-family board members, which give them the ability and power to require high-quality internal controls. Li and Srinivasan (2011) examine firms with an active founder on the board, focusing on the governance role played by such a member. They report that the founder is also a better board-level monitor and not just a better executive, suggesting that family members on the boards of family-owned firms have fewer agency problems and therefore are likely to require higher-quality internal controls than non-family members.

2.3 Hypotheses

The two contrary effects that arise from family ownership have the potential to increase or decrease the effectiveness of internal controls. The entrenchment effect is likely to result in low-quality internal controls, while the alignment effect is expected to enhance the effectiveness of internal controls. The latter is expected to outweigh the former for the following reasons.

First, the long-term view of family owners strengthens the alignment effect and encourages strong corporate governance, including effective internal controls, to avoid potential damage to the family reputation due to opportunistic behaviour of non-family managers, to preserve firm assets, and to improve long-term performance (Schulze *et al.*, 2003). Therefore, the alignment effect is expected to be stronger under family ownership than under non-family ownership.

Second, the entrenchment effect leads to the expropriation of wealth from minority shareholders, which is likely to result in less-effective corporate governance mechanisms.

However, not all family members serve as employees or directors. Some are equity owners, who require long-term performance and firm value maximisation. In common with minority shareholders, these family members are likely to demand the implementation of effective internal controls. Even if some family members want to expropriate wealth from non-family shareholders (i.e. the entrenchment effect), there are many ways to do so without reducing the viability of internal controls.⁵ Furthermore, users of financial statements may set contracting terms that are more sensitive to corporate governance mechanisms, particularly to internal controls, and mitigate the negative impact of the entrenchment effect. Overall, the entrenchment effect is likely to be, on average, weaker than the alignment effect for family-owned firms, resulting in less material weaknesses in internal controls.⁶ The following hypothesis summarises these arguments:

H1: Family-owned firms report less material weaknesses in internal controls than non-family-owned firms.

Effective internal control is important as a mechanism for achieving good-quality financial reporting (Hermanson, 2000; Doyle *et al.*, 2007b). Testing the association between family ownership and earnings quality, prior studies utilise various proxies for earnings quality, including abnormal accruals, level of earnings smoothness, levels of persistence and timeliness, and levels of earnings informativeness with respect to stock prices. Wang (2006), Ali *et al.* (2007), and Cascino *et al.* (2010) report that family-owned firms tend to have earnings of higher quality than non-family-owned firms.⁷

Cascino *et al.* (2010) showed that earnings quality in family firms is positively associated with financial leverage, board independence, and audit quality, and negatively associated with large institutional holdings. Still unexplored, however, is the question of whether internal controls underlie the superior earnings quality of family-owned firms.

In pursuing this line of investigation, I examine whether material weaknesses in internal controls reduce earnings quality to a greater extent in family-owned firms than in non-family-owned firms. I expect a greater effect of deficient internal controls in family-owned firms, perhaps because these firms tend to be led by entrepreneurial and dominant founders, who give less weight to formal reporting procedures (Anderson and Reeb, 2004). Moreover, boards of directors in family-owned firms may demand less-stringent internal controls when family members hold managerial positions. As a result, the negative impact of deficient internal controls on the quality of financial reporting is likely to be more acute in family-owned firms. The following hypothesis summarises:

H2: Material weaknesses in internal controls are associated with lower earnings quality in family-owned firms than in non-family-owned firms.

Focusing on the relationship between concentrated ownership and market reaction to disclosure of new information, Fan and Wong (2002) report lower earnings response coefficients (ERCs) for firms with greater family ownership. Their result is consistent with the entrenchment effect of families extracting private benefits at the expense of small shareholders. Francis *et al.*

⁵For example, putting less productive family members on the payroll or giving generous compensation to family members employed by the firm.

⁶While the entrenchment effect is likely to be, on average, weaker than the alignment effect for family-owned firms, this is unlikely to be true in *all* cases.

⁷See also Jiraporn and Dadalt (2009) and Zhao and Millet-Reyes (2007).

(2005b), exploring investors' reactions to earnings and dividends announcements, report that highly concentrated ownership, particularly dual-class equity firms, have a lower ERC, inferior corporate governance, and report earnings of lower quality. The evidence on differential market responses to earnings announcements calls for an examination of differences in the market response to disclosures of material weaknesses in internal controls between family-owned firms and non-family-owned firms.

Investigating investors' response to material weaknesses in internal controls, Hammersley *et al.* (2008) find that, on average, size-adjusted returns are -0.95% when material weaknesses are disclosed. Beneish *et al.* (2008) confirm this adverse market reaction, reporting that firms with material weakness disclosures had, on average, size-adjusted returns of -1.50% . A significant negative market response to disclosures of material weaknesses suggests that weak internal controls cause investors to reevaluate their assessment of the quality of management's oversight over the financial reporting process. This re-evaluation, in turn, leads to revisions in expectations about the firm's future performance or to revisions in perceptions of firm risk.

Wang (2006), Ali *et al.* (2007), and Cascino *et al.* (2010) report that the market response to earnings announcements is greater for family-owned firms than for non-family-owned firms. That is, the results reported in prior studies suggest that the alignment effect outweighs the entrenchment effect. In a similar vein, if the reporting of an internal control weakness by family-owned firms changes the expectations of investors to a different extent than such reporting by non-family-owned firms, then I expect a greater price reaction to a material weakness in internal controls in a family-owned firm than in a non-family-owned firm.

H3: Market response to reports on material weaknesses in internal controls is greater for family-owned firms than for non-family-owned firms.

3. Data and Sample Selection

In line with the SOX legislation, since the 2010 fiscal year, the Israeli SEC has been requiring directors of public firms to evaluate the scope and adequacy of their internal controls and procedures, and report material weaknesses in their internal controls in their annual financial statements. The documentation required by the Israeli SEC is similar to that required by Section 302 of the SOX Act.

More importantly, Israeli firms are required to explicitly report family relations among all stakeholders, directors, and managers as an integral part of the annual financial statements they file. The disclosure of family relations, including in-laws, cousins, and other distant relatives, provides the means to reliably identify family-owned firms. For these reasons, Israel is an ideal setting for research on internal controls in family-owned firms.

Anderson and Reeb (2003) and Villalonga and Amit (2006) use various sources of information to identify family relations and resolve descendant issues, including Gale Business Resources, Hoovers' corporate websites, individual firm websites, various SEC filings, Spectrum, and web searches. The information on family ownership and family relations is based on textual searches and is collected from a large number of sources. As families continue to expand down the generations to include distant relatives such as second or third cousins with last names that may be different, the reliability and completeness of the information on family relationships used in these studies has yet to be tested. In contrast, this study relies on mandatory explicit disclosures on family relationships reported in a structured way within the financial statements.

Following Anderson and Reeb (2003) and Villalonga and Amit (2006), I define a firm as family-owned if at least two family members by blood or marriage are either on the board of

Table 1. Descriptive statistics

	Full sample (mean)	Family-owned firms (mean)	Non-family-owned firms (mean)	Difference
Number of firms	288	153	135	
Firm-year observations ^a	573	305	268	
FAMILY-HOLDINGS		54.8%		
LARGEST BLOCK-HOLDINGS	44.8%	54.8%	33.5%	21.3%***
INST	9.6%	6.9%	12.6%	-5.7%***
SIZE	11.1	9.9	12.4	-2.5***
FOREIGN-TRAN	90.0%	85.1%	95.5%	-10.4%***
EXT-GROWTH	20.2%	24.9%	14.8%	10.1%**
BIG-4	88.6%	85.0%	92.6%	-7.6%**
BOARD-IND	27.1%	27.9%	26.1%	1.8%**
ROA	2.9%	3.2%	2.6%	0.6%*
LEV	44.0%	39.8%	48.8%	-9.0%***
LOSS	12.0%	8.3%	16.3%	-8.0%***
ABS_ACC	0.067	0.074	0.060	0.014**
MW – Material weakness in internal controls (%)	36 (6.3%)	9 (3.0%)	27 (10.1%)	(-7.1%)***

Note: The table presents descriptive statistics of two groups: (i) family-owned firms and (ii) non-family-owned firms. Definitions of variables:

FAMILY-HOLDINGS is the ratio of the number of shares held by the family to the total number of common shares for family-owned firms. The numerator includes all shares held by family representatives (e.g. trustees and family-designated directors).

LARGEST BLOCK-HOLDINGS is the ratio of the number of shares held by the largest block-holdings to the total number of outstanding common shares. For all family-owned firms in our sample, FAMILY-HOLDINGS=LARGEST BLOCK-HOLDINGS.

INST is the ratio of the number of shares held by financial institutions to the total number of outstanding common shares.

SIZE is the natural log of market capitalisation of shareholder equity at year end.

FOREIGN-TRAN is an indicator variable that equals one if the firm has foreign currency transactions and zero otherwise.

EXT-GROWTH is an indicator variable that equals one if year-over-year sales growth falls into the top quintile and zero otherwise.

BIG-4 is an indicator variable that equals one if the firm's auditor is a big-4 accounting firm and zero otherwise.

BOARD-IND is the number of independent directors divided by the total number of directors on the board.

ROA is the return on assets measured by net income divided by average total assets.

LEV is total liabilities divided by total assets.

LOSS equals one if net income is negative and zero otherwise.

ABS_ACC is the absolute value of abnormal accruals estimated based on the Dechow and Dichev (2002) model.

MW is an indicator variable that equals one if the firm discloses a material weakness in internal control, and zero otherwise. The percentage of firm-years observations within the respective group that discloses a material weakness in internal control is reported in parenthesis.

Each of the continuous variables is winsorised at 1% and 99% to mitigate the effects of outliers.

^aThe data set includes 573 firm-year observations over fiscal years 2011 and 2011. The sample includes 288 public firms with shares traded on the Tel Aviv Stock Exchange in the fiscal year 2010. One family firm and two non-family firms were delisted in 2011. These firms did not report a material weakness.

*Significance of a two-sided *t*-test for the difference between the family-owned firms group and the non-family-owned firms group at the 0.10 level.

**Significance of a two-sided *t*-test for the difference between the family-owned firms group and the non-family-owned firms group at the 0.05 level.

***Significance of a two-sided *t*-test for the difference between the family-owned firms group and the non-family-owned firms group at the 0.01 level.

directors or in the top management of the company, irrespective of the level of family common stock ownership. For these firms, I also follow Villalonga and Amit (2006) in examining the effect of imposing family equity holdings as a continuous measure of the extent of family control to supplement the analyses.

Since disclosures of material weaknesses in internal control have been mandated in Israel since the 2010 fiscal year, my sample includes 324 public firms with shares traded on the Tel Aviv Stock Exchange, available financial statements for the 2010 fiscal year, and market capitalisation of shareholders' equity of at least 40 million USD at the year end. I excluded 10 firms with non-positive shareholders' equity or non-positive sales revenue and 26 firms with cross-listed shares (on both the Tel Aviv Stock Exchange and a foreign stock exchange), because these firms are generally required to comply with requirements imposed by the foreign stock exchange.⁸ These sampling criteria result in a full sample of 288 firms. Data are collected for the full sample firms over a two-year period, 2010 and 2011, resulting in 573 firm-year observations because three firms were delisted in 2011.

I split the full sample into two groups to gain insights into features of family-owned firms. The first group includes 153 family-owned firms and the second is composed of 135 non-family-owned firms. I use the non-family-owned group as a control group, rather than a matched sample, to avoid choice-based sample bias, which can lead to biased parameters and probability estimates (Palepu, 1986).

The SuperAnalyst Database is the source for information reported in financial statements filed with the Israeli SEC. Descriptive statistics of the sample and the two groups are reported in Table 1. The findings indicate that 53.1% (=153/288) of the sample firms are family-owned firms. The equity holdings of the families are, on average, 54.8%, indicating that control in family-owned firms in Israel derives from holding the majority of the equity rights.⁹ In contrast, the largest block-holdings in non-family-owned firms are, on average, only 33.5%. Institutional holdings are, on average, 6.9% in family-owned firms and 12.6% in non-family-owned firms.

Consistent with prior studies, family-owned firms tend to be significantly smaller and less complex (as measured by having no transactions in foreign currency). The likelihood of extreme growth is significantly greater for family-owned firms than for non-family-owned firms. Family-owned firms are significantly less likely to be audited by a big-4 accounting firm, but have a significantly greater ratio of independent board members to the total number of board members.¹⁰ Overall, the characteristics of family-owned firms are consistent with prior studies.

4. Empirical Findings

4.1 *Testing the Relationship Between Family Ownership and Material Weaknesses in Internal Controls*

I utilise both univariate tests and regression analyses to test whether material weaknesses in internal controls are systematically related to family ownership. The descriptive statistics reported in Table 1 indicate 36 instances of material weaknesses. As predicted, 10.1% of non-family-owned firms reported material weaknesses in their internal controls, whereas only 3.0% of family-owned firms reported such weaknesses. Hence, family-owned firms are significantly less likely to report material weaknesses in internal controls than non-family-owned firms (p -value < 0.01).

⁸Firms with cross-listed shares on the Tel Aviv Stock Exchange and on Nasdaq were required to comply with the SOX Act requirements before 2010.

⁹In contrast, public firms in the USA are frequently controlled by families through holdings of shares with special rights (i.e. rights to nominate board members) in a dual-class share system. Public firms with shares traded on the Tel Aviv Stock Exchange have a single class of shares.

¹⁰One possible reason for having a greater ratio of independent board members to the total number of board members lies in the size of the respective boards. On average, there are 6.5 members on the boards of family-owned firms, whereas other firms have 8.1 members on their boards.

Table 2. Categories of material weaknesses in internal controls

Group of firms	Number of firm-years	Account-specific material weaknesses [proportion] ^a	Company-specific material weaknesses [proportion] ^b
Family-owned firms	305	2 (0.7%)	7 (2.3%)
Non-family-owned firms	268	22 (8.2%)	5 (1.9%)

Note: The classification of material weaknesses in internal controls follows Doyle *et al.* (2007a).

^aThe number of firms reporting material weakness in internal controls classified as account specific divided by the number of firm-year observations in the respective group.

^bThe number of firms reporting material weakness in internal controls classified as company specific divided by the number of firm-year observations in the respective group.

I follow Doyle *et al.* (2007a) in classifying weaknesses based on their severity. Account-specific weaknesses include (1) inadequate internal controls for accounting for loss contingencies, including bad debts, (2) deficiencies in the documentation of a receivables securitisation programme, and (3) no adequate internal controls over the application of new accounting principles or the application of existing accounting principles to new transactions. An account-specific weakness is related to a narrow control scope, within the context of some specific account. Doyle *et al.* (2007a) follow Moody's suggestion that these types of weaknesses are identifiable by auditors through substantive testing and do not represent a serious concern. By contrast, company-level weaknesses include (1) overriding by senior management and (2) ineffective control of the environment. Company-level weaknesses relate to macro-level controls which auditors may not be able to identify effectively. That is, company-wide weaknesses indicate broad control problems throughout the financial reporting environment. Doss and Jonas (2004) suggest that company-wide weaknesses are serious because they question management's ability to prepare financial statements, as well as its ability to control the business. Therefore, a company-wide weakness is more serious than an account-specific weakness.

Table 2 presents descriptive statistics on the categories of weaknesses in family-owned firms and non-family-owned firms. Seven out of the nine (77.8%) internal control weaknesses in family-owned firms are company-wide, whereas only five out of 27 (18.5%) internal control weaknesses in non-family-owned firms are company-wide. The difference is significant (p -value < 0.01).

The findings suggest that family-owned firms are more likely to have broad company-wide control weaknesses than narrow account-specific control weaknesses. The opposite holds for non-family-owned firms. The results suggest that family-owned firms tend to have fewer weaknesses in their internal controls than non-family-owned firms, but these weaknesses are more serious when they do occur because they influence the process of financial reporting at the company level.

I model the likelihood of reporting a weakness in internal controls over financial reporting as a function of firm type (family-owned versus non-family-owned) and control variables. The choice of control variables generally follows Doyle *et al.* (2007a), given some contextual restrictions.¹¹ Firm size proxied by market capitalisation of shareholders' equity serves as a basic determinant of the level of internal control, large firms being likely to have more financial reporting procedures in place and being more likely to have skilled and experienced financial personnel. Doyle *et al.* (2007a) find fewer internal control weaknesses in larger firms.

¹¹In their regression model, Doyle *et al.* (2007a) used supplementary variables, such as proxies of governance, bankruptcy risk, and restructuring charges as independent variables with limited data availability. Similar data limitations preclude the inclusion of these variables in this study.

Transactions in foreign currency are a key signal for complexity in the Israeli market because they signal a distinction between global firms and firms with local operations. Hence, I expect more weaknesses in internal controls for firms that have more complex transactions (Bushman *et al.*, 2004). Therefore, I also expect rapid growth to drive internal control weaknesses because fast growing firms spend fewer resources on establishing adequate internal control systems (Doyle *et al.*, 2007a).

I expect the reputation of the firm's auditors and board independence to play important roles in the decisions to implement effective internal controls. Krishnan (2005) documents that firms with effective audit committees report fewer internal control problems when reporting auditor change. I expect a big-4 accounting firm and a high ratio of independent board members to mitigate the extent of internal control problems.

Accordingly, I model the likelihood of reporting a material weakness in internal controls over financial reporting as a function firm type (family-owned versus non-family-owned) and control variables using two logistic regression models with the following constructs:

$$\begin{aligned} \text{Prob(MW)} = f[\beta_0 + \beta_1 \text{FF} + \beta_2 \text{SIZE} + \beta_3 \text{FOREIGN-TRAN} \\ + \beta_4 \text{EXT-GROWTH} + \beta_5 \text{BIG4} + \beta_6 \text{BOARD-IND} \\ + \beta_7 \text{INST} + \beta_8 \text{ROA}] + \varepsilon_{it}, \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Prob(MW)} = f[\beta_0 + \beta_1 \text{FAMILY-HOLDINGS} + \beta_2 \text{SIZE} \\ + \beta_3 \text{FOREIGN-TRAN} + \beta_4 \text{EXT-GROWTH} + \beta_5 \text{BIG4} \\ + \beta_6 \text{BOARD-IND} + \beta_7 \text{INST} + \beta_8 \text{ROA}] + \varepsilon_{it}, \end{aligned} \quad (2)$$

where

MW is an indicator variable that equals one if the firm reported a material weakness in internal control, and zero otherwise.

FF is an indicator variable that equals one if at least two family members are either on the board of directors or in the top management of the company and zero otherwise.

FAMILY-HOLDINGS is the ratio of the number of shares held by the family to total number of common shares for family-owned firms. The numerator includes all shares held by family representatives (e.g. trustees, and family-designated directors).

SIZE is the natural log of market capitalisation of shareholders' equity.

FOREIGN-TRAN is an indicator variable that equals one if the firm has foreign currency transactions and zero otherwise.

EXT-GROWTH is an indicator variable that equals one if year-over-year sales growth falls into the top quintile and zero otherwise.

BIG-4 is an indicator variable that equals one if the firm's auditor is a big-4 accounting firm, and zero otherwise.

BOARD-IND is the number of independent directors divided by the total number of directors on the board.

INST is the ratio of the number of shares held by financial institutions to the total number of outstanding common shares.

ROA is the return on assets measured by net income divided by average total assets.

Each of the continuous variables is winsorised at 1% and 99% to mitigate outliers. I included industry fixed-effects to the model to control for industry-specific internal controls (as in Doyle *et al.*, 2007a).

Table 3. Logistic regression of the probability of disclosing a material weakness

Models

$$\text{Prob(MW)} = f[\beta_0 + \beta_1 \text{FF} + \beta_2 \text{SIZE} + \beta_3 \text{FOREIGN-TRAN} + \beta_4 \text{EXT-GROWTH} + \beta_5 \text{BIG4} + \beta_6 \text{BOARD-IND} + \beta_7 \text{INST} + \beta_8 \text{ROA}] + \varepsilon_{it}, \quad (1)$$

$$\text{Prob(MW)} = f[\beta_0 + \beta_1 \text{FAMILY-HOLDINGS} + \beta_2 \text{SIZE} + \beta_3 \text{FOREIGN-TRAN} + \beta_4 \text{EXT-GROWTH} + \beta_5 \text{BIG4} + \beta_6 \text{BOARD-IND} + \beta_7 \text{INST} + \beta_8 \text{ROA}] + \varepsilon_{it}. \quad (2)$$

Independent variables	Predicted sign	Coefficient estimates Model (1) (χ^2)	Coefficient estimates Model (2) (χ^2)
Intercept		-2.345*** (-15.18)	-1.888*** (-13.33)
FF	H1: -	-0.324*** (-9.09)	
FAMILY-HOLDINGS	H1: -		-0.416*** (-8.27)
SIZE	-	-0.060*** (-23.77)	-0.072*** (-20.11)
FOREIGN-TRAN	+	0.181*** (9.08)	0.178*** (10.02)
EXT-GROWTH	+	0.140*** (6.25)	0.113*** (5.35)
BIG-4	-	-0.020 (-0.95)	-0.013 (-0.55)
BOARD-IND	-	-0.002 (-0.22)	-0.002 (-0.33)
INST		0.008 (1.22)	0.006 (0.98)
ROA		0.004 (0.88)	0.003 (0.66)
Industry indicator variables		Included	Included
N		573	573
Likelihood ratio χ^2 (p -value)		186.12 (<0.01)	190.72 (<0.01)

Definitions of variables:

MW is an indicator variable that equals one if the firm discloses a material weakness in internal control, and zero otherwise. FF is an indicator variable that equals one if at least two family members are either on the board of directors or in the top management of the company, and zero otherwise. All other variables are defined in Table 1. Each of the continuous variables is winsorised at 1% and 99% to mitigate the effects of outliers.

*Pr > χ^2 of 0.10.**Pr > χ^2 of 0.05.***Pr > χ^2 of 0.01.

Results reported in Table 3 indicate a negative association between family ownership and material weaknesses in internal controls. The coefficient estimate of FF in Model (1) is negative and significant (-0.324 , p -value < 0.01). Similarly, the use of a continuous variable for measuring the extent of family-holdings in Model (2), FAMILY-HOLDINGS, results in a negative and significant coefficient estimate (-0.416 , p -value < 0.01). The findings support H1.¹²

The coefficient estimates for the control variables in both models are generally in line with prior studies for SIZE, firm complexity (FOREIGN-TRAN), and extreme growth (EXT-GROWTH). However, the coefficient estimates for accounting firm reputation (BIG-4), board independence (BOARD-IND), institutional holdings (INST), and performance (ROA) are insignificantly different from zero.

In line with hypothesis H1, the findings suggest that the alignment effect is, on average, stronger than the entrenchment effect in family-owned firms. However, the entrenchment effect is not weaker than the alignment effect in *all* family-owned firms. As reported in Table 3, I find a few family-owned firms with severe weaknesses in internal controls, suggesting that the entrenchment effect is stronger than the alignment effect in these firms.

Taken as a whole, the empirical evidence is consistent with a systematic effect of family ownership on the frequency of material weaknesses in internal controls: family ownership makes for fewer material weaknesses in internal controls over financial reporting.

4.2 Testing the Differential Effect of Material Weaknesses in Internal Controls on Earnings Quality in Family-Owned Firms Versus Non-Family-Owned Firms

I utilise absolute abnormal accruals as a proxy for testing whether material weaknesses in internal controls are associated with lower earnings quality in family-owned firms than in non-family-owned firms. Effective internal controls are expected to result in optimal allocation of cash flows into reporting periods, as measured by the accruals process. Absolute abnormal accruals serve as a conventional measure of earnings quality and have been employed by Wang (2006), Ali *et al.* (2007), and Cascino *et al.* (2010) and many others in this extensively studied area of research. I do not utilise alternative measures of earnings quality employed by previous studies because the primary role of effective internal controls over financial reporting is to ensure that financial statements accurately and fairly reflect the firm's transactions (PCAOB, 2004) and to encourage competent decision-making processes (Kinney *et al.*, 1990), not to enhance the informativeness of earnings, their persistence or their timeliness.

I employ the linear discretionary accruals model as in Dechow and Dichev (2002) to estimate abnormal accruals.¹³ Specifically, absolute abnormal accruals have been widely used in the literature as a proxy for earnings quality because they typically reflect errors in accruals (Francis *et al.*, 2004, 2005a). For this reason, larger absolute errors represent lower quality (Dechow *et al.*, 2010). Absolute abnormal accruals are negatively related to the magnitude of total accruals and variation in cash flows and earnings, while it is positively related to earnings persistence (Dechow and Dichev, 2002). Overall, higher absolute abnormal accruals is associated

¹²Although the sample is too small to draw inferences based on categories of material weaknesses, the results seem to follow the argument that if the family-owned firm has a weakness, it will be used to expropriate wealth from minority shareholders. Company internal control weaknesses, such as overriding by senior executives, seem more likely to allow wealth expropriation than account-specific weaknesses.

¹³Dechow and Dichev (2002) model accruals as a function of past, present, and future cash flows, given their purpose to alter the timing of cash flow recognition in earnings ($\Delta WC = a + b_1CFO_{t-1} + b_2CFO_t + b_3CFO_{t+1} + \varepsilon_t$). Absolute et proxies for accrual quality as an unsigned measure of extent of accrual 'errors'. See Equation (5) in Dechow and Dichev (2002).

with a lower degree of earnings quality. To test the difference in the effect of internal controls on earnings quality between family ownership and non-family ownership I estimate the following two regression models:

$$\begin{aligned} \text{ABS_ACC} = & \beta_0 + \beta_1 \text{FF} + \beta_2 \text{MW} + \beta_3 \text{FFMW} + \beta_4 \text{SIZE} + \beta_5 \text{ROA} \\ & + \beta_6 \text{LEV} + \beta_7 \text{EXT-GROWTH} + \beta_8 \text{INST} + \beta_9 \text{LOSS} + \varepsilon, \end{aligned} \quad (3)$$

$$\begin{aligned} \text{ABS_ACC} = & \beta_0 + \beta_1 \text{FAMILY-HOLDINGS} + \beta_2 \text{MW} \\ & + \beta_3 \text{FAMILY-HOLDINGS MW} + \beta_4 \text{SIZE} \\ & + \beta_5 \text{ROA} + \beta_6 \text{LEV} + \beta_7 \text{EXT-GROWTH} \\ & + \beta_8 \text{INST} + \beta_9 \text{LOSS} + \varepsilon, \end{aligned} \quad (4)$$

where

ABS_ACC is the absolute value of abnormal accruals estimated based on the Dechow and Dichev (2002) model.

FF is an indicator variable that equals one if at least two family members are either on the board of directors or in the top management of the company and zero otherwise.

FAMILY-HOLDINGS is the ratio of the number of shares held by the family to the total number of common shares for family-owned firms. The numerator includes all shares held by family representatives (e.g., trustees and family-designated directors).

MW is an indicator variable that equals one if the firm discloses a material weakness in internal control, and zero otherwise. The percentage of firms within the respective group that discloses a material weakness in internal control is reported in parenthesis.

SIZE is the natural log of market capitalisation of shareholder equity at year end.

ROA is the return on assets measured by net income divided by average total assets.

LEV is total liabilities divided by total assets.

EXT-GROWTH is an indicator variable that equals one if year-over-year sales growth falls into the top quintile and zero otherwise.

INST is the ratio of the number of shares held by financial institutions to the total number of outstanding common shares.

LOSS equals one if net income is negative and zero otherwise.

Each of the continuous variables is winsorised at 1% and 99% to mitigate the effects of outliers.

Results reported in Table 4 indicate a negative and significant association between family ownership and absolute abnormal accruals. The coefficient on the binary variable, FF, is -0.015 (p -value < 0.01) and the coefficient on the continuous variable, FAMILY-HOLDINGS, is -0.043 (p -value < 0.01). In line with Ali *et al.* (2007) and Cascino *et al.* (2010), these findings suggest that family firms report a lower level of absolute abnormal accruals; i.e. higher earnings quality. The results also show a positive and significant association between reports of material weakness in internal controls, MW, and absolute abnormal accruals, ABS_ACC. The coefficients are 0.013 (p -value < 0.01) in Model (3) and 0.011 (p -value < 0.05) in Model (4). Consistent with Doyle *et al.* (2007b), these findings suggest that reporting a material weakness in internal controls results in a higher level of abnormal accruals. Not surprisingly, reporting a material weakness in internal controls is associated with lower earnings quality. More importantly for testing H2, I find a positive and significant association between the interaction and absolute abnormal accruals. Specifically, the coefficient on FF*MW is

Table 4. Multivariate analysis of abnormal accruals and family ownership

$$ABS_ACC = \beta_0 + \beta_1 FF + \beta_2 MW + \beta_3 FFMW + \beta_4 SIZE + \beta_5 ROA + \beta_6 LEV + \beta_7 EXT-GROWTH + \beta_8 INST + \beta_9 LOSS + \varepsilon, \quad (3)$$

$$ABS_ACC = \beta_0 + \beta_1 FAMILY-HOLDINGS + \beta_2 MW + \beta_3 FAMILY-HOLDINGS MW + \beta_4 SIZE + \beta_5 ROA + \beta_6 LEV + \beta_7 EXT-GROWTH + \beta_8 INST + \beta_9 LOSS + \varepsilon. \quad (4)$$

Variable	Predicted sign	Coefficient estimates Model (3)	Coefficient estimates Model (4)
Intercept		0.069** (2.01)	0.045** (1.98)
FF	–	–0.015*** (–2.89)	
FAMILY-HOLDINGS	–		–0.043*** (–2.78)
MW	+	0.013*** (2.77)	0.011** (2.01)
FF MW	H2: +	0.016** (2.02)	
FAMILY-HOLDINGS MW	H2: +		0.028*** (2.67)
SIZE	–	–0.020*** (–2.51)	–0.021*** (–2.97)
ROA		0.008* (1.66)	0.007* (1.77)
LEV	+	–0.004* (–1.78)	–0.030** (–2.25)
EXT-GROWTH	+	0.050*** (3.57)	0.048*** (3.56)
INST	–	–0.000 (–0.09)	–0.005 (–0.31)
LOSS	+	0.031*** (3.89)	0.017** (2.09)
Industry effects		Included	Included
Adj R^2		0.161	0.173
N^a		556	556

Note: *t*-Statistics are reported in parentheses.

Variables are defined in Table 1. Continuous variables are winsorised at 1% and 99% to mitigate the effects of outliers.

^aLack of data availability for computing abnormal accruals as in Dechow and Dichev (2002) reduced the sample size from 573 to 556.

*Statistically significant at 0.10.

**Statistically significant at 0.05.

***Statistically significant at 0.01.

0.016 (p -value < 0.05) in Model (3) and the coefficient on FAMILY-HOLDINGS*MW is 0.028 (p -value < 0.01) in Model (4). Results from estimating both models suggest that material weaknesses in internal controls reduce earnings quality more in family-owned firms than in non-family-owned firms, in support of H2.

Moreover, the findings from estimating Model (3) reveal that the impact of a material weakness in internal controls on abnormal accruals in family-owned firms, $0.029 = 0.013 + 0.016$, is more than twice as large as the impact in non-family-owned firms, 0.013. Overall, the difference in the extent to which material weaknesses in internal controls reduce earnings quality in family-owned firms compared with non-family-owned firms is statistically significant (p -value < 0.05) and economically meaningful. The coefficient estimates for the control variables in both models are generally in line with prior studies for SIZE, LEV, EXT-GROWTH, and LOSS. I find a marginally significant coefficient for ROA and an insignificant coefficient for INST. The adjusted R^2 for both models exceeds 16%, which is reasonable given the sample size.

4.3 Testing the Relationship Between Family Ownership and the Market Response to Material Weaknesses in Internal Controls

I follow prior studies (Fan and Wong, 2002; Francis *et al.*, 2005a; Wang, 2006) in adopting the following regression model to investigate the relationship between family ownership and the market response to material weaknesses in internal controls:

$$\begin{aligned} \text{CAR}_{it} = & \beta_0 + \beta_1 \text{UE}_{it} + \beta_2 \text{MW}_{it} + \beta_3 \text{FF}_{it} \\ & + \beta_4 \text{UE}_{it}\text{MW}_{it} + \beta_5 \text{UE}_{it}\text{FF}_{it} + \beta_6 \text{MW}_{it}\text{FF}_{it} + \varepsilon_{it}, \end{aligned} \quad (5)$$

where

CAR_{it} is size-adjusted stock returns in the three-day window surrounding the announcement date of fourth quarter earnings.

UE_{it} is the difference in earnings before extraordinary items between the fourth quarter of year t and the fourth quarter of year $t - 1$, deflated by lagged share price.

MW_{it} is an indicator variable that equals one if firm i discloses a material weakness in internal control in year t and zero otherwise.

FF is an indicator variable that equals one if at least two family members are either on the board of directors or in the top management of the company, and zero otherwise.

Each of the continuous variables is winsorised at 1% and 99% to mitigate the effects of outliers.

An expanded sample is used for the estimation of Model (5). Specifically, I utilise data on fourth quarter earnings for each of the sample firms in the fiscal years from 2004 to 2011 (subject to data availability). The expanded sample includes 1692 firm-year observations. In cases of weaknesses in internal controls over financial reporting in the fiscal years 2010 and 2011, the earnings announcements for that year were accompanied by reports on these weaknesses. For that reason, I can use the interaction $\text{UE}*\text{MW}$ in Model (5). I estimate pooled cross-sectional regressions, include year effects, and cluster the firm-quarter observations by firm to eliminate autocorrelation and heteroscedasticity, as suggested by Petersen (2009).

Results reported in column (1) of Table 5 indicate a positive and significant association between earnings surprise and size-adjusted stock returns (0.5099, p -value < 0.01). This result is in line with the vast literature on the returns–earnings relationship. Results reported in column (2) show a negative and significant market response to disclosures of material weaknesses in internal controls (-0.0041 , p -value < 0.01). Again, this result is consistent with the

Table 5. The earnings-returns relation with family-owned firm effects, material weakness in internal controls effects, and interactions
$$\text{CAR}_{it} = \beta_0 + \beta_1 \text{UE}_{it} + \beta_2 \text{MW}_{it} + \beta_3 \text{FF}_{it} + \beta_4 \text{UE}_{it} \text{MW}_{it} + \beta_5 \text{UE}_{it} \text{FF}_{it} + \beta_6 \text{MW}_{it} \text{FF}_{it} + \varepsilon_{it}. \quad (5)$$

Variable	Predicted sign	Coefficient estimates	Coefficient estimates	Coefficient estimates
Intercept		0.0020** (2.15)	0.0029*** (2.66)	0.0018* (1.78)
UE	+	0.5099*** (7.87)	0.4953*** (6.89)	0.5011*** (7.32)
MW	-		-0.0041*** (-3.01)	-0.0030*** (-2.66)
FF			0.0000 (0.08)	0.0002 (0.45)
UE MW				-0.0010 (-0.43)
UE FF				0.0013* (1.75)
MW FF	H3: -			-0.0032** (-2.31)
Firm clustering		Included	Included	Included
Year effects		Included	Included	Included
Adj R^2		0.013	0.030	0.033
N		1692	1692	1692

Note: *t*-Statistics are reported in parentheses.

The sample spans the period 2004–2011. Material weaknesses in internal controls are reported in fiscal years 2010 and 2011 only.

Definitions of variables:

CAR_{it} is size-adjusted stock returns in the three-day window surrounding the announcement date of fourth quarter earnings. UE_{it} is the difference in earnings before extraordinary items between the fourth quarter of year t and the fourth quarter of year $t - 1$, deflated by lagged share price. MW_{it} is an indicator variable that equals one if firm i discloses a material weakness in internal control in year t , and zero otherwise.

FF is an indicator variable that equals one if at least two family members are either on the board of directors or in the top management of the company, and zero otherwise. I estimate pooled cross-sectional regressions. Observations are clustered by firm and year effects are added to eliminate autocorrelation and heteroscedasticity, as per Petersen (2009). Continuous variables are winsorised at 1% and 99% to mitigate the effects of outliers.

*Statistically significant at 0.10.

**Statistically significant at 0.05.

***Statistically significant 0.01.

negative market responses to the disclosure of weakness in internal controls documented by Beneish *et al.* (2008) and Hammersley *et al.* (2008).

Notably, results reported in column (3) reveal a differential market response to material weaknesses in internal controls for family-owned firms and non-family-owned firms. Specifically, the market response to a material weakness in internal controls for a non-family-owned firm is -0.0030 (p -value < 0.01), whereas the market response to a material weakness in internal controls for a family-owned firm is $-0.0062 = -0.0030 - 0.0032$ (p -value < 0.05). That is, the market response to a material weaknesses disclosure made by a family-owned firm is about twice as large [$2.07 = (-0.0062)/(-0.0030)$], more negative, as the market response to a material weaknesses announcement made by a non-family-owned firm. I conclude that investors find a material weakness in internal controls to have a more negative impact on the future performance of family-owned firms than on the future performance of non-family-owned firms.

However, an insignificant coefficient estimate for FF reported in column (3) suggests that investors do not assign a priori higher or lower values to family-owned firms compared with non-family-owned firms. In addition, the coefficient estimates of the interaction $\text{UE} \cdot \text{FF}$ may indicate disparity in the market response to earnings announcements between family-owned firms and non-family-owned firms. Specifically, the market response to earnings

announcements is significantly greater (by 0.0013; p -value = 0.07). This result is consistent with Cascino *et al.* (2010), who document that family ownership is associated with higher earnings quality.¹⁴

Checking whether the expansion of the sample influences the estimated coefficients, I estimate Model (5) without MW and MW*FF using the sample observations from 2004 to 2009 only. The findings (not reported, for brevity) are essentially the same: the characteristics of the returns–earnings relationship in 2010 and in 2011 are similar to the characteristics in 2004–2009. I also estimated Model (5) using sample observations from years 2010–2011. The results are qualitatively the same, but weaker. Results from these sensitivity analyses strengthen the confidence in the earlier findings as well.

In sum, the evidence shows a systematic effect of family ownership on the market response to material weaknesses in internal controls over financial reporting. It suggests that investors perceive weaknesses in internal controls to have more serious performance implications in family-owned firms than in non-family-owned firms. That is, family ownership matters to investors in setting their responses to disclosures of material weaknesses in internal controls.

5. Summary

This study explores the effect of family ownership on material weaknesses in internal controls over financial reporting. Both the alignment effect and the entrenchment effect that arise from family ownership can potentially affect the effectiveness of internal controls. The entrenchment effect is likely to result in low-quality internal controls, while the alignment effect is expected to enhance the effectiveness of internal controls. Findings indicate that family ownership is significantly associated with fewer material weaknesses in internal controls, suggesting that the alignment effect is, on average, stronger than the entrenchment effect in family-owned firms. However, the entrenchment effect is not weaker than the alignment effect in *all* family-owned firms. In a few cases, I find severe weaknesses in internal controls, suggesting that the entrenchment effect is stronger than the alignment effect.

I also find that material weaknesses in internal controls reduce earnings quality more in family-owned firms than in non-family-owned firms. That is, the evidence draws attention to the joint effect of family ownership and effective internal controls in achieving high-quality financial reports. Particularly, the evidence suggests that internal controls are used as a vehicle in family-owned firms to achieve superior earnings quality. Highlighting the joint effect of family ownership and effective internal controls in achieving high-quality financial reports is important to regulators and investors post-SOX. Particularly, the findings expand our understanding of how family-owned firms attain high earnings quality.

Furthermore, the results show that investors find the performance implications of weaknesses in internal controls to be more serious in family-owned firms than in non-family-owned firms. The study presents a new aspect of family ownership, which has meaningful implications for understanding how ownership structure influences the effectiveness of internal controls and earnings quality.

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¹⁴Wang (2006) reports a nonlinear relationship between family ownership and earnings quality.

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