Family ownership, family identity of CEO, and accounting conservatism: Evidence from Taiwan

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ABSTRACT

This study investigates how variations in family ownership configurations and family identity of the CEO affect family firms' accounting conservatism in the East Asian economy, Taiwan. To address this objective, this study extends the traditional agency perspective and employs a socioemotional wealth framework. Findings document that family ownership is positively associated with family firms' accounting conservatism, whereas the degree of disparity between family cash flow and voting rights is negatively related to accounting conservatism. Additionally, family firms with a founder CEO are more likely to report conservatively than those with a descendent CEO. Our study expands the growing literature on how family owners' corporate governance features affect financial reporting decisions.

Keywords Family firms, family ownership, family CEO, accounting conservatism, socioemotional wealth

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1. Introduction

Family firms are prevalent worldwide (La Porta et al., 1999) and represent a unique organisational structure. They are often characterised by concentrated family ownership and significant family involvement in business management. Several recent studies have called for additional research into family firms' accounting practices (Prencipe et al., 2014; Salvato & Moores, 2010; Zaini et al., 2020). In particular, accounting conservatism has been one of the most important accounting policies for decades; however, few researchers have specifically examined this topic in the context of family firms. This study aims to shed light on the ongoing debate about the heterogeneity of family firms (Carney et al., 2015; Chrisman & Patel, 2012), in relation to accounting conservatism. Thus, we investigate whether variations in family ownership configurations and different types of family CEO are associated with a firm's disposition towards accounting conservatism. Our analysis focuses on how family owners' equity ownership, the degree of divergence between cash flow and voting rights held by family owners, and family identity of CEOs, affect accounting conservatism in the context of Taiwan, where family-controlled firms dominate (Claessens et al., 2002; Fan & Wong, 2002; Yeh, 2005).

Accounting conservatism is the practice of applying a higher degree of verifiability requirements to recognise economic gains than to recognise losses. Accounting conservatism has been argued to put managers under great scrutiny, thereby producing several monitoring benefits, such as mitigating agency conflicts, enhancing managerial investment decisions, improving debt contract efficiency, and reducing litigation costs (e.g., Ahmed et al., 2002; Francis et al., 2013; Kim et al., 2013; Watts, 2003). Moreover, firms that employ conservative reporting can minimise reputational costs that may potentially arise from using aggressive accounting and withholding bad news, as investors dislike negative earnings surprises (Skinner, 1994). Certain recent studies focus on the effect of corporate governance on accounting conservatism; they suggest that certain corporate governance features, such as managerial

ownership and board composition, can influence the degree of accounting conservatism (e.g., Ahmed & Duellman, 2007; Garcia Lara et al., 2009). We have extended this line of research by focusing on the effects of various family ownership and control characteristics on such accounting practices.

Socioemotional wealth (SEW) theory provides an explanation for the link between accounting conservatism and family ownership and control features. This theory holds that controlling family owners have a long-term investment horizon, and typically possess sufficient power to ensure that their firms satisfy their interests and goals (Anderson & Reeb, 2003). A prominent feature of family ownership is that such interests and goals are often non-economic in nature; they can include transgenerational wealth preservation, family control, and reputation retention (Berrone et al., 2012; Gómez-Mejía et al., 2011; Gómez-Mejía et al., 2007). SEW theory posits that family owners view economic issues based on how their firms' decisions, including financial ones, influence their socioemotional endowment (Gómez-Mejía et al., 2011; Gómez-Mejía et al., 2007). This notion broadly captures the affective value that family owners derive from their ownership and control, which they aim to pass on to future generations (Berrone et al., 2012).

Family firms are not a collection of identical entities. Although research attention has focused mainly on the differences between family and non-family firms, recent studies have suggested that behavioural differences between family firms may be greater than those between family and non-family firms (Carney et al., 2015; Chrisman & Patel, 2012). Divergences in non-economic objectives (SEW creation or preservation) enable family firms to behave differently when making decisions (Berrone et al., 2012; Carney et al., 2015). These objectives include maintaining family owners' control of a firm, and preserving family identity that is linked to a firm (Berrone et al., 2012; Gómez-Mejía et al., 2011; Gómez-Mejía et al., 2007). It has been suggested that a family firm's partiality to non-economic objectives is dependent on

family owners' governance characteristics (Chrisman & Patel, 2012). Therefore, we argue that variations in family business control (through the family's ownership stake) and the family identity of CEOs affect the firm's financial reporting decisions, and determine whether the firm adopts an accounting conservatism policy.

The analysis in this study is based on an East Asian economy, specifically Taiwan, where family-controlled firms are predominant (Claessens et al., 2002; Fan & Wong, 2002; Yeh, 2005; Young et al., 2008). Firm ownership in Taiwan is highly concentrated within a single family, and family owners often hold excessive control and voting rights, in addition to those over cash flow (Yeh, 2005). Moreover, family members are usually involved in firm management and dominate top executive positions (Claessens et al., 2002). Furthermore, similar to other East Asian economies, the Taiwanese capital markets are characterised by relatively weak investor protection and ineffective corporate governance mechanisms (Claessens et al., 2000; La Porta et al., 1999). Accounting conservatism's important monitoring role is heightened in such an institutional environment. However, the adoption of this accounting policy is likely to depend largely on family owners' discretion, due to their excessive influence on corporate decisions; particularly if other effective governance mechanisms for investor protection are absent. Therefore, examining family firms in Taiwan can provide a clear indication of the natural effects of family owners' accounting practices.

Following Beatty et al. (2008), this study employs multiple measures, including unconditional and conditional conservatism, to capture and assess overall accounting conservatism. Empirical results show that family ownership is positively associated with conservatism in terms of earnings reporting. However, this accounting conservatism decreases as the disparity between family cash flow and voting rights increases. Further evidence has revealed that the family identity of CEOs has different effects on accounting conservatism. Family firms with founder CEOs tend to report more conservatively, whereas descendent CEOs

and accounting conservatism are not significantly related. In addition, we find that family firms with a strong positive reputation tend to report conservatively. Meanwhile, family firms that adopt conservative accounting are also more likely to preserve or enhance their reputation.

This study aims to contribute to the existing literature in three ways. First, it adds to the growing literature on family owners' impact on financial reporting decisions. Following Stockmans et al. (2010) and Achleitner et al. (2014), this research extends traditional agency explanations for a firm's accounting and reporting decisions, and employs the SEW perspective to highlight how variations in corporate governance within family firms affect such decisions.

Second, this study complements the existing accounting conservatism research in the context of family firms by addressing the heterogeneous effects of different family ownership configurations, and family identity of CEOs in such firms (e.g., Carney et al., 2015; Chrisman & Patel, 2012). Previously, Chen et al. (2014) showed that firms with greater non-CEO family ownership are more likely to report conservatively. We extend their study by highlighting family owners' different reporting incentives, which are related to different levels of direct ownership and excessive voting rights; we also examine the effects of these ownership characteristics on accounting conservatism. In addition, Raithatha and Shaw (2019) document that in the Indian context, firms are more likely to report conservatively if they are under family control and have family members in management. This present study differs from their research because we compare and contrast control features of founder and descendant CEOs, and examine how their differences can affect accounting conservatism practices.

Third, this study also adds to our understanding of family firms' non-financial objectives in adopting conservative accounting, by using family firms' reputation to capture the SEW that family owners have an incentive to preserve. The findings imply that the affect-related value that family owners derive from their family firm's positive reputation may motivate them to

adopt conservative accounting, in order to minimise the potential reputational cost that may arise from using aggressive accounting.

Fourth, this research contributes to the literature on the impact of corporate governance on accounting conservatism. Numerous previous studies have suggested that certain corporate governance characteristics, such as managerial ownership and board composition, can determine whether a firm adopts accounting conservatism (e.g., Ahmed & Duellman, 2007; Garcia Lara et al., 2009). We have augmented this line of research by revealing how the underlying differences in family firms' ownership characteristics, control structures and reputation affect their disposition towards accounting conservatism.

The remainder of this study is structured as follows. Section 2 outlines the extant literature and develops our hypotheses; then, Section 3 explains the sample selection procedure and research design. Section 4 presents the results; and finally, Section 5 discusses the conclusions.

2. Literature review and hypotheses development

2.1. Theoretical framework

Existing evidence shows that family control is the most common form of organisational structure in the world (e.g., Achleitner et al., 2014; Claessens et al., 2000; Jiang et al. (2020); La Porta et al., 1999). Families typically have concentrated ownership and hold management positions in the firms they control (Young et al., 2008). From a conventional agency perspective, economic interests fundamentally drive family owners' behaviours (e.g., Shleifer & Vishny, 1986). However, focusing solely on family owners' economic incentives may fail to consider all the driving forces of these owners' motives.

The SEW model suggests that controlling family owners are primarily concerned about the utilities that can be gained from non-economic aspects of firm activities, such as family business control, family identity attached to the firm, and family dynasty perpetuation (Berrone

et al., 2012; Gómez-Mejía et al., 2011; Gómez-Mejía et al., 2014). Accordingly, SEW is a unique reference point that directs family owners' strategic decision-making (Carney et al., 2015; Gómez-Mejía et al., 2007). Family owners make decisions to enhance and protect these non-economic benefits, and thus fulfil the family's different affective needs. On the one hand, family owners may be strategically conservative, and as such, have the incentive to take a certain action that is not in their best economic interests, but avoids potential SEW-related losses (Carney et al., 2015). On the other hand, they may be willing to engage in risky behaviour if they perceive that it might generate a socioemotional reward (Gómez-Mejía et al., 2014). Furthermore, family owners' attitude toward SEW creation and preservation is usually contingent on their firm-controlling status (Berrone et al., 2012).

Conservatism in accounting has been argued to be an effective governance mechanism for mitigating the risks and agency problems associated with information asymmetries and function losses among contractual parties, due to their inability to verify privately held information of the informed parties (Chen et al., 2014; Garcia Lara et al., 2009; Watts, 2003). Accounting conservatism can act as a constraint on managers, and reduces their incentives to overstate earnings and net assets; this is because it requires a higher degree of verification for recognising gains, while limiting managers' ability to withhold information on expected losses and unforeseen expenses (Ahmed & Duellman, 2007; Watts, 2003). Therefore, a conservative accounting policy can be beneficial in revealing information that managers would be reluctant to provide early on, and also allows verifiable optimistic information disclosure, which puts the management under tighter scrutiny. Moreover, overstating net assets or profits can be more costly to firms than conservatively understating them (Skinner, 1994). For instance, firms with aggressive financial reporting typically incur costs of attracting unwanted attention; this condition can damage business image and reputation, and increase litigation risks. By contrast, accounting conservatism can reduce such reputational and litigation risks by minimising

cumulative reported earnings via slower income recognition and/or faster expense recognition, and by lowering asset valuations and/or increasing liability valuations (Watts, 2003).

However, despite its advantages, accounting conservatism can also threaten managers' interests (Kim et al., 2013). For example, accounting conservatism requires timely economic loss recognition; thus, it constrains managers' ability to influence investors' perceptions of certain projects by manipulating or overstating financial performance. Moreover, conservative accounting allows for early warnings to be signalled to investors, thereby facilitating timely disciplinary action (Garcia Lara et al., 2009; Kim et al., 2013; LaFound & Watts, 2008). These reasons can motivate managers to avoid conservative accounting, to preserve their control and interests (Ahmed & Duellman, 2007).

Family firms' unique governance regime can have important implications for the adoption of accounting conservatism (Chen et al., 2014; Raithatha & Shaw, 2019). On the one hand, family members usually view their firm as an extension of their family, and a long-term family investment to be bequeathed to future generations. Close ties between a family and its business can create an inherent family identity. Thus, family owners value society's recognition of their family's identification with the firm that they own (Schulze et al., 2003; Young et al., 2008), and they expect the family's legacy to be preserved (Sharma & Manikuti, 2005). Therefore, they strongly desire to protect their family's reputation, to ensure the family dynasty's sustainability, by introducing effective monitoring devices to oversee the firm in good faith (Micelotta & Raynard, 2011). Consequently, controlling family owners should be motivated to closely monitor the firm's management by adopting an accounting conservatism policy to protect their interests.

On the other hand, controlling family owners can discourage the use of accounting information to enhance monitoring by investors, and challenge the management's decisions (Garcia Lara et al., 2009). Consequently, they may be reluctant to choose accounting

conservatism, because its strict monitoring can effectively constrain their controlling rights, and it requires greater transparency in transactions that they benefit from (Ball & Shivakumar, 2005).

In summary, family firms are not homogeneous in their governance nature (Carney et al., 2015; Chrisman & Patel, 2012). Thus, we posit that variations in family ownership and control features affect their economic and non-economic incentives, and thus shape the firm's financial reporting. We address this issue by analysing how differences in family ownership and the family identity of CEOs affect accounting practices.

2.2. *Institutional background*

Similar to many East Asian economies, Taiwan has numerous family-controlled firms, whose ownership is highly concentrated within the controlling families (Chen & Cheng, 2020; Claessens et al., 2002; Fan & Wong, 2002). It has been documented that 45% of US firms are family-controlled (Chen et al., 2014), whereas Taiwan has more than 60% family-controlled firms (Chen & Cheng, 2020). In addition, when family firms in Taiwan are listed, they typically remain closely held. Unlike US and UK family firms, where ownership diffuses quickly after they go public, family ownership in Taiwan remains highly concentrated long after they have been publicly listed (Fan et al., 2011).

Moreover, family owners in Taiwan often use cross-shareholdings and pyramidal ownership structures to enhance their voting rights. This approach enables them to gain excessive control compared with their equity ownership (Yeh, 2005). On average, family owners' cash flow rights amount to only 75.7% of their voting rights (Claessens et al., 2000). Additionally, family owners typically possess strong executive power over management decisions because they tend to hold top executive positions (Chen & Cheng, 2020; Claessens et al., 2002; Fan & Wong, 2002).

Taiwan's existing institutional mechanisms are widely considered to ineffectively

counterbalance family owners' excessive power. Compared with the US and the UK, Taiwan is characterised by inferior legal protections for shareholders and corporate governance mechanisms (Chen & Cheng, 2020; Claessens et al., 2000; La Porta et al., 1999). Furthermore, approximately 70% of shares on the Taiwanese Stock Exchange (TWSE) are traded by individual investors, whereas institutional shareholders only account for approximately 30% of trading (Sue et al., 2013). Low institutional ownership reduces Taiwanese institutional investors' incentives to actively monitor firms (Yeh et al., 2001). Therefore, the combined effects of dominant family owners and the lack of effective disciplinary mechanisms can lead to severe conflicts between controlling family owners and minority stakeholders in Taiwan; this situation is similar in many other emerging markets (Young et al., 2008).

Taiwan employs a code-law regime. Given the lower investor protection under this legal regime, managers face lower litigation risk associated with poor financial reporting quality. They are therefore more likely to exercise their discretions over the application of accounting standards to achieve intended results (Chi & Wang, 2010). The extant research finds that the reported earnings of Taiwanese firms exhibit different degree of conservatism (Basu et al., 2005; Chi & Wang, 2010). Adopting such accounting practice can effectively mitigate information asymmetries and alleviate the associated agency problems in these firms (Chi & Wang, 2010; Chan & Hsu, 2013). In sum, these institutional, corporate governance and accounting features in Taiwan allow us to investigate family firms' accounting choices in a setting dominated by family owners and weak investor protection. In such an environment, family firms' financial reporting decisions are likely to be driven by dominant family owners' incentives (Fan & Wong, 2002).

2.3. *Family ownership and accounting conservatism*

Recent research has suggested that family owners prefer to pursue non-pecuniary

objectives, and tend to build and preserve their SEW (Anderson & Reeb, 2003; Berrone et al., 2012; Gómez-Mejía et al., 2014). Family owners and their firms have close bonds due to their block shareholdings and long-term presence. Thus, the owners often prioritise their concerns regarding the potential SEW loss over their economic and financial interests (Berrone et al., 2012; Carney et al., 2015).

One of the central aspects of SEW is family businesses' transgenerational sustainability. Although family firms are often viewed as an extension of the family (Berrone et al., 2012), ownership concentration can signal reputation-building by controlling shareholders (Young et al., 2008). The closeness between families and their firms is reflected in family members' firm shareholdings. Hence, family owners' large shareholding usually implies great financial and psychological firm ownership, given that families tend to be heavily involved in their firms' affairs (Gómez-Mejía et al., 2011). On the contrary, increasing external shareholdings through equity financing inevitably erodes a family's controlling and voting power, and forces it to share its power with outsiders (Schulze et al., 2003; Young et al., 2008). This scenario implies a dilution of family owners' emotional attachment to the firm, and of their motivation to preserve SEW (Wasserman, 2006).

As discussed, conservative accounting can benefit users of financial statements by providing them with verifiable information, thereby enhancing monitoring of the firm. It can limit deadweight losses from bad investment decisions and inefficient contracts, and thus increase long-term firm value (Ahmed et al., 2002; Kim et al., 2013; LaFond & Watts, 2008). Therefore, accounting conservatism is often linked to credibility (as perceived by capital markets) (LaFond & Watts, 2008). These positive monitoring and reputational effects enable firms to acquire sustainable sources of finance at low cost, and to maintain their long-term operations (Francis et al., 2013; Kim et al., 2013). In addition, conservative accounting can also reduce the litigation risks and associated reputational costs incurred by aggressive

accounting practices (Chen et al., 2008).

As noted above, family owners with greater ownership generally have longer-term investment horizons, and more socioemotional rewards due to reputation enhancement, than those with smaller ownership. They usually value corporate decisions that boost their long-term wealth; in addition, they are aware that a close relationship between the family and firm (as a result of investing the majority of their wealth in the firm) means that family owners have more to lose than to gain from behaving opportunistically for short-term gain at the expense of other stakeholders (Young et al., 2008). Consequently, it has been argued that family owners with significant ownership are likely to use their influence to implement accounting practices that promote the monitoring of the management's performance, and which will provide early signals of unprofitable investments (Chen et al., 2008; LaFond & Watts, 2008). Moreover, they tend to avoid accounting policies that attract other stakeholders' unwanted attention and cause long-term negative consequences for the firm (Achleitner et al., 2014; Chen et al., 2008). Overall, family owners with significant ownership are inclined to favour conservative accounting policies, in order to receive the associated monitoring and reputational benefits, and ultimately enhance their SEW (Achleitner et al., 2014; Gómez-Mejía et al., 2014). Chen et al. (2014) provide evidence based on non-CEO family ownership in the US, and suggest that firms with high family ownership are likely to report conservatively. Accordingly, we hypothesise the following:

H1. There is a positive relationship between family ownership and accounting conservatism.

Concentrated family ownership can bring company and family wealth together, whereas a divergence between family owners' cash flow rights and controlling/voting rights may result in negative consequences (Claessens et al., 2002; Young et al., 2008). Family owners often use

control-enhancing mechanisms, such as cross-shareholdings and pyramidal ownership structures, to maximise their firm control (Fan & Wong, 2002; Villalonga & Amit, 2006; Young et al., 2008). The resulting excessive voting rights (in relation to cash flow rights) will enable them to perpetuate their family control and influence over firm decisions, and thus preserve their long-term presence in the firm (Berrone et al., 2012; Gómez-Mejía et al., 2014). This condition can also place family owners in a strong position to divert resources away from minority shareholders, and carry out subtle manipulations for their own benefit (Fan & Wong, 2002). However, controlling family owners only need to share the associated negative consequences for the firm's wealth proportionately with other stakeholders, while benefiting from excessive control (Villalonga & Amit, 2006).

In addition, increased ownership configuration complexity, due to a greater disparity between family owners' cash flow and voting rights, typically makes the firm–owner relationship appear to be more distant (Yeh & Woidtke, 2005). Outside investors cannot easily detect and understand the association between ownership and control under this ownership arrangement. Thus, family owners would be less concerned about the long-term damage to their family reputation when they utilise their controlling position for enhancing personal interest (Gómez-Mejía et al., 2014).

As noted above, accounting conservatism may be disadvantageous to the controlling family because it enables closer firm scrutiny by other stakeholders, and can jeopardise family owners' controlling power. Family owners benefit from excessive control due to the divergence between cash flow and voting rights; thus, they are inclined to avoid challenges from other stakeholders (Gómez-Mejía et al., 2014). Therefore, when family owners' cash flow and voting rights have a greater disparity, the owners would have a stronger incentive to report in a less conservative manner, in order to preserve their dominance and influence in the firm. This ownership configuration can also minimise the adverse reputational impact on their family

image and identity that may arise from aggressive accounting and withholding bad news. Consequently, we hypothesise the following:

H2. Accounting conservatism is negatively associated with the degree of divergence between family owners' voting and cash flow rights.

2.4. Family identity of CEOs and accounting conservatism

Company founders and their descendants have different family identity perspectives (Stockmans et al., 2010; Villalonga & Amit, 2006). This variation in the sense of family identity drives them to behave differently in terms of decision-making when they hold the CEO position (Gómez-Mejía et al., 2007).

As previously noted, financial reporting issues often result in reputational gains or losses in a firm (Healy & Palepu, 2001). Such reputational effects can particularly impact the family's SEW in cases when family owners' individual identities are closely tied to the firm (Berrone et al., 2012). Founders are those who established the business (Gómez-Mejía et al., 2007); thus, their fate and individual identity are often intertwined with that of the firms they created. Founders are typically concerned about maintaining a positive family image, because they often view the firm as a long-term investment that must be bequeathed to their descendants (Anderson & Reeb, 2003). Therefore, founders can be sensitive to potential negative publicity associated with aggressive financial reporting, because it would cause long-term damage to family reputation, and thus lead to SEW loss (Gómez-Mejía et al., 2014).

Previous studies have claimed that creditors and stakeholders view accounting conservatism as an indication of a firm's commitment to providing reliable information (Kim et al., 2013). Any deviation from such a commitment would subject the firm to reputational damage, thereby affecting its ability to maintain its long-term operations. Additionally,

increased litigation risk arising from aggressive financial reporting would potentially lead to high reputational costs (Chen et al., 2008). Therefore, if company founders occupy the CEO position, then they are likely to prioritise family identity issues and long-term wealth over short-term gains, and will thus prefer accounting conservatism.

Family ownership increasingly becomes dispersed as family firms evolve and are passed on to new generations. In such situations, where the founder(s)'s descendants have to share control with other family members, reaching and maintaining a shared vision becomes difficult for them, as each branch of the extended family can have differing objectives (Stockmans et al., 2010). The increased variation in the objectives of subsequent generations can result in great intra-family conflicts, which can further dilute the family's psychological attachment to the firm (Schulze et al., 2003). Weakening of family ties among descendants can eventually lead to separation between family and firm identity, and thus reduce the associated socioemotional effect (Gómez-Mejía et al., 2007). Unlike founders, descendants are more likely to be interested in great entrenchment when they assume the CEO position (Gómez-Mejía et al., 2007). Furthermore, holding valuable information about firm performance can help CEOs accrue private interests from control. Hence, they gain a stronger motivation to maintain their authority and influence by exploiting their power and discretion, and thus avoid tight scrutiny through financial reporting. Consequently, when the CEO position is assumed by the founder's descendant, SEW preservation associated with family reputation becomes less significant as an incentive to adopt accounting conservatism. Therefore, we hypothesise the following:

H3. Accounting conservatism is positively associated with the presence of a founder CEO than a descendent CEO.

3. Research methodology

3.1. Sample selection

Empirical tests are based on data for a sample of TWSE-listed family firms between 1996 and 2015. Financial and utility firms are excluded from the sample.[1] Following prior literature (Ali et al., 2007; Anderson & Reeb, 2003; Wang, 2006), we identify a company as a family firm if the founders or their descendants (1) continue to hold positions in top management or on the board, or (2) are among the firm's largest shareholders. Firms without a complete set of corporate governance and financial data were excluded from our sample. This procedure yields 5,651 firm-year observations for family firms over the sample period, accounting for appropriately 60% of the listed firms in Taiwan.

Corporate governance data and financial information used in this study were collected from the *Taiwan Economic Journal* (TEJ) database, company prospectuses, and the Business Group in Taiwan database. Furthermore, we drew on information provided in "Study on the Group in Taiwan" by the China Credit Information Service, the Public Observation Station database, and the firms' official websites, in order to identify family firms' founders and descendants, and their associated managerial positions and ownership in the firms.

3.2. Accounting conservatism measures

The empirical tests of this study focus on four accounting conservatism proxies adopted by prior literature: (1) cumulative negative non-operating accruals (Givoly & Harvey, 2000); (2) the firm-year accounting conservatism measure developed by Khan and Watts (2009); (3) the sum of inventory reserve, R&D reserve, and advertising reserves, developed by Penman and Zhang (2002); and (4) a composite measure based on the firm's rank for each of the former three individual measures. Multiple measures are used, due to a lack of consensus on the

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[1] Companies in the financial and utility sectors were excluded on the grounds that they have a number of significant differences from other businesses, in terms of industrial characteristics and accounting systems, such as income-measuring accounting rules.

conservatism concept, and controversy regarding valid measures of accounting conservatism in the accounting literature. In addition, our primary interest focuses on whether the conservatism level varies systematically according to family owners' shareholdings and leadership status. Hence, using multiple measures can help to capture and assess a firm's overall conservatism (Beatty et al., 2008). The constructs of the four measures are discussed as follows.

Our first conservatism measure, *NON_ACC*, is developed based on Givoly and Hayn (2000), and captures conditional and unconditional conservatism (Chen et al., 2014; Garcia Lara et al, 2009). Consistent with Chen et al. (2014), we measure *NON_ACC* as non-operating accruals averaged over three years, centred on the year of interest and deflated by average total assets. We multiply the non-operating accruals by −1; thus, the higher the *NON_ACC*, the more conservative is the firm. Non-operating accrual is defined as income before extra-ordinary items, less cash flows from operations, plus depreciation expense and less operating accruals. *NON_ACC* consists of items such as asset impairment, restructuring charges, asset write-down, the deferral of revenues and their subsequent recognition, and the accrual and capitalisation of expenses (Givoly & Harvey, 2000).

Our second measure of conservatism, *C_SCORE_KW*, was developed by Khan and Watts (2009) and captures conditional conservatism. Following Khan and Watts (2009), we utilise Basu's (1997) measure of asymmetric timeliness to estimate a firm-year measure of conservatism. Basu's (1997) cross-sectional regression is specified as follows:

$$X_{i,t} = \beta_1 + \beta_2 D_{i,t} + \beta_3 R_{i,t} + \beta_4 D_{i,t} R_{i,t} + \varepsilon_{i,t} \tag{1}$$

where i denotes the firm, X is earnings, R is returns (measuring news), D is a dummy variable equal to 1 when R is negative and 0 otherwise, and ε is the residual. The good news timeliness measure is β_3. The measure of incremental timeliness for bad news over good news, or conservatism, is β_4, and the total bad news timeliness is $\beta_3 + \beta_4$.

To estimate the timeliness of both good news and bad news at firm-year level, Khan and Watts (2009) specify that both the timeliness of good news (G_Score) and the asymmetric timeliness of bad news (C_Score) in each year are linear functions of firm-specific characteristics (size, market-to-book value, and leverage) as follows:

$$G\_Score_{i,t} = \beta_3 = \mu_1 + \mu_2 SIZE_{i,t} + \mu_3 MB_{i,t} + \mu_4 LEVERAGE_{i,t} \tag{2}$$

$$C\_Score_{i,t} = \beta_4 = \lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEVERAGE_{i,t} \tag{3}$$

where *SIZE* is the natural log of market value of equity, *MB* is the ratio of market-to-book value of equity at the end of the year, and *LEVERAGE* is the ratio of long-term debt to total assets. We substitute Eqs. (2) and (3) into Eq. (1), and Basu's (1997) regression can be rewritten as Eq. (4). Then, we estimate annual regressions of Eq. (4) and obtain coefficients of λ_1, λ_2, λ_3, and λ_4 to estimate C_Score (3), which we denote as *C_SCORE_KW*. *C_SCORE_KW* varies across firms through cross-sectional variation in firm-year characteristics (*SIZE*, *MB*, and *LEVERAGE*), and over time through intertemporal variation in λ. Conservatism is increasing in *C_SCORE_KW*, as follows:

$$X_{i,t} = \beta_1 + \beta_2 D_{i,t} + \beta_3 R_{i,t} (\mu_1 + \mu_2 SIZE_{i,t} + \mu_3 MB_{i,t} + \mu_4 LEVERAGE_{i,t})$$

$$+ \beta_4 D_{i,t} R_{i,t} (\lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEVERAGE_{i,t}) \tag{4}$$

$$+ (\delta_1 SIZE_{i,t} + \delta_2 MB_{i,t} + \delta_3 LEVERAGE_{i,t} + \delta_4 D_{i,t} SIZE_{i,t} + \delta_5 D_{i,t} MB_{i,t} + \delta_6 D_{i,t} LEVERAGE_{i,t}) + \varepsilon_{i,t}$$

Our third measure of conservatism, *C_SCORE_PZ*, was developed by Penman and Zhang (2002) and captures unconditional conservatism. This measure is the sum of inventory, R&D, and advertising reserves, scaled by net operating assets. Inventory reserve is the LIFO reserve reported in financial statement footnotes. To calculate R&D and advertising reserves, we capitalise R&D expenditure and advertising expense and amortise them over five years and two years, respectively, using the sum-of-years-digits method (Penman & Zhang, 2002). Finally, we follow Beatty et al. (2008) by using a combined measure, *AGGREGATE*, to capture

an aggregate effect of individual conservatism measures. This measure is tabulated as the sum of the firm's rank for each of the former three measures.

3.3. *Regression models and specifications*

We use the following models to examine whether accounting conservatism is associated with family ownership, divergence between family owners' voting and cash flow rights, and CEO's family identity. Appendix 1 provides detailed definitions of the variables.

$$
\begin{aligned}
CONSERVATISM_{i,t} = {} & \alpha_0 + \alpha_1 F\_OWN_{i,t} + \alpha_2 F\_DIV_{i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 LEVERAGE_{i,t} \\
& + \alpha_6 OCF_{i,t} + \alpha_7 LOSS_{i,t} + \alpha_8 LITIGATION_{i,t} + \alpha_9 HERFINDAHL_{i,t} + \alpha_{10} OUTSIDE_{i,t} \\
& + \alpha_{11} INST\_OWN_{i,t} + \alpha_{12} AUDITOR_{i,t} + \alpha_{13} BOASIZE_{i,t} + \alpha_{14} CEO\_DUALITY_{i,t} \\
& + \alpha_{15} CEO\_TENURE_{i,t} + \alpha_{16} CEO\_OWN_{i,t} + \alpha_{17} FF\_DIRECTOR_{i,t} + \varepsilon_{i,t} \quad (5)
\end{aligned}
$$

$$
\begin{aligned}
CONSERVATISM_{i,t} = {} & \alpha_0 + \alpha_1 FF\_DUM_{i,t} + \alpha_2 FD\_DUM_{i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 LEVERAGE_{i,t} \\
& + \alpha_6 OCF_{i,t} + \alpha_7 LOSS_{i,t} + \alpha_8 LITIGATION_{i,t} + \alpha_9 HERFINDAHL_{i,t} + \alpha_{10} OUTSIDE_{i,t} \\
& + \alpha_{11} INST\_OWN_{i,t} + \alpha_{12} AUDITOR_{i,t} + \alpha_{13} BOASIZE_{i,t} + \alpha_{14} CEO\_DUALITY_{i,t} \\
& + \alpha_{15} CEO\_TENURE_{i,t} + \alpha_{16} CEO\_OWN_{i,t} + \alpha_{17} FF\_DIRECTOR_{i,t} + \varepsilon_{i,t} \quad (6)
\end{aligned}
$$

As discussed in the previous section, we employ four different proxies to measure accounting conservatism, namely, *NON_ACC*, *C_SCORE_KW*, *C_SCORE_PZ*, and *AGGREGATE*, for the dependent variables (*CONSERVATISM*). For independent variables, we measure family ownership by the proportion of ultimate shareholdings (cash flow rights) held by family members in a family firm (*F_OWN*). The degree of divergence between family owners' cash flow and voting rights is measured by a ratio of 1 minus family owners' cash flow rights divided by their voting rights (*F_DIV*). *F_DIV* captures the excess of voting rights over

cash flow rights ultimately controlled by family owners in a family firm.[2] The presences of a founder CEO (*FF_DUM*) and descendent CEO (*FD_DUM*) are employed to capture CEO's family identity. *FF_DUM* is a dichotomous variable that is 1 if the CEO position is held by a family founder and 0 otherwise. *FD_DUM* is a dummy variable that is 1 if the CEO position is held by a descendant and 0 otherwise.

Control variables are drawn from the literature. First, we control for firm size (*SIZE*). Studies have suggested that large companies' managers tend to report a higher level of earnings conservatism to avoid potential political costs (e.g., Watts & Zimmerman, 1978). Second, firms' growth opportunities (*MB*) and leverage ratio (*LEVERAGE*) are controlled. Prior literature suggests that firms with greater growth opportunities (Hui et al., 2012) and higher leverage (Guay, 2008) have greater demand for accounting conservatism, in order to facilitate efficient contracting.

Third, we control for firm performance, including profitability (*OCF*) and the presence of loss for a fiscal year (*LOSS*). Profitable firms are suggested to be likely to use conservative accounting (Ahmed & Duellman, 2007; Chen et al., 2014), whereas a loss-making firm is likely to report conservatively (Lobo & Zhou, 2010). Fourth, we control for litigation risk (*LITIGATION*). Prior studies argue that litigation risk is greater with accounting conservatism (Ahmed & Duellman, 2007; LaFond & Watts, 2008; Ramalingegowda & Yu, 2012). Fifth, we control for the firm's industry concentration ratio (*HERFINDAHL*). On the one hand, certain prior studies argue that firms operating in concentrated industries face higher political and regulatory costs, and thus are more likely to report conservatively, to reduce those costs (Hui et al., 2012). On the other hand, firms in more concentrated industries are suggested to be more

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[2] The family owners' cash flow rights and voting rights are obtained from the *Taiwan Economic Journal* (TEJ) database. The cash flow right refers to the proportion of cash flow rights that the ultimate family owners possess. The voting right refers to the proportion of voting rights that the ultimate family owners of the firm possess. The database defines the ultimate ownership based on the method by La Porta et al. (1999).

likely to hide bad news, and thus tend to be less conservative in financial reporting (Hui et al., 2012).

Sixth, we control for board characteristics, including the percentage of outside directors on the board (*OUTSIDE*), presence of CEO duality (*CEO_DUALITY*), CEO tenure (*CEO_TENURE*), CEO ownership (*CEO_OWN*), and board size (*BOASIZE*). Firms are less likely to report conservatively when they have few outside directors on the board, have CEO duality, long CEO tenure, and high CEO ownership (e.g., Ahmed & Duellman, 2007; Chen et al., 2014; Ferramosca & Ghio, 2018; Garcia Lara et al., 2009; Gómez-Mejia et al., 2001; Hui et al., 2012; Yekini et al., 2015; Biondi & Rebérioux, 2012). There are competing views on the association between board size and accounting conservatism. Firms with larger board size are more likely to have experts to engage in monitoring activities; however, coordinating such activities would be difficult when the board has more members. Therefore, the effect of board size on accounting conservatism may be positive or negative (Ahmed & Duellman, 2007).

Seventh, we control for institutional ownership (*INST_OWN*). Firms are more likely to report conservatively when they have greater institutional ownership (Ahmed & Duellman, 2007; Chen et al., 2014). Eighth, we control for the presence of first-generation family firms (*FF_DIRECTOR*), which are heavily dependent on founders and are more likely to adopt mechanisms for enhancing monitoring (Li & Srinivasan, 2011). Ninth, the presence of the Big Four or Five auditors (*AUDITOR*) is used to control for audit quality (Boahen & Mamatzakis, 2020). Prior studies suggest that firms audited by large audit firms tend to reflect greater accounting conservatism (Hui et al., 2012). Finally, we include a vector of year fixed effect (*YEAR*) and a vector of firm fixed effect (*FIRM*) in the model.

4. Empirical results

4.1. Descriptive statistics

Table 1 presents the distribution of the sample firms across the sample period, and various industry sectors. Table 2 provides descriptive statistics for the family firms. All continuous variables are winsorised at the top and bottom 1% of their distribution, to avoid the influence of extreme values. Regarding the accounting conservatism measures, the mean (median) values for *NON_ACC*, *C_SCORE_KW*, *C_SCORE_PZ*, and *AGGGREGATE* are 0.039 (0.032), 0.093 (0.081), 0.101 (0.090), and 9.707 (8.696), respectively. The mean (median) value for common shares (i.e., cash flow rights) held by founding family members (*F_OWN*) is 0.342 (0.316). This finding is significantly higher than 0.110 (0.063), which was reported in the US by Ali et al. (2007). The results further demonstrate that the mean (median) value for the degree of divergence between family owners' cash flow and voting rights (*F_DIV*) is 0.264 (0.208). This suggests that family owners' voting rights in Taiwanese family firms are greater than their cash flow rights. Overall, the ownership of Taiwanese family firms appears to be concentrated in the family owners, rather than being widely held and controlled.

In addition, family owners typically hold the most important executive position in the firms. A total of 30.1% and 25.7% of family firms have a founder CEO (*FF_DUM*) and descendent CEO (*FD_DUM*), respectively. Overall, 55.8% of family firms nominate a family CEO, which is higher than the 38% in the US, reported by Wang (2006). Collectively, these statistics suggest that family owners are highly dominant in Taiwanese family firms.

With regard to the control variables, the average values of the natural log of market value of equity (*SIZE*) and the ratio of market to book value (*MB*) are 13.599 and 1.172, respectively. The mean value for the ratio of long-term debt to total assets (*LEVERAGE*) is 0.067. On average, the ratio of operating cash flow to total assets (*OCF*) is 0.057, though 30.4% of family firms incur losses (*LOSS*). Additionally, the result shows that 21.4% of family firms operate in a highly litigious industry (*LITIGATION*). The firm's industry concentration ratio (*HERFINDAHL*) is 0.598 on average.

Taiwanese family firms have an average of 12.4% of outside directors on their boards (*OUTSIDE*). This finding is much lower than the 60% reported in the US (Chen et al., 2014). Additionally, the institutional shareholdings (*INST_OWN*) mean is 22.9%, which is significantly lower than the 61% reported in the US by Ali et al. (2007). These findings suggest that although family owners play a dominant role in Taiwanese family firms, they face comparatively less monitoring from outside directors and institutional shareholders. However, 78.8% of family firms are audited by the Big Four or Five auditors (*AUDITOR*). The mean value of the natural log of the number of directors in family firms (*BOASIZE*) is 2.235. In 31.4% of family firms, the CEO and chairperson positions are simultaneously held by one person (*CEO_DUALITY*). On average, family firm CEOs have a tenure of 7.321 years (*CEO_TENURE*) and hold 5% of ownership (*CEO_OWN*) in the firms. Founders are involved in management in 66.3% of family firms (*FF_DIRECTOR*).

Insert Table 1 about here

Insert Table 2 about here

4.2. *Pearson correlation results*

Multicollinearity is considered as problematic in regression analysis. Thus, the Pearson correlations between variables are analysed,[3] and variance inflation factors (VIFs) are computed for each independent variable, to test for the existence of multicollinearity. Correlations between the independent variables included in the regression analysis are all less than 0.2; multicollinearity in regression analysis is regarded as harmful only when the correlations exceed 0.7 (Tabachnick & Fidell, 2007). In addition, the VIFs for all independent variables employed in the regressions shown in Tables 3 and 4 are below 2, which is far lower than the critical value of 10 (Tabachnick & Fidell, 2007). This finding suggests that

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[3] The supplemental online material provides the table for the Pearson correlations.

multicollinearity is not a major issue in the regression analyses.

4.3. Regression analysis results

Tables 3 and 4 present the multivariate analysis results. Our hypotheses are examined based on the regression models with year and firm fixed effects. The dependent variables are the proxies for accounting conservatism, measured by *NON_ACC*, *C_SCORE_KW*, *C_SCORE_PZ*, and *AGGGREGATE*.

4.3.1 The effect of family ownership characteristics on accounting conservatism

Table 3 shows the regression models used to test the relationships between family ownership (*F_OWN*), the divergence between family owners' cash flow rights and voting rights (*F_DIV*), and accounting conservatism. The models' overall results are significant, and the model-adjusted R^2 is above 0.500.

Family ownership (*F_OWN*) positively relates to accounting conservatism in all the conservatism measures (*NON_ACC*, *ß* = 0.172, *p* < 0.05; *C_SCORE_KW*, *ß* = 0.034, *p* < 0.05; *C_SCORE_PZ*, *ß* = 0.070, *p* < 0.01; *AGGREGATE*, *ß* = 0.461, *p* < 0.01). This finding suggests that family owners who have more common shares are inclined to provide conservative accounting information, thus supporting Hypothesis 1. We compute the increases in the three individual conservatism measures (i.e., *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ*) that correspond to the increase in family ownership, to assess the economic significance of these results.[4] An increase in family ownership from 13.70% (the smallest *F_OWN* among the sample firms) to 54.6% (the largest *F_OWN* among the sample firms) results in an increase in *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ* by 0.070, 0.014, and 0.029, respectively. These numbers are approximately 180.38%, 14.95%, and 28.35% of the average *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ*, respectively, which we observed for all sample firms.

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[4] We do not adopt *AGGREGATE* to access the economic significance in relation to the effects of *F_OWN*, *F_DIV*, *FF_DUM*, and *FD_DUM*, because it is a composite accounting conservatism measure developed based on the firm's rank for each of the three individual measures, *NON_ACC, C_SCORE_KW*, and *C_SCORE_PZ*.

Some may argue that the perceived economic benefits of transparency can be modest for family owners with concentrated ownership (Fan & Wong, 2002; Yeh & Woidtke, 2005). However, our findings show that family owners' motive in choosing an accounting approach extends beyond such economic considerations. Family members' financial and psychological attachment to their firm is reflected in their shareholdings (Gómez-Mejía et al., 2011). Hence, family owners with significant ownership are highly motivated to maintain the firm's long-term viability by promoting its image and reputation (Micelotta & Raynard, 2011). Therefore, this non-economic motive can drive these family owners to avoid aggressive accounting practices that could potentially cause long-term damage to their firm's viability and reputation, and to utilise the monitoring effect of accounting conservatism for enhancing or preserving their SEW.

However, *F_DIV* and the accounting conservatism measures are negatively related (*NON_ACC*, $\beta = –0.089$, $p < 0.05$; *C_SCORE_KW*, $\beta = –0.217$, $p < 0.05$; *C_SCORE_PZ*, $\beta = –0.083$, $p < 0.01$; *AGGREGATE*, $\beta = –0.307$, $p < 0.01$). This result supports Hypothesis 2, that family owners who have greater voting rights over cash flow rights tend to provide less conservative accounting information. We further compute the decreases in the three individual conservatism measures (i.e., *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ*) that correspond to the increase in the disparity between family owners' voting and cash flow rights. An increase in this disparity from 0% (the smallest *F_DIV* among the sample firms) to 36.0% (the largest *F_DIV* among the sample firms) decreases *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ* by 0.032, 0.046, and 0.030, respectively. These numbers are approximately 82.15%, 49.16%, and 29.58% of the average *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ*, respectively, which we observed for all sample firms.

As noted above, family owners tend to be less concerned about the potential negative effects on their family reputation under this ownership structure. These findings indicate that

family owners with excessive controlling and voting power have a strong incentive to choose less conservative accounting practices, in order to avoid increased monitoring by other stakeholders and preserve their dominant position (Gómez-Mejía et al., 2014).

The statistical significance level of the control variables' relationships with different accounting conservatism variables may vary. Thus, our discussions focus on the findings associated with the combined accounting conservatism measure (*AGGREGATE*). Following prior studies (Watts & Zimmerman, 1978), firm size (*SIZE*) positively relates to *AGGREGATE* ($p < 0.05$). In contrast to prior studies (Hui et al., 2012), market value (*MB*) and *AGGREGATE* are not significantly related. Consistent with Guay (2008), leverage ratio (*LEVERAGE*) has a positive relationship with *AGGREGATE* ($p < 0.05$). Additionally, profitability (*OCF*) is significantly positively related to accounting conservatism ($p < 0.01$), consistent with Ahmed and Duellman (2007). The presence of a loss (*LOSS*) is also significantly positively related to *AGGREGATE* ($p < 0.01$), thus supporting prior research (Lobo & Zhou, 2010). Similar to prior studies (e.g., Ahmed & Duellman, 2007), litigation risk (*LITIGATION*) is positively associated with *AGGREGATE* ($p < 0.10$). Furthermore, firms' industry concentration ratio (*HERFINDAHL*) is negatively related to accounting conservatism ($p < 0.05$), which supports Hui et al.'s prior study (2012).

The percentage of outside directors on the board (*OUTSIDE*) positively relates to *AGGREGATE* ($p < 0.01$). In addition, institutional shareholding (*INST_OWN*) is positively associated with *AGGREGATE* ($p < 0.01$). These findings are consistent with the expectation that outside directors' and institutional shareholders' effective monitoring increases conservative accounting application (e.g., Ahmed & Duellman, 2007; Chen et al., 2014). However, auditor size (*AUDITOR*) is not significantly associated with *AGGREGATE*, which is not in line with the suggestion by prior studies (Hui et al., 2012). Board size (*BOASIZE*) is positively related to *AGGREGATE* ($p < 0.01$)*,* whereas the presence of CEO duality

(*CEO_DUALITY*) and long CEO tenure (*CEO_TENURE*) are negatively related to *AGGREGATE* ($p < 0.01$). Consistent with prior studies, these findings suggest that firms with managers who have strong dominance and power are less likely to report conservatively (e.g., Ahmed & Duellman, 2007; Garcia Lara et al., 2009). Unlike Chen et al. (2014), CEO ownership is not significantly related to *AGGREGATE*. Finally, first-generation family firms (*FF_DIRECTOR*) are positively associated with *AGGREGATE* ($p < 0.05$), thus suggesting that firms whose founders engage in management are more likely to emphasise the monitoring benefit of accounting conservatism.

Insert Table 3 about here

4.3.2 The effect of family identity of CEOs on accounting conservatism

Table 4 presents the regression models used to test how the CEO's family identity affects accounting conservatism in family firms. We classify family CEOs into founder CEOs (*FF_DUM*) and descendent CEOs (*FD_DUM*), and then examine their effects on accounting conservatism. The models' overall results are significant and show a high explanatory power (adjusted R^2 is above 0.500). The presence of a founder CEO (*FF_DUM*) is positively associated with accounting conservatism measures (*NON_ACC*, $ß = 0.289$, $p < 0.05$; *C_SCORE_KW*, $ß = 0.462$, $p < 0.01$; *C_SCORE_PZ*, $ß = 0.527$, $p < 0.05$; *AGGREGATE*, $ß = 0.485$, $p < 0.01$). We further compute the increases in the three individual conservatism measures (i.e., *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ*) that correspond to the presence of a founder CEO. The existence of *FF_DUM* increases *NON_ACC*, *C_SCORE_KW*, and *C_SCORE_PZ* by 0.289, 0.462, and 0.527, respectively. These values are significantly greater than the average *NON_ACC* (0.039), *C_SCORE_KW* (0.093), and *C_SCORE_PZ* (0.101), respectively. However, the presence of a descendent CEO (*FD_DUM*) is not significantly related to accounting conservatism. These findings support Hypothesis 3, which states that family firms with a founder CEO report more conservatively than those with a

descendent CEO.

Founders have stronger emotional attachment to their firms, and are typically more concerned about their family's identity and image in society, compared to their descendants (Gómez-Mejía et al., 2007). Our findings support this view, and indicate that family firms with a founder CEO tend to provide conservative accounting information, and avoid aggressive accounting practices that could potentially damage the family's identity and SEW.

Insert Table 4 about here

4.4. Additional analysis

We argued in the previous analysis that family firms' tendency towards conservative reporting is subject to family owners' concern about their reputation and identity preservation, and thus their SEW. Therefore, we further examine whether family owners with a strong positive reputation are likely to favour conservative accounting. Jiang et al. (2020) suggest that controlling family owners have strong incentive to maintain their reputation and identity when the family firm has a good reputation and publicity. We measure the reputation of family firms according to whether the firm has received the Most Admired Company Award, organised by the *CommonWealth Magazine*.[5] We use a dummy variable, *REPUTATION_PAST*, equal to 1 when a family firm was given the award in the previous two years, and 0 otherwise. Table 5 reports that *REPUTATION_PAST* is significantly positively related to the accounting conservatism measures (*NON_ACC*, $\beta = 0.071$, $p < 0.05$; *C_SCORE_KW*, $\beta = 0.202$, $p < 0.01$; *C_SCORE_PZ*, $\beta = 0.290$, $p < 0.01$; *AGGREGATE*, $\beta = 0.525$, $p < 0.01$). These results suggest that family firms with a strong positive reputation are likely to adopt conservative accounting.

In addition, we examine whether a family firm that reports conservatively is likely to preserve or enhance its reputation. Following Deephouse and Jaskiewicz (2013), we develop a

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[5] The Most Admired Company Award is granted to the most reputable companies in Taiwan. These companies are chosen based on the yearly survey made by the *CommonWealth Magazine* since 1994.

regression model for analysing the effect of accounting conservatism on family firm reputation. The dependent variable used to capture this reputation is a dummy variable, *REPUTATION_FORWARD*, which is 1 if a firm obtained the Most Admired Company Award in the subsequent two years, and 0 otherwise. Return on assets (*ROA*), firm age (*AGE*), firm size (*SIZE*), and government ownership level (*GOVERN_DUM*) are employed as control variables. Table 6 documents that the accounting conservatism measures (*NON_ACC*, *C_SCORE_KW*, *C_SCORE_PZ*, and *AGGREGATE*) positively relate to *REPUTATION_FORWARD* (β = 0.162, $p < 0.01$; β = 0.337, $p < 0.05$; β =0.291, $p < 0.05$; β = 0.438, $p < 0.01$). These findings suggest that adopting conservative accounting would effectively preserve and enhance family firms' reputation, and thus, their SEW.

Insert Table 5 about here

Insert Table 6 about here

4.5. Robustness tests

Family ownership configurations and reported accounting information may be simultaneously determined (Jaggi et al., 2009). Thus, our results may suffer from an endogeneity bias. We follow Demsetz and Villalonga (2001) and employ a two-stage least squares model (2SLS) to address this potential bias. Instrumental variables in the first stage of 2SLS are firm risk (*FIRM_RISK*) and the family successor's gender (*FIRST_SON*). *FIRM_RISK* is measured as the standard deviation of earnings before interest and taxes divided by total assets. Prior literature argues that family owners in family firms with greater firm risk have lower incentive to hold concentrated direct firm ownership to diversify the potential risk to their personal wealth. However, the owners are likely to use great excessive voting rights over cash flow rights to maintain their benefits from firm control (Chin et al., 2009).

FIRST_SON is measured by a dummy variable that is 1 if the first child of the controlling family owners is male and 0 otherwise. Prior studies have argued that if the gender of the controlling family owners' firstborn child is male, then the owners have great incentive to maintain high ownership and control level (Bennedsen et al., 2007).

We first regress actual family ownership (*F_OWN*) and the divergence between family members' cash flow and voting rights (*F_DIV*) against those instrumental variables. Hence, we obtain the predicted values of family ownership (*PF_OWN*) and the divergence between family owners' cash flow and voting rights (*PF_DIV*), respectively. In the second stage, we use *PF_OWN* and *PF_OWN* to replace *F_OWN* and *F_DIV*, respectively.

Table 2 reports the descriptive statistics of the two instrumental variables, *FIRM_RISK* and *FIRST_SON*. The untabulated results suggest that, in the first stage, *FIRM_RISK* is significantly negatively related to *F_OWN*, whereas *FIRM_RISK* and *F_DIV* are significantly positively related. *FIRST_SON* is significantly positively related to *F_OWN* and *F_DIV*. In the second stage, we find that the predicted *F_OWN* (*PF_OWN*) is positively related to the accounting conservatism measures. However, the predicted *F_DIV* (*PF_DIV*) is negatively associated with accounting conservatism. These findings are consistent with the main test results reported in Table 3.[6]

Additionally, family firms' family ownership level may not be randomly determined. We use the propensity score matching approach (PSM) to address this potential self-selection bias issue. We use firms with high and low family ownership as the treatment and control samples, respectively. In the first stage, we pool the treatment and control samples and run a logistic regression to predict the possibility of family owners' high ownership. The dependent variable is high family ownership (*HL_FOWN_DUM*), a dichotomous variable that equals 1 if a firm

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[6] The supplemental online material provides a more detailed discussion of the procedure of our 2SLS analysis and the table for the results.

has family ownership equal to or above the median value of the sample, and 0 otherwise. We use all the control variables employed in the regression tests above. We also control for industry effect in the regression. Then, we use the propensity scores obtained from the logistic estimations, and perform a one-to-one stratified match and nearest-neighbour match with replacement. This procedure ensures that each firm with high family ownership is paired with one with low family ownership. We pool the treatment and matched samples together, and examine the differences between family firms with high and low family ownership in terms of accounting conservatism. The untabulated results document that family firms with high family ownership are positively related to the four accounting conservatism measures, *NON_ACC*, *C_SCORE_KW*, *C_SCORE_PZ*, and *AGGREGATE*, based on the stratified matching method and the nearest-neighbour matching method. The results are consistent with the main findings reported in Table 3.[7]

5. Conclusions

Drawing on the SEW framework, we emphasise the importance of distinctive family ownership features, the divergence between family owners' cash flow and voting rights, and CEOs' family identity, in terms of their impacts on accounting conservatism. Our analysis is focused on the context of Taiwan, in which family firms and family owners are highly dominant.

We find that family ownership is positively associated with accounting conservatism in family firms, whereas the degree of disparity between family cash flow and voting rights is negatively related to accounting conservatism. In addition, family firms with a founder CEO are more likely to report conservatively than those with a descendant CEO.

This paper contributes to the family firm and accounting literature by highlighting that

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[7] The supplemental online material provides the table of the results based on the propensity score matching approach.

family firms with different family ownership and control characteristics can behave differently regarding accounting conservatism policies. Our findings have several important implications. First, our results add to the literature by suggesting that family-controlled firms with different governance characteristics value SEW differently, and consequently behave differently in terms of accounting practices. The results reveal that positive reputational effects associated with high family ownership and the presence of a founder CEO can motivate family firms to adopt accounting practices that facilitate effective monitoring. As a result, owners' family identity and reputation in the capital markets and society are preserved, and external stakeholders are benefited, in turn. However, when family ownership is reinforced through the use of enhanced control mechanisms, a great sense of family control and influence can drive family owners to avoid increased monitoring by using less conservative accounting. This approach allows them to exploit valuable information at the expense of external stakeholders.

Second, prior literature mainly emphasised the debt-contracting role of accounting conservatism. In contrast, emerging literature examines how governance characteristics, management styles, and equity ownership affect a firm's adoption of accounting conservatism (e.g., Ramalingegowda & Yu, 2012). The present study draws clear inferences regarding the impact of family ownership and control, and suggests that family owners' incentives have important implications on the choice of accounting practices. These practices are associated with accounting conservatism according to family firms' different characteristics.

Third, although accounting conservatism has provoked an ongoing debate regarding its exclusion from or inclusion in the conceptual accounting framework (Garcia Lara et al., 2009), the findings of this study inform this debate by presenting important implications for policymakers and regulators. This study enhances our understanding of how variations in dominant insiders' financial reporting incentives can drive a firm's accounting policies. The findings imply that a regulatory assessment of the usefulness of accounting conservatism in

financial reporting is ineffective unless firm governance is considered. This finding is particularly important for capital markets characterised by weak internal and external governance mechanisms for investor protection, such as those in many Asia Pacific countries.

Nonetheless, our research has certain limitations that may be addressed by future studies. First, this research responds to the call for additional attention to be paid to the effects of family owners' non-financial objectives on corporate decisions. However, further analysis and evidence that broadly cover the five dimensions of non-financial utilities would be useful. Family owners derive these non-financial utilities from their engagement with their firm, as suggested by Berrone et al. (2012). These dimensions are "family control and influence", "family identity", "sense of dynasty", "emotional attachment", and "social ties". Although this study has examined family owners' incentives to enhance or preserve their SEW through analysing the impact of family firm reputation, nevertheless, this is only one aspect of SEW, and cannot capture all of SEW's various degrees. Second, this study focused on family firms' observable structural features. This approach could have underestimated the effects of family owners' unobservable attitudes towards the family business and corporate decisions. Finally, our understanding of how family owners' non-economic objectives shape family firms' financial reporting decisions could be further advanced by comparing firms in different organisational and institutional situations, such as firms in different stages of the corporate lifecycle.

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Table 1 Distribution of firm-year observations across the sample periods and industries

Panel A: Number of sample companies cross the sample period		
Year	Frequency	%
1996	251	4.435%
1997	239	4.224%
1998	225	3.987%
1999	240	4.251%
2000	251	4.446%
2001	252	4.458%
2002	256	4.529%
2003	269	4.766%
2004	281	4.968%
2005	304	5.387%
2006	305	5.388%
2007	307	5.427%
2008	274	4.842%
2009	276	4.883%
2010	295	5.218%
2011	312	5.528%
2012	321	5.683%
2013	328	5.800%
2014	331	5.865%
2015	334	5.915%
Total	5,651	100 %

Panel B: Number of sample companies across industries			
Code	Industry	Frequency	%
11	Cement	56	0.994%
12	Foods	244	4.323%
13	Plastics	214	3.789%
14	Textiles	387	6.857%
15	Electric machinery	277	4.907%
16	Electric & cable	88	1.565%
17	Chemical, biotechnology & medical	408	7.217%
18	Glass, ceramics	54	0.957%
19	Paper, pulp	60	1.056%
20	Iron & steel	213	3.776%
21	Rubber	180	3.193%
22	Automobile	54	0.957%
23	Electron	2,304	40.770%
25	Building materials & construction	313	5.540%
26	Shipping & transportation	198	3.503%
27	Tourism	119	2.099%
29	Trading & consumer goods	147	2.596%
99	Others	333	5.901%
	Total	5,651	100%

This table reports the time and industry distribution of the sample firms. The sample period spans the years 1996–2015. The industry distribution is reported based on the two-digit Taiwan Stock Exchange industrial classification.

Table 2 Descriptive statistics

Variables	Mean	Median	Std. Dev	Min	Max
1.NON_ACC	0.039	0.032	0.108	-0.017	0.082
2.C_SCORE_KW	0.093	0.081	0.113	0.030	0.129
3.C_SCORE_PZ	0.101	0.090	0.107	0.035	0.144
4.AGGREGATE	9.707	8.696	0.931	6.270	12.067
5.F_OWN	0.342	0.316	0.192	0.137	0.546
6.F_DIV	0.264	0.208	0.095	0.000	0.360
7.FF_DUM	0.301	0.000	0.093	0.000	1.000
8.FD_DUM	0.257	0.000	0.079	0.000	1.000
9.SIZE	13.599	13.027	1.296	11.726	15.327
10.MB	1.172	0.953	1.227	0.112	2.267
11.LEVERAGE	0.067	0.051	0.085	0.012	0.120
12.OCF	0.057	0.050	0.118	0.013	0.105
13.LOSS	0.304	0.000	0.444	0.000	1.000
14.LITIGATION	0.214	0.000	0.457	0.000	1.000
15.HERFINDAHL	0.598	0.443	0.470	0.230	0.915
16. OUTSIDE	0.124	0.104	0.122	0.000	0.247
17.INST_OWN	0.229	0.197	0.149	0.115	0.523
18.AUDITOR	0.788	1.000	0.264	0.000	1.000
19.BOASIZE	2.235	2.302	0.199	1.679	3.194
20.CEO_DUALITY	0.314	0.000	0.363	0.000	1.000
21.CEO_TENURE	7.321	4.770	2.174	0.000	13.756
22.CEO_OWN	0.050	0.044	0.085	0.018	0.071
23.FF_DIRECTOR	0.633	1.000	0.205	0.000	1.000
24.FIRM_RISK	0.117	0.098	1.746	-0.174	0.390
25.FIRST_SON	0.545	1.000	0.240	0.000	1.000

This table displays the summary statistics for the variables used in this study. All variables are defined in Appendix 1.

Table 3 Results for the regression of conservatism on family ownership

Variables	Expected Sign	Dependent variable			
		NON_ACC Model 1	C_SCORE_KW Model 2	C_SCORE_PZ Model 3	AGGREGATE Model 4
Constant		0.005** (2.234)	0.013** (2.249)	0.030** (2.285)	0.978*** (3.905)
F_OWN	+	0.172** (2.389)	0.034** (2.485)	0.070*** (3.576)	0.461*** (3.934)
F_DIV	-	-0.089** (-2.103)	-0.127** (-2.269)	-0.083*** (-3.806)	-0.307*** (-3.078)
SIZE	+	0.136*** (2.682)	0.319 (1.228)	0.598*** (2.909)	0.478** (2.369)
MB	+	0.119*** (2.792)	0.202*** (2.789)	0.385** (2.131)	0.422 (1.440)
LEVERAGE	+	0.114** (2.396)	0.042** (2.113)	0.025 (1.571)	0.288** (2.266)
OCF	+	0.124* (1.841)	0.034 (1.573)	0.030** (2.146)	0.469*** (2.689)
LOSS	+	0.080** (2.557)	0.149** (2.039)	0.265 (1.349)	0.199*** (2.802)
LITIGATION	+	0.038*** (3.131)	0.095** (2.354)	0.227*** (2.830)	0.302** (1.990)
HERFINDAHL	+/-	-0.308** (-1.991)	-0.102** (-2.240)	-0.038*** (-2.920)	-0.421** (-2.442)
OUTSIDE	+	0.190** (2.470)	0.048*** (3.563)	0.082*** (2.592)	0.347*** (2.694)
INST_OWN	+	0.053 (1.443)	0.058*** (3.625)	0.120*** (2.704)	0.271*** (2.791)
AUDITOR	+	0.014 (1.574)	0.013** (2.570)	0.061* (1.901)	0.174 (1.635)
BOASIZE	+/-	2.893*** (4.097)	1.753 (1.578)	1.765 (1.555)	3.096*** (4.771)
CEO_DUALITY	-	-0.518*** (-4.091)	-0.632* (-1.834)	-0.811** (-2.533)	-0.724*** (-4.499)
CEO_TENURE	-	-0.101*** (-2.975)	-0.142** (-2.420)	-0.314** (-2.579)	-0.205*** (-2.806)
CEO_OWN	-	-0.438 (-1.643)	-0.202*** (-3.123)	-0.278*** (-3.930)	-0.480 (-1.606)
FF_DIRECTOR	+	0.285*** (2.764)	0.156** (2.549)	0.174** (2.356)	0.389** (2.411)
Firm fixed effect		Included	Included	Included	Included
Year fixed effect		Included	Included	Included	Included
F-statistic		5.448***	5.434***	5.463***	5.665***
Adjusted R^2		0.537	0.541	0.530	0.554
No. of Observations		5,651	5,651	5,651	5,651

Variables are defined in Appendix 1. The t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4 Results for the regression of conservatism on family identity of CEO

Variables	Expected Sign	Dependent variable			
		NON_ACC	C_SCORE_KW	C_SCORE_PZ	AGGREGATE
		Model 1	Model 2	Model 3	Model 4
Constant		0.005**	0.014**	0.029**	0.935***
		(2.323)	(2.455)	(2.217)	(3.821)
FF_DUM	+	0.289**	0.462***	0.527**	0.485***
		(2.528)	(3.484)	(2.176)	(3.944)
FD_DUM	+	0.195	0.351	0.471	0.327
		(1.198)	(1.101)	(1.253)	(1.194)
SIZE	+	0.141***	0.349	0.580***	0.467**
		(2.788)	(1.433)	(2.821)	(2.318)
MB	+	0.123***	0.220***	0.374**	0.413
		(2.903)	(3.055)	(2.068)	(1.387)
LEVERAGE	+	0.119**	0.046**	0.024	0.282**
		(2.491)	(2.307)	(1.524)	(2.217)
OCF	+	0.128*	0.037	0.029**	0.459***
		(1.737)	(1.626)	(2.082)	(2.631)
LOSS	+	0.084***	0.162**	0.257	0.195***
		(2.658)	(2.226)	(1.600)	(2.742)
LITIGATION	+	0.040***	0.104**	0.220***	0.296*
		(3.215)	(2.571)	(2.745)	(1.947)
HERFINDAHL	+/-	-0.321**	-0.111**	-0.037***	-0.412**
		(-2.069)	(-2.446)	(-2.833)	(-2.389)
OUTSIDE	+	0.197**	0.052***	0.079**	0.339***
		(2.567)	(2.799)	(2.515)	(2.636)
INST_OWN	+	0.055	0.063***	0.116***	0.265***
		(1.616)	(3.958)	(2.623)	(2.731)
AUDITOR	+	0.015	0.014**	0.059*	0.168
		(1.544)	(2.406)	(1.953)	(1.598)
BOASIZE	+/-	3.007***	1.914	1.713	3.029***
		(4.259)	(1.332)	(1.509)	(4.669)
CEO_DUALITY	-	-0.539***	-0.782*	-0.757**	-0.708***
		(-4.252)	(-1.802)	(-2.458)	(-4.402)
CEO_TENURE	-	-0.105***	-0.155***	-0.305**	-0.201***
		(-3.092)	(-3.178)	(-2.407)	(-2.745)
CEO_OWN	-	-0.455	-0.220***	-0.270***	-0.470
		(-1.616)	(-3.502)	(-3.813)	(-1.470)
FF_DIRECTOR	+	0.289***	0.170**	0.169**	0.407**
		(2.873)	(2.391)	(2.500)	(2.359)
Firm fixed effect		Included	Included	Included	Included
Year fixed effect		Included	Included	Included	Included
F-statistic		5.613***	5.598***	5.628***	5.836***
Adjusted R^2		0.554	0.557	0.546	0.571
No. of Observations		5,651	5,651	5,651	5,651

Variables are defined in Appendix 1. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5 Results for the regression of conservatism on family reputation

Variables	Expected Sign	Dependent variable			
		NON_ACC	C_SCORE_KW	C_SCORE_PZ	AGGREGATE
		Model 1	Model 2	Model 3	Model 4
Constant		0.010**	0.022**	0.040**	1.139***
		(2.369)	(2.216)	(2.531)	(2.679)
REPUTATION_PAST	+	0.071**	0.202***	0.290***	0.525***
		(2.500)	(3.206)	(3.386)	(3.570)
Control Variables		Included	Included	Included	Included
Firm fixed effect		Included	Included	Included	Included
Year fixed effect		Included	Included	Included	Included
F-statistic		5.549***	5.636***	5.710***	5.696***
Adjusted R^2		0.540	0.545	0.544	0.561
No. of Observations		5,651	5,651	5,651	5,651

Variables are defined in Appendix 1. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6 Results for the regression of family reputation on conservatism

Variables	Expected Sign	Dependent variable REPUTATION_FORWARD			
		Model 1	Model 2	Model 3	Model 4
Constant		0.951** (2.318)	0.965** (2.195)	0.962** (2.092)	0.970** (2.272)
NON_ACC	+	0.162*** (2.933)			
C_SCORE_KW	+		0.337** (2.166)		
C_SCORE_PZ	+			0.291** (2.474)	
AGGREGATE	+				0.438*** (3.656)
ROA	+	0.416** (2.026)	0.422** (2.196)	0.391** (2.346)	0.354** (2.269)
SIZE	+	1.183*** (3.296)	1.164*** (3.447)	1.288*** (3.152)	1.263*** (3.303)
AGE	+	1.555** (2.516)	1.624** (2.474)	1.584** (2.257)	1.551** (2.414)
GOVERN_DUM	+	0.317* (1.667)	0.306* (1.741)	0.309* (1.801)	0.315* (1.762)
Firm fixed effect		Included	Included	Included	Included
Year fixed effect		Included	Included	Included	Included
Wald Chi-square		131.948***	131.847***	131.922***	132.112***
Pseudo R^2		0.218	0.216	0.222	0.223
No. of Observations		5,651	5,651	5,651	5,651

Variables are defined in Appendix 1. The z-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix 1 Variable Definitions

Variables	Definition
NON_ACC	An accounting conservatism measure based on cumulative negative non-operating accruals.
C_SCORE_KW	An accounting conservatism measure which utilizes Basu's (1997) measure of asymmetric timeliness to estimate a firm-year measure of conservatism, as modified in Khan and Watts (2009).
C_SCORE_PZ	An accounting conservatism measure which is calculated based on sum of inventory, research and development (R&D) and advertising reserves scaled by net operating assets, as developed in Penman and Zhang (2002).
AGGREGATE	A composite accounting conservatism measure based on the firm's rank for each of the former three individual measures, NON_ACC, C_SCORE_KW, and C_SCORE_PZ.
F_OWN	The proportion of ownership held by family owners.
F_DIV	A ratio of 1 minus family owners' cash flow rights divided by their voting rights.
FF_DUM	A dummy variable that takes the value of 1 if the position of CEO is held by a family founder and 0 otherwise.
FD_DUM	A dummy variable that takes the value of 1 if the position of CEO is held by a family descendant and 0 otherwise.
SIZE	The natural log of market value of equity.
MB	The ratio of market to book value of equity at the end of the year.
LEVERAGE	The ratio of long-term debt to total assets.
OCF	Cash flow from operations scaled by average total assets.
LOSS	A dummy variable that takes a value of 1 if the firm reports a net loss for the fiscal year and 0 otherwise.
LITIGATION	A dummy variable that takes a value of 1 if the company operates in biotechnology, computer, electronics and retailing industries and 0 otherwise.
HERFINDAHL	The Herfindahl-Hirschman index value of the industry in which the firm operates, deflated by 1,000.
OUTSIDE	The ratio of the number of outside directors on board to board size.
INST_OWN	The proportion of shareholdings held by institutional shareholders.
AUDITOR	A dummy variable that takes a value of 1 if the company is audited by the Big 4/or 5 audit firms and 0 otherwise.
BOASIZE	The natural log of the number of directors on board.
CEO_DUALITY	A dummy variable that takes a value of 1 if both the CEO and chairperson positions are held by one person and 0 otherwise.
CEO_TENURE	The number of years that the CEO has held his or her position.
CEO_OWN	The proportion of shareholdings held by CEO.
FF_DIRECTOR	A dummy variable that takes a value of 1 if family founder serves as a director on board and 0 otherwise.
REPUTATION_PAST	A dummy variable that takes a value of 1 if a firm obtained the Most Admired Company Award in the previous two years and 0 otherwise.
REPUTATION_FORWARD	A dummy variable that takes a value of 1 if a firm obtained the Most Admired Company Award subsequently in two years and 0 otherwise.
ROA	A ratio of earnings before interest and tax to total assets.
AGE	The number of years since the company's first day of incorporation.
GOVERN_DUM	A dummy variable that takes a value of 1 if the level of government ownership is equal to or more than 10%, and zero otherwise.
PF_OWN	The predicted value of family ownership (F_OWN).
PF_DIV	The predicted value of the divergence between family owners' cash flow and voting rights (F_DIV).
FIRM_RISK	The standard deviation of earnings before interest and taxes divided by total assets.
FIRST_SON	A dummy variable that takes a value of 1 if the first child of the controlling family owners is male and 0 if female.
HL_FOWN_DUM	A dummy variable that takes a value of 1 if a firm has family ownership equal to or above the median value of the sample and 0 otherwise.

Supplementary material for:

Family ownership, family identity of CEO, and accounting conservatism: Evidence from Taiwan

This supplementary material provides the following analyses and empirical results:

- **Error! Reference source not found.** provides the Pearson correlation matrix of the variables used in our main analyses.

- Table A2 presents the results controlling for endogeneity based on the two-stage least squares analysis.

We follow Demsetz and Villalonga (2001) and employ a two-stage least squares model (2SLS) to address this potential bias. Instrument variables in the first stage of 2SLS are firm risk (*FIRM_RISK*) and the family successor's gender (*FIRST_SON*). *FIRM_RISK* is measured as the standard deviation of earnings before interest and taxes divided by total assets. Prior literature argues that family owners in family firms with greater firm risk have lower incentive to hold concentrated direct firm ownership to diversify the potential risk to their personal wealth. However, the owners are likely to use great excessive voting rights over cash flow rights to maintain their benefits from firm control (Chin et al., 2009). *FIRST_SON* is measured by a dummy variable that is 1 if the first child of the controlling family owners is male and 0 otherwise. Prior studies have argued that if the gender of the controlling family owners' firstborn child is male, then the owners have great incentive to maintain high ownership and control level (Bennedsen et al., 2007).

In addition to the main results based on the two-stage least squares analysis that were discussed in the main text, Table A2 also reports the tests of the C-statistic, Hausman statistic, Hansen's J-statistic, and Anderson–Rubin F-statistic. The C-statistic is used to test the null hypothesis that the specified endogenous variables can be treated

as exogenous. The C-statistic results reject the null hypothesis that F_OWN and F_DIV may be treated as exogenous at the 1% significance level. Similarly, the Hausman statistic also rejects the exogeneity of F_OWN and F_DIV at the 1% significance level. These results suggest that using 2SLS would be more appropriate in the presence of such endogeneity issue. The Hansen's J-statistic is adopted to test the over-identifying restrictions. The results cannot reject the null hypothesis that the instruments are not correlated with the structural error terms in the second-stage regressions. Moreover, the Anderson–Rubin F-statistic is employed to test the weak-instrument robust inference. The results reject the null hypothesis that the endogenous repressors are irrelevant at the 1% significance level, suggesting that the adopted instruments are not weak. Overall, the results of these four tests support the validity and relevance of the adopted instrumental variables and key findings.

- Table A3 presents the results controlling for endogeneity based on the propensity scores matching.

References

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Bennedsen, M., K. Nielsen, F. Perez-Gonzalez & D. Wolfenzon. (2007). Inside the family firm: The role of families in succession decisions and performance. *Quarterly Journal of Economics, 122*, 647-691.

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Table A1 Correlation matrix

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
1.NON_ACC	1																								
2.C_SCORE_KW	0.080	1																							
3.C_SCORE_PZ	0.041	0.093	1																						
4.AGGREGATE	0.046	0.066	0.054	1																					
5.F_OWN	0.051	0.072	0.019	0.034	1																				
6.F_DIV	-0.025	-0.054	-0.071	-0.015	0.006	1																			
7.FF_DUM	0.039	0.041	0.024	0.046	0.017	-0.024	1																		
8.FD_DUM	0.043	0.076	0.089	0.029	0.020	0.026	0.039	1																	
9.SIZE	0.058	0.082	0.061	0.086	0.057	0.031	0.078	0.046	1																
10.MB	0.034	0.032	0.012	0.067	0.086	-0.027	0.054	-0.037	-0.069	1															
11.LEVERAGE	0.011	0.027	0.058	0.049	-0.018	0.010	-0.031	0.029	-0.023	0.077	1														
12.OCF	0.021	0.042	0.096	0.011	0.010	-0.039	0.022	-0.035	0.057	0.062	0.085	1													
13.LOSS	0.017	0.047	0.064	0.013	-0.015	0.071	-0.087	0.076	-0.074	0.096	0.109	0.010	1												
14.LITIGATION	0.054	0.023	0.093	0.038	-0.044	0.026	-0.033	0.027	0.023	-0.038	-0.042	0.001	0.017	1											
15.HERFINDAHL	-0.034	-0.052	-0.036	-0.082	-0.026	-0.020	-0.029	-0.035	-0.027	-0.039	-0.035	0.018	0.001	0.010	1										
16.OUTSIDE	0.035	0.032	0.007	0.096	0.078	-0.105	0.117	-0.100	-0.118	0.109	0.121	-0.006	0.031	0.038	0.006	1									
17.INST_OWN	0.027	0.028	0.009	0.078	0.045	-0.014	0.022	-0.019	0.022	0.030	0.028	-0.007	-0.011	0.037	0.024	0.032	1								
18.AUDITOR	0.053	0.078	0.033	0.048	-0.039	0.021	-0.030	0.034	-0.024	0.023	0.021	0.018	-0.012	-0.045	0.023	-0.038	-0.006	1							
19.BOASIZE	0.083	0.069	0.012	0.022	0.064	0.026	0.019	0.021	-0.025	-0.034	-0.042	0.041	0.032	0.075	-0.028	-0.030	0.043	-0.005	1						
20.CEO_DUALITY	-0.070	-0.086	-0.046	-0.028	0.036	0.031	0.039	0.042	-0.034	0.052	0.068	-0.006	0.075	0.096	0.047	0.113	0.134	0.035	-0.002	1					
21.CEO_TENURE	-0.018	-0.070	-0.061	-0.046	0.028	0.029	0.034	0.023	-0.032	0.065	0.077	-0.003	-0.011	-0.037	0.091	0.019	0.031	0.109	-0.082	-0.003	1				
22.CEO_OWN	-0.009	-0.032	-0.053	-0.048	-0.098	0.022	-0.020	0.027	-0.041	0.057	0.061	-0.018	-0.005	-0.022	-0.023	-0.002	-0.011	0.025	0.028	-0.131	0.029	1			
23.FF_DIRECTOR	0.143	0.130	0.086	0.117	0.058	-0.120	0.119	-0.043	0.065	0.074	0.088	0.079	0.041	0.096	0.133	0.050	0.115	0.109	0.071	0.082	0.086	0.109	1		
24.FIRM_RISK	-0.064	-0.070	-0.016	-0.034	-0.019	0.025	-0.024	0.035	0.030	0.046	0.076	0.095	-0.121	-0.104	-0.098	0.144	0.184	-0.125	0.090	-0.049	-0.054	0.122	0.134	1	
25.FIRST_SON	0.036	0.044	0.041	0.089	0.046	0.039	0.058	0.062	-0.059	-0.065	0.033	0.079	-0.019	-0.082	-0.107	-0.126	0.029	-0.117	0.077	0.106	-0.033	-0.018	0.087	0.089	1

This table reports the pairwise Pearson correlation coefficients for the variables used in the study. All variables are defined in the Appendix 1. All correlation values in bold are significant at the 10% level or better.

Table A2 Results controlling for endogeneity based on the two-stage least squares analysis

Variables	Expected Sign	2nd Stage Regression				1nd Stage Regression	
		Dependent variable					
		NON_ACC	C_SCORE_KW	C_SCORE_PZ	AGGREGATE	F_OWN	F_DIV
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant		0.005** (2.212)	0.014** (2.316)	0.029** (2.239)	1.037*** (3.022)	-0.801** (-2.454)	-0.631** (-2.513)
PF_OWN	+	0.170** (2.270)	0.035*** (2.971)	0.068*** (3.484)	0.475*** (3.182)		
PF_DIV	-	-0.088** (-2.374)	-0.131** (-2.055)	-0.081*** (-3.710)	-0.316*** (-5.231)		
SIZE	+	0.134*** (2.655)	0.329 (1.295)	0.586*** (2.851)	0.492** (2.440)	2.060 (1.531)	1.082 (1.443)
MB	+	0.118*** (2.764)	0.208*** (2.882)	0.377** (2.089)	0.435 (1.513)	1.090** (2.484)	-1.253** (-2.332)
LEVERAGE	+	0.113** (2.372)	0.043** (2.177)	0.025 (1.539)	0.297** (2.334)	-0.475*** (-2.597)	0.697** (2.395)
OCF	+	0.122 (1.416)	0.035 (1.623)	0.029** (2.103)	0.483*** (2.770)	1.596** (2.456)	-1.484** (-2.274)
LOSS	+	0.080** (2.532)	0.153** (2.100)	0.260 (1.616)	0.205*** (2.886)	-2.568 (-1.032)	1.879 (1.508)
LITIGATION	+	0.040*** (3.110)	0.098** (2.425)	0.222*** (2.773)	0.311* (1.749)	-0.101*** (-3.771)	0.070*** (4.125)
HERFINDAHL	+/-	-0.305** (-1.971)	-0.105* (-1.808)	-0.045*** (-2.861)	-0.434** (-2.515)	-0.841 (-1.417)	-1.279 (-1.306)
OUTSIDE	+	0.188** (2.445)	0.049*** (2.640)	0.080** (2.540)	0.357*** (2.775)	0.346** (2.208)	-0.181*** (-2.976)
INST_OWN	+	0.052 (1.325)	0.059*** (3.734)	0.118*** (2.650)	0.279*** (2.875)	1.136** (2.552)	-0.534** (-2.481)
AUDITOR	+	0.014 (1.546)	0.026* (1.648)	0.060 (1.569)	0.182 (1.587)	-2.221** (-1.973)	1.784** (2.257)
BOASIZE	+/-	2.864*** (3.056)	1.806 (1.628)	1.730 (1.524)	3.189*** (3.914)	0.871*** (2.591)	0.758** (2.488)
CEO_DUALITY	-	-0.513*** (-3.050)	-0.681 (-1.489)	-0.775** (-2.483)	-0.745*** (-3.634)	0.131* (1.762)	0.129* (1.756)
CEO_TENURE	-	-0.100*** (-2.945)	-0.146*** (-3.583)	-0.308*** (-2.461)	-0.211*** (-2.890)	0.265* (1.956)	0.257** (2.196)
CEO_OWN	-	-0.434 (-1.516)	-0.208** (-2.247)	-0.273*** (-3.851)	-0.494 (-1.558)	0.145** (2.551)	0.202 (1.432)
FF_DIRECTOR	+	0.280*** (2.736)	0.161** (2.196)	0.171** (2.415)	0.400** (2.483)	0.118** (2.469)	-0.127*** (-3.020)
Instrument Variables							
FIRM_RISK						-1.206*** (-3.255)	1.421*** (3.233)
FIRST_SON						1.309*** (3.663)	1.378*** (3.619)
Firm fixed effect		Included	Included	Included	Included	Included	Included
Year fixed effect		Included	Included	Included	Included	Included	Included
C-statistic		7.234***	7.016***	7.350***	7.778***		
Hausman statistic		11.894***	11.347***	11.514***	12.156***		
Hansen J-statistic		4.682	4.778	4.426	4.596		
Anderson-Rubin F test		18.032***	19.444***	19.156***	20.089***		
F-statistic		5.343***	5.481***	5.554***	5.693***	5.836***	5.999***
Adjusted R^2		0.523	0.534	0.525	0.546	0.580	0.594
No. of Observations		5,651	5,651	5,651	5,651	5,651	5,651

Variables are defined in Appendix 1. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A3 Results controlling for endogeneity based on the propensity scores matching analysis

Panel A: Results based on the stratified matching

Variables	Expected Sign	Dependent variable			
		NON_ACC	*C_SCORE_KW*	*C_SCORE_PZ*	*AGGREGATE*
		Model 1	*Model 2*	*Model 3*	*Model 4*
Constant		0.010**	0.021**	0.035**	0.576***
		(2.384)	(2.337)	(2.414)	(2.975)
HL_FOWN_DUM	+	0.228**	0.050***	0.066*	0.460***
		(2.108)	(3.301)	(1.933)	(3.045)
Control Variables		Included	Included	Included	Included
Firm fixed effect		Included	Included	Included	Included
Year fixed effect		Included	Included	Included	Included
F-statistic		5.448***	5.588***	5.606***	5.691***
Adjusted R²		0.532	0.539	0.530	0.542
No. of Observations		5,426	5,426	5,426	5,426

Panel B: Results based on the nearest neighbor matching

Variables	Expected Sign	Dependent variable			
		NON_ACC	*C_SCORE_KW*	*C_SCORE_PZ*	*AGGREGATE*
		Model 1	*Model 2*	*Model 3*	*Model 4*
Constant		0.013**	0.026**	0.040**	0.614***
		(2.482)	(2.157)	(2.539)	(3.013)
HL_FOWN_DUM	+	0.191***	0.041*	0.075**	0.475**
		(3.007)	(1.828)	(2.356)	(2.202)
Control Variables		Included	Included	Included	Included
Firm fixed effect		Included	Included	Included	Included
Year fixed effect		Included	Included	Included	Included
F-statistic		5.492***	5.632***	5.717***	5.787***
Adjusted R²		0.548	0.545	0.542	0.550
No. of Observations		5,310	5,310	5,310	5,310

Variables are defined in Appendix 1. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.