

How do Non-Family CEOs Adapt to the Risk Preferences of Family Business Owners?

Investigating the Role of Vesting Grants

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Abstract

This study clarifies how family firms use the vesting provision of incentive grants and calibrate the interests of non-family executives so that they merge better with the firms' interests. Given the risks that family firms confront when they are considering strategic decisions, this study finds that family-owned firms provide more risk-based incentives to their non-family executives, primarily when the firms are performing below their aspirational level. Moreover, these firms rely more often on relative performance measures to assess the efficacy of their non-family executives as their performance deteriorates. These findings stand in stark contrast with the literature on this topic, which suggests that firms always use risk-based incentives and absolute performance measures to reward their executives regardless of the firms' performance.

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Chapter 1 Introduction

Over the past two decades, executive compensation in family firms has received an extensive amount of attention from researchers. This is not unexpected since family firms continue to dominate other firms in their numbers and influence across the globe (Claessens, Djankov, Fan, & Lang, 2002; Claessens, Djankov, & Lang, 2000; La Porta, Lopez-de-Silanes, & Shleifer, 1999; Schulze & Gedajlovic, 2010) and in the U.S. (Anderson & Reeb, 2003a; Combs, Penney, Crook, & Short, 2010). In fact, in the U.S. alone, family firms account for one-third of the Fortune 500 companies, and the control of these family firms lies wholly or partially within a single family (Anderson & Reeb, 2003a).

Besides their ubiquity in the world economy, family firms are inherently different from non-family firms. Researchers have pointed out that family firms, unlike their non-family counterparts, have a strong inclination to preserve their socioemotional wealth (SEW) and their financial wealth (Gomez-Mejia, Cruz, Berrone, & De Castro, 2011). Family business scholars refer to such wealth as the family's stock of social, emotional, and affective endowments vested in the firm (Gomez-Mejia, Patel, & Zellweger, 2018). These include the opportunity to pass the firm onto future family generations (Zellweger, Kellermanns, Chrisman, & Chua, 2012), the reputational advantages from being associated with the firm (Deephouse & Jaskiewicz, 2013), and the preservation of benevolent ties between family members and other stakeholders (Cruz, Gómez-Mejia, & Becerra, 2010). The distinctive attribute of SEW preservation leads family firms very often to make strategic and managerial decisions that do not strictly adhere to the objectives of profit maximization (Gomez-Mejia et al., 2011).

In particular, SEW research has shown that family firms are loss-averse regarding their SEW and hence want to minimize any unnecessary risk to it unless the firms encounter an existential threat. Studies have shown that family-owned firms undertake R&D investments (Chrisman & Patel, 2012; Muñoz-Bullón & Sanchez-Bueno, 2011), risk assessments (Patel & Chrisman, 2014), entrepreneurial ventures (Schepers, Voordeckers, Steijvers, & Laveren, 2014), and diversification strategies (Gomez-Mejia, Makri, & Kintana, 2010) based in large part on SEW considerations.

Perhaps the most essential dimension of SEW is a family's desire to maintain organizational control. Numerous studies (Anderson & Reeb, 2003a; Gomez-Mejia, Larrazakintana, & Makri, 2003; McConaughy, 2000; Villalonga & Amit, 2006) have shown that family firms place a heightened emphasis on protecting their involvement in ownership, on the top management team, and as part of the board of directors. Moreover, even if a family member does not head the firm, the controlling family can still shape executive compensation packages to influence the decision-making and risk-taking behavior of non-family executives.

Echoing this standard view, family business scholars have shown that ownership of family firms (Combs et al., 2010; Mazur & Wu, 2016) and family involvement on boards of directors greatly moderate the effect of equity compensation of family and non-family CEOs on firm performance (Sapp, 2008). Similar findings have been demonstrated in the corporate finance and accounting literature, which theorizes that CEO remuneration levels are sensitive to firm performance (Coles, Daniel, & Naveen, 2006; Core & Guay, 1999; Core, Guay, & Larcker, 2003a). Several authors have pointed out that this pay-for-performance form of remuneration is best seen in CEOs' variable equity compensation, which often includes the vesting of equity grants and is put in place as performance incentives for executives (Aboody & Kasznik, 2000;

Bettis, Bizjak, Coles, & Kalpathy, 2010; Cadman, Rusticus, & Sunder, 2013; Core, Holthausen, & Larcker, 1999; David, Kochhar, & Levitas, 1998; Hall & Liebman, 1998).

The vesting of equity grants presents complex corporate issues. However, the vesting mechanism itself is relatively simple. The vesting of grants occurs either over a specified period or after the attainment of specified performance goals. Otherwise put, CEO equity grants can vest over time without having any associated conditions (i.e., the time-based vesting of grants) or can vest when the CEO achieves a preset performance target (i.e., the performance-based vesting of grants) (Bettis, Bizjak, Coles, & Kalpathy, 2018; Brisley, 2006). In either case, the CEO receives a vast amount of variable equity compensation as an incentive. This form of compensation is most often higher than his or her annual pay. While highlighting the importance of incentive-based equity grants, Bettis et al. (2018) have shown that U.S. firms use more performance-based vesting grants as incentives for their top executives than the time-based variety. They further found that the amount of performance-based vesting (p-v) equity awards made to top executives in large U.S. companies increased from 20 to 70% between 1998 and 2012.

Moreover, CEO compensation studies have shown that vesting remains a critical issue for firms given how it influences financial reporting (Core & Packard, 2017; Murphy, 1999), earnings management (Bettis et al., 2010), can help to minimize agency conflicts (Bolton, Scheinkman, & Xiong, 2006), provides CEO retention incentives (Balsam & Miharjo, 2007), and restricts the bargaining power and opportunistic behavior of CEOs (Cadman et al., 2013). Additionally, some studies have suggested that the time-based vesting of grants is more beneficial for firms (Bebchuk & Fried, 2010; Cadman & Sunder, 2014; Cadman et al., 2013; Walker, 2010), while others have argued in favor of the performance-based vesting of grants

(Bettis et al., 2010; Brisley, 2006; Gerakos, Ittner, & Larcker, 2007; Johnson & Tian, 2000). A vast number of research studies (Bettis et al., 2010; Cadman et al., 2013; Carter, Ittner, & Zechman, 2009; John Harry, Gao, Hwang, & Wu, 2017; Kuang, 2008; Kuang & Qin, 2009; Laux, 2012) have thus examined the prevalence and impact of vesting provisions on executive compensation and firm performance. However, unfortunately, these studies have failed to distinguish between family and non-family firms.

Regarding family firms, previous research has documented that family-owned firms assess their risk, growth opportunities, investment prospects, CEO appointments, and organizational and management strategies based on a variety of financial and SEW goals (Gomez-Mejia et al., 2011). Consequently, these factors play a critical role in moderating the relationship between executive compensation levels and firm performance (Combs et al., 2010). Critics have pointed out that firm performance often depends on executive decision-making. These decisions depend on the incentive-based compensation structure that the firm offers as a part of its compensation contract (Gopalan, Milbourn, Song, & Thakor, 2014; Mehran, 1995). In other words, critics have argued that the vesting of grants generates variable equity compensation for CEOs, which should have the effect of motivating them to efficiently align their interests with the firm (Kuang & Qin, 2009). As a result, CEOs should make better decisions to achieve superior financial performance (Brisley, 2006). However, how these incentive contracts have evolved in the context of family firms, which are known to protect their SEW, remains unknown.

I thus posit that the vesting of grants is vital to family firms, given that previous empirical evidence has demonstrated that executive compensation in family-owned firms is sensitive to firm performance (Combs et al., 2010; Jaskiewicz, Block, Combs, & Miller, 2017). However, whether family firms incorporate performance-based or time-based vesting conditions when they

design their executive compensation is still unknown. Moreover, whether such vesting provisions use absolute or relative performance measures to assess the efficacy of their executives remains unanswered as well. Drawing on insights derived from family business strategy research, I argue that the owners of family firms use vesting provisions (time vs. performance) and performance measures (absolute vs. relative) to ensure that non-family managers adapt to their risk preferences in their decision-making processes.

Given the absence of academic research on the vesting provisions of family firms, my study focuses on how family firm owners reward incentive grants to their hired non-family CEOs such that they adapt to the family firm owners' risk preferences while making strategic decisions. Additionally, I investigate the type of performance measures family firms typically put in place to evaluate their hired non-family executives. I also look into why these firms prefer such measures. This line of investigation is necessary because the vesting of grants requires the performance evaluations of executives to be done in relative or absolute terms.

To answer my proposed research questions, I analyzed CEO compensation data for 582 firms listed in the S&P 1500 index in 2014. My analysis finds that family firm owners award more performance-based incentive (p-v) grants to their hired non-family executives when organizational performance dips below the industry standard. This implies that when there are lower performance conditions, family firm owners allocate more p-v grants to executives so that they will take more risks and, hopefully, earn higher returns. Because underperforming firms face the looming threat of closure, family firm owners do not hesitate to incur more risk for the sake of earning more of a return since this is imperative for the short- and long-term viability of the family firm. This kind of strategic behavior provides new insight into the allocation of grants in family businesses, while it also extends the previous research by showing that family firm

owners can use vesting to ensure that their hired non-family executives adapt to their risk preferences.

My research illustrates that family firm owners typically use relative performance measures to evaluate the efficacy of their hired non-family executives. My study also finds that when family firms are underperforming when compared to their industry peers, firm owners are more likely to use relative performance measures to evaluate the efforts of their hired non-family executives. Because relative performance measures are riskier (Wruck & Wu, 2017), family firm owners tend to use them aggressively to ensure that hired non-family executives adapt to their preferences for taking on higher levels of risk. By contrast, when family firms outperform their peers, firm owners tend to use fewer relative performance measures when assessing the efficacy of their hired non-family executives. This is not unexpected since family firm owners often avoid taking unnecessary risks that may jeopardize their stock of SEW when their firms are outperforming their industry peers.

These results demonstrate how family firm owners perceive risk about their SEW and financial wealth. They also show how they try to choose the most appropriate vesting provisions and performance measures so that their hired non-family executives adapt to their risk preferences, which varies according to the firms' performance relative to the industry. Therefore, this study adds to the family business literature that has focused on the strategic actions of family firms by demonstrating that the strategic choice of vesting provisions and performance measures provides a means for family firm owners to effectively align the risk preferences of their non-family executives with those of the firm.

In the following chapters, I first review the literature on strategic decision-making by family firms. Then, I develop hypotheses based on the relevant literature. Next, I describe the

sample and the variables employed in my empirical model. Afterward, I summarize the data and discuss my empirical findings. A detailed discussion follows that clarifies and examines the implications of these results. Finally, the last chapters focus on the limitations of my research and are followed by my conclusion.

Chapter 2 Literature Review

Family Firms and SEW

During the past three decades, research on family-owned and managed firms has become ubiquitous within management research. Scholars across many disciplines have unequivocally acknowledged that family firms represent the dominant ownership structure across the globe. This type of firm accounts for a substantial proportion of all publicly traded international firms (Combs et al., 2010). In the United States, family firms account for one-third of all Fortune 500 companies. The ownership of these companies lies at least partially or entirely within a single family, or by a single person, or by a family trust that maintains substantial ownership over the company.

The ownership of family firms is complicated, and it becomes even more complex when the firm's founder is involved. To this end, Villalonga and Amit (2006) have identified several concerns related to the ambiguity of the status of the founder in family firms. For instance, they point out that founder-run firms like Microsoft are not family firms in any meaningful sense because the founder has cashed out and has not passed control of the firm to his or her heirs. However, in these cases, the founder still owns a substantial ownership stake in the firm. A second issue concerns the identification of the appropriate founder when a firm has had multiple founders, such as in the case of Hewlett-Packard where the families of cofounders Bill Hewlett and David Packard own large ownership stakes in the firm, even as the Packard family retains a larger share than the Hewlett family. Third and most importantly, the founder of the firm may have little to do with its expansion, success, and market recognition, which may have occurred under the leadership and control of later generations of successors or other families who took over the firm. This creates a significant amount of difficulty in determining the rightful owner of

these firms. In light of these complex ownership issues, Villalonga & Amit (2006, 2009) defined family firms as companies in which the founder or a member of his/her family by blood or marriage is an officer, director, or blockholder that either individually or as a group owns at least 5% of the voting stocks. However, this definition leaves out critical differences that distinguish lone-founder firms from family firms with multiple family members who own more than 5% of the voting rights (Miller et al., 2007). This prompted me to identify family firms, instead, as those firms where one or more members of a family own at least 5% of the firms' equity, individually or as a group. Other studies have also utilized similar standards for defining family firms (Allen & Panian, 1982; Gomez-Mejia et al., 2003).

Family firms typically differ from their non-family counterparts in terms of their management process, strategic decisions, organizational governance, business ventures, and stakeholder relationships (Gomez-Mejia et al., 2011). Several studies have pointed out that these differences arise because family-owned firms, unlike their non-family counterparts, make decisions while keeping in view both their financial constraints and SEW endowment (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007; Gomez-Mejia et al., 2003; Le Breton-Miller & Miller, 2013; Zellweger, Nason, Nordqvist, & Brush, 2013).

SEW refers primarily, as suggested above, to a host of unique, non-financial, and intangible factors, such as family identity, societal reputation, the sense of family control, acting as a measure of family influence, and marking the perpetuation of a family dynasty, that the family desires to preserve through its business (Chen, Chen, Cheng, & Shevlin, 2010; Gomez-Mejia et al., 2011). For instance, Astrachan, Klein, and Smyrniotis (2002) emphasized that, unlike conventional corporate firms, family firms try to retain control of their firms to satisfy their family's dynastic ambitions (Goldberg & Wooldridge, 1993). Such scenarios often culminate in

a critical (Barontini & Caprio, 2006), cumbersome, and lengthy ownership succession process in which the owners face the difficult task of selecting and nurturing an appropriate successor from among the family members (Miller, Steier, & Le Breton-Miller, 2003). These processes of ownership succession do not follow any conventional norms or financial rationale, which would suggest choosing the most qualified and deserving candidate without having a bias for someone within the family.

Just like the succession process, the professionalization of management distinguishes family and non-family firms. Gomez-Mejia et al. (2011) highlighted this fact and stressed that family control over strategic decisions is attenuated when a firm hires outside managers or professional experts and delegates authority to them so that the firm relies on a command structure independent of the family. Many family firms are reluctant to do this, making them more hesitant to professionalize their management process than non-family firms. Echoing a similar view, Gomez-Mejia et al. (2003) have shown that the strategic decision-makers who have ownership ties face a more significant risk in a family business than their non-family counterparts. They argue that family business's risk involves the probability of a loss of financial wealth and SEW, which is comprised of the family legacy (Jaskiewicz, Combs, & Rau, 2015), family reputation, identity, and image. This more significant amount of risk, however, does not deter decision-makers from engaging in irrational decisions that involve a high probability of failure at the cost of preserving SEW (Gómez-Mejía et al., 2007).

Similar efforts, when directed toward the preservation of SEW (Gómez-Mejía et al., 2007), induce family firms to follow a less compliant approach towards corporate diversification (Anderson & Reeb, 2003b), internationalization (Gomez-Mejia et al., 2010), mergers and acquisitions (Caprio, Croci, & Del Giudice, 2011; Shim & Okamuro, 2011), and technology

adoption and R&D investments (Chen & Hsu, 2009; Gomez–Mejia et al., 2014). In essence, these studies have followed the behavioral agency model of risk aversion (BAM) (Wiseman & Gomez-Mejia, 1998), which views family firms as loss-averse entities regarding their SEW. Consequently, family-owned firms often take a more conservative approach toward strategic investments than non-family firms.

Recently, several scholars have sought to revise the preexisting theory about SEW-loss-averseness based on the notion of BAM while postulating that family firms, in fact, often do engage in risky strategic investments by waiving SEW loss (Bromiley, 2009). Applying the mixed gamble perspective, they posited that when family firms prioritize the loss of financial wealth over the loss of SEW, they engage in strategic investments. However, when the loss of SEW is prioritized over financial wealth concerns, these firms tend to abstain from strategic investments.

This view has been echoed in many studies that have used the mixed gamble theory to explain how the strategic actions of family firms vary with their SEW risk propensity. A classic example of this is found in a study by Alessandri, Cerrato, and Eddleston (2018), who found that the extent of internationalization in a family firm strongly depends on its assessment of financial risk and its risk of losing its endowed SEW. Specifically, they have shown that if family firms have a high level of financial slack, they are less willing to engage in extensive internationalization because the high amount of slack provides them protection against possible financial losses in the near term, which allows the family to emphasize its SEW concerns. By contrast, having a low level of financial slack induces family firms to look for more slack, which encourages them to pursue a more significant amount of internationalization. This more substantial amount of internationalization provides the long-term buffer associated with

recoverable slack and leads family firms to place a greater weight on prospective SEW and financial wealth, making them more comfortable with the loss of SEW. Similar inferences emerge in other studies by Gomez-Mejia et al. (2018) and Hussinger and Issah (2019). They report that family-owned firms acquire more related firms if they perform above their aspiration level. However, they found that if these firms perform below their aspiration levels, they are less willing to acquire related firms. Following suit, Bauweraerts, Diaz-Moriana, and Arzubiaga (2019) have demonstrated that European family firms under moderate family management often engage in growth activities since they view growth as leading to future gains in SEW. Nevertheless, under strong family management, firms do not engage in growth activities since strong family managers tend to view growth as detrimental to SEW. Thus, the literature on family-firm strategy has shown that family firms do not follow in the footsteps of non-family firms by pursuing risky strategic activities when they face financial distress, or when they have fewer concerns about the loss of their SEW. Moreover, family-owned firms often abstain from venturing into risky strategic activities when they perceive the future potential loss of their SEW is greater than the future potential gains in financial wealth. By contrast, non-family firms are imperturbable toward SEW and pursue their strategic activities based strictly on financial gains.

Executive Compensation in Family and Non-Family Firms

Historically, the topic of executive compensation in corporate firms has been a critical focus of research in corporate finance and corporate governance literature. Scholars have shown that the amount of aggregate executive compensation is vital to organizational success (Barkema & Gomez-Mejia, 1998; Core et al., 1999; Murphy, 1999; Murphy, 1986) and that it receives a consistent amount of attention from all the stakeholders (institutional owners, minority shareholders, regulators, etc.) (Holderness, 2003; Jensen, 1989). They have also pointed out that

the microstructure of executive compensation is comprised of various equity-based incentives that help drive a firm's financial performance (Mehran, 1995), which leads to organizational success. Jensen & Murphy (1990a) provided a theoretical rationale for incentive-based executive compensation when they argued that this type of compensation gives managers the correct kind of incentives to maximize firm value (Jensen & Murphy, 1990a). This theoretical proposition gained momentum when Hall and Liebman (1998) took up the growing trend in U.S. CEO compensation levels and their sensitivity to firm performance. The authors further showed that, from 1980 to 1994, the percentage of U.S. CEOs who headed large publicly traded firms and held incentive-based compensation awards increased from 57% to 90% and that a large proportion of CEO compensation was comprised of stocks and options grants (Bergstresser & Philippon, 2006). This trend represented a changing pattern in U.S. firms, which increasingly leaned towards performance-based compensation instead of salary-based compensation for their executives. Recognizing this shift, several authors have investigated the performance-based compensation of executives. The results of these studies have failed to come to any agreement. However, they testify to the significance of executives' equity-based pay for the measures of firm performance. To this end, some researchers (Himmelberg, Hubbard, & Palia, 1999; Palia, 2001) have demonstrated that equity-based incentives increase the growth prospects of a firm, while others have shown that it stimulates its stock price (Anderson & Reeb, 2003a; Palia, 2001), the volatility of stock returns (Lambert, Larcker, & Verrecchia, 1991), and encourages executives to undertake more risky ventures (Guay, 1999). Thus, regardless of the firm's performance, empirical evidence has substantiated the use of equity incentives to link changes in executive compensation to changes in the firm's performance measures.

For family firms, the issue of executive performance-based compensation is complex and not unidirectional. Because these firms are conceptually and quantitatively different, an assortment of factors leads to the blurring of the relationship between the amount of executive compensation and firm performance. For instance, studies in the family business literature have suggested that founder-owners focus on the firms' financial growth and performance (Miller, Le Breton-Miller, Lester, & Cannella Jr, 2007; Miller, Le Breton-Miller, & Lester, 2011), while family owners focus both on the preservation of socioemotional goals (like dynastic control, family member status, employment, and enhanced reputation) and financial goals (Astrachan & Jaskiewicz, 2008; Chrisman, Chua, Pearson, & Barnett, 2012; Deephouse & Jaskiewicz, 2013; Gómez-Mejía et al., 2007). This is atypical in non-family firms, which only prioritize financial goals.

Further studies have pointed out that factors such as the family ownership structure (Crocì, Gonenc, & Ozkan, 2012; Ramaswamy, Veliyath, & Gomes, 2000; Villalonga & Amit, 2006), family-generational stages (Anderson & Reeb, 2003a; Jaskiewicz et al., 2017), and CEO family status (Combs et al., 2010; Gomez-Mejia et al., 2003) often moderate the effects of executive compensation on firm performance, which are redundant in non-family firms. These consequential moderators influence family business strategies, modes of governance, and performance in a way absent in non-family firms (He, 2008). However, in a separate study, Schulze, Lubatkin, and Dino (2003) depicted how, like non-family firms, family-owned firms offer performance-based executive compensation, mitigating agency costs. However, unlike non-family firms, the impact of these performance-enhancing incentives varies based on the status of the principal shareholder's estate, his or her share transfer intentions, and whether the firm is to remain under family control. Along similar lines, McConaughy (2000) has found that, when

comparing family-member and non-family-member CEOs of family-controlled firms, family-member CEOs earn lower levels of compensation and receive fewer performance incentives. He (2008) has shown that founder CEOs receive lower total and equity-based compensation than their hired non-family counterparts. The study argued that founder CEOs are more likely to internalize family-firm goals, unlike their non-family counterparts. Moreover, they are intrinsically motivated and highly invested in their own firms' achievement of superior organizational success without superfluous performance incentives.

Extending the previous research on family-ownership structures, Jaskiewicz et al. (2017) have suggested that fundamental differences exist in executive compensation for performance among the founders and family owners of U.S. family firms. They have shown that family owners hire non-family CEOs by offering higher performance incentives to achieve a higher level of financial performance and better governance. By contrast, founder owners who serve as family CEOs do not need additional equity incentives for a superior performance since they are already intrinsically committed to the well-being of their firms. Echoing similar views, Michiels, Voordeckers, Lybaert, and Steijvers (2012) have shown that both family firms with a family CEO and those with a non-family CEO have various motives to offer their CEOs performance-based compensation (Block, 2011). However, the pay-for-performance sensitivity is higher for non-family CEOs than for family CEOs. They have also indicated that concentrated ownership in family firms has more inclination toward using performance-based CEO compensation. Contrasting results are found in Cheng, Lin, and Wei (2015), who reported that in publicly held Chinese family firms, an increase in the concentration of family ownership corresponds to a decrease in the pay-for-performance sensitivity of CEO compensation. Moreover, the presence of more family owners leads to lower levels of efficiency for executive compensation contracts. In

another study on private Chinese firms, Cai, Li, Park, and Zhou (2013) indicated that family managers face weaker incentives than professional managers, reflecting the lower sensitivity of their bonuses in relation to firm performance.

Backing up this point, Combs et al. (2010), in a seminal paper, posited that CEOs of family firms do not always receive lower compensation than CEOs of the non-family business. They have shown that lone-family-member CEOs of family firms earn more cash and equity compensation than those of non-family firms. This higher amount of pay occurs because the actions of lone-family-member CEOs are not subject to strategic monitoring due to the absence of family representation in management or on the board. This privilege allows them to divert substantial company resources for their benefit and at the expense of the shareholders. These resources accrue in the form of higher cash and equity compensation.

In summary, the empirical and theoretical research on equity pay levels and pay-for-performance sensitivity in family-owned firms has led to a lack of consensus about the amount of impact these factors have on firm performance. However, the research does provide ample support for the fact that family firms widely employ pay-for-performance mechanisms for executive compensation.

The Vesting of Incentive Grants

Despite being a ubiquitous topic in the corporate finance and accounting disciplines, the vesting of grants for equity-based executive compensation has received little scholarly attention. Unlike the executive compensation structure, the research on the vesting of grants and whether it leads to variable equity compensation increased only after the SEC put in place new executive compensation disclosure rules in 2006. Before 2006, activist shareholders, board members, regulators, and institutional investors persistently expressed their concern about the effectiveness

of the time-based vesting of grants compared to performance-based vesting (Kuang, 2008; Kuang & Qin, 2009). Echoing similar concerns, scholars have noted that the vesting of traditional stock option grants typically remains conditional on a lapse of time (Bettis et al., 2010), which in effect fails to reflect the efficacy of such rewards. For example, during a bullish financial market, executives benefit from the vesting of time-based traditional stock options due to an increase in their individual firm's stock price, resulting from the general improvement in market prices. More specifically, a particular firm's stock price may increase due to overall positive market sentiments, enabling executives to receive windfall gains via the vesting of traditional stock options. This can happen even if they underperform relative to the market average or their peers (Bertrand & Mullainathan, 2001). This windfall gain certainly highlights the inefficiency of time-based vesting provisions. Additionally, critics of time-based vesting grants have pointed out that such grants do not allow firms to gauge the capability and efficacy of newly appointed CEOs in accordance with the accounting and financial performance (Arya & Mittendorf, 2005; Oyer & Schaefer, 2005). Moreover, this kind of vesting mechanism hinders the capability of firms trying to identify the risk-taking ability of a CEO (Bettis et al., 2010).

Therefore, opponents of time vesting provisions propose that corporate firms attach company-specific performance targets to equity compensation and condition stock option vesting on their achievement. More specifically, they advocate linking the vesting of incentive grants with accounting-based (e.g., earnings-per-share growth) and/or market-based (e.g., total shareholder return) performance targets (Carter et al., 2009; Gerakos et al., 2007) so that executives only benefit from stock options when they have achieved predetermined targets. In essence, this type of performance-based vesting mechanism provides more of an incentive for executives to outperform their competitors. It also avoids the vesting of grants to executives

during periods of stock price increases, which often occur exclusively due to general market improvements (Johnson & Tian, 2000). Repeating this dominant view, Gerakos et al. (2007) showed that U.S. corporations awarded more p-v grants between 1993 and 2002 to their executives than t-v grants. They also found that p-v grants reflect absolute or relative measures of firm performance and that the grants vest only after the firm achieves a predetermined minimum performance level. Johnson and Tian (2000) came to a similar conclusion regarding p-v stock option grants among U.S. firms. Specifically, they showed that p-v stock option grants induce CEOs to take more calculated risks during high market volatility, which potentially creates more valuable investment opportunities for their firms. Following suit, Kuang (2008) analyzed the vesting of grants among 240 non-financial U.K firms from 1997 to 2004. He reported that p-v stock option grants for executive compensation contracts resulted in higher levels of management earnings. Additionally, Kuang and Qin (2009) observed that p-v stock option schemes in executive compensation contracts for non-financial U.K firms led to a greater alignment of goals between owners and managers.

For U.S. firms, Bettis et al. (2010) documented that performance-based vesting provisions specify more pragmatic and tangible performance hurdles and provide significantly more incentives for executives. The study indicated that U.S. firms have a higher propensity for using p-v grants when they employ new CEOs and when they have a higher proportion of outside directors on their board. Moreover, firms that use p-v grants appear to have a significantly better operating performance than their peers. These results establish that U.S. firms have a greater tendency to use p-v grants in executive compensation contracts. A similar outcome was found in a recent study by De Angelis and Grinstein (2015). In their study of U.S. firms, they found that 90% of their sample firms grant some form of performance-based awards

to their executives. The average value of these awards is approximately \$4.8 million.

Additionally, most of these performance-based awards use accounting matrices like earnings-per-share, net income growth, return on equity, return on assets, cash flow, etc., to measure firm performance. Bettis et al. (2018) observed that the use of p-v awards among U.S. firms increased from 20% to 70% between 1998 and 2012. Furthermore, they found that equity-based compensation derived from p-v awards significantly affects the part of executive remuneration that is dependent on stock return volatility.

Despite any supposed advantages, critics (Bebchuk & Fried, 2010; Hall & Murphy, 2003) of the performance-based vesting of grants argue that such grants inevitably result in excessive risk-taking among executives, which intensifies the risk of the financial collapse of firms. Acknowledging this extreme risk factor, the U.S. government incorporated amendments into the Troubled Asset Relief Program (TARP) (2009) that mandated eliminating short-term incentive-based compensation as a precondition for the firms seeking to receive funds through the program. Cadman et al. (2013) have pointed out that time-based vesting provides benefits to firms by extending the effective life of equity incentives and the investment horizon of the manager (Cadman & Sunder, 2014; Kole, 1997). These are particularly valuable to firms that have significant long-term growth opportunities and face a considerable amount of information asymmetry regarding the long-term effects of their managers' actions. Cadman et al. (2013) also documented that firms that offer the time-based vesting of grants are also those with a more extended amount of incentive compensation duration and those who perform better than those who provide short-term incentives to their executives. The former also helps retain talented executives for a more extended period (Balsam & Miharjo, 2007) because executives who have higher levels of unvested equity are less likely to depart voluntarily. Furthermore, competing

firms face an additional cost when hiring new executives from other firms because the incumbent executives solicit an equivalent amount of compensation for their forfeited equity when they leave their existing firm and join a new one (Fee & Hadlock, 2003).

Chapter 3 Hypothesis Development

The Debate over Time vs. Performance-Based Vesting

During the past two decades, the issue of the vesting of grants to corporate executives has received a vast amount of attention from corporate finance and accounting scholars. While some scholars have debated the pertinence of the different vesting schemes granted to corporate executives, others have debated their effectiveness on entrepreneurial decision-making. Regardless of the focus, the studies have found that U.S. corporations heavily use incentive-based grants with different vesting provisions to compensate their executives (Bettis et al., 2018; Hall & Liebman, 1998).

Typically, under time-based vesting, a fixed number of traditional stock options and restricted stock grants vest at predetermined calendar dates over ten years. These grants vest exclusively over time as long as the executives remain employed through to the end of the vesting period when they receive their options or stocks independent of stock price performance (Brisley, 2006; Core & Packard, 2017). However, in the case of performance-based vesting of stock options, they only vest when the firms achieve preset performance targets, which are often defined in terms of an accounting measure related to profitability or an appreciation in the stock price (Brisley, 2006). Scholars in favor of these types of vesting provisions argue that they provide an incentive to executives to align their interests with that of the firm (Kuang & Qin, 2009). These incentives, in turn, induce the managers to undertake short-term projects that have a more significant amount of risk and potential for performance yield (Brisley, 2006; Thakor, 1990). These can lead to increases in the firms' stock price in ways that are beneficial to shareholders (Bolton et al., 2006; Johnson & Tian, 2000), provide practical performance hurdles (Kuang, 2008), and help firms to gauge new managerial talent (Arya & Mittendorf, 2005).

However, critics have highlighted that influential executives often opportunistically influence the setting of their own performance targets to increase their achievability (Morse, Nanda, & Seru, 2011). Exploring this issue further, Abernethy, Kuang, and Qin (2015) found that CEOs often set accounting matrices as performance targets, not stock price matrices, which are prone to a more significant amount of market fluctuations. In another study, Gopalan et al. (2014) reported that performance-based grants could cause CEOs to behave in their self-interest and exhibit a more myopic type of investment behavior if their compensation contracts rely excessively on short-term performance (Bebchuk & Fried, 2010). In such situations, the CEOs may hastily invest in short-term projects to reap the maximum performance benefits while paying little heed to their future ramifications.

The advocates of time-vesting grants have argued that corporations utilize the time-based vesting of grants to compensate their executives. Empirical evidence has shown that these grants help retain talented CEOs who have more excellent performance abilities (Cadman & Sunder, 2014; Walker, 2010) and enable efficient corporate governance where performance monitoring is costly and there is weak board oversight (Gopalan et al., 2014). Cadman et al. (2013) have also noted that time-based vesting grants are more suitable for long-term investment projects with the potential for a high amount of growth. Despite these advantages, opponents have pointed out that these grants have an inefficient reward mechanism because they reflect merely the passage of time (Brisley, 2006; Gerakos et al., 2007). Moreover, these grants impose higher costs on executives who hold the stock options throughout the length of the vesting period (Hodge, Rajgopal, & Shevlin, 2009). Additionally, time-vesting grants are incapable of determining the efficacy of newly appointed CEOs and do not provide strong incentives to executives who invest in high-risk projects that have a more significant amount of earning potential (Bettis et al., 2010).

The Vesting of Incentive Grants in Family Firms

Historically, studies within the finance literature have documented that the performance of corporations depends heavily on their executives' equity compensation (Cadman & Sunder, 2014; Cadman et al., 2013; Larcker, 1983; Laux, 2012; Mehran, 1995). Supporting this theory, Hall and Liebman (1998) reported that equity-based compensation for U.S. executives increased from 57 to 90% between 1980 and 1994, while Core, Guay, and Verrecchia (2003b) noted that equity-based incentive compensation formed the majority of executive compensation between 1992 and 2000. Several other studies (Core & Guay, 1999, 2002; David et al., 1998; Ofek & Yermack, 2000) also provided ample evidence supporting the idea that there was a rising trend in this kind of executive pay structure. Those contributing to the executive compensation literature highlighted the importance of executive equity compensation for all types of corporations. However, this literature overlooked the critical link between the vesting of grants resulting in equity compensation and firm performance. Highlighting this issue, several scholars (Bergstresser & Philippon, 2006; Bettis et al., 2010; Bettis et al., 2018; Bizjak, Kalpathy, & Mihov, 2018; Kuang, 2008; Kuang & Qin, 2009) have pointed out that an efficient vesting mechanism causes executives to make strategic decisions while keeping in mind the interest of the firm over their self-interest. This mitigates agency conflicts and improves the overall performance of the firm, which is in contrast with the conventional theory that posits incentive-based compensation improves firm performance.

However, research focusing on the vesting of grants in family-owned firms has been nonexistent. Within the family business literature, the issue of grants thus has remained unexplored. This motivated me to investigate this issue for large publicly held family firms. This line of research is significant in the context of family firms because their decision-making

process weighs the potential gains and losses of both financial wealth and SEW, a problem that is absent in non-family firms. The existing literature (Bettis et al., 2018; Brisley, 2006; De Angelis & Grinstein, 2015) has failed to distinguish family and non-family firms, leading to the conclusion that the vesting of grants purely depends on the rationale of financial theory and financial goals. This is too limited of a view when it comes to family-owned firms.

The Behavioral Agency Model of Risk-Taking and Mixed Gamble Theory

Business strategic decisions are dependent on the risk-taking propensity of a firm. This simple postulate is true for family firms as well. However, family business scholars (Naldi, Nordqvist, Sjöberg, & Wiklund, 2007; Schulze, Lubatkin, & Dino, 2002) have shown that family firms are more risk-averse than their non-family counterparts. This is not unexpected because families often invest their entire wealth into their business, making them more cautious about risky strategic actions that could jeopardize the family's wealth (Schulze et al., 2002). Additionally, the family bears the full burden of the loss when its business fails, which also accounts for its risk avoidance of potentially devastating strategic decisions (Gedajlovic, Lubatkin, & Schulze, 2004). This unilateral view about the risk averseness of family firms, however, fails to come to terms with the impact of non-financial factors that significantly affect the family firms' risk-taking propensity. Emphasizing this drawback, Gómez-Mejía et al. (2007) use the Behavioral Agency Model (BAM) (Wiseman & Gomez-Mejia, 1998) to illustrate that the risk-taking behavior of family-firm owners depends on their assessment of the family's stock of SEW, which is derived from the firm's non-financial aspects such as its identity, its ability to augment the family's influence, and its ability to perpetuate the family dynasty (Berrone, Cruz, & Gomez-Mejia, 2012). Family firms, for this reason, appear to embrace higher performance-risk exposure to preserve their SEW and seem to abstain from risky business decisions that

aggravate the risk of SEW loss. Hence, it is better to say that they are not risk-averse but are loss-averse with respect to their SEW (Chrisman & Patel, 2012). Coming to similar conclusions, other researchers have shown that the propensity of family firms to protect their SEW can lead to less diversification (Gomez-Mejia et al., 2010), lower R&D expenses (Chen & Hsu, 2009), and fewer technological innovations (Block, Miller, Jaskiewicz, & Spiegel, 2013) unless under outside pressure (Chrisman & Patel, 2012). These results posit a uniform theoretical proposition, which suggests that family-firm owners' decision-making is motivated by an aversion to losses in its stock of SEW (Block et al., 2013; Cruz & Justo, 2017; Gomez-Mejia et al., 2011; Gómez-Mejía et al., 2007).

Contrary to this “pure” loss-aversion view, Gomez–Mejia et al. (2014) have argued that family firms are not always loss-averse. Instead, they evaluate their potential gains against losses of SEW before making any strategic decisions. Drawing insights from mixed gamble theory (Bromiley, 2009), under which gambles have the potential for both losses and gains, the researchers illustrated that SEW concerns under BAM (Wiseman & Gomez-Mejia, 1998) could either lead to an increase or decrease in the R&D investment of family firms. More specifically, they posited that family firms generally view R&D investment as a loss of SEW because the gains from such activities are highly speculative. Hence, they abstain typically from such strategic activities. However, in the presence of increased institutional ownership, family firms reveal a lower degree of affinity toward the loss of endowed SEW and show a greater predisposition to seek out future financial gains, which results in a more significant amount of R&D investment. This view of the decision-making process of family firms emerged in many subsequent studies where researchers investigated the family firms' involvement in various strategic activities. Gomez-Mejia et al. (2018) used mixed gamble theory and analyzed the

acquisition decisions of family firms. They documented that family-owned firms abstain from acquiring unrelated firms because the owners perceive a specific loss of SEW to be associated with such activities. This perceived loss of SEW is greater than the expected potential financial return. This is in line with the BAM, which suggests that family firms are loss-averse with respect to their SEW. As an alternative to this loss-averse theory, the researchers also found that family firms are more willing to acquire unrelated firms if the family firm is performing below expectations. This strategic-yet-risky engagement suggests that when there is a low-performance level, family-controlled firms are more likely to invest in unrelated acquisitions to earn future financial returns that safeguard the firm's viability and its stock of SEW. This shows that family firms are not necessarily loss-averse regarding SEW. Instead, their owners consider the potential gains and losses of their socioemotional and financial wealth in their strategic decision-making process. Following suit, several researchers have shown that family firms' assessment of their potential gains and losses of SEW can either induce or attenuate their firms' involvement in internationalization (Alessandri et al., 2018), portfolio entrepreneurship (Cruz & Justo, 2017), and IPO underpricing (Kotlar, Signori, De Massis, & Vismara, 2018).

BAM and the Vesting of Grants

The strategy literature on family businesses has revealed that family business owners evaluate the potential effects of their SEW gains and losses while making strategic decisions. Supporting this view, the BAM suggests that family owners are loss-averse with respect to their SEW. Hence, they make decisions to preserve their stock of it. When it comes to the vesting of incentive grants, the strategy for choosing the appropriate vesting provisions for executive compensation tends to be vital for family-owned firms. This is because the vesting provisions of such incentive rewards determine the equity compensation of executives, which is sensitive to

firm performance (Amoako-Adu, Baulkaran, & Smith, 2011; Combs et al., 2010; Jaskiewicz et al., 2017; McConaughy, 2000). Moreover, incentive grants are essential to family firms because they enable the firms to align the interest of their non-family executives with that of the firm, thus reducing the number of agency conflicts and hopefully attaining higher financial returns (Jensen & Murphy, 1990b; Michiels et al., 2012). Furthermore, the vesting of incentive grants via time-lapse or the realization of performance targets essentially implies the transfer of firm ownership to the executives. For family firms, this means the dilution of family control, which results in a potential loss to their SEW. Finally, several studies have pointed out that incentive grants exacerbate risk-taking initiatives (Dennis & Mayhew, 2002) among executives, which results in a greater likelihood of financial collapse (Hall & Murphy, 2003). Thus, family firms that are loss-averse to their SEW have less of a tendency to provide incentive grants to their non-family executives than non-family firms. For non-family-owned firms, however, the vesting of grants results in better financial performance (Brisley, 2006; Johnson & Tian, 2000), efficient interest alignment (Kuang & Qin, 2009), and a more diverse ownership. Thus, they are more likely to grant more incentive awards to their executives. Based on the preceding discussion, I propose:

Hypothesis 1: Compared to non-family firms, family-owned firms will have a lower propensity to award incentive grants to their non-family CEOs.

Mixed Gamble Theory and the Vesting of Grants

Since the vesting of grants can occur via time-lapse or through the realization of preset performance goals, there exists a perennial debate about the utility of such grants in executive compensation packages. To this end, recent empirical studies have indicated that corporate firms award more p-v grants (Bettis et al., 2018) to their executives than t-v grants. This finding is in

line with prior research in which scholars (Bettis et al. 2010; Kuang, 2008; Johnson & Tian, 2000; Brisley 2006) argued that p-v grants strongly bind the vesting mechanism to the firm's financial performance, which results in higher profits and lower agency costs. More compelling evidence in favor of this argument appears in a study by Bettis et al. (2018), which found that the use of performance-based grants by U.S. corporate firms increased from 21% in 1998 to 68% in 2012 (Bettis et al., 2018), reaching almost 90% by 2007 (De Angelis & Grinstein, 2015). Also, earlier studies by Johnson and Tian (2000) and Brisley (2006) reported that performance-based grants increase the stock-return volatility of the firm and provide risk-averse CEOs more of an incentive to pursue more risky investments opportunities with a high-net-present value (NPV), which motivates corporations to offer more p-v grants to their executives. In another study, Bettis et al. (2010) found that p-v grants lead to better earnings management and can help firms to attract more talented CEOs who have greater capabilities and a lower level of risk aversion. Along similar lines, Kuang and Qin (2009) demonstrated that p-v grants efficiently align the interests of the managerial executives and shareholders, while Oyer and Schaefer (2005) illustrated that such awards aptly transfer the burden of business risk to the executive's equity compensation. Beyond this, Arya and Mittendorf (2005) have argued that performance-based awards can also help provide recognition to new managerial talent.

Thus, in the light of the different financial and non-pecuniary advantages of p-v grants, scholars have posited that they are more efficient than t-v grants. Echoing this dominant view, critics have pointed out that time-based vesting provisions allow grants to vest over time without any additional risk-bearing incentives for risk-averse executives (Brisley, 2006; Kuang, 2008). Consequently, executives who have time-based grants tend to abstain from riskier projects with high NPV, which deprives the firm of potential financial benefits. Furthermore, these executives

may lack sufficient motivation for increasing the firm's stock value in the short run, which can lead to a loss in shareholder wealth (Bolton et al., 2006). In a separate study, Hodge et al. (2009) showed that time-vested grants could impose higher costs on executives if the value of their awarded stock options erodes during the vesting period.

Regardless of the outcome of performance-based or time-based vesting of grants, family firms use less of both types of grants in rewarding their non-family executives. However, the allocation of the grants may vary because family firms consider both financial and socioemotional losses and gains in their decision-making process (Gómez-Mejía et al., 2007; Gomez-Mejia et al., 2003; Gomez-Mejia et al., 2014). Moreover, executive compensation might also differ across family firms based on the executives' family status. For instance, several studies have indicated that family CEOs receive a lower level of incentive-based compensation than non-family CEOs in family-owned firms (Chrisman, Memili, & Misra, 2014; Combs et al., 2010; Gomez-Mejia et al., 2003; Jaskiewicz et al., 2017). This difference occurs because, unlike non-family CEOs, family CEOs' financial and socioemotional goals are inherently tied to the firm and its financial performance, so they don't need a higher level of incentive-based compensation to achieve a superior performance or provide better governance (Miller et al., 2007; Miller et al., 2011). Similarly, in terms of risk, family CEOs take additional risks than their non-family peers, though they do not receive any further compensation. This additional risk involves personal risk, which is associated with the preservation of their SEW (Chrisman et al., 2014; Gomez-Mejia et al., 2003). Scholars have pointed out that the risk of losing SEW includes the loss of family CEOs' sense of personal identity, reputation, and value (Block, 2010; Dyer Jr & Whetten, 2006). Thus, family CEOs inevitably try to minimize their personal risk in the interest of themselves, their family, and the business, without needing any extra incentive (Block,

2010). These results suggest that family CEOs do not need any extra incentives to enhance the firms' performance. Therefore, I posit that using performance-based grants to incentivize the risk-taking of family CEOs will be of little or no relevance compared to the use of time-based vesting grants in tying family CEOs to the firm.

The Choice of Vesting Provisions in Family Firms

The risk preferences of family firms have been widely researched over the past two decades. While earlier research (Naldi et al., 2007; Schulze et al. 2002) used agency theory to explain the constant risk-averse behavior of family firms, later studies (Gómez-Mejía et al. 2007) used BAM to illustrate the loss-averse behavior of family firms concerning their SEW. These studies identified the preservation of SEW as the main factor that deters family firms from taking strategic action. However, recent studies have suggested otherwise. Applying mixed gamble theory, scholars have shown that family firms' decisions are based on a comparative assessment of the potential gains and losses of socioemotional and financial wealth. For instance, firm owners strongly engage in more risky strategic activities like the acquisition of unrelated firms, internationalization (Alessandri et al., 2018), and portfolio entrepreneurship (Cruz & Justo, 2017) if they anticipate that their existing financial viability is at stake or the uncertainty of their future financial gains poses a minimum threat to their SEW. This stands in contrast with BAM, which suggests that family firms are always loss-averse with respect to their SEW. Thus, the strategic decisions of family firms are justified by mixed gamble theory, under which scholars posit that family firms are willing to incur more of a risk of losing their SEW if they are performing below their expectations since this hampers their financial stability and jeopardizes their SEW. On the other hand, scholars have pointed out that if family firms are performing above their expectations, they are willing to incur less risk of losing their SEW. This suggests that mixed

gamble theory rightly predicts the strategic decision-making process that occurs within family firms. Hence, this theory could also prove beneficial for exploring the distribution of vesting grants within family firms. Thus, drawing insights from mixed gamble theory I theorize that family owners will allocate more p-v grants to their non-family executives when the firms underperform relative to their industry peers. Because p-v grants entail higher risk potential, the allocation of such grants ensures that the non-family executives of family-owned firms align their risk preferences with that of the owners. This is critical because underperforming family firms face both financial stress and the risk of the loss of SEW. Hence, family-firm owners will allocate more p-v grants to their non-family executives since these incentives induce talented non-family executives to take more risk and invest more in short-term opportunities associated with both an elevated amount of risk and NPV. This, in turn, could generate a more significant amount of financial benefits for the firm. Additionally, these performance-based incentives increase the stock returns of the firm and maximize shareholder wealth. They also provide executives with a greater motivation to act in the interests of the firm by providing a direct link between their realized compensation and the firms' financial performance. Also, non-family executives may not work in the best interest of the firm because, unlike their family-firm counterparts, they are not emotionally or financially invested in the well-being of the firm. This is the case unless they are offered incentives, such as those that come with performance-vesting grants. Furthermore, executives may choose to be risk-averse if their incentive grants remain independent of the firms' performance, leading to financial and SEW losses for the firm unless they receive performance-based vesting grants. Thus, rewarding the non-family executives of family firms with more p-v grants is vital since it allows family-firm owners to preserve some of their SEW, which can potentially be wiped out when there is a looming financial crisis. This

suggests that family-firm owners prioritize the preservation of most of their SEW when envisioning the possible irrevocable loss of all of their SEW. Intuitively, this decision also reflects how family-firm owners are willing to forgo some of their ownership and control to maintain the viability of the firm, a prerequisite for the preservation of their remaining SEW. This is in line with the mixed gamble theory, which suggests that family firms evaluate potential losses or gains of socioemotional and financial wealth and assume more risk in their subsequent strategic decisions when the business is performing below their expectations over and against the performance of peers.

Although family-firm owners provide more p-v grants to their non-family executives, they are less likely to provide such grants to their family executives. This is because family executives are intrinsically motivated to act in the best interest of the firm, and the family, by definition, already holds a significant amount of ownership in the firm. As family executives' emotional and financial objectives are already tied deeply with firm's financial performance (Jaskiewicz et al., 2017; Miller et al., 2007; Miller et al., 2011), under financial distress, they will inherently try to achieve higher performance to safeguard the financial viability of the firm and its SEW.

Hypothesis 2a: Family firms will offer more p-v grants to their non-family CEOs if the firm underperforms relative to its industry peers.

As an alternative to performance-based grants, family firms may choose to award more time-based-vesting grants to their non-family executives when the firm underperforms than their industry peers. However, the allocation of such grants can be questionable. Because time-based incentives solely vest over time without any conditional provisions (Bettis et al., 2018; Brisley, 2006), they do not provide any incentives for non-family executives to venture into additional

risky entrepreneurial activities (Brisley, 2006) that might help improve the firm's financial prospects. Moreover, as already noted, family executives do not require any grants because of the family's ownership position and since they already have a long-term perspective, which implies that they will focus on long-term investments that have low-risk and high-growth opportunities (Cadman et al., 2013).

However, the role of t-v grants is more relevant when the family firm outperforms its industry peers. In this situation, family-firm owners may provide more t-v grants to their non-family executives so that they comply with the owners' risk preferences. In this way, loss-averse family firms can ensure that non-family executives make fewer risky strategic decisions and preserve the family's SEW. Furthermore, such grants also provide additional incentives to non-family executives to make more prudent decisions, which can lead to an improvement in the firm's market-to-book ratio, the accumulation of more long-term assets (Gopalan et al., 2014), and an increase in the rate of the firm's growth (Cadman et al., 2013). Finally, t-v grants have a long vesting period (typically 10 years), allowing firms to retain talented non-family executives. In fact, executives often refrain from quitting their jobs before the end of the vesting period because their resignation would result in the forfeiture of unvested equity holdings. In summary, the time-based vesting of grants could help family firms to incentivize their non-family executives to take fewer risks when the firm performs well while keeping their non-family talent. Therefore, based on the preceding discussion, I propose:

Hypothesis 2b: Family firms offer more t-v grants to their non-family CEOs if the family firm outperforms its industry peers.

Besides t-v grants, family firms can also award p-v grants to their executives if they outperform their industry peers. However, family firms, which are risk-averse when considering

the loss of their SEW, provide fewer p-v grants to their executives than the t-v grants they provide. To this end, Hall and Murphy (2003) show that the former results in excessive risk-taking among executives, which exacerbates a firm's risk of failure. Consequently, family firms tend to award fewer of these grants to preserve their SEW and deter their executives from making risky strategic decisions.

The Choice of Performance Measures in Family Firms

CEO compensation in U.S. public firms has been the subject of a large number of research studies, which have focused on the executive compensation structure and its form. However, little information has been available about the contracting terms of the compensation. Before 2006, firms only reported realized executive compensation. However, after 2006, when regulatory changes, SFAS 123(R), by the SEC took effect, firms made mandatory disclosures about the types of performance measures used to determine CEO compensation, performance targets, and performance horizon.

The results of mandatory disclosure have provided a more detailed glimpse into how firms set performance targets for the performance-based vesting of grants and what performance measures they have applied to assess these preset targets. Knowing these facts is important because performance measures can either be absolute or relative. The choice of the proper measures reveals critical information about a company's expectations about what they expect executives to achieve.

While relative performance measures assess CEO performance relative to a group of firms or a published index, absolute performance measures assess CEO performance relative to a preset goal based on the firm's own performance. Recent studies on the choice of the appropriate performance measure find that firms use absolute or relative accounting matrices to assess the

performance (De Angelis & Grinstein, 2015) of their CEOs more than stock returns, which would make incentive awards highly volatile (Bizjak et al., 2018; Gopalan et al., 2014; Li & Wang, 2016). Elaborating on this topic, Bettis et al. (2018) documented how the choice of accounting matrices as a performance measure is pervasive among U.S. firms because they contain additional information that is inexplicit in stock returns. Paul (1992) has illustrated that it may be optimal to base compensation on accounting performance when executives undertake multiple projects. This is also beneficial because accounting performance aggregates project values differently than the stock market, and hence it contains additional information indiscernible in stock price returns. Along similar lines, Sloan (1993) argued that accounting-based performance measures provide more insulation to executive earnings from market-wide fluctuations in equity values. This makes executive earnings less arbitrary and less correlated with stock price returns. In light of this, De Angelis and Grinstein (2015) analyzed the vesting of grants among 494 S&P-500 firms in the U.S. from 2007 to 2008. They reported that 79% of the estimated value of performance-based awards is based on accounting-performance measures, 13% is based on stock-performance measures (i.e., market-based), and 8% is based on nonfinancial measures. Furthermore, they have shown that firms mostly depend on accounting-based performance measures, and they put greater weight on income measures, sales, and accounting returns.

When it comes to the choice between relative and absolute accounting matrices, Bettis et al. (2018) have reported that firms tend to choose more absolute accounting matrices compared to relative accounting matrices when assessing the performance of their executives. Likewise, Li and Wang (2016) have pointed out that the use of accounting-based performance incentives increased from 16.5% in 1991 to 43.3% in 2008. They also noted that 1,224 performance

incentive plans they reviewed used absolute accounting matrices while 311 incentive plans used relative accounting matrices.

A potential explanation for such preferences is the desire to alleviate executive risk aversion. To this end, Wruck and Wu (2017) have demonstrated that when firms adopt relative performance measures, executives face higher levels of total and idiosyncratic risk, which is associated with negative stock returns and lower credit ratings. Furthermore, these relative measures reduce the correlation between firm and industry performance. By contrast, when firms adopt absolute performance measures, executives face lower total and idiosyncratic risk, which is reflected in their accounting-based performance measures. Nevertheless, this might also lead to lower incentive payments.

For family firms, the research exploring the performance measure choices associated with the vesting of grants is nonexistent. However, the previous literature exploring risk-aversion behavior among family-firm owners indicates that their risk aversion is dependent on their loss-aversion goals toward financial and SEW goals (Gomez-Mejia et al., 2018; Gomez-Mejia et al., 2014). Specifically, if family firms underperform their peers, they will take on more risk seeking to acquire financial wealth. They will thus deviate from their usual trajectory of loss aversion concerning SEW. On the other hand, if they outperform their peers, they will continue to hold their endowment of SEW and will be less willing to risk their SEW for the sake of additional financial wealth (Alessandri et al., 2018; Gomez-Mejia et al., 2018; Hussinger & Issah, 2019). Given this loss-aversion attitude of family owners, the use of appropriate performance benchmarks is critical in aligning the CEOs' risk-taking preferences with those of the family owners.

As family firms may have both family and non-family executives, the choice of absolute or relative performance measures may depend on the executives' family status. Regarding this issue, scholars (Jaskiewicz et al., 2017) have pointed out that since non-family executives have weaker emotional and financial ties with family firms, family owners tend to disburse more incentive-based rewards to them for achieving their goals. By doing so, firm owners reflect their preference for aligning the goals of non-family executives with their own plans.

Non-family executives earn performance rewards only when they achieve their preset performance targets, which are measured in terms of relative or absolute accounting matrices. Since previous research on the choice of performance benchmarks shows that relative measures are riskier than absolute measures, executives must be willing to assume more risk in their decision-making to satisfy such criteria and receive the associated rewards. Because family owners are loss-averse regarding their SEW, they are more likely to employ absolute performance measures to assess the performance of their non-family executives. This is because, unlike relative measures that depend on comparisons to industry performance, absolute measures assess CEO efficacy in terms of their individual performance as related to the firm. Hence, these measures are independent of industry performance fluctuations, which allows the family-firm owners to ensure that their executives do not assume too high of a risk such that they might threaten the firms' SEW.

While family firms tend to prefer the disbursement of fewer relative performance measures than their non-family peers, we expect that there is some variation along the lines of the firms' performance level. More precisely, building on the mixed gamble framework, we expect that if the family firm performs worse than its industry peers, family owners will have a greater propensity to use relative accounting matrices to assess the efficacy of their non-family

executives. The use of such relative measures induces non-family executives to align themselves with the risk preferences of the family firm owners. Although executives' riskier decisions might threaten some of the family's SEW, it is still preferable over the possibility that the family firm will go bankrupt due to underperformance, which would mean an irrevocable loss of SEW.

Contrasted with a low-performance scenario, if the family firm performs better than its industry peers, family owners have less of a propensity to use relative accounting matrices to protect their stock of SEW. In other words, family owners try to ensure that executives have less incentive to assume any unnecessary risks if this would mean giving up a greater possibility of a better performance by the firm. Therefore, based on the preceding discussion, I theorize the following:

Hypothesis 3a: When family firms underperform their peers, firm owners have a greater propensity to use relative performance measures to evaluate the efficacy of their non-family executives.

Hypothesis 3b: Conversely, when family firms outperform their peers, firm owners have less of a propensity to use relative performance measures to evaluate the efficacy of their non-family executives.

Firm Performance and Equity Compensation

The research on equity compensation and firm performance has received extensive attention during the past two decades. Because compensation through stocks and options and the level of managerial equity incentives are particularly important to shareholders, institutional activists, and governmental regulators, numerous studies in the corporate finance and corporate governance literature have focused on the impact of equity compensation on firm performance

(Core et al., 2003a). The proponents of equity-based compensation have argued that such compensation structures enable the execution of optimal contracts, which tie the CEO's expected utility to shareholder wealth by making their incentive dependent on variable performance benchmarks (Jensen & Murphy, 1990b). As a result, primary agency conflicts between managers and owners should be far lower. Furthermore, these incentives should encourage CEOs to act on behalf of the shareholders and, thus, align both parties (Canyon, 2006). Echoing this dominant view, a vast number of scholars have shown that CEO equity ownership and firm performance have a positive association because high (low) ownership CEOs are closer to (farther away from) the optimal incentive levels (Frye, 2004; Ittner, Lambert, & Larcker, 2003; Mehran, 1995; Morck, Shleifer, & Vishny, 1988). This was also made clear in a study by Canyon (2006), who showed that the average value of CEO-equity ownership increased from \$56.9 million to \$106.4 million for large U.S. firms between 1993 and 2003. This study further depicted how CEOs earned higher levels of total compensation between 1993 and 2003 because of the more significant amount of financial incentives that they received in the form of stock and option grants. Because the pervasive use of incentive compensation by corporate firms is related to improvements in firm value, incentive compensation plays a vital role in overcoming agency conflicts with non-family CEOs in family and non-family firms.

The scenario is similar to family CEOs in family firms. However, unlike their non-family counterparts, family firms face different kinds of agency conflicts. Besides the divergent interest associated with the separation of ownership and control, agency conflicts appear in family firms due to altruism and self-control problems. Schulze, Lubatkin, Dino, and Buchholtz (2001) have pointed out that parents' altruistic attitudes toward their children can cause agency conflicts related to self-control. Specifically, they illustrated how parents' altruism could lead them to be

too generous to their children even when the latter free ride and lack the competence and/or intention to maintain the wealth-creation potential of the firm. Likewise, Schulze et al. (2003) have shown that parental altruism may bias the perceptions of parental CEOs regarding the performance of family agents. Therefore, this may make it more difficult for them to punish the poor performance of family members, particularly when such punishment has spillover effects on family relationships outside of the business. Along similar lines, Lubatkin, Schulze, Ling, and Dino (2005) argued that parental altruism, when combined with firm ownership and family-owner management, negatively affects the ability of the owner-manager to exercise self-control. More recently, Michiels et al. (2012) noted that altruism could generate agency costs through the moral hazard in the form of free-riding, shirking, and consuming perquisites (Karra, Tracey, & Phillips, 2006), as well as through adverse selection, which entails hiring underqualified family members over more competent non-family candidates (Chrisman, Chua, & Litz, 2004).

As a remedial measure to reduce agency costs that arise from altruism and adverse lack-of-self-control behavior, Schulze et al. (2001) suggested using performance-based compensation for family agents. They posited that this form of compensation reward would reduce the risk associated with the moral hazard behavior of family agents, and it would deter them from making altruistic decisions that could hamper the performance of the firm.

In summary, incentive compensation effectively attenuates agency conflicts related to CEOs in non-family and family firms. Accordingly, I propose the following:

Hypothesis 4 CEO equity compensation is positively related to firm value.

Executive Compensation and Incentive Grants

A wide range of studies (He, 2008; McConaughy, 2000; McConaughy, Walker, Henderson, & Mishra, 1998) in the family business literature have documented how family CEOs receive less compensation than their non-family counterparts. Notably, researchers (Combs et al., 2010; Gomez-Mejia et al., 2003) have found that family CEOs, unlike their non-family counterparts, act as leading stewards of the company and enjoy a more significant amount of job security. Hence, they are willing to trade-off a higher salary for a more substantial amount of job security. Alternatively, Jaskiewicz et al. (2017) have asserted that family CEOs' financial and emotional goals unify with their firms and their financial performance (Miller et al., 2007). Hence, they do not need higher incentives in the form of compensation than their non-family counterparts. Empirical evidence supporting this theory appears in studies by Combs et al. (2010) and Gomez-Mejia et al. (2003). They have concluded that family CEOs receive fewer incentives in both fixed and total compensation.

Although there is a broad consensus about the level of family and non-family CEO compensation in family firms, research on the structure of compensation has remained unexplored. This issue is critical to non-family CEOs who work in family firms since the previous literature has suggested that they have fewer emotional and financial ties with the family firm than family CEOs. Jaskiewicz et al. (2017) showed that non-family CEO compensation remains highly sensitive to performance incentives, and these CEOs typically receive a higher amount of compensation incentives and total compensation (Combs et al., 2010; Gomez-Mejia et al., 2003; McConaughy, 2000) than their family counterparts in family firms. The research further noted that the family firms who hire non-family CEOs bind the CEOs' incentive compensation to the firms' performance. This often results in an improvement in organizational governance, ultimately increasing the family firms' financial wealth. These

findings indicate that family firms are less likely to use vesting grants than non-family businesses. However, among family firms, those with non-family CEOs could be more likely to use the performance-based vesting of grants than those with family CEOs. This higher use of p-v grants for non-family CEOs is a crucial move made by family firms, especially when underperforming their industry peers. In effect, by vesting such grants, family firms induce their non-family executives to take more risks, which leads to a better performance by the firm. For non-family CEOs, such grants inevitably motivate them to perform better and gain a more significant amount of compensation. In line with this, empirical studies have shown that performance-based grants have higher so-called “vega,” (i.e., the sensitivity of expected executive wealth to changes in the volatility of the stock return), maximize shareholder wealth (Coles et al., 2006; Core & Guay, 2002; Ittner et al., 2003; Johnson & Tian, 2000), and provide better operating performance (Bettis et al., 2010)

Chapter 4 Data

Sample & Data Source

My study employs a sample of 582 S&P-1500 firms in 2014. The data for CEO compensation levels and incentive grants are found in the EXECUCOMP database in WRDS. The firm-level data is drawn from the CRSP-CompStat-merged database. CEO-family status data comes from DEF-14A proxy statements, which are available at the Securities Exchange Commission (SEC) of the U.S. The definition of a family firm is derived from previous studies (Gomez-Mejia et al., 2003; Allen & Panian, 1982), which dictate that family firms are those in which one or several family members own or control at least 5% of the ownership.

Dependent Variables

To examine my hypotheses about the vesting of grants between family and non-family firms, I used two dummy variables, “Performance Vest” and “Time Vest,” to represent the performance-based vesting and time-based vesting of grants, respectively, and zero otherwise. Previous studies investigating the allocation of grants also used similar categorical variables as the dependent variables (Gerakos et al., 2007). Additionally, Li and Wang (2016) employed the accounting-based performance vesting grant as a regress, and they explored its determinants. Likewise, Bettis et al. (2010) incorporated a categorical measure to represent performance vesting grants and examine their likelihood of being adopted.

To analyze the CEO equity compensation generated from time- and performance-based grants, I use “comp5” as the dependent variable, which is the ratio of the CEO’s equity compensation to total compensation. The formulation of this variable follows Mehran (1995) and Fernandes, Ferreira, Matos, and Murphy (2013). They used the proportion of incentive compensation in terms of total compensation to investigate the determinants of firm value. David

et al. (1998) used the same variable when they investigated the influence of institutional owners on CEO compensation.

Given that CEOs receive equity compensation as an incentive to nurture their efforts to enhance the firm's financial performance, I examine the effect of executive compensation on family-firm performance. Following Barontini and Caprio (2006) and Villalonga and Amit (2006), I use Tobin's Q as the dependent variable, which acts as a proxy for firm performance. Jaskiewicz et al. (2017) used the same measure to examine the effect of CEO compensation on firm performance, and they stressed that such a measure represents the value of the firm as determined by the equity market, without the influence of executive manipulation.

Finally, to discern the family firms' preference between absolute and relative accounting measures, I explore the association between equity compensation and absolute and relative accounting matrices, all of which act as a performance benchmark for the vesting of performance-based grants. Li and Wang (2016) incorporated a similar measure to study the effects of long-term accounting-based-performance-incentive plans on CEO equity compensation.

Independent Variables

To test my hypothesis, I create three dummy predictor variables. The variable "Family firm" is a categorical regressor that takes the value of 1 if the family is a blockholder that owns 5% or more of voting stock (Villalonga & Amit 2006, 2009), and it is 0 otherwise. This categorical measure is consistent with Gomej-Mejia et al. (2014), who empirically identified family firms in terms of a binary categorical variable. Specifically, they labeled a firm as a family firm if the family held at least 20% of the voting stock. Previous studies (Allen & Panian, 1982; Daily & Dollinger, 1993; Gomez-Mejia et al., 2003; Gomez-Mejia et al., 2010) also used a

similar measure, and they identified family firms as those in which one or more family members held substantial ownership of the voting stock. The variable “familyCEO_ff” is a dummy variable that takes the value of 1 if the founder or a member of the family is the CEO, and it is 0 otherwise. By contrast, the variable “non-family CEO_ff” is a dummy variable that takes the value of 1 if the CEO of a family firm is not related to the founding family. Apart from the CEOs’ family status, I also employ multiple categorical dummies that represent different types of incentive grants (performance- or time-based vesting grants) or different forms of performance measures (absolute and relative accounting measures). More detailed descriptions of these variables appear in appendix A.

Control Variables

Following Combs et al. (2010), I employ several firm-level variables to explore the factors that could affect CEO compensation in terms of the vesting of grants. I use the firm size, which is measured in terms of total sales. Previous studies have pointed out that this is one of the critical factors to affect performance-based incentive grants (Li & Wang, 2016) and CEO compensation (Combs & Skill, 2003; He, 2008; Tosi, Werner, Katz, & Gomez-Mejia, 2000). Along with firm size (Coles et al., 2006; Kale, Reis, & Venkateswaran, 2009; Mazur & Wu, 2016), I use measures of firm leverage such as year-end debt as scaled by total assets because highly leveraged firms have been shown to increase firm risk, which influences CEO compensation (Jaskiewicz et al., 2017; Kuang & Qin, 2009).

Accordingly, I use firm leverage as a proxy for the firms’ level of risk. Additionally, I control for the firms’ age, which is defined as the number of years since foundation (Combs et al., 2010; Fernandes et al., 2013; He, 2008), and I define firm performance by incorporating firms’ return on assets (ROA), industry-adjusted return on assets (IROA), and Tobin’s Q (TQ).

Both ROA and TQ summarize the firms' operating performance and market performance, respectively, and have been shown to increase CEO incentive compensation (Cheng et al., 2015; Combs et al., 2010; He, 2008; Jaskiewicz et al., 2017; Mazur & Wu, 2016; Villalonga & Amit, 2006) and the amount related to incentive vesting provisions (Gerakos et al., 2007; Li & Wang, 2016). Besides these measures, I also control for the firms' annual stock return volatility and level of investment in R&D. The use of these variables is in line with the previous literature, in which scholars indicated that both variables lead to increases in CEO compensation (Combs et al., 2010; Croci et al., 2012; Fernandes et al., 2013; Gomez-Mejia et al., 2003) and the vesting of different performance-based grants (Gerakos et al., 2007; Johnson & Tian, 2000).

In addition to the above control variables, I incorporate a second set of control variables to account for the different aspects of corporate governance. Specifically, I use the firms' total number of independent board members, the total number of board members, and the total number of institutional block holders as proxies for board independence and institutional investors. Several studies have shown that CEO compensation and the vesting of grants are essential to institutional block holders (Bettis et al., 2010), and they have also demonstrated that board independence and size (Bettis et al., 2010; Li & Wang, 2016) also have a significant effect on CEO remuneration (Chhaochharia & Grinstein, 2009).

Empirical Model Specification

To examine my hypotheses, I employ probit regression models, following Gerakos et al. (2007) and Bettis et al. (2010, 2018). They used similar econometric specifications to investigate the choice of vesting provisions and performance measures within U.S. corporations. Therefore, equation (i) below specifies a generic probit model where

$$Y_{jk} = \alpha_{jk} + \underbrace{\beta_j X_{jk} + \mu_j M_{jk}}_{\text{Control Variables}} + \underbrace{\gamma_j Z_{jk} + \delta_j iroa_k + \theta_j Z_{jk} * iroa_k}_{\text{Independent variables}} + \epsilon_j \quad (i)$$

the dependent variable Y_{jk} is a vector of binary dummies for k_{th} firm that takes the value of 1 for the performance-based or time-based vesting of grants and 0 otherwise. It also takes the value of 1 if the executive's performance measures employ absolute or relative metrics for assessment. The term α_{jk} represents a vector of constant terms for j variables for the k_{th} firm. X_{jk} represents the vector of firm-level controls that include proxies for the k_{th} firm's performance, age, size, and level of risk. M_{jk} constitutes the vector of control variables that represent the aspects of corporate governance. Z_{jk} contains a vector of dummy variables that represent family firms and executives with and without any family ties. The term $iroa_k$ represents the industry-adjusted return on assets for the k_{th} firm, while ϵ_j stands for the error term.

Data Summary

I use cross-section panel data for 582 firms, which belonged to the S&P 1500 index. The data is from 2014. The firms are subsequently classified based on the sic-4 digit code for industry classification, which yields 220 industry groups. The data summary results and associated tables appear in Table 1A and 1B below. Table 1A reports the descriptive statistics of my study, while Table 1B reports the coefficients of the correlation matrix among all the variables. The results reflect that the dummy variables for performance and time-based grants negatively correlate with industry-adjusted return on assets. This suggests that a more significant amount of industry-adjusted returns are associated with lower incentive grants and vice-versa. The variable Tobin's Q has a strong and positive correlation with total equity compensation, which indicates that firm performance is positively related to total equity compensation.

Table 1A

Variable	Obs	Mean	Std.Dev.	Min	Max
Ln (total equity comp/total comp)	582	-.463	.368	-3.025	0
Return on Assets	582	.103	.083	-.262	.817
Tobin's Q	582	2.139	1.445	.753	14.244
Firm Size	582	8.597	1.302	4.992	13.089
Firm leverage	582	.263	.192	0	2.461
Volatility	582	.255	.153	.116	2.213
Firm Age	582	33.854	22.349	1	89
Board Size	582	10.167	2.165	4	30
No. of Independent Board Members	582	8.431	2.109	2	24
No. of institutional Blockholders	582	3.359	1.441	0	8
ln (Firm Investment)	582	-3.323	1.454	-8.376	-.881
Family Firm Dummy	582	.127	.333	0	1
Performance Vesting Grant Dummy	582	.94	.238	0	1
Time Vesting Grant Dummy	582	.825	.381	0	1
Dummy for grants using absolute A/C matrix	582	.919	.273	0	1
Dummy for grants using relative A/C matrix	582	.227	.419	0	1

Table 1B

Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Performance based	1																
(2) Time-based	-0.04	1															
(3) d_grant_abs_esc	0.44	-0.02	1														
(4) d_grant_rel_esc	-0.25	0.011	-0.03	1													
(5) Return on Assets [ROA]	0.023	0.062	-0.03	-0.08	1												
(6) Industry Adjusted ROA	-0.04	-0.04	0.01	0.076	-0.58	1											
(7) Tobin's Q [TQ]	0.013	0.064	-0.07	-0.14	0.685	-0.56	1										
(8) Firm Size	0.036	0.023	0.088	0.106	0.034	0.045	-0.16	1									
(9) Firm Leverage	0.121	-0.03	0.054	-0.12	0.1	-0.02	0.085	0.057	1								
(10) Volatility	0.05	0.038	0.01	-0.08	-0.02	-0.02	0.087	-0.16	-0.06	1							
(11) Firm Age	0.015	-0	0.046	0.069	-0.08	0.089	-0.15	0.289	-0	-0.2	1						
(12) Board Size	0.043	-0.01	0.043	0.115	-0.09	0.087	-0.14	0.415	-0.01	-0.11	0.207	1					
(13) No. of Independent Board Members	0.086	-0	0.11	0.125	-0.12	0.073	-0.17	0.423	0.019	-0.1	0.282	0.885	1				
(14) No. of Institutional Blockholders	0.053	-0	0.046	-0	-0.12	-0.01	-0.03	-0.31	0.054	0.07	-0.08	-0.22	-0.15	1			
(15) ln (Investment)	0.117	0.112	0.084	-0.23	0.256	-0.31	0.29	-0	0.136	0.094	0.117	-0.23	-0.18	0.046	1		
(16) Total Equity Compensation	0.048	0.079	0.045	0.08	0.014	-0.1	0.055	0.524	0.119	-0.01	0.02	0.191	0.236	-0.12	0.063	1	
(17) Family Firm	-0.12	-0.03	-0.13	-0.05	0.054	-0.01	0.112	-0.1	-0.11	-0	-0.1	-0.06	-0.23	-0.2	-0.02	-0.08	1

Besides analyzing the data and the correlation analysis, I also examine the distribution of grants and performance measures within family and non-family firms and between family CEOs and non-family CEOs of family firms. A detailed discussion about the key findings appears below. The frequency distributions provide essential insights about the distribution of grants and performance measures. Table 2 below depicts the distribution of performance-based vesting grants to the executives of family-owned firms and non-family firms during 2014. The results indicate that 95% of non-family firms used the performance-based vesting of grants, while 86% of family firms used such grants. This implies that the use of performance-based vesting grants in non-family firms exceeds family firms by a margin of 9%. At the onset, this magnitude of difference in vesting patterns may not appear significant. However, a two-sample proportion test reported in Table 2.1 confirms a substantial difference in the distribution of performance-based grants. The p-value associated with coefficient Z is .0037, which indicates a considerable difference in the proportional distribution of grants between family and non-family firms. Moreover, the Z-coefficient implies that family firms are less likely to assign performance-based grants to their executives.

Table 2

Distribution of Performance-Based Vesting of Grants				
Performance-Based Vested Grants	Family Firms		Nonfamily Firms	
	Freq.	Percent	Freq.	Percent
0	10	13.51	25	4.92
1	64	86.49	483	95.08
Total	74	100	508	100

Table 2.1

Two sample proportion-test: Performance-Based Vested Grants among Family & Nonfamily firms

Two Sample Test of Proportion				0: Number of obs = 508	
				1: Number of obs = 74	
Variable	Mean	Std. Err	z	P> Z	[95% Conf. Interval]
0	0.950787	0.009597			0.931977 0.969598
1	0.864865	0.039741			0.786973 0.942756
diff	0.085923	0.040884			0.005792 0.166053
	Under Ho:	0.029581	2.9	0.004	
diff = prop (0) – prop (1)				z = 2.9046	
Ho: diff = 0					
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0	
Pr (Z < z) = 0.9982		Pr (Z < z) = 0.0037		Pr (Z > z) = 0.0018	

Note in Table 2.1 the variable value 0 indicate that the firm is a Non-family Firm and the variable value 1 indicate that the firm is a Family firm. The two-sided P-value at 5% level of significance is .0037 and we reject the null hypothesis and conclude that there is significant difference in mean proportion between Non-family firms & family firms with regards to vesting of performance-based grants.

Table 3 provides similar information about the distribution of the time-based vesting of grants among family and non-family executives. The results show that using the time-based vesting of grants within non-family firms exceeds family firms by a small margin of 3%. To check whether significant differences exist in the distribution of the time-based vesting of grants between family and non-family firms, we conduct a two-sample proportion test, whose results are given in Table 3.1. The p-value associated with Z is .5063, which implies no significant difference in the distribution of the time-based vesting of grants between family and non-family firms.

Table 3

Distribution of Time-Based Vesting of grants				
Time-Based Vested Grants	Family Firms		Nonfamily Firms	
	Freq.	Percent	Freq.	Percent
0	15	20.27	87	17.13
1	59	79.73	421	82.87
Total	74	100	508	100

Table 3.1

Two sample proportion tests: Time-Based Vesting of grants among Family & Nonfamily Firm

Two Sample Test of Proportion				0: Number of obs = 508 1: Number of obs = 74		
Variable	Mean	Std. Err	z	P> Z	[95% Conf. Interval]	
0	0.82874	0.016715			0.79598	0.861501
1	0.797297	0.046733			0.705702	0.888892
diff	0.031443	0.049632			-0.06583	0.12872
	Under Ho:	0.047306	0.66	0.506		
diff = prop (0) - prop (1)				z = 0.6647		
Ho: diff = 0						
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0		
Pr (Z < z) = 0.7469		Pr (Z < z) = 0.5063		Pr (Z > z) = 0.2531		

Note in Table 3.1 the variable value 0 indicate that the firm is a Nonfamily Firm and the variable value 1 indicate that the firm is a Family firm. The two-sided P-value at 5% level of significance is .5063 and we cannot reject the null hypothesis and conclude that there is no significant difference in mean proportion between Nonfamily firms & family firms with regards to vesting of time-based grants.

Next, we focus on the family and non-family CEOs of family firms. Table 4 shows the distribution of the performance-based vesting of grants among family and non-family CEOs of family firms. The output indicates that non-family CEOs receive 13% more in performance-based vesting grants than their family peers. To confirm this, we carry out a two-sample

proportion test, which suggests no substantial difference in the performance-based vesting of grants among family and non-family CEOs. Table 4.1 shows that the p-value associated with the Z-coefficient is .1007, which implies that the coefficient of the proportional difference is insignificant at the 5% level of significance.

Table 4
Distribution of Performance-Based Grants among family & nonfamily CEOs

Performance-Based Vesting Grants	Family CEOs		Nonfamily CEOs	
	Freq.	Percent	Freq.	Percent
0	7	20.59	3	7.5
1	27	79.41	37	92.5
Total	34	100	40	100

Table 4.1

Two sample proportion-test: Performance-Based Vested Grants among Family & Nonfamily CEOs of family firms

Two Sample Test of Proportion				0: Number of obs = 40 1: Number of obs = 34		
Variable	Mean	Std. Err	z	P> Z	[95% Conf. Interval]	
0	0.925	0.041646			0.843376	1.006624
1	0.794118	0.069345			0.658205	0.930031
diff	0.130882	0.080889			-0.02766	0.289422
	Under Ho:	0.079745	1.64	0.101		
diff = prop (0) - prop (1)				z = 1.6413		
Ho: diff = 0						
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0		
Pr (Z < z) = 0.9496		Pr (Z < z) = 0.1007		Pr (Z > z) = 0.0504		

Note in Table 4.1 the variable value 0 represent Nonfamily Firm CEOs and the variable value 1 represent Family firm CEOs. The two-sided P-value at 5% level of significance is .1007 and we cannot reject the null hypothesis and conclude that there is no significant difference in mean proportion between Nonfamily firm CEOs & family firm CEOs with regards to vesting of performance-based grants.

Table 5 represents the distribution of the time-based vesting of grants among family and non-family CEOs of family firms. The results reveal that non-family CEOs of family firms receive almost 23% more in time-based vesting grants than their peers. A two-sample proportion test confirms that this difference is indeed significant. This suggests that non-family CEOs of family firms receive more t-v grants than p-v grants, and the time-based vesting grants are awarded more to the non-family executives of family firms. Table 5.1 shows the output of the two-sample test. The p-value associated with the Z coefficient is .0171, implying the Z-coefficient is significant at the 5% level.

Table 5
Distribution of Time-Based Grants among family & nonfamily CEOs

Time-Based Vesting Grants	Family CEOs		Nonfamily CEOs	
	Freq.	Percent	Freq.	Percent
0	11	32.35	4	10
1	23	67.65	36	90
Total	34	100	40	100

Table 5.1

Two sample proportion-test: Time-Based Vested Grants among Family & Nonfamily CEOs of family firms

Two Sample Test of Proportion				0: Number of obs = 40 1: Number of obs = 34		
Variable	Mean	Std. Err	z	P> Z	[95% Conf. Interval]	
0	0.9	0.047434			0.807031	0.992969
1	0.676471	0.080231			0.519221	0.83372
diff	0.223529	0.093204			0.040853	0.406206
	Under Ho:	0.093775	2.38	0.017		
diff = prop(0) - prop(1)				z = 2.3837		
Ho: diff = 0						
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0		
Pr(Z < z) = 0.9914		Pr(Z < z) = 0.0171		Pr(Z > z) = 0.0086		

Note in Table 5.1 the variable value 0 represent Nonfamily Firm CEOs and the variable value 1 represent Family firm CEOs. The two-sided P-value at 5% level of significance is .0171 and we reject the null hypothesis and conclude that there is significant difference in mean proportion between Nonfamily firm CEOs & family firm CEOs with regards to vesting of time-based grants.

Apart from the vesting of grants, I also examine the distribution of the vesting grants based on the absolute and relative accounting matrices within family and non-family firms. Table 6 shows the distribution of the absolute accounting matrices. It reports that the use of absolute accounting matrices as a performance benchmark is higher for non-family firms than family firms. This is evident in the results of the two-sample proportion test outlined in Table 6A. The p-value associated with the Z-coefficient is significant at the 5% level, which implies a substantial difference in the use of absolute accounting matrices between family and non-family firms.

Table 6

Distribution of Vesting Grants based on Absolute Accounting Metrics

Grants based on Absolute A/C Metrics [Earning/Sales/Cash Flow]	Family Firms		Non-Family Firms	
	Freq.	Percent	Freq.	Percent
0	9	12.16	20	3.94
1	65	87.84	488	96.06
Total	74	100	508	100

Table 6A

Two sample proportion-test for testing the Vesting of Grants based on Absolute Accounting Metrics among Family and Non-Family firms

Two Sample Test of Proportion				0: Number of obs = 508 1: Number of obs = 74		
Variable	Mean	Std. Err	z	P> Z	[95% Conf. Interval]	
0	0.96063	0.008628			0.943719	0.977541
1	0.878378	0.037995			0.803909	0.952848
diff	0.082252	0.038963			0.005886	0.158617
	Under Ho:	0.027074	3.04	0.002		
diff = prop(0) - prop(1)			z = 3.0380			
Ho: diff = 0						
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0		
Pr(Z < z) = 0.9988		Pr(Z < z) = 0.0024		Pr(Z > z) = 0.0012		

Note in Table 6A the variable value 0 indicate that the firm is a Non-Family Firm and the variable value 1 indicate that the firm is a Family firm. The two-sided P-value at 5% level of significance is .0024 and we reject the null hypothesis and conclude that there is significant difference in mean proportion between Non-Family firms & family firms with regards to use of absolute accounting matrix for vesting of grants.

Table 7 depicts the distribution of the vesting grants based on using the relative accounting matrix as a performance benchmark. Both family and non-family firms reveal their lower preference for using such performance benchmarks. However, family firms show slightly more affinity for relative accounting matrices as a performance benchmark than their family counterparts. A more comprehensive analysis through a two-sample proportional test confirms that the family firms have more of a preference for the relative accounting matrices. Table 7A shows the results in which the p-value associated with the Z-coefficient is .2176, which means that the Z-coefficient is insignificant at the 5% level. Thus, we accept the null hypothesis for there being no difference in the mean proportion.

Table 7
Distribution of Vesting of Grants based on Relative Accounting Metrics

Grants based on Relative A/C Metrics [Earning/Sales/Cash Flow]	Family Firm		Non-Family Firm	
	Freq	Percent	Freq.	Percent
0	68	91.89	441	86.81
1	6	8.11	67	13.19
Total	74	100	508	100

Table 7 A

Two sample proportion-test for testing the Vesting of Grants based on Relative Accounting Metrics among Family and Non-Family firms

Two Sample Test of Proportion				0: Number of obs = 508 1: Number of obs = 74		
Variable	Mean	Std. Err	z	P> Z	[95% Conf. Interval]	
0	0.13189	0.015013			0.102465	0.161314
1	0.081081	0.031731			0.01889	0.143273
diff	0.050809	0.035103			-0.01799	0.11961
	under Ho:	0.041211	1.23	0.218		
diff = prop(0) - prop(1)				z = 1.2329		
Ho: diff = 0						
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0		
Pr(Z < z) = 0.8912		Pr(Z < z) = 0.2176		Pr(Z > z) = 0.1088		

Note in Table 7A the variable value 0 indicate that the firm is a Non-Family Firm and the variable value 1 indicate that the firm is a Family firm. The two-sided P-value at 5% level of significance is .2176 and we cannot reject the null hypothesis and conclude that there is no significant difference in mean proportion between Non-Family firms & family firms with regards to use of relative accounting matrix for vesting of grants.

Chapter 5 Multivariate Analyses

Model Analysis

To test my hypotheses, I use two types of econometric models: probit models and random-effects-regression models. Specifically, to analyze the vesting of grants and the choice of executive performance measures within family firms, I use binary probit regression models. Cadman et al. (2013) applied similar econometric models to explore the vesting patterns of incentive grants within U.S. corporate firms, while Li and Wang (2016) used it to investigate the firms' propensity for adopting accounting performance measures. Others (Bettis et al., 2010; Bettis et al., 2018; Gerakos et al., 2007) have used partial variations of similar binary probabilistic models to explore the vesting of grants and the choice of performance matrix within corporations.

I use the random-effects model to determine how executive equity compensation affects firm performance. This follows previous studies (Combs et al., 2010; Sapp, 2008; Villalonga & Amit, 2006) that used the random-effects-generalized-least-square model to investigate CEO compensation. Furthermore, because of the absence of time variation within my data set, I chose the random-effects model over the fixed-effect model. This is evident in Table 8, in which the between-variation of the majority of control variables is larger than the within-variations.

Table 8

Variable	Variation	Std. Dev.	Min	Max
Comp5	overall	0.3677798	-3.025288	0
	between	0.3344781	-3.025288	0
	within	0.260804	-2.214076	0.5756453
ROA	overall	0.0828634	-0.2620266	0.8174008
	between	0.0622975	-0.1650685	0.3424022
	within	0.0593578	-0.2481727	0.6864489
iroa	overall	0.1270155	-0.9	0.7
	between	0.111096	-0.7	0.7
	within	0.0610795	-0.6546256	0.2672494
TQ	overall	1.444666	0.7525637	14.24415
	between	0.991005	0.9394696	6.38766
	within	1.051071	-1.173633	11.9485
Firm Size	overall	1.301721	4.992261	13.08885
	between	1.175785	5.468743	11.68331
	within	0.8358679	5.109622	12.3814
Firm Leverage	overall	0.1921687	0	2.461102
	between	0.1441164	0	0.7916485
	within	0.1369545	-0.2120355	2.183475
Volatility	overall	0.153159	0.1157597	2.212511
	between	0.1028135	0.1157597	0.8704821
	within	0.1242759	-0.4226854	1.882632
Firm Age	overall	22.34877	1	89
	between	18.79972	2	89
	within	15.50461	-14.22938	99.76304
Board Size	overall	2.164823	4	30

	between	1.715091	5	17
	within	1.611607	4.166667	23.16667
No. of Independent Board Members	overall	2.109217	2	24
	between	1.685325	3	14.25
	within	1.562661	2.976726	18.18127
No. of Institutional Blockholders	overall	1.440708	0	8
	between	1.222963	0	8
	within	1.105459	0.0813288	7.359107
Ln (investment)	overall	1.453748	-8.376039	-0.8810022
	between	1.028232	-7.263245	-0.9186704
	within	0.622828	-6.8261	-0.4254441

The Vesting of Time- and Performance-Based Grants in Family Firms

Table 9 reports the probit regression results for the performance- and time-based vesting of grants for family firms. The significant negative coefficient of the family firms both in model (1) and model (2) implies that family firms are less likely to award the performance- and time-based vesting of grants than non-family firms. This supports hypothesis 1, which posited that family firms award fewer incentive grants to their executives.

Table 9

Probit regression of performance and time vesting grants among family and non-family firms

Probit Model		
	(1)	(2)
	Performance Vest	Time Vest
_constant	0.846 (0.837)	1.029* (0.580)
Return on Assets	1.555 (1.377)	0.266 (0.971)
Tobin's Q	-0.041 (0.073)	0.018 (0.053)
Firm Size	-0.082 (0.076)	-0.010 (0.054)
Firm leverage	1.432** (0.558)	-0.225 (0.299)
Volatility	1.510* (0.770)	-0.119 (0.371)
Firm Age	0.003 (0.005)	0.001 (0.003)
Board Size	-0.028 (0.072)	0.002 (0.061)
No. of Independent Board Members	0.126 (0.085)	0.031 (0.067)
No. of Institutional-Blockholders	0.044 (0.058)	-0.007 (0.043)
ln (Firm Investment)	0.092 (0.058)	0.099** (0.043)
FF [Family Firm Dummy]	-0.482** (0.218)	-0.315* (0.182)
Obs.	606	606
Pseudo R ²	0.114	0.021

Standard errors are in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Family Firm Executives and the Vesting of Grants

To examine hypotheses 2a and 2b, I run probit regressions that incorporate different performance scenarios. The first set of results are reported in Table 10A

Table 10A
Probit Regression results when firms perform below aspirations

	(1)	(2)	(3)	(4)
	Performance Vest	Performance Vest	Time Vest	Time Vest
_cons	0.919 (0.913)	0.929 (0.913)	0.868 (0.631)	0.850 (0.634)
TQ	0.023 (0.088)	0.023 (0.089)	0.090 (0.061)	0.095 (0.062)
Firm Size	-0.035 (0.083)	-0.035 (0.083)	0.035 (0.056)	0.036 (0.056)
Firm Leverage	1.448** (0.590)	1.443** (0.592)	-0.527* (0.316)	-0.549* (0.314)
Volatility	1.240 (0.794)	1.186 (0.783)	0.290 (0.451)	0.264 (0.458)
Firm Age	-0.002 (0.005)	-0.002 (0.005)	-0.002 (0.003)	-0.002 (0.003)
Board Size	-0.033 (0.075)	-0.046 (0.074)	0.005 (0.066)	-0.003 (0.066)
No. of Independent Board Members	0.128 (0.092)	0.145 (0.092)	0.004 (0.074)	0.016 (0.074)
No. of institutional Blockholders	0.036 (0.060)	0.037 (0.060)	0.011 (0.046)	0.011 (0.046)
Ln (Investment)	0.126* (0.065)	0.131** (0.065)	0.105** (0.046)	0.111** (0.046)
lowiroa	-0.111 (0.730)	-0.449 (0.765)	0.592 (0.626)	0.331 (0.635)
Family firm Dummy	-0.002 (0.338)	-0.542* (0.309)	0.331 (0.298)	-0.588** (0.264)
familyCEO_ff	-0.650 (0.430)		-1.197*** (0.417)	
non-familyCEO_ff		0.876** (0.407)		1.198*** (0.443)
lowiroa * familyCEO_ff	-1.428 (2.425)		-4.285 (3.879)	
lowiroa * non-familyCEO_ff		4.476** (2.063)		3.615 (3.003)
Obs.	582	582	582	582
Pseudo R ²	0.111	0.116	0.038	0.038

Standard errors are in parenthesis
***<0.01, ** p<0.05, * p<0.1

It depicts family firms' choice of the performance- and time-based vesting of grants when they are underperforming, i.e., when the firms' industry-adjusted return on assets is below the industry average. The second set of results in Table 10B show that family firms' preference for the performance- and time-based vesting of grants when they are overperforming, i.e., the firms' industry-adjusted return on assets is above the industry average. Given these premises, we first focus on the results illustrated in Table 10A.

Model 2 in Table 10A shows the dummy coefficient for the non-family CEOs of family firms (non-familyCEO_ff) and its associated interaction term with low industry-adjusted return on assets ($\text{lowiroa*nonfamilyCEO_ff}$) are positive and significant. While the non-family CEO coefficient reflects how they are more likely to receive higher performance-based grants than their family counterparts, the interaction term suggests that this is associated with firms' low level of performance. More specifically, the significant interaction term indicates that when the firm's industry-adjusted return on assets is below the industry average, family firms are more likely to provide more of the performance-based vesting of grants to their non-family executives. This empirical result supports our hypothesis 2a. Thus, when family firms perform below the industry average, they are more concerned about the financial viability of the firm. Hence, they are more willing to forego SEW and take more risks by awarding performance-based grants to their non-family executives. This is rational because performance-based grants encourage non-family executives to take more risks and invest in risky ventures that offer higher amounts of short-term returns, which leads to the efficient interest alignment of owners and executives, and generates better earnings management. Furthermore, this aligns with the previous literature. For example, Gomez-Mejia et al. (2018) found that owners of family firms make more risky strategic decisions when the firm performs below its aspirational level. Accordingly, family firms'

engagement in risky ventures reflects when owners are willing to forego their SEW to safeguard the viability of their firm when it faces severe financial distress. Gomez–Mejia et al. (2014) found that family firms operating in the high-technology sector engage in a more significant amount of R&D investment when they face a higher amount of performance hazards (i.e., weak performance). Likewise, Alessandri et al. (2018) showed that family firms engage in the risky internationalization process when they suffer from a lower level of financial slack.

When it comes to the time-based vesting of grants, the results indicate that the non-family executives of family-owned firms are more likely to receive the time-based vesting grants than their family counterparts. This is evident in Model 4, Table 10a, in which the coefficient of “non-familyCEO_ff” is positive and significant.

Shifting focus from Table 10A to Model 1 and 2 in Table 10B, I can infer that the non-family executives of family firms do not receive performance-based vesting of grants when the firms’ industry-adjusted return on assets is more than the industry average. However, subsequent Models 3 and 4 show that family firms are also less likely to use the time-based vesting of grants than non-family firms. The coefficient of family firm CEO (familyCEO_ff) in Model 3 is negatively significant, while non-family firm CEO (non-familyCEO_ff) in Model 4 is positively significant. Although these results do not lend support to hypothesis 2b since the interaction terms are insignificant, they do reveal that family firms have an overall weak preference for the time-based vesting of grants when they perform above their aspirational levels. For family firms, such preferences are not unexpected because previous studies (Alessandri et al., 2018; Gomez-Mejia et al., 2018) proved that family decision-makers tend to be risk-averse to SEW when the family firms’ existence is not threatened. Consequently, family firms abstain from any risky

strategic ventures that could jeopardize their existing endowment of SEW in place of attaining uncertain financial gains.

Table 10B

Probit Regression results when firms perform above aspiration levels

	(1)	(2)	(3)	(4)
	Performance Vest	Performance Vest	Time Vest	Time Vest
_cons	0.768 (0.947)	0.807 (0.936)	0.891 (0.633)	0.891 (0.633)
TQ	0.028 (0.083)	0.035 (0.086)	0.073 (0.052)	0.073 (0.052)
Firm Size	-0.039 (0.084)	-0.037 (0.083)	0.033 (0.056)	0.033 (0.056)
Firm Leverage	1.481** (0.599)	1.434** (0.578)	-0.511 (0.315)	-0.509 (0.314)
Volatility	1.514 (0.922)	1.429 (0.897)	0.306 (0.462)	0.308 (0.461)
Firm Age	-0.002 (0.005)	-0.002 (0.005)	-0.001 (0.003)	-0.001 (0.003)
Board Size	-0.017 (0.074)	-0.029 (0.075)	0.006 (0.066)	0.006 (0.066)
No. of Independent Board Members	0.118 (0.093)	0.129 (0.093)	0.000 (0.074)	-0.000 (0.074)
No. of Institutional Blockholders	0.040 (0.060)	0.039 (0.059)	0.007 (0.046)	0.007 (0.046)
Ln (Investment)	0.121* (0.064)	0.118* (0.064)	0.100** (0.046)	0.101** (0.046)
hiroa	-1.669 (3.172)	-4.464 (3.237)	-0.164 (2.024)	-0.250 (2.086)
Family firm Dummy	-0.010 (0.338)	-0.552* (0.310)	0.324 (0.301)	-0.595** (0.265)
familyCEO_ff	-0.467 (0.417)		-0.921** (0.359)	
non-familyCEO_ff		0.531 (0.408)		0.915** (0.358)
hiroa * familyCEO_ff	-14.067 (10.338)		0.363 (10.262)	
hiroa * non-familyCEO_ff		8.400 (6.997)		4.848 (6.406)
Obs.	582	582	582	582
Pseudo R ²	0.118	0.114	0.034	0.034

Standard errors are in parenthesis *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The Choice of Absolute and Relative Accounting Matrices Within Family Firms

Table 11 displays the probit regression results that explore the choice of absolute and relative accounting matrices to evaluate executives' performance. Model 1 does not find any noteworthy results in favor of the absolute accounting matrices. However, Model 2 reports that the coefficient of the dummy variable for the non-family CEO of a family firm (non-familyCEO_ff) is negative and weakly significant at a 10% level of significance. This reveals that the performance evaluation of non-family executives of family firms is less likely to be based on relative accounting matrices than their peers in non-family firms.

Table 11

Probit regression results of absolute and relative accounting matrices.

	(1)	(2)
	d_grant_abs_esc	d_grant_rel_esc
_cons	0.903 (0.876)	-2.404*** (0.761)
TQ	-0.096* (0.057)	-0.184** (0.079)
Firm Size	0.073 (0.099)	0.128** (0.064)
Firm Leverage	0.242 (0.450)	-1.211** (0.528)
Volatility	0.212 (0.447)	-0.595 (0.535)
Firm Age	-0.002 (0.006)	0.004 (0.003)
Board Size	-0.140 (0.086)	0.005 (0.075)
No. of Independent Board members	0.245*** (0.092)	-0.005 (0.082)
No. of Institutional Blockholders	0.082 (0.066)	0.029 (0.050)
Ln (investment)	0.150** (0.073)	-0.186*** (0.054)
Industry Adjusted ROA	-0.464 (0.795)	-0.239 (0.583)
FamilyFirmCEO_ff	0.029 (0.410)	-0.355 (0.462)
Non-familyCEO_ff	-0.156 (0.389)	-0.659* (0.400)
FamilyFirmCEO_ff*Industry Adjusted ROA	2.252 (2.189)	-2.475 (2.272)
Non-familyCEO_ff* IndustryAdjusted ROA	-1.012 (3.898)	-6.225** (2.599)
Obs.	581	581
Pseudo R ²	0.114	0.129

Standard errors are in parenthesis

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

When I focus on the interaction variable for non-family executives in family firms * industry-adjusted return on assets (Non-familyCEO_ff * iroa), I find that it is negatively significant at a 5% level of significance. This suggests that family firms are more likely to use relative accounting matrices for evaluating the efficacy of non-family executives when the family firm performs below the industry average. Conversely, when the family firm performs above the industry average, family firms are less likely to use relative accounting matrices for evaluating the efficacy of their non-family executives. This result aligns with previous studies in the family business literature in which scholars (Alessandri et al., 2018; Gomez-Mejia et al., 2018; Gomez-Mejia et al., 2014; Hussinger & Issah, 2019) used mixed gamble theory to explain how family firm decision-makers make or avoid riskier decisions depending on their firms' performance levels. This study advances the previous studies and shows that vesting criteria can serve as a critical tool for ensuring that non-family executives behave according to the preferences of the family owners. This is a vital contribution considering that the previous research only discussed family owners or family decision-makers.

The preferences of family owners for protecting their SEW thus help explain why underperforming family firms use relative accounting measures when evaluating their executives. This practice differs from the more common practice of corporate firms to use absolute accounting matrices (Bettis et al., 2018; Li & Wang, 2016), providing another example of how family-firm governance differs from that of non-family firms.

Firm Performance and Executive Equity Compensation

Since firm performance strongly depends on the equity compensation of CEOs, Table 12 exhibits the results of how equity-based compensation in family firms is related to firm performance. The coefficient of the log of total equity compensation is .069, and it is weakly

significant at the 10% level of significance. This implies that a 1% increase in the level of an executive's equity compensation increases the family firm's market value by .06%. This also strongly supports our baseline hypothesis 4, which conforms with previous studies in which scholars found a positive association between CEO incentive compensation and firm performance (Frye, 2004; Ittner et al., 2003; Mehran, 1995; Morck et al., 1988).

Table 12

Random effects regression results of CEO equity compensation and firm performance

	(1)	(2)
	ITQ	ITQ
_cons	0.825 (0.543)	0.762 (0.528)
Firm Size	-0.057*** (0.021)	-0.055*** (0.020)
Firm Leverage	0.104 (0.171)	0.119 (0.173)
Volatility	-0.036 (0.207)	-0.036 (0.205)
Firm Age	-0.001 (0.001)	-0.001 (0.001)
Board Size	0.013 (0.016)	0.013 (0.016)
No. of Independent Board Member	-0.034** (0.016)	-0.033** (0.016)
No. of Institutional Blockholders	-0.038*** (0.011)	-0.038*** (0.011)
Ln (Investment)	0.132*** (0.024)	0.130*** (0.024)
Ln (total equity compensation)	0.069* (0.042)	0.069* (0.040)
Non-familyCEO_Non-familyfirm	-0.019 (0.058)	
FamilyCEO_ff		0.125 (0.078)
Non-familyCEO_ff		-0.072 (0.072)
Obs.	582	582
Pseudo R ²	.z	.z

Standard errors are in parenthesis

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Chapter 6 Discussion

My study examines how family-firm owners use appropriate vesting provisions and performance measurement criteria to align the risk preferences of hired non-family managers with their own. The use of vesting requirements and performance measures provides a reasonable means for understanding how family firms incentivize their non-family executives to calibrate their risk preferences in accordance with the firm. Furthermore, my study analyzes how family-firm owners follow the contours of mixed gamble theory and choose suitable vesting provisions and performance criteria based on their risk assessment of financial and SEW loss.

The empirical results produced in this study support my theoretical predictions, which suggest that family firms are more likely to offer p-v grants to their hired non-family managers, especially when the firms perform less well than their industry peers. Also, the results associated with performance measures indicate that family-firm owners tend to use more relative performance measures to assess the efficacy of their non-family executives, especially when the firm performs unsatisfactorily compared to industry peers. However, when the firm performs better than its peers, family-firm owners tend to use fewer relative performance measures as part of the performance yardstick used to assess executive efficacy.

Since p-v grants and relative performance measures entail more risks, their pervasive inclusion in non-family executive equity compensation when there is a lower firm performance indicates that family-firm owners strongly encourage hired non-family executives to take more risks to earn more returns when the firm faces the imminent threat of financial collapse. This also reflects how family-firm owners, when under unfavorable financial situations, choose to incur more risk to restore the viability of the firm, even if this might come at the cost of some SEW.

Hence, in line with mixed gamble theory, family firms are more likely to choose riskier incentive provisions and performance benchmarks for their non-family executives to calibrate the non-family executives' efforts toward superior performance.

My research provides crucial contributions to the family-firm SEW and executive compensation literature. Incorporating mixed gamble theory and considering the potential benefits and losses of financial and SEW returns, I show that family firms that experience financial stress tend to use performance-based grants and rely heavily on relative performance measures to assess their non-family executives' efficacy. This finding indicates that family firms do take risks to minimize loss. Further, this shows how, under looming financial stress, family-firm owners prefer to take more risk to gain financial wealth and forgo the partial loss of SEW, instead of countenancing the irrevocable loss of the entire SEW. Notably, the use of p-v grants also implies that family-firm owners use them as a device to ensure that their non-family executives accede to their own risk preferences.

Regarding the choice of performance measures, my results demonstrate that family firms variably use riskier relative performance measures to judge the efficacy of their hired non-family executives. Specifically, when family firms underperform their peers, firm owners tend to use more relative performance measures to assess the effectiveness of their non-family executives. However, if the family firms outperform their peers, owners tend to use fewer such relative measures. The variable use of riskier relative performance measures suggests that family-firm owners undertake a greater or lesser amount of risk while considering the firms' financial performance and stock of SEW. Also, just like p-v grants, the use of riskier relative performance measures provides an additional means of leverage for firm owners who want to ensure that their non-family executives adapt to their risk preferences.

A final contribution of my study is that I arrive at my conclusion by elucidating the mixed gamble that family-firm owners confront when their firms exhibit variable performance. Particularly, I first explain how family-firm owners assess the risk of potential gains and losses of SEW and financial wealth differently under different firm performance scenarios. Then, I illustrate how family-firm owners choose the appropriate vesting provisions and performance measure mechanism to induce their hired non-family managers to adapt to their perceived risk preferences. This analysis responds to Kotlar et al. (2018), who emphasized the need to understand better how family firms make strategic decisions when both financial wealth and SEW are at stake. My focus on the choice of vesting provisions and performance measures is ideal for this because it reveals how SEW goals and financial goals guide family firms' different responses, which are based on the firms' current performance levels and, in turn, influence their selection of the vesting provisions and performance measures needed for non-family executives.

Limitations and Future Implications

My analysis is not free of limitations. One of the main limitations of this research is that it uses only one year of data, which does not necessarily represent a consistent trend either about vesting patterns or the selection of performance measures among family firms.

Furthermore, since both performance- and time-based grants have varying time-lags for vesting (Bettis et al., 2018; De Angelis & Grinstein, 2015; Gerakos et al., 2007), I could not ascertain whether firms actually prefer performance-based grants over time-based grants in subsequent years when they are faced with different levels of firm performance. Moreover, I could not observe the effects of the vesting of grants on equity compensation because equity compensation results from vesting grants over the following years. Still, I do not have the related data.

Another limitation of my research is that I use a binary categorical variable to identify family and non-family firms. Although this is a conventional practice in family business research, which focuses on identifying the differences between family and non-family firms, applying a continuous ownership variable would provide a more refined and robust analysis. To this end, future studies should investigate the levels of family ownership and how that influences family firms' choices of performance- and time-vesting grants and their selection of absolute and relative accounting measures.

Another potential limitation of my analysis is that I only focus on firms that belong to the S&P 1500 index. Because these are large and prominent publicly traded firms, the results might be different for small- and medium-sized firms. Furthermore, research shows that large firms have an upward bias for choosing the riskier performance-based vesting of grants compared to time-based vesting. This implies that the choice of sizeable public family firms may not be generalizable to small- and medium-sized family firms whose executives may work under different constraints. Smaller firms may thus prefer the time-based vesting of grants since these grants involve a lower amount of risk and induce a lower risk-taking propensity from executives who also have limited resources. Thus, it would be interesting to see future research that focuses on the vesting of grants among small- and medium-sized family firms. Apart from this topic, a separate avenue of potential research would be to find more SEW determinants for the vesting of grants among family firms. Although previous research in corporate finance shows that an assortment of financial factors affects the choice of vesting provisions, the research has overlooked the potential impact of non-financial factors (SEW), which strongly influence family-firm decisions, and this has been widely documented in family business literature. Accordingly, it would be interesting to examine how the involvement of family members who belong to later

generations and how they choose vesting provisions and performance measures for hired non-family executives to calibrate their risk preferences. Another factor that could be studied is whether cultural differences play a role in the assignment of vesting grants since families are a more important institution in some countries than in others, implying that SEW concerns might also be more important in some and less important in others. The incorporation of such family-specific factors may provide interesting insights that would extend and refine this current work.

Chapter 7 Conclusion

Based on the family-owned firms' propensity to preserve their SEW, I tested when and how family-firm owners choose p-v and t-v grants to incentivize their non-family executives so that they adapt to the owners' risk preferences. The empirical results suggest that family-firm owners are more likely to award riskier performance-based grants to their non-family executives only when the firms underperform and thus face a greater chance of financial collapse. They also tend to use riskier performance measures to judge the efficacy of their hired non-family executives, especially when the firms experience financial stress due to poor performance. However, when the firms exhibit a higher level of performance, the owners tend to use fewer riskier performance measures to evaluate the efforts of their non-family executives.

In summary, the theoretical and empirical findings of my study confirm that family-firm owners follow mixed gamble theory and analyze their firms' performance to decide whether to incentivize non-family executives to incur more risk-taking that favors financial wealth over SEW or incentivize less risk-taking by non-family executives that favors SEW preservation over financial wealth. Thus, my study extends the research on family owners and family decision-makers, and it demonstrates that these primary stakeholders use vesting grants to ensure that their non-family executives make decisions that are in accordance with their own risk preferences.

Appendix A

Dependent Variables	Description	Source
Performance Vest	Dummy for Performance-Based Vesting of Grants which takes the value 1 and 0 otherwise.	EXECUCOMP
Time Vest	Dummy for Time-Based Vesting of Grants which takes the value 1 and 0 otherwise.	EXECUCOMP
d_grant_abs_esc	Grants based on absolute accounting measures of earning /sales or cashflow. This is a dummy variable which takes the value 1 for grants based on absolute accounting measures and 0 otherwise	EXECUCOMP
d_grant_rel_esc	Grants based on relative accounting measures of earning /sales or cashflow. This is a dummy variable which takes the value 1 for grants based on relative accounting measures and 0 otherwise	EXECUCOMP
ITQ	Log of Tobin's Q	CRSP_COMPUSTAT MERGED

Control Variables	Description	Source
ROA [Return on Assets]	A ratio of earnings before interest & taxes scaled by total assets	CRSP_COMPUSTAT MERGED items <i>ebit/at</i>
iroa	Industry Adjusted ROA is calculated as the deviation of firm specific ROA from its own industry mean ROA based on SIC4 digits classification. ¹	CRSP_COMPUSTAT MERGED items <i>ebit/at</i>
hiroa	iroa is greater than firm's industry mean ROA	
lowiroa	iroa is less than firm's industry mean ROA	
TQ [Tobin's Q]	Market-to-book ratio, defined as total assets plus the market value of common stock less the sum of book value of common equity and balance sheet deferred taxes scaled by total assets	CRSP_COMPUSTAT MERGED items <i>(at+csbo*prcc_f-ceq-txdb)/at</i>
Firm Size	Annual sales, scaled by natural logarithm	CRSP_COMPUSTAT MERGED items <i>sales</i>

¹ For calculation of Industry Adjusted ROA, we first normalize both industry specific mean ROA and firm specific ROA by rounding off to the nearest .05 level.

Firm Age	Calculated based on the first year on which firm's stock got listed	CRSP item <i>BEGIN OF STOCK DATA- Year 2014</i>
Firm Leverage	Year-end debt scaled by total assets	CRSP_COMPUSTAT MERGED items $(dltt+dlc)/at$

Volatility	Firm's Annualized stock returns calculated from daily closing price	CRSP_COMPUSTAT MERGED items <i>PRCCD</i>
Ln (Investment)	Log (Sum of capital and R&D expenditures scaled by total assets)	CRSP_COMPUSTAT MERGED items $(capx1xrd)/at$
Board Size	Size of the Board of Directors	Securities Exchange Commission DEF_14A
No. of Independent Board Members	No of Board Members who are not associated with the firm directly or indirectly in any capacity.	Securities Exchange Commission DEF_14A
No. of Institutional Blockholders	No of Institutional Investors who owns more than 5% of firm's equity	Securities Exchange Commission DEF_14A
Family Firm	Firms where family owns at least 5% of ownership equity or more. This is a dummy variable which takes the value 1 if the firm is a family firm or 0 otherwise	Securities Exchange Commission DEF_14A
familyCEO_ff	This is a dummy variable and takes the value 1 if the CEO is a family member or a founder	Securities Exchange Commission DEF_14A
non-familyCEO_ff	This is a dummy variable and takes the value 1 if the CEO is not related to the family	Securities Exchange Commission DEF_14A
non-familyCEO_nonff	This is a dummy variable and takes the value 1 if the firm is not a family firm and CEO is not related to the family	Securities Exchange Commission DEF_14A

References

- Abernethy, M. A., Kuang, Y. F., & Qin, B. 2015. The influence of CEO power on compensation contract design. *The Accounting Review*, 90(4): 1265-1306.
- Aboody, D., & Kasznik, R. 2000. CEO stock option awards and the timing of corporate voluntary disclosures. *Journal of Accounting and Economics*, 29(1): 73-100.
- Alessandri, T. M., Cerrato, D., & Eddleston, K. A. 2018. The mixed gamble of internationalization in family and non-family firms: The moderating role of organizational slack. *Global Strategy Journal*, 8(1): 46-72.
- Allen, M. P., & Panian, S. K. 1982. Power, performance, and succession in the large corporation. *Administrative Science Quarterly*: 538-547.
- Amoako-Adu, B., Baulkaran, V., & Smith, B. F. 2011. Executive compensation in firms with concentrated control: The impact of dual class structure and family management. *Journal of Corporate Finance*, 17 (5): 1580-1594.
- Anderson, R. C., & Reeb, D. M. 2003a. Founding-Family Ownership and Firm Performance: Evidence from the S&P 500. *The Journal of Finance*, 58(3): 1301-1328.
- Anderson, R. C., & Reeb, D. M. 2003b. Founding-family ownership, corporate diversification, and firm leverage. *The Journal of Law and Economics*, 46(2): 653-684.
- Arya, A., & Mittendorf, B. 2005. Offering stock options to gauge managerial talent. *Journal of Accounting and Economics*, 40(1): 189-210.
- Astrachan, J. H., & Jaskiewicz, P. 2008. Emotional returns and emotional costs in privately held family businesses: Advancing traditional business valuation. *Family Business Review*, 21(2): 139-149.
- Astrachan, J. H., Klein, S. B., & Smyrnios, K. X. 2002. The F-PEC scale of family influence: A proposal for solving the family business definition problem1. *Family Business Review*, 15(1): 45-58.
- Balsam, S., & Miharjo, S. 2007. The effect of equity compensation on voluntary executive turnover. *Journal of Accounting and Economics*, 43(1): 95-119.
- Barkema, H. G., & Gomez-Mejia, L. R. 1998. Managerial compensation and firm performance: A general research framework. *Academy of Management journal*, 41(2): 135-145.
- Barontini, R., & Caprio, L. 2006. The Effect of Family Control on Firm Value and Performance: Evidence from Continental Europe. *European Financial Management*, 12(5): 689-723.
- Bauweraerts, J., Diaz-Moriana, V., & Arzubiaga, U. 2019. A Mixed Gamble Approach of the Impact of Family Management on Firm's Growth: A Longitudinal Analysis. *European Management Review*.
- Bebchuk, L. A., & Fried, J. M. 2010. Paying for long-term performance. *University of Pennsylvania Law Review*: 1915-1959.
- Bergstresser, D., & Philippon, T. 2006. CEO incentives and earnings management. *Journal of Financial Economics*, 80(3): 511-529.

- Berrone, P., Cruz, C., & Gomez-Mejia, L. R. 2012. Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research. *Family Business Review*, 25(3): 258-279.
- Bertrand, M., & Mullainathan, S. 2001. Are CEOs rewarded for luck? The ones without principals are. *The Quarterly Journal of Economics*, 116(3): 901-932.
- Bettis, C., Bizjak, J., Coles, J., & Kalpathy, S. 2010. Stock and option grants with performance based vesting provisions. *The Review of Financial Studies*, 23(10): 3849-3888.
- Bettis, J. C., Bizjak, J., Coles, J. L., & Kalpathy, S. 2018. Performance-vesting provisions in executive compensation. *Journal of Accounting and Economics*, 66(1): 194-221.
- Bizjak, J. M., Kalpathy, S. L., & Mihov, V. T. 2018. Performance Contingencies in CEO Equity Awards and Debt Contracting. *The Accounting Review*, 94(5): 57-82.
- Block, J., Miller, D., Jaskiewicz, P., & Spiegel, F. 2013. Economic and technological importance of innovations in large family and founder firms: An analysis of patent data. *Family Business Review*, 26(2): 180-199.
- Block, J. H. 2010. Family management, family ownership, and downsizing: Evidence from S&P 500 firms. *Family Business Review*, 23(2): 109-130.
- Block, J. H. 2011. How to Pay Non-family Managers in Large Family Firms: A Principal—Agent Model. *Family Business Review*, 24(1): 9-27.
- Bolton, P., Scheinkman, J., & Xiong, W. 2006. Executive compensation and short-termist behaviour in speculative markets. *The Review of Economic Studies*, 73(3): 577-610.
- Brisley, N. 2006. Executive stock options: Early exercise provisions and risk-taking incentives. *The Journal of Finance*, 61(5): 2487-2509.
- Bromiley, P. 2009. A prospect theory model of resource allocation. *Decision Analysis*, 6(3): 124-138.
- Cadman, B., & Sunder, J. 2014. Investor horizon and CEO horizon incentives. *The Accounting Review*, 89(4): 1299-1328.
- Cadman, B. D., Rusticus, T. O., & Sunder, J. 2013. Stock option grant vesting terms: economic and financial reporting determinants. *Review of Accounting Studies*, 18 (4): 1159-1190.
- Cai, H., Li, H., Park, A., & Zhou, L.-A. 2013. Family Ties and Organizational Design: Evidence from Chinese Private Firms. *The Review of Economics and Statistics*, 95(3): 850-867.
- Caprio, L., Croci, E., & Del Giudice, A. 2011. Ownership structure, family control, and acquisition decisions. *Journal of Corporate Finance*, 17(5): 1636-1657.
- Carter, M. E., Ittner, C. D., & Zechman, S. L. C. 2009. Explicit relative performance evaluation in performance-vested equity grants. *Review of Accounting Studies*, 14(2): 269-306.
- Chen, H.-L., & Hsu, W.-T. 2009. Family ownership, board independence, and R&D investment. *Family Business Review*, 22(4): 347-362.
- Chen, S., Chen, X., Cheng, Q., & Shevlin, T. 2010. Are family firms more tax aggressive than non-family firms? *Journal of Financial Economics*, 95(1): 41-61.
- Cheng, M., Lin, B., & Wei, M. 2015. Executive compensation in family firms: The effect of multiple family members. *Journal of Corporate Finance*, 32 238-257.

- Chhaochharia, V., & Grinstein, Y. 2009. CEO compensation and board structure. *The Journal of Finance*, 64(1): 231-261.
- Chrisman, J. J., Chua, J. H., & Litz, R. A. 2004. Comparing the agency costs of family and non-family firms: Conceptual issues and exploratory evidence. *Entrepreneurship Theory and Practice*, 28(4): 335-354.
- Chrisman, J. J., Chua, J. H., Pearson, A. W., & Barnett, T. 2012. Family involvement, family influence, and family-centered non-economic goals in small firms. *Entrepreneurship Theory and Practice*, 36(2): 267-293.
- Chrisman, J. J., Memili, E., & Misra, K. 2014. Non-family managers, family firms, and the winner's curse: The influence of noneconomic goals and bounded rationality. *Entrepreneurship Theory and Practice*, 38(5): 1-25.
- Chrisman, J. J., & Patel, P. C. 2012. Variations in R&D investments of family and non-family firms: Behavioral agency and myopic loss aversion perspectives. *Academy of Management Journal*, 55(4): 976-997.
- Claessens, S., Djankov, S., Fan, J. P., & Lang, L. H. 2002. Disentangling the incentive and entrenchment effects of large shareholdings. *The Journal of Finance*, 57(6): 2741-2771.
- Claessens, S., Djankov, S., & Lang, L. H. 2000. The separation of ownership and control in East Asian corporations. *Journal of Financial Economics*, 58(1-2): 81-112.
- Coles, J. L., Daniel, N. D., & Naveen, L. 2006. Managerial incentives and risk-taking. *Journal of Financial Economics*, 79(2): 431-468.
- Combs, J. G., Penney, C. R., Crook, T. R., & Short, J. C. 2010. The Impact of Family Representation on CEO Compensation. *Entrepreneurship Theory and Practice*, 34(6): 1125-1144
- Combs, J. G., & Skill, M. S. 2003. Managerialist and human capital explanations for key executive pay premiums: A contingency perspective. *Academy of Management Journal*, 46(1): 63-73.
- Conyon, M. J. 2006. Executive compensation and incentives. *Academy of Management Perspectives*, 20(1): 25-44.
- Core, J., & Guay, W. 1999. The use of equity grants to manage optimal equity incentive levels. *Journal of accounting and economics*, 28(2): 151-184.
- Core, J., & Guay, W. 2002. Estimating the Value of Employee Stock Option Portfolios and Their Sensitivities to Price and Volatility. *Journal of Accounting Research*, 40(3): 613-630.
- Core, J. E., Guay, W. R., & Larcker, D. F. 2003a. Executive Equity Compensation and Incentives: A Survey. *Federal Reserve Bank of New York Economic Policy Review*, 9(1): 1-24.
- Core, J. E., Guay, W. R., & Verrecchia, R. E. 2003b. Price versus non-price performance measures in optimal CEO compensation contracts. *The Accounting Review*, 78(4): 957-981.
- Core, J. E., Holthausen, R. W., & Larcker, D. F. 1999. Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51(3): 371-406.

- Core, J. E., & Packard, H. 2017. Non-price and price performance vesting provisions and executive incentives. *SSRN 2547590*.
- Croci, E., Gonenc, H., & Ozkan, N. 2012. CEO compensation, family control, and institutional investors in Continental Europe. *Journal of Banking & Finance*, 36(12): 3318-3335.
- Cruz, C., & Justo, R. 2017. Portfolio entrepreneurship as a mixed gamble: A winning bet for family entrepreneurs in SMEs. *Journal of Small Business Management*, 55(4): 571-593.
- Cruz, C. C., Gómez-Mejia, L. R., & Becerra, M. 2010. Perceptions of Benevolence and the Design of Agency Contracts: CEO-TMT Relationships in Family Firms. *Academy of Management Journal*, 53(1): 69-89.
- David, P., Kochhar, R., & Levitas, E. 1998. The Effect of Institutional Investors on the Level and Mix of CEO Compensation. *The Academy of Management Journal*, 41 (2): 200-208.
- De Angelis, D., & Grinstein, Y. 2015. Performance terms in CEO compensation contracts. *Review of Finance*, 19(2): 619-651.
- Deephouse, D. L., & Jaskiewicz, P. 2013. Do family firms have better reputations than non-family firms? An integration of socioemotional wealth and social identity theories. *Journal of Management Studies*, 50(3): 337-360.
- Denis, D. J., Denis, D. K., & Sarin, A. 1997. Agency problems, equity ownership, and corporate diversification. *The Journal of Finance*, 52(1): 135-160.
- Dennis, P., & Mayhew, S. 2002. Risk-neutral skewness: Evidence from stock options. *Journal of Financial and Quantitative Analysis*, 37(3): 471-493.
- Daily, C.M. & Dollinger, M.J. (1993). Alternative methodologies for identifying family- versus nonfamily managed businesses. *Journal of Small Business Management*, 31(2), 79-90.
- Dyer Jr, W. G., & Whetten, D. A. 2006. Family firms and social responsibility: Preliminary evidence from the S&P 500. *Entrepreneurship Theory and Practice*, 30(6): 785-802.
- Eisenhardt, K. M. 1989. Agency theory: An assessment and review. *Academy of Management Review*, 14(1): 57-74.
- Fee, C. E., & Hadlock, C. J. 2003. Raids, rewards, and reputations in the market for managerial talent. *The Review of Financial Studies*, 16(4): 1315-1357.
- Fernandes, N., Ferreira, M. A., Matos, P., & Murphy, K. J. 2013. Are US CEOs paid more? New international evidence. *The Review of Financial Studies*, 26(2): 323-367.
- Frye, M. B. 2004. Equity-based compensation for employees: firm performance and determinants. *Journal of Financial Research*, 27(1): 31-54.
- Gedajlovic, E., Lubatkin, M. H., & Schulze, W. S. 2004. Crossing the threshold from founder management to professional management: A governance perspective. *Journal of Management Studies*, 41(5): 899-912.
- Gerakos, J. J., Ittner, C. D., & Larcker, D. F. 2007. The structure of performance-vested stock option grants, *Essays in Accounting Theory in Honour of Joel S. Demski*: 227-249 Springer.

- Goldberg, S. D., & Wooldridge, B. 1993. Self-confidence and managerial autonomy: Successor characteristics critical to succession in family firms. *Family Business Review*, 6(1): 55-73.
- Gomez-Mejia, L. R., Cruz, C., Berrone, P., & De Castro, J. 2011. The bind that ties: Socioemotional wealth preservation in family firms. *Academy of Management Annals*, 5(1): 653-707.
- Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. J. L., & Moyano-Fuentes, J. 2007. Socioemotional Wealth and Business Risks in Family-controlled Firms: Evidence from Spanish Olive Oil Mills. *Administrative Science Quarterly*, 52(1): 106-137.
- Gomez-Mejia, L. R., Larraza-Kintana, M., & Makri, M. 2003. The Determinants of Executive Compensation in Family-Controlled Public Corporations. *The Academy of Management Journal*, 46(2): 226-237.
- Gomez-Mejia, L. R., Patel, P. C., & Zellweger, T. M. 2018. In the horns of the dilemma: Socioemotional wealth, financial wealth, and acquisitions in family firms. *Journal of Management*, 44(4): 1369-1397.
- Gomez-Mejia, L. R., Makri, M., & Kintana, M. L. 2010. Diversification decisions in family controlled firms. *Journal of Management Studies*, 47(2): 223-252.
- Gomez-Mejia, L. R., Campbell, J. T., Martin, G., Hoskisson, R. E., Makri, M., & Sirmon, D. G. 2014. Socioemotional wealth as a mixed gamble: Revisiting family firm R&D investments with the behavioral agency model. *Entrepreneurship Theory and Practice*, 38(6): 1351-1374.
- Gopalan, R., Milbourn, T., Song, F., & Thakor, A. V. 2014. Duration of executive compensation. *The Journal of Finance*, 69(6): 2777-2817.
- Guay, W. R. 1999. The sensitivity of CEO wealth to equity risk: an analysis of the magnitude and determinants. *Journal of Financial Economics*, 53 (1): 43-71.
- Hall, B. J., & Liebman, J. B. 1998. Are CEOs really paid like bureaucrats? *The Quarterly Journal of Economics*, 113(3): 653-691.
- Hall, B. J., & Murphy, K. J. 2003. The trouble with stock options. *Journal of Economic Perspectives*, 17(3): 49-70.
- He, L. 2008. Do founders matter? A study of executive compensation, governance structure and firm performance. *Journal of Business Venturing*, 23(3): 257-279.
- Himmelberg, C. P., Hubbard, R. G., & Palia, D. 1999. Understanding the determinants of managerial ownership and the link between ownership and performance. *Journal of Financial Economics*, 53(3): 353-384.
- Hodge, F. D., Rajgopal, S., & Shevlin, T. 2009. Do managers value stock options and restricted stock consistent with economic theory? *Contemporary Accounting Research*, 26(3): 899-932.
- Holderness, C. G. 2003. A survey of blockholders and corporate control. *Economic Policy Review*, 9(1).
- Hussinger, K., & Issah, A.-B. 2019. Firm acquisitions by family firms: A mixed gamble approach. *Family Business Review*, 32(4): 354-377.

- Ittner, C. D., Lambert, R. A., & Larcker, D. F. 2003. The structure and performance consequences of equity grants to employees of new economy firms. *Journal of Accounting and Economics*, 34(1-3): 89-127.
- Jaskiewicz, P., Block, J. H., Combs, J. G., & Miller, D. 2017. The Effects of Founder and Family Ownership on Hired CEOs' Incentives and Firm Performance. *Entrepreneurship Theory and Practice*, 41(1): 73-103.
- Jaskiewicz, P., Combs, J. G., & Rau, S. B. 2015. Entrepreneurial legacy: Toward a theory of how some family firms nurture transgenerational entrepreneurship. *Journal of Business Venturing*, 30(1): 29-49.
- Jensen, M. C. 1989. The Eclipse of the Public Corporation *Harvard Business Review* (September-October).
- Jensen, M. C., & Murphy, K. J. 1990a. CEO incentives—It's not how much you pay, but how. *Journal of Applied Corporate Finance*, 3(3): 36-49.
- Jensen, M. C., & Murphy, K. J. 1990b. Performance Pay and Top-Management Incentives. *Journal of Political Economy*, 98(2): 225-264.
- John Harry, E., III, Gao, Z., Hwang, Y., & Wu, W.-T. 2017. Performance Periods in CEO Performance-Based Equity Awards: Theory and Evidence. *The Accounting Review*, 93(2): 161-190.
- Johnson, S. A., & Tian, Y. S. 2000. The value and incentive effects of non traditional executive stock option plans. *Journal of Financial Economics*, 57(1): 3-34.
- Kale, J. R., Reis, E., & Venkateswaran, A. 2009. Rank-order tournaments and incentive alignment: The effect on firm performance. *The Journal of Finance*, 64(3): 1479-1512.
- Karra, N., Tracey, P., & Phillips, N. 2006. Altruism and agency in the family firm: Exploring the role of family, kinship, and ethnicity. *Entrepreneurship Theory and Practice*, 30(6): 861-877.
- Kole, S. R. 1997. The complexity of compensation contracts. *Journal of Financial Economics* 43(1): 79-104.
- Kotlar, J., Signori, A., De Massis, A., & Vismara, S. 2018. Financial wealth, socioemotional wealth, and IPO underpricing in family firms: A two-stage gamble model. *Academy of Management Journal*, 61(3): 1073-1099.
- Kuang, Y. F. 2008. Performance-vested stock options and earnings management. *Journal of Business Finance & Accounting*, 35(9-10): 1049-1078.
- Kuang, Y. F., & Qin, B. 2009. Performance-vested stock options and interest alignment. *The British Accounting Review*, 41(1): 46-61
- La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. 1999. Corporate ownership around the world. *The Journal of Finance*, 54(2): 471-517.
- Lambert, R. A., Larcker, D. F., & Verrecchia, R. E. 1991. Portfolio considerations in valuing executive compensation. *Journal of Accounting Research*, 29(1): 129-149.
- Larcker, D. F. 1983. The association between performance plan adoption and corporate capital investment. *Journal of Accounting and Economics*, 5: 3-30.

- Laux, V. 2012. Stock option vesting conditions, CEO turnover, and myopic investment. *Journal of Financial Economics*, 106(3): 513-526.
- Le Breton-Miller, I., & Miller, D. 2013. Socioemotional wealth across the family firm life cycle: A commentary on “family business survival and the role of boards”. *Entrepreneurship Theory and Practice*, 37(6): 1391-1397.
- Li, Z., & Wang, L. 2016. Executive compensation incentives contingent on long-term accounting performance. *The Review of Financial Studies*, 29(6): 1586-1633.
- Lubatkin, M. H., Schulze, W. S., Ling, Y., & Dino, R. N. 2005. The effects of parental altruism on the governance of family-managed firms. *Journal of Organizational Behavior*, 26(3): 313-330.
- Mazur, M., & Wu, B. H. T. 2016. Founding Family Firms, CEO Incentive Pay, and Dual Agency Problems. *Journal of Small Business Management*, 54(4): 1099-1125.
- McConaughy, D. L. 2000. Family CEOs vs. Non-family CEOs in the Family-Controlled Firm: An Examination of the Level and Sensitivity of Pay to Performance. *Family Business Review*, 13(2): 121-131.
- McConaughy, D. L., Walker, M. C., Henderson Jr, G. V., & Mishra, C. S. 1998. Founding family controlled firms: Efficiency and value. *Review of Financial Economics*, 7(1): 1-19.
- Mehran, H. 1995. Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics*, 38(2): 163-184.
- Michiels, A., Voordeckers, W., Lybaert, N., & Steijvers, T. 2012. CEO Compensation in Private Family Firms: Pay-for-Performance and the Moderating Role of Ownership and Management. *Family Business Review*, 26(2): 140-160.
- Miller, D., Le Breton-Miller, I., Lester, R. H., & Cannella Jr, A. A. 2007. Are family firms really superior performers? *Journal of Corporate Finance*, 13(5): 829-858.
- Miller, D., Le Breton-Miller, I., & Lester, R. H. 2011. Family and lone founder ownership and strategic behaviour: Social context, identity, and institutional logics. *Journal of Management Studies*, 48(1): 1-25.
- Miller, D., Steier, L., & Le Breton-Miller, I. 2003. Lost in time: Intergenerational succession, change, and failure in family business. *Journal of business venturing*, 18(4): 513-531.
- Morck, R., Shleifer, A., & Vishny, R. W. 1988. Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, 20: 293-315.
- Morse, A., Nanda, V., & Seru, A. 2011. Are incentive contracts rigged by powerful CEOs? *The Journal of Finance*, 66(5): 1779-1821.
- Muñoz-Bullón, F., & Sanchez-Bueno, M. J. 2011. The impact of family involvement on the R&D intensity of publicly traded firms. *Family Business Review*, 24(1): 62-70.
- Murphy, K. 1999. Executive compensation. In O. Ashenfelter, & D. Card (Eds.), *Handbook of Labor Economics*, Vol. 3, Part B: 2485-2563: Elsevier.
- Murphy, K. J. 1986. Incentives, learning, and compensation: A theoretical and empirical investigation of managerial labor contracts. *The Rand Journal of Economics*: 59-76.

- Naldi, L., Nordqvist, M., Sjöberg, K., & Wiklund, J. 2007. Entrepreneurial orientation, risk taking, and performance in family firms. *Family Business Review*, 20(1): 33-47.
- Ofek, E., & Yermack, D. 2000. Taking Stock: Equity-Based Compensation and the Evolution of Managerial Ownership. *The Journal of Finance*, 55(3): 1367-1384.
- Oyer, P., & Schaefer, S. 2005. Why do some firms give stock options to all employees? An empirical examination of alternative theories. *Journal of Financial Economics*, 76 (1): 99-133.
- Palia, D. 2001. The endogeneity of managerial compensation in firm valuation: A solution. *The Review of Financial Studies*, 14(3): 735-764.
- Patel, P. C., & Chrisman, J. J. 2014. Risk abatement as a strategy for R&D investments in family firms. *Strategic Management Journal*, 35(4): 617-627.
- Paul, J. M. 1992. On the efficiency of stock-based compensation. *The Review of Financial Studies*, 5(3): 471-502 .
- Ramaswamy, K., Veliyath, R., & Gomes, L. 2000. A Study of the Determinants of CEO Compensation in India. *Management International Review*, 40 (2): 167-191
- Sapp, S. G. 2008. The Impact of Corporate Governance on Executive Compensation. *European Financial Management*, 14 6(4): 710-746 .
- Schepers, J., Voordeckers, W., Steijvers, T., & Laveren, E. 2014. The entrepreneurial orientation–performance relationship in private family firms: the moderating role of socioemotional wealth. *Small Business Economics*, 43(1): 39-55.
- Schulze, W. S., & Gedajlovic, E. R. 2010. Whither Family Business? *Journal of Management Studies*, 47(2): 191-204.
- Schulze, W. S., Lubatkin, M. H., & Dino, R. N. 2002. Altruism, agency, and the competitiveness of family firms. *Managerial and Decision Economics*, 23(4-5): 247-259.
- Schulze, W. S., Lubatkin, M. H., & Dino, R. N. 2003. Toward a theory of agency and altruism in family firms. *Journal of Business Venturing*, 18(4): 473-490.
- Schulze, W. S., Lubatkin, M. H., Dino, R. N., & Buchholtz, A. K. 2001. Agency relationships in family firms: Theory and evidence. *Organization Science*, 12(2): 99-116.
- Securities and Exchange Commission of U.S.A. 2006. EXECUTIVE COMPENSATION AND RELATED PERSON DISCLOSURE 1-436. United States of America: S.E.C.
- Shim, J., & Okamuro, H. 2011. Does ownership matter in mergers? A comparative study of the causes and consequences of mergers by family and non-family firms. *Journal of Banking & Finance*, 35(1): 193-203.
- Sloan, R. G. 1993. Accounting earnings and top executive compensation. *Journal of Accounting and Economics*, 16(1-3): 55-100.
- Thakor, A. V. 1990. Investment myopia and the internal organization of capital allocation decisions. *Journal of Law, Economics, & Organization*, 6(1): 129-154.
- Tosi, H. L., Werner, S., Katz, J. P., & Gomez-Mejia, L. R. 2000. How much does performance matter? A meta-analysis of CEO pay studies. *Journal of Management*, 26(2): 301-339.

- Villalonga, B., & Amit, R. 2006. How do family ownership, control and management affect firm value? *Journal of financial Economics*, 80(2): 385-417.
- Villalonga, B., & Amit, R. 2009. How Are U.S. Family Firms Controlled? *The Review of Financial Studies*, 22(8): 3047–3091.
- Walker, D. I. 2010. The challenge of improving the long-term focus of executive pay. *BCL Reviv*, 51(2): 435-472.
- Wiseman, R. M., & Gomez-Mejia, L. R. 1998. A behavioral agency model of managerial risk taking. *Academy of Management Review*, 23(1): 133-153.
- Wruck, K. H., & Wu, Y. 2017. Do CEOs Make Their Own Luck? Relative Versus Absolute Performance Evaluation and Firm Risk: Ohio State University, Charles A. Dice Center for Research in Financial Economics.
- Zellweger, T. M., Kellermanns, F. W., Chrisman, J. J., & Chua, J. H. 2012. Family control and family firm valuation by family CEOs: The importance of intentions for transgenerational control. *Organization Science*, 23(3): 851-868.
- Zellweger, T. M., Nason, R. S., Nordqvist, M., & Brush, C. G. 2013. Why do family firms strive for nonfinancial goals? An organizational identity perspective. *Entrepreneurship Theory and Practice*, 37(2): 229-248.