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Strategic Persistence, Dominant Strategy and Firm Performance in Publicly Traded Family Firms

Hanqing Fang

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Strategic persistence, dominant strategy and firm performance in publicly traded
family firms

By

Hanqing Fang

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Management
in the Department of Management and Information Systems

Mississippi State, Mississippi

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Hanqing Fang

2016

Strategic persistence, dominant strategy and firm performance in publicly traded
family firms

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One neglected yet very important feature of family business is its internal homogeneity. Different from heterogeneity which focuses on differences across family firms, homogeneity here refers to the continuity and similarity of decision-making patterns either over time or across business units in a single family firm. This dissertation attempts to explore homogeneity in family businesses as well as its antecedents and performance consequences. To distinguish different types of homogeneity, strategic persistence is defined as homogeneity of strategic patterns over time and the pursuit of a dominant strategy as the homogeneity across related business units. Based upon S&P 1500 manufacturing firms from 1996 to 2013, it is found that family firms have a higher level of strategic persistence and a more consistent dominant strategy than non-family firms. In addition, it appears that being older, with less organizational slack and having higher family involvement in ownership and management tends to strengthen the two kinds of homogeneity in family businesses. Finally, it is found that high homogeneity in decision-making can result in better performance in family business compared to non-

family firms, especially for those with high family involvement in management.

Theoretical implications and limitations are discussed.

Key words: Family Business, Behavioral Theory of the Firm, Strategic Persistence, Dominant Strategy, Firm Performance

DEDICATION

I would like to dedicate this dissertation to my mother Yajing Ruan. Mom: I would like to thank you for being a wonderful role model with your hard work and diligence which I always look up to and be proud of. I am also thankful for your continuous support and guidance which gives me strength in developing my career. Also your successful business and the learning opportunities I had there have been valuable in my business education, work experiences, family business research and teaching. You are my inspiration.

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CHAPTER I

INTRODUCTION

Recent studies in the family business literature start to highlight that high heterogeneity may be a distinguishing feature in the family business population (Chua et al., 2012). Nevertheless, one neglected yet very important feature of family business is the internal homogeneity of family businesses. Indeed, different from heterogeneity which focuses on differences across family firms, homogeneity refers to the continuity and similarity of decision-making patterns either over time or across business units in a *single* family firm. This dissertation attempts to explore homogeneity in family businesses as well as its antecedents and performance consequences. To distinguish different types of homogeneity, *strategic persistence* is defined as homogeneity of strategic patterns over time and the pursuit of a *dominant strategy* as the homogeneity across related business units. Thus, strategic persistence refers to the continuation of patterns of resource allocations in key strategic dimensions over time, while dominant strategy refers to a corporation-level strategy that involves similar patterns of resource allocations in key strategic dimensions among related business units in a diversified multi-business company. Note that both constructs intend to highlight the constancy of strategic decisions in individual family businesses. In addition, both constructs intend to cover multiple strategic decisions as opposed to previous family business studies that

only capture a single strategic decision such as R&D investment (Chrisman & Patel, 2012) or internationalization (Gomez-Mejia et al., 2010).

Studying strategic persistence and dominant strategy may help to advance our understandings of family firms in two ways. To begin, both strategic persistence and dominant strategy refer to an idiosyncratic yet homogenous way of decision-making in family business. Thus, family firms are different from non-family firms not only because what they do but also because how they do (being more consistent over time and across business units). In addition, exploring the performance consequences of strategic persistence and dominant strategy may provide an additional rationale why some family firms may perform differently from non-family firms.

This dissertation follows a behavior theory framework. Behavioral theory of the firm (e.g. Cyert & March, 1963) suggests that the combination of goals, governance, and resources is critical to any strategic action including strategic persistence and dominant strategy. This framework is chosen because it covers major determining factors in strategic formulation and its performance consequences (Hofer & Schendel, 1978), also because family firms tend to have unique goal-settings, resource compositions and governance structures compared to non-family firms (Carney, 2005). Indeed, such a theoretical framework has been embraced by family business researchers in distinguishing family firms from non-family firms as well as the differences among family firms (Chrisman & Patel, 2012; Chua et al., 2012)

As will be further elaborated, it is argued that the presence of family goals (maintaining family traditions and being parsimonious) and family governance over the business should facilitate the rise of a homogeneous pattern of strategic decision-making

over time and across diversified business units. Associated with this framework, it is hypothesized that firms that are older, with less organizational slack and higher family ownership will have a higher extent of strategic persistence and dominant strategy in family business. Finally, it is argued that the unique nature of resources as well as the coordination of resource utilization across diversified units in family business should make such a homogenous pattern of decision-making result in better performance relative to that in non-family business.

The sample is composed of S&P manufacturing firms from 1996 to 2013. *Hoover's*, *ExecuComp*, *Fundinguniverse.com*, *ancestry.com*, firm websites, and firm proxy statements are used to identify founding families and the family members. All data associated with corporate governance and family business come from firm proxy statements. Other data comes from the Compustat database. Endogeneity is controlled by using four instrumental variables that are statistically correlated to family business variables but not to the dependent variables and by using for one year lags between dependent variables and other variables. Due to the longitudinal nature of data, this dissertation uses fixed-effect longitudinal regression models to test all hypotheses.

Regression results from the primary and robustness analyses largely support the idea that family firms have higher strategic persistence and a more homogeneous dominate strategy than non-family firms, and such a higher level of homogeneity would result in better performance in family business.

The dissertation is composed of two essays. The *first essay* hypothesizes and tests the antecedents and performance consequences of strategic persistence in family business. The *second essay* hypothesizes and tests the antecedents and performance

consequences of dominant strategy in family business. Note that although both essays use the same theoretical framework, each has distinctive arguments due to the specific causal relationships in question. This dissertation ends with a conclusion chapter summarizing important results and implications.

CHAPTER II
ESSAY 1: FAMILY BUSINESS, STRATEGIC PERSISTENCE
AND FIRM PERFORMANCE

Introduction

Many corporations are controlled by a large shareholder group, typically founding family (Villalonga & Amit, 2006, 2009). Indeed, family businesses¹ are the dominant organizational form around the world (Morck & Steier, 2005), and research suggests that family firms behave differently from non-family firms (e.g., Anderson & Reeb, 2003; Gómez-Mejía et al., 2007). Heterogeneity also exists among family firms (Chrisman & Patel, 2012; Chua et al., 2012; Gómez-Mejía et al., 2013), so “a theory of the family firm must not only be able to distinguish between family and non-family firms but must also be able to explain variations among family firms” (Chua et al., 2012, p1104). Despite the inherent differences of firm behaviors between family and non-family firms and among family firms themselves, family involvement in ownership and firm governance is under-researched (Chrisman et al., 2012).

One criticism of family firms is that they are quite resistant to change in terms of firm behaviors (Chandler, 1990). Though some may choose to embrace rather than

1. Family firms are defined by a family’s involvement in ownership and governance and a vision for how the firm will benefit the family, potentially across generations (Chrisman & Patel, 2012; Chua, Chrisman & Sharma, 1999).

repulse change (Chrisman & Patel, 2012; Gomez-Mejia et al., 2007), the general impression is that family firms tend to avoid uncertainty and risk-taking by persisting in existing strategies, routines and practices (Block, 2012; König et al., 2013). Nevertheless, there remain numerous gaps in the literature. Firstly, scholars often focus on singular dimensions of change, which cannot necessarily extrapolate to a broader understanding of strategic change (e.g. Chrisman & Patel, 2012; Gomez-Mejia et al., 2007). In addition, research often draws attention to between-firm differences, while the question of the persistence of strategic actions in the temporal dimension is overlooked, despite its relevance to well-documented long-term orientation in family business (Lumpkin & Brigham, 2011; Miller & Le Breton-Miller, 2005; Miller et al., 2007). Lastly, no one has explored the performance consequences of the persistence of strategic decisions.

The central question this study intends to explore then is the relationship between family businesses and strategic persistence. The antecedents and the performance consequences of strategic persistence in family businesses are also explored. In this regard, strategic persistence is defined as the continuation of similar patterns in resource allocations in multiple key strategic dimensions over time (Finkelstein & Hambrick, 1990; Hambrick et al., 1993).

Such a concept is different from risk-taking, innovation or other decision-making in a number of ways. First, previous studies often focus on one strategic dimension (e.g. R&D investment, diversification, etc.), while strategic persistence refers to strategic choices in multiple strategic areas. Second, in contrast to most studies in the family business literature, strategic persistence draws its focus over a relatively long time window. As some scholars point out (e.g. Sharma et al., 2014), this inquiry opens up a

new stream of research on the temporal dynamics of decision-making in family business. Note that high persistence does not always mean that the firm is risk-averse, as a firm can be risk-taking (e.g. high in R&D investment) and persistent (e.g. maintain high R&D investment over time) at the same time. Third, a family firm's persistence in strategic decisions provides one additional explanation regarding how family involvement affects firm performance. Put differently, some family firms perform differently than non-family firms and other family firms (Miller et al., 2007) not only because they make idiosyncratic strategic decisions (Gomez-Mejia et al., 2011), but also because they realize these decisions in a different (e.g. more/less persistent) manner.

This essay begins with an overview of strategic persistence and relevant concepts in the literature, and then develops hypotheses related to family business and strategic persistence. This essay also explore firm age, organizational slack and family ownership as three antecedents related to strategic persistence in family businesses. After that, this essay explores the relationship between strategic persistence and firm performance in family business. Then, the methodology, analytic results and implications are discussed.

Strategic Persistence

In this study, strategic persistence is defined as the continuation of patterns of resource allocations in key strategic dimensions over time (Finkelstein & Hambrick, 1990; Hambrick et al., 1993). Indeed, scholars have long been interested in the pattern of firm's strategies over time and their impact on firm performance. Firms tend to stick to their own strategies, and firm strategy does not necessarily enhance a firm's survival and performance unless aligned with the firm's history (Barnett & Burgelman, 1996; Harrison et al., 1993; Zajac et al., 2000). The central logic here is that an organization has the

tendency as well as the incentive to be persistent in its own strategy (Kisfalvi, 2000).

Hence, strategic persistence² is a concept that is in direct opposition to strategic change in the long-term (Ford et al., 2008).

There are a number of noteworthy implications related to this definition. First, it is descriptive, not predictive in nature. Such a way of defining strategic persistence can avoid the problem of tautology in conceptualization (Priem & Butler, 2001). Second, in alignment with the resource-based theory in the strategic management literature (Barney, 1991; Sirmon et al., 2007, 2011), this definition emphasizes resource allocation as the key issue in strategic decision-making (Mintzberg, 1978). Third, this definition conceptualizes strategic decision-making as a multi-dimensional construct related to resource allocations in multiple strategic areas (Carpenter, 2000; Zhang, 2006). Fourth, this definition assumes that at least some companies are willing and able to maintain a relatively stable pattern of strategic decision(s) over time. Hence, it directly contradicts the assumptions that organizations are homogenous and they are just passive reflections of industrial dynamics (Conner, 1991). Fifth, this definition highlights the pattern of persistence of strategic decisions rather than the strategic decisions themselves. The latter are concerned with a static state of resource allocation whereas the former emphasizes the temporal dynamics of resource distributions (Finkelstein & Hambrick, 1990). Sixth, whereas there are a number of studies concerning the variations (Smith & Grimm, 1987), dynamics (Kelly & Amburgey, 1991; Zajac et al., 2000) and deviations (Carpenter, 2000)

2. Another concept that relates to strategic persistence is organizational inertia, as "structures of organizations have high inertia when the speed of reorganization is much lower than the rate at which environmental conditions change" (Hannan & Freeman, 1984, p151). Nevertheless, organizational inertia is more about the inability to change, while persistence is more about not willing to change from a behavioral theory view (Cyert & March, 1963).

of strategic decision-makings from the previous temporal term to the current temporal term, none of them has explored the question in a long time window. Put differently, while the existing literature largely looks at short-term change, this study tends to explore the dynamics (whether being persistent) of strategic decision-making in the long run (Amburgey, Kelly & Barnettm 1994).

In order to explore the causal effect of family's involvement on strategic persistence, as well as the performance consequences of strategic persistence, the next section follows a behavioral theory framework. It assumes that a decision-maker's goals and organizational governance eventually determines strategic action in business. On the other hand, it is organizational resource that affects the implementation of strategic action and eventually firm performance (Barney, 1991; Cyert & March, 1963).

Behavioral Theory Framework

Behavioral theory explores the "black box" in economic organizations in terms of formulation and implementation of strategic actions (Hofer & Schendel, 1978).

According to the theory, organizational decision-makers pursue idiosyncratic *goals*, which eventually determine organizational behaviors (Cyert & March, 1963, p26–43). In this regard, behavioral theory explicitly recognizes the heterogeneity of goals in different organizations. For instance, some organizations may place higher priority on firm growth while some others may emphasize efficiency and performance (Greve, 2008). This view has been largely embraced by family business scholars (Chua et al., 2012), as family decision-makers often possess heterogeneous goals (Kotlar & De Massis, 2013), leading to diverging strategic actions (Chrisman & Patel, 2012). On the other hand, the behavioral theory also assumes that multiple actors may have conflicting interests that are

not entirely alleviated by contracts (Cyert & March, 1963). This assumption implies that organizational *governance* determines which goals turn into strategic actions (Williamson, 1999). If a decision-maker is perceived to have power and legitimacy such as the case of family owner-manager, his/her goals are more likely to manifest into firm actions (Mitchell et al., 1997; Useem, 1993).

In the end, the implementation of strategic action relies on resources in the organization (Hofer & Schendel, 1978). Indeed, the effective implementation of organizational learning, adaption, and innovation is dependent upon the availability of resources (Greve, 2003; Levinthal & March, 1993; Nohria & Gulati, 1996). On the other hand, organizations often have difficulties in acquiring new resources as well as leveraging and shedding existing resources, meaning that the successful implementation of any kind of strategic action depends on resources in organization (Sirmon et al., 2007, 2011). Again, family firms may have a unique set of family-endowed resources such as human, social, patient, survivability, and governance capital (Sirmon & Hitt, 2003), which may give competitive advantages to some family firms over non-family competitors (Habbershon & Williams, 1999; Habbershon et al., 2003).

Overall, the behavioral theory framework suggests that the combination of goals, governance, and resources is critical to any strategic action including strategic persistence. This essay chooses to use this framework not only because it covers major determining factors in strategic formulation and its performance consequences (Hofer & Schendel, 1978), but also because it has been embraced by family business researchers in distinguishing family firms from non-family firms as well as other family firms (Chrisman & Patel, 2012; Chua et al., 2012). This essay also proposes that the unique

nature of resources in family business should make strategic persistence more favorable compared to the case in non-family business. The following section intends to build hypotheses relating family business to strategic persistence.

Hypothesis Development: Family Business and Strategic Persistence

In alignment with the behavioral theory framework, all antecedents³ behind high strategic persistence in family firm can be grouped into goal and governance. These two categories refer to the fact that family decision-makers choose to persist more than non-family ones because they are motivated to do so (*goals*), and because they have the discretion to do so (*governance*). This classification also aligns with the family business literature in terms of possible mechanisms by which family involvement may affect strategic actions (Chrisman et al., 2013).

Goal

One basic assumption in the management literature is that firm decision-makers have various economic goals, which eventually result in various strategic decisions across firms (Cyert & March, 1963). Regarding strategic persistence, organizational decision-makers may perceive that maintaining persistent strategy is more aligned with their economic interest, as strategic change may either reduce existing benefits or bring in additional costs (Miller, 1991; Vollman, 1996). The former implies that change in existing strategy is often associated with high utility loss for owner-managers, whereas the latter suggests that initiating change may increase costs due to the additional resource

3. In this essay, resources are conceptualized as organizational contingencies that may affect the strategic implementation process. That is to say, the role of a resource is to impact the strategy-performance link.

investments. Indeed, the literature acknowledges that there are rewards for exploiting strategies established in the past (Levinthal & March, 1993). Returns on new and perhaps superior strategies may be less certain compared to returns on existing strategies, because performance of a new strategy is less reliable and less explicable to organizational stakeholders (Hannan & Freeman, 1984).

In the family business literature, a number of studies recognize that family firms behave differently from non-family firms and one another due to the presence of idiosyncratic goals in owning families (Gomez-Mejia et al., 2007; 2010; 2013). In addition, family business scholars suggest that family owner-managers may have unique non-economic goals including the willingness to exercise authority and influence, the emotional value of owning a firm, family members' identification with the firm, and renewal of family bonds to the firm through dynastic succession (Berrone et al., 2012). Accordingly, family firms tend to favor strategies that can help achieve these goals (Chrisman et al., 2012), and be averse to strategies that may potentially hinder their achievements (Gomez-Mejia et al., 2007; Chrisman & Patel, 2012).

While there may be a number of family goals that can relate to strategic persistence in family business, this essay focuses on the goals of *maintaining family tradition* and *being parsimonious*. Family tradition is chosen because it lies at the center of the family's socio-emotional or non-economic concerns (Berrone et al., 2005), and also because it is directly related to the continuity of family's control over generations (Tagiuri & Davis, 1992). Parsimony is chosen because it is a unique feature related to family's management of resources, which is expected to determine the formulation of strategic choices in family firms (Carney, 2005). These two goals suggest that family

firms choose to be persistent in decision-making because they want to stick to their traditions, and because they are parsimonious in resource acquisition and utilization.

One non-economic goal in family business is to sustain the family's tradition and heritage in the business (Berrone et al., 2012; Carney & Gedajlovic, 2003). Indeed, family tradition⁴ consists of preservation, constancy, and durability (Lumpkin & Brigham, 2011). For family owners the firm is not just an asset that can be sold (Chrisman, Chua, Steier, Wright & Mckee, 2012; Zellweger et al., 2012), but rather a symbol of family's heritage and tradition that should be succeeded into later generation (Casson, 1999; Tagiuri & Davis, 1992). Hence, choosing to continue past strategies may be perceived as a practice that sustains family heritage and tradition (Kieser, 1989). Note that the family tradition may be innovative and entrepreneurial. In this regard, the family business may persist in their past strategies, reflected in high R&D investment over time.

In contrast, practices that deviate from past strategy may be perceived as a violation of family tradition and history, and be discarded by family owner-managers. Although under some circumstances family firms may choose to violate their long-lasting traditions, especially when their socio-emotional wealth is under threat (Gomez-Mejia et al., 2007; Chrisman & Patel, 2012), the general impression is that family owners are risk-averse and willing to stick to what they have done in the past (Lumpkin & Brigham, 2011).

Family tradition also manifests in the temporal consideration of a family firm's strategic decision-making. In particular, the presence of family tradition make family

4. A relevant but slightly different concept is family legacy. However, legacy concerns what can be passed for future family generations, while tradition concerns the preservation of what happened in the past.

decision-makers prioritize the long-range decisions and actions that may last for an extended time period (Le Breton-Miller & Miller, 2006; Lumpkin et al., 2010; Lumpkin & Brigham, 2011). This would suggest that the frequency of changing strategic decisions in family business is not as high as that in non-family business. In other words, family businesses are more likely to adhere to long-term plans than non-family businesses. Hence, strategic persistence in family business is a reflection of decisions previously developed and applied consistently over time.

Furthermore, one important part of family tradition in business is to pass the control to later-generation family members (Berrone et al., 2012). Indeed, it has been found that for the owning family, intra-family and especially inter-generation succession intention is more important than the family's dominant position in ownership or the duration of family control in affecting firm decision-making (Zellweger et al., 2012). On the other hand, the owning family often uses unique criteria in choosing a family successor, such as the convergence to family tradition, obedience to the old generation, as well as the maintenance of intra-family relationships (De Massis et al., 2008; Gersick et al., 1997; Lee et al., 2003). This would suggest that among all later-generation family members, those with the intent to follow previous strategies are more likely to be chosen as successors of family business. In addition, family members in younger generations often live under the shadow of the older family generation, even if they have already taken the control of the business (Davis & Harveston, 1999). Thus, late-generation family members are likely to follow whatever the older generation has formulated in firm strategy, resulting in the persistence of firm actions. All points taken, it would imply that

the intention to maintain family control across generations should lead to strategic persistence.

Beside family tradition, another goal behind strategic persistence in family business is parsimony. As Carney (2005) points out, family decision-makers tend to be parsimonious in resource utilization and acquisition. Parsimony helps improve the efficiency of resource utilization, often by reducing unnecessary expenditures (Carney, 2005). Indeed, empirical evidence has shown that family business tends to provide lower compensation to family executives (Combs et al., 2010; Gomez-Mejia et al., 2003) and lower dividends or profit sharing (Miller & Le Breton-Miller, 2005) to reduce the overall expenses. This would suggest that family decision-makers are motivated to improve efficiency by reducing administrative costs and avoiding unnecessary expenditures. In this regard, family owners-managers may favor maximizing rent appropriation of current strategy rather than searching for new alternatives (Pérez-González, 2006). Hence, family decision-makers may favor maintaining current strategy (i.e. being persistent in strategic decisions) rather than experimenting with new alternatives.

In addition, parsimony in resource acquisition also relates to the owning family's reluctance to acquire resources from non-family parties because doing so may dilute the family's control in business. In this instance, family business often avoids depending on debt or outside equity in order to raise fresh funds (Chua et al., 2011; Zellweger et al., 2012). In addition, family owners often intentionally reserve managerial or other key business positions for family members because doing so may induce less owner-manager agency cost (Chrisman et al., 2004; Jensen & Meckling, 1976), and is helpful to the

creation and preservation of family-centered socio-emotional wealth⁵ (Berrone et al., 2012; Chrisman et al., 2014). Nevertheless, changing a firm's strategy inevitably involves new financial and human capital investments. To overcome the limitations of family-endowed resources, family decision-makers have to employ non-family managers and other talent and/or search for external investment (Carney, 2005; Chrisman, Memili & Misra, 2014; Chua et al., 2011). This is not favored by family-owner-managers unless the family is under significant threat of losing its socio-emotional wealth endowment in the firm (Gomez-Mejia et al., 2007; Chrisman & Patel, 2012) or with no other choice (Ilias, 2006).

Governance

Decision-makers must hold dominant positions in corporate governance to transmit their goals into strategic actions in organizations (Bunderson, 2003; Cybert & March, 1963; Tang et al., 2011). In this sense, group attributes of the dominant coalition⁶ such as demographic characteristics (Wiersema & Bantel, 1993), diversity (Goodstein et al., 1994), position (Daily & Dalton, 1997) and power relationships (Ocasio, 1994; Shen & Cannella, 2002) often affect decision-making processes. In addition, decision-makers

5. Socio-emotional wealth refers to non-financial aspects or “affective endowments” of members in the controlling families, in terms of the propensity to exercise authority and influence, the emotional value of owning a firm, family members' identification with the firm, and renewal of family bonds to the firm through dynastic succession (Berrone et al., 2012).

6. Dominant coalition is conceptualized as the governance network of decision-makers - such as owners, top manager(s) or top management team (TMT) - within an organization that influence the goals and the resources of the organization (Cyert & March, 1963). In a family business, the dominant coalition refers to that group of family members who control, manage and make major decisions aimed at shaping and preserving the business across generations (Chua et al., 1999).

are often responsible for guiding the rationalization of strategic decisions (Gioia & Chittipeddi, 1991), such as interpreting and disseminating information throughout the whole company (Nadkarni & Barr, 2008). Hence, governance not only ensures the transitions of a decision-maker's goals into the formulation of strategic decisions, but also facilitates the spread of such a decision throughout the whole organization (Hofer & Schendel, 1978). On the other hand, the family business literature acknowledges that family firms may possess a governance structure different from non-family firms (Carney, 2005). Indeed, when ownership and management are tightly held by a limited number of individuals such as the case in family business, it is likely that individualized and simplified rules and heuristics are used in planning strategic decisions (Gedajlovic, Lubatkin, & Schulze, 2004). By contrast, professional managers are constrained by formal procedures and the need to quantify risks and returns to justify decision-making (Stewart & Hitt, 2012).

Regarding strategic persistence, the likelihood of persistence is dependent upon the governance structure by which decision-maker's willingness may transfer into strategic action in organizations (Gibbs, 1993; Sanders & Carpenter, 1998; Zahra, 1996). Thus, the extent to which family-centered goals can be transmitted into firm decision-making is dependent upon the power, legitimacy, and family-centered-stakeholder-salience of the dominant coalition (Carney, 2005). Hence, governance is a necessary but insufficient condition for strategic persistence to take place. Put differently, having personalized, particularized, and family-stakeholder-salient governance does not automatically ensure the rise of strategic persistence. The persistence arises only when the governance aligns with goals mentioned above.

In this regard, family business governance features the combination of personalism and particularism (Carney, 2005). Personalism refers to the “personalization of authority that allows the family to project its own vision onto the business”, while particularism means that “family control rights permit the family to intervene in the affairs of the firm to substitute other, “particularistic” criteria of their choosing” (Carney, 2005, p253). The combination of personalism and particularism ensures that family-centered goals can transmit into firm strategies such as making persistent strategic decisions over time.

From a different view, stakeholder theory suggests that the family owner-manager’s goal is not only transmitted through their power and legitimacy but also their identity of belonging to the control family. In this regard, Mitchell et al. (2011) argue that a distinguishing characteristic of family firms is a tendency to confer power and/or legitimacy to certain family members because of *who they are*, even though their actual power and legitimacy would not normally warrant such attention. Managers in a family firm may consider the importance and urgency of claims from family stakeholders (Mitchell et al., 1997). This view complements Carney’s arguments, as it suggests that family’s influence over governance is not necessarily limited in their power and discretion, and family members who are not involved in operation may also post their influences on business.

All taken, due to the unique combination of goals and governances in family firms compared to non-family firms, family firms are more likely to adhere to persistent strategic decisions. In formal terms,

Hypothesis 1: Family businesses have a higher level of strategic persistence than non-family businesses.

Hypothesis Development: Age, Organizational Slack and Family Ownership in Family Business

Family businesses comprise a heterogeneous population that varies significantly by idiosyncratic goals and governances that are aligned with each owning family (Chua et al., 2012). While Hypothesis 1 focuses on the general tendency of family firms, it should not be interpreted to mean that all family firms are alike. Some family firms may instead have a higher level of strategic persistence compared to others. Following the goal-governance framework developed above, it is argued that firm age, organizational slack, and family ownership of the firm may affect the salience of goals and governance in family business. Thus, these three factors make some family firms more persistent than others.

Firm Age

Scholars have long claimed that organizations have the tendency to become rigid and inflexible when they grow older (Hannan & Freeman, 1984). As firms age, their behaviors become increasingly guided by existing norms and traditions (Deephouse, 1996). On the other hand, the development of tradition often derives from prior operating experiences (Nelson & Winter, 1982). Thus, *ceteris paribus*, in comparison to younger firms, older firms have more salient traditions embedded (Hannan & Freeman, 1984).

It is expected that firm age should positively relate to strategic persistence in family business for two reasons. First, when family firms age, family tradition becomes more valuable in the family system (Gersick et al., 1997). Indeed, family tradition

concerns the preservation of past long-standing aspirations in the family system (Miller & Le Breton-Miller, 2005), thus the value and importance of family tradition should become larger when a family firm ages. This is especially true given the higher interaction and overlap between family and business (Habbershon et al., 2003), the owning family's dominant position in firm governance (Carney, 2005) and the owning family's endowment of key strategic resources (Sirmon & Hitt, 2003). In this regard, compared to younger family firms, older family firms are more likely to make persistent strategic decisions because family tradition becomes more valuable and important to family decision-makers (Lumpkin et al., 2010; Lumpkin & Brigham, 2011).

Second, the question of firm age is more complex in family firms, because the family system also evolves with age. In this sense, when a family firm ages, additional individuals may join in the family system by genetic, marital and kinship ties (Gersick et al., 1997). The inclusion of new family members would make the family tradition more salient, as these members are born, educated and groomed with family tradition. Thus, older family firms are more likely to embrace strategic persistence because more family members are included in business operation, while these members are natural agents of family traditions. Although arguably there may be some family members who are unwilling to follow what other family members are doing, strong social connections among family members make these divergent behaviors more likely to be found, while strong family-centered norms may pose high social pressure upon those family members to conform (Pollak, 1985). Differently put, strong family connections and norms have the potential to strengthen family tradition over time.

Combined, it is expected that the extent of strategic persistence in family business should increase when the business grows older, hence:

Hypothesis 2a: Within family firms, there is a positive relationship between firm age and strategic persistence.

Organizational slack

One reason behind strategic persistence is parsimony in family business. Nevertheless, not all family firms are alike, as some may be more willing to lavishly invest while others may not (Arregle et al., 2012). In particular, this essay proposes that family firms with higher organizational slack are less parsimonious thus less likely to persist with existing strategy.

Organizational slack refers to organizational resources embedded in the firm as excess costs that are greater than those needed by the firm (Singh, 1986). Examples of organizational slack include excessive stocks of cash and liquidable assets or excessive expenditures paid in seedlings and administrations (Greve, 2003). In this matter, firms may reserve more cash or employ more individuals than necessary to operate effectively such that these slacks can provide a cushion or buffer from disruptions in output (Cyert & March, 1963). As parsimony concerns the efficiency of resource utilization, a high level of organizational slack would signal a low level of parsimony (Mishina et al., 2004; Voss et al., 2008).

Following this rationale, organizational slack is expected to negatively relate to strategic persistence in family business. Indeed, increasing investment in organizational slack would suggest that some family business are less parsimonious compared to others. In this matter, although in general family firms tend to avoid high specific investment,

some may choose to do so anyway due to the reversal of reference or other potential threats to family-centered socio-emotional wealth (Chrisman & Patel, 2012; Gomez-Mejia et al., 2007, 2013). Given the fact that parsimony is one factor driving the rise of strategic persistence, the increase of organizational slack would be negatively associated with persistent decision-making in family business over time. Hence, it is expected that:

Hypothesis 2b: Within family firms, there is a negative relationship between organizational slack and strategic persistence.

Family Ownership

Family ownership can work as a medium to transfer owning family's goals and willingness into the business system. Nevertheless, publicly-traded firms often involve non-family even institutional owners, whose goals are not always aligned with the owning family's interest (Chrisman et al., 2012). For instance, non-family public shareholders may be concerned with rent appropriation by majority family owners and oppose to strategic decisions may would strengthen the family's power and legitimacy (Almeida & Wolfenzon, 2006; Anderson et al., 2009; Morck & Young, 2003; Young et al., 2008). In addition, non-family and especially institutional owners are primarily concerned with organizational profitability, which often relates to innovation and corporate venturing. Although these non-family owners and stakeholders are not as powerful as owning families in publicly- firms (Carney, 2005), their presence still works as hindrance to mitigate family's influence on strategic decision-making (Arregle et al., 2012). On the other hand, high family ownership would weaken the bargaining power of non-family owners and strengthen family governance (Cyert & March, 1963). Hence,

strategic persistence becomes more likely given high family ownership in publicly-traded family firms, meaning:

Hypothesis 2c: Within family firms, there is a positive relationship between family ownership and strategic persistence.

Hypothesis Development: Strategic Persistence and Firm Performance in Family and Non-family Businesses

Given the higher strategic persistence in family firms compared to non-family ones, it is natural to ask how strategic persistence affects firm's performance in family business. The following section intends to discuss about the linkage between strategic persistence and economic performance in family businesses.

Strategic persistence may be harmful to organizations (Zajac & Kraatz, 1993; Zajac et al., 2000). In this sense, strategic change may represent organizational adaption to changing conditions either within or outside of the organization. Indeed, sustainable performance requires organizational responses that maintain the alignment of the firm's strategy, structure and ideology with the demands of an evolving and changing environment (Hedberg, Bystrom & Starbuck, 1976). In addition, change may reflect experimentation and risk-taking (Carpenter, 2000; Finkelstein & Hambrick, 1990; Zhang, 2006). Thus, change may be a consequence of bold thinking and pursuit of novel strategic alternatives, which may help achieve superior performance (Haveman, 1992; Zajac & Kraatz, 1993; Zajac et al., 2000). Finally, strategic change is essential in organization turnaround as successful turnarounds require managers to initiate change that is consistent with organizational and environmental situations (Baker & Duhaime, 1997).

Nonetheless, it is inaccurate to claim strategic persistence is always harmful. Indeed, one enduring assumption in the strategy literature is that the effect of a firm's

strategy on firm performance depends upon its fit with organizational resources and the environment (Hofer & Schendel, 1978; Miles & Snow, 1994; Sirmon et al., 2011). Resources influence the competitive position of organizations (Barney, 1991). On the other hand, resources must be structured and leveraged according to the requests associated with a strategic decision (Karim & Mitchell, 2000; Sirmon et al., 2007). Here, structuring involves the processes of acquiring, accumulating, and deploying focal resources, while leveraging includes the processes of mobilizing and coordinating resources (Sirmon et al., 2011). For instance, firms need to purchase new resources, deploy existing resources or change the structure of existing resources in order to extend their product lines or change the firm's product portfolios (Barney, 1991; Karim & Mitchell, 2000).

Concerning strategic persistence, making persistent decisions may lead to above-average performance when an existing resource portfolio is path-dependent and thus appropriate only to a unique strategic choice (Patel & Pavitt, 1997). Furthermore, strategic persistence is favorable when it is hard to re-structure, organize or redeploy (Karim & Mitchell, 2000). In the end, the benefits of strategic persistence may arise when it is costly to leverage resources within the company (Sirmon et al., 2007). Conversely, family business features the interaction between the family unit, the business unit, and individual family members, making its resources specific, inseparable and intangible (Habbershon et al., 2003). Being specific means existing resources are path-dependent and cannot support the development of a new strategic choice (Habbershon et al., 2003). Being inseparable means that family members often have emotional attachment to these resources, hence any attempt to divest existing resources or acquiring new ones may

result in great internal resistance (Gedajlovic et al., 2004). Intangibility suggests that some family-centered resources do not have a physical presence and thus cannot be easily re-leveraged (Cabrera-Suárez et al., 2001). As will be discussed in the next section, this essay espouses the view that the combination of specificity, inseparability and intangibility makes strategic persistence generally more valuable in family business than that in non-family business.

Resources in Family Business

Besides family-centered goals and family-centered governance, a family's influence on business may also arise through the family's endowment of resources. Family business researchers recognize that the interaction of family units, business units, and individual members, (Gersick, et al., 1997) can lead to competitive advantages in some family firms (Habbershon & Williams, 1999; Habbershon et al., 2003; Pearson et al., 2008). For instance, Habbershon and Williams (1999) and Habbershon et al. (2003) argue that a family's involvement in businesses may bring in distinctive resources unavailable to non-family firms, such as those based on human, social, patient, survivability, and governance capital (Sirmon & Hitt, 2003). The follow-up literature further suggests that family governance may have advantage over non-family governance in the process of creating, accumulating and managing resources (Sirmon & Hitt, 2003), such as family and kinship networks (Lester & Cannella, 2006), intangible knowledge (Cabrera-Suárez, Saá-Pérez & García-Almeida, 2001), reputation (Dyer, 2006) and social capital (Pearson et al., 2008). While these resources may take variant forms, they all feature three shared attributes: specificity, inseparability, and intangibility.

Specificity

Specificity means that the effectiveness of some resources is dependent on the local environment (Balakrishnan & Fox, 1993). When resources become specific (e.g., tooling used to manufacture a single product), they become valuable only to that specific context and costly to redeploy without loss in value (Riordan & Williamson, 1985; Williamson, 1999).

In family businesses, resource specificity means that most of the family-endowed resources are path-dependent and cannot be easily used for purposes other than those for which they were originally designed (Habbershon et al., 2003). For instance, family firms often rely on family members to take key managerial positions (Gomez-Mejia et al., 2003). Positive attributes of family human resources include extraordinary commitment, and warm, friendly and intimate relationships (Donnelley, 1964; Horton, 198).

On the other hand, the accumulation of family human resources depends upon family members' early childhood involvement and long-term learning-by-doing in the family firm (Chirico et al., 2011; Sirmon & Hitt, 2003). In particular, family members' simultaneous participation in both business and family relationships make the accumulation of family human resources unique and distinctive from the case in non-family firms. In this regard, knowledge aligned with these family members is often path-dependent, meaning that these human resources are often contingent upon a particular way of running business and can no longer be valuable under a different context (Sirmon et al., 2008). Another example is patient capital, defined as financial assets invested without threat of liquidation for long periods (Sirmon & Hitt, 2003). Patient capital stems from family firm's longer time horizon of decision-making compared to non-family

firms, as family firms often look into the longer future planning its strategies and operations (Zellweger, 2007). This would suggest that the current utilization of patient capital is planned in the past and cannot be easily altered at present. Therefore, the resource portfolio in family business may not be supportive to any change that diverges from existing strategic choice (Lumpkin & Brigham, 2011).

Nonetheless, having resource specificity does not mean strategic change is impossible. The focal firm can always change its resource portfolio by divesting old and/or acquiring new resources, or re-leveraging existing resources by de-coupling old bundles and/or creating new ones. As will be further elaborated, this is not the case in family business due to the combination of resource inseparability and resource intangibility.

Inseparability

Inseparability means that it is rather costly to separate the family's involvement from its endowment of resources. Indeed, in order to get resources from the family system, there must be some level of family involvement in business (Habbershon et al., 2003). However, making strategic change (and being non-persistent) often requires the shedding of old resources and acquiring of new resources; thus the portfolio of organizational resources may better fit the newly-developed strategy (Sirmon & Hitt, 2003). However, family members as well as the whole family may have emotional attachment for family-endowed resources (König et al., 2013). Emotional ties among family members make shedding old and acquiring new resource less likely. As an example, compared to non-family counterparts, family firms are less likely to end the tenure of their employees especially those belonging to owning families (Cruz et al.,

2010; Schulze et al., 2001, 2003). Nonetheless, under high pressure family owners may be willing to unbind their emotional attachments, but often demand higher economic compensations to do so. For instance, family owners often ask for higher prices to sell their businesses (Zellweger et al., 2012).

In addition, family owners may oppose acquisition of new resources from non-family parties, because doing so may potentially dilute family's influence and mitigate family's attachment to the business. In the end, even with new resource investment family decision-makers may choose to strengthen existing business routines rather than initiating new ones. In comparison, due to lower extent of emotional attachment, shedding old resources and acquiring new ones would be easier and less costly in the setting of non-family business.

Therefore, it appears that the feature of resource inseparability makes obtaining new resources and/or shedding old resources difficult in family firms. Given the fact that strategic change often requires the revision of existing resource portfolio to support its implementation, persisting old strategic choices become a better option to reach superior performance.

Intangibility

Recent work distinguishes tangible resources (e.g., people, machinery, financial capital) from intangible, knowledge-based resources (e.g., Kogut & Zander, 1992). In this instance, intangibility refers to the fact that some resources have no actual physical presence. Examples of intangible resources include organizing principles, skills, and processes that direct organizational actions (Kogut & Zander, 1996). In family business, family-centered intangible resources include family cultures, heuristics and routines,

which are largely possessed, shared and transferred among family members (Cabrera-Suárez et al., 2001). In comparison, non-family firms are often characterized by professional and explicit knowledge that non-family executives learn from educational institutions.

Family-centered intangible resources are important to family business, as they work as high-order managerial principals to coordinate activities and manage other resources (Carney, 2005; Kogut & Zander, 1996). Nevertheless, these intangible resources also have limitations. For example, they depend on the endowment of the owning family and cannot be directly purchased from external factor markets (Barney, 1986; Pearson et al., 2008). In addition, these resources cannot be codified and easily transferred, and often requires the buildup of shared understanding and trust either between family and non-family members or among family members (Cabrera-Suárez et al., 2001; Von Krogh et al., 2000). In the end, these family-centered resources are accumulated through either learning-by-doing or social interactions, but often limited among family members only (Sirmon & Hitt, 2003).

Under the condition of resource intangibility, frequent strategic changes become less valuable. Indeed, the creation of competitive advantage through strategic change depends upon the successful de-bundling of old resources and re-bundling of new resources (Barney, 1991; Sirmon et al., 2007). Different from shedding old resources and/or acquiring new ones discussed above, this one concerns the re-leveraging of existing resource portfolio (Barney & Arkan, 2001). On the other hand, because family-centered intangible resources are difficult to transmit and their transmissions are often limited among family members, it is hard and costly to re-leverage these resources

(Cabrera-Suárez et al., 2001). For instance, strategic change often requires the inclusion of new non-family professionals to lead or assist initiatives in business. However, these non-family members cannot easily understand family-centered traditions and routines (Chrisman et al., 2014). In addition, besides the problem of understanding, the presence of family heuristics makes the adoption of new practices difficult in family business (Gedajlovic et al., 2004), as family members would resist in accepting non-family practices whereas non-family members would resist in family practices. This would suggest that the feature of resource intangibility makes strategic change a less optimal option because re-structuring of existing resources becomes difficult thus costly.

In sum, being specific, inseparable and intangible makes it difficult to re-structure, leverage or redeploy resources in family business (Sirmon et al., 2007). Thus, resource portfolio in family business is path-dependent and appropriate only to existing strategic choice (Karim & Mitchell, 2000; Patel & Pavitt, 1997). That is, in family business strategic persistence should lead to the increase of firm performance. In formal terms:

Hypothesis 3: There is a positive interaction between family business and strategic persistence on firm performance.

Hypothesis Development: The Moderating Effect of Family Management

Specificity, inseparability and intangibility are interdependent. On the one hand, being inseparable and intangible makes some family-endowed resources specific. Indeed, when the resource endowment of a business is not linked to family involvement, non-family managers can easily substitute family managers, because these resources in question are just like the resources in a non-family setting (Stewart & Hitt, 2012). In this

instance, resource specificity may result in high transaction costs of strategic change only when resource inseparability and intangibility are high. However, specificity, inseparability and intangibility are endogenously developed as their saliences all associate with the family's involvement in business, especially the family's participation in firm management. That is, specificity, inseparability and intangibility of family-endowed resources increase when family involvement in management increases. In particular, family management may signal the organization's reliance upon the family's provision of resources (Gedajlovic et al., 2004); meaning the path-dependence nature (specificity) of resources would arise aligned with family management. In addition, family involvement in management can represent the family's intention to maintain control over business, which should directly relate to its psychological and emotional attachments to family-endowed resources (Arregle et al., 2007). In the end, family managers are agents not only transmitting family-centered intangible resources to the business system, but also structuring and leveraging these resources in the business system (Chirico et al., 2011). All taken, it would suggest that resource specificity, inseparability and intangibility all result from family involvement in management. Given the rationale of H3, the positive effect of strategic persistence on firm performance in family firms should be more salient in those with higher family management than those with lower family management. In another word:

Hypothesis 4: There is a positive interaction between family management and strategic persistence on firm performance in family firms.

Methodology

Data

The sample is composed of manufacturing firms listed in the S&P 1500 index from 1996 to 2013 with at least five years of continuous information on the firm available. Utility and service firms are excluded owing to differences in government regulation and feasible strategic actions of these firms compared to manufacturing firms. Such exclusion ensures greater homogeneity in the sample. The focus is on 1996 to 2013 because it covers the “Internet Bubble” and financial crisis periods in which firms’ strategic decisions would be likely to vary. Hence, strategic persistence and firm performance should have sufficient variations in the sample. Such a long range also means that there are enough time-series observations to ensure that the measure of strategic persistence is meaningful. In addition, this range covers periods used in previous studies on family businesses (Anderson & Reeb 2003; Miller, Le Breton-Miller, Lester & Cannella, 2007) and observations in recent years. Firms without at least five years of continuous information are excluded, because strategic persistence by nature requires sustained operations over an extended period of time.

The data are longitudinal in nature. To identify founding families, and the role of those families in a firm (as part of the top management team and/or board of directors), *Hoover’s*, *ExecuComp*, *Fundinguniverse.com*, *ancestry.com*, firm websites, as well as company proxy statements were examined. Measures related to corporate governance and family business -such as family ownership and family management- are obtained from firm proxy annual reports. Other variables, including strategic persistence, primarily come from the Compustat database. To ensure the direction of causality, one-year lags

between the dependent variable and other variables are used. Also for all models, the dependent variable(s) are adjusted by industry-average(s), thus industry-specific effects can be mitigated.

In total, the primary sample includes 682 firms representing 5,048 firm-year observations from 1996 to 2013 for further analysis. Note that the actual sample size for each model greatly varies due to missing data and the loss of time-series observations in calculating strategic persistence.

Independent and Dependent Variables

The primary independent variable is *family business*. Although the definition of family business is still debated (Chrisman et al., 2005; Gomez-Mejia et al., 2011), the literature generally measures family business via some combination of family ownership and family management. Thus, family business is defined by a family's involvement in ownership and management and a vision for how the firm benefits the family, potentially across generations (e.g. Chua et al., 1999). This definition implies that family management is at least as important as family ownership, because it is the medium through which the owning family can transmit its goals and endow its resources into the firm's operation (Chrisman et al., 2012).

Consistent with this definition, family business is measured as a binary variable in which 1 indicates that the focal firm has at least 5 % family ownership, at least two family members who are or have been employed as significant owners, top managers, or directors in firm's history, and at least one family member who is currently involved in

TMT^{7 8 9}(Anderson & Reeb, 2003; Chrisman & Patel, 2012; Gomez-Mejia et al., 2013; Miller et al., 2007). All firms that do not meet these conditions are considered non-family firms and are coded as 0. Such a measurement highlights that multiple family members are or have been involved in the company, which may signal the presence of intra-family succession intention. Such a measurement also ensures family's involvement in both ownership and management, which may represent the family's ability in transferring family-centered visions into firm strategic behaviors. In addition, this measurement differentiate family firms from either lone-founder firms which by definition do not have multiple family members involved in the business, or from non-family blockholder-controlled firms in which the significant owners are neither family members nor founders.

Also, Gomez-Mejia and colleagues (2011, p659) notes that, “the potential existence of unknown threshold effects also poses a problem when relying on continuous measures of ownership. For example, holding 5% or more of a firm's shares in a Fortune 500 company may convey a dominant position, and owning an additional 20% or 30% of the shares may not make much difference in terms of influence over the firm's affairs (Tosi et al., 1999)”. Thus, this study chooses not to use a continuous measure of family

7, Family business is also measured by at least 5 % family ownership, at least two family members currently or historically involved, and either family CEO or family chairman as an alternative measure of family business. Regression results are similar to the primary results.
8, Family business is also measured by at least 5 % family ownership and at least two family members currently involved in TMT. Such a measure may signal the presence of intra-family succession intention in the family. Regression results are discussed in the robustness tests.
9, Family business is also measured by the number of family managers in TMT if there is at least 5 % family ownership, at least two family members currently or historically involved, and at least one family managers in TMT. Such a measure is continuous in nature and may better capture the variance of family's involvement in business. Regression results are discussed in the robustness tests.

ownership to proxy the extent of family's involvement in business. As will be further discussed in the *post hoc* tests, it is found that family ownership may have a non-linear relationship with strategic persistence or its effect may be contingent upon other factors.

Strategic Persistence is defined as the continuation of similar patterns in resource allocations in key strategic dimensions over time (Finkelstein & Hambrick, 1990; Hambrick, Geletkanycz & Fredrickson, 1993). There are two issues worth noting about this definition. First, strategic persistence should cover multiple strategic areas rather than focus on a single area. Second, strategic persistence should be measured across a relatively long time window.

To deal with the first issue, six key strategic dimensions are used: (1) advertising intensity (advertising/ sales), (2) research and development intensity (R&D/sales), (3) plant and equipment newness (net P&E/gross P&E), (4) non-production overhead (selling, general, and administrative [SGA] expenses/sales), (5) inventory levels (inventories/ sales), and (6) financial leverage (debt/equity). These dimensions have been used in previous studies to capture the general pattern of strategic decision-making in each firm (Carpenter, 2000; Finkelstein & Hambrick, 1990; Zhang, 2006).

For the second issue, the standard deviations of the variables over the most recent ten year period are calculated. Note that strategic persistence is used as a dependent variable in testing for H1 and H2a-c, and used as an independent variable in testing for H3 and H4. When it is used as dependent variable, the standard deviation of ten years *in the future* (year t ~ year $t+9$) is used, while in the case of independent variable, ten years (year $t-10$ ~ year $t-1$) *in the past* is used. Such a treatment further ensures the direction of

causality in the analyses. As a robustness test, a five year window is used for an alternative measure of strategic persistence.

It should be noted that the standard deviation is empirically different from the mean of the variable over time or the stock value of the variable in a given year. The former captures the dynamic variation over time, while the latter measures are static in nature. For instance, it is possible for a company to have a high amount of R&D investment in a given year, but low variation across time if the company persists in high R&D investments.

After that, all six variables are standardized (Mean= 0 and S.D. =1). Then mean of all six variables was calculated, which represents the average of variation of strategic actions across the ten-year window. Then, because persistence is opposite to variation in definition, the reverse value of the average (i.e. -0.5 is reversed into 0.5) was used to create the measure of strategic persistence. Such a treatment ensures that if the focal firm-year observation has above-average strategic persistence, its value should be higher than 0. Similarly, if the observation has below-average strategic persistence, its value should be lower than 0. In the end, to ensure industry-specific effects were considered by adjusting this measure by industry-average.

Industry-adjusted Tobin's Q (market value to assets adjusted by industrial average as computed by Chung & Pruitt, 1994) is used as the measure of *firm performance*. This measure has been widely used in the family business literature (Anderson & Reeb, 2003; Miller et al., 2007). Industry-adjusted Return on Assets (ROA) is also used for a robustness test.

Firm age is calculated as the number of years that a company has been operating in the market. Firm age is also used as a control variable in testing H3 and H4 as firm performance may vary according to the time that the firm has been operating.

Organizational slack is defined as organizational resources that are more than what actually needed (Singh, 1986). Aligned with the definition, organizational slack is calculated as the ratio of liquid asset (reserved cash and marketable securities) divided by sales (Tan & Peng, 2003). Similar to firm age, this variable is added as a control variable in testing for H3 and H4, as organizational slack often affects the variation of firm performance.

Family ownership is measured as the overall percentage of family ownership (Anderson & Reeb, 2004). It is different from the family business measure such that this variable is continuous. Note that although family ownership has been used to classify family and non-family firms, it still significantly varies in family firms. This feature allows the test of H2c as some family firms may have higher family ownership compared to others. Also, note that this variable is used to test for H2c, as the emphasis here is on the variation of family ownership in the family business population only. Thus, any firm with less than 5% family ownership is not included in the analysis.

Family management is measured as the number of family members among the Top Management Team (TMT). The number of the sum of family members on the board of director (BOD) and family TMT members is also used as an alternative measure of family management for a robustness test. This alternative measure reflects the fact that family board members may engage in monitoring thus may affect the implementation of strategic actions in family firms.

Control Variables

As mentioned above, two independent variables (*firm age* and *organizational slack*) are used as control variables in regressing firm performance (H3 and H4). In addition, following Anderson and Reeb (2003, 2004) and Miller et al. (2007), a number of control variables are included because of their potential influences on firm behaviors and performance.

The variable of *lone-founder firm* is controlled, measured by a binary variable in which 1 denotes the situation where the one-founder has at least 5% ownership (Miller et al., 2007). Note that lone-founder firms are differentiated from family firms as the latter must have at least two family members historically involved in the business. In addition, note that lone-founder firms and family firms are mutually exclusive, thus this variable is not included in testing hypotheses for the family business sample (H2a-H2c & H4).

Non-family blockholder ownership, measured as the overall percentage of blockholder ownership in year t-1, is controlled as these non-family owners may have concerns that are incompatible with the owning family's interests (Morck et al., 2005). Note that these blockholder may be representative of institutional investors as their presence is often affiliated with financial institutes.

In addition, *firm size* (i.e., log of the number of sales in year t-1, Anderson & Reeb, 2003, 2004), *debt ratio* (debt-to-asset ratio measured as a ratio in year t-1) and *firm risk* (the standard deviation of stock returns for the previous three years, Anderson & Reeb, 2003) are also controlled, as these factors often affect the decision-making process and accordingly firm performance (Dean & Sharfman, 1996).

This study also includes five out of six strategic actions mentioned above for each given period, namely *advertising intensity* (advertising/ sales in t-1 period), *R&D intensity* (R&D/sales in t-1 period), *plant and equipment newness* (net P&E/gross P&E in t-1 period), *inventory level* (inventories/sales in t-1 period), and *financial leverage* (debt/equity in t-1 period), all measured as ratios. Indeed, strategic actions in the past may affect strategic decisions in future, as firms are often path-dependent in their patterns of decision-making. It should be noted that the independent variable is calculated based on the S.D.s of these variables across a ten-year window, whereas the controls are calculated as their static values in year t-1. Also, note that the measure of SGA ratio (selling, general, and administrative [SGA] expenses/sales) is not included. This is because this variable is often used as a measure of organizational slack and may therefore be theoretically redundant as this study has already included a measure of organizational slack¹⁰. Because corporations often diversified into foreign markets, this study also includes a measure of *international sales* calculated by the percentage of sales coming from foreign domains in year t-1. As performance may also affect strategic decisions in family business, this study controls for *past performance* (ROA in t-1 term). Industrial affiliation is also controlled by *industrial average performance*, measured as industry averages of ROA at the four-digit SIC codes in year t-1. Finally, the *inverse Mills ratio* calculated to control for endogeneity is added as an additional control for all models.

10, Empirically, SGA ratio and the measure of organizational slack show a high level of correlation that may bias the estimation.

Controlling for Endogeneity

It is possible that endogeneity may make the regression estimates biased. This study uses two approaches to control for endogeneity. First, as mentioned above, one-year lag is used between the dependent variable and others to ensure the direction of causality, thus the probability of reverse causality is mitigated. Second, the Heckman's (1979) two-stage technique (see Gómez-Mejía et al., 2007) is also used. The key here is to find instrumental variables that are highly related to the independent variable (family business measure) but are unrelated to the dependent variables. Put differently, high quality instrumental variables in this instance should be family firm specific and not strongly connected to either strategic action or firm performance.

This study uses four instrumental variables. First, this study uses *family trust-holdings* affiliated with the largest owner in the firm in a given year, measured as a binary variable in which 1 denotes the situation that the owner holds either trusts or foundations associated with family members and 0 otherwise. Indeed, founders, family owners and other major shareholders often choose to use trust or foundation to take care of their family members. Note that the establishment of trust-holding may be driven by superior firm performance. Nonetheless, as one-year lags are used between dependent variable and other variables, the direction of causality is ensured. In addition, theoretically family trust-holding can be a signal of the owning family's vision such that the business is used to ensure the benefit of the whole family as well as individual family members. Thus, the inclusion of this instrumental variable also helps to ensure the presence of family-centered vision in business. This variable is obtained from annual proxy statements.

Second, this study controls for the fraction of industry sales that comes from family firms (i.e. *family firm sales fraction by industry*), which is naturally related to the probability that a firm in the industry is such a firm, yet is independent of the second stage dependent variables (strategic persistence and Tobin'Q) because the latter are industry-adjusted. Similar measures have been used in previous studies in family business (Amit et al., 2015) and finance (Campa & Kedia, 2002). Third, this study also controls for family firms' fraction of capital expenditure by industry (i.e. *family firm capital fraction by industry*). Lastly, family firms' fraction of advertisement expenditure by industry (i.e. *family firm advertisement fraction by industry*) is also controlled. Note that within three family firm fraction variables, one is related to performance (sales) and the other two are related to decision-making. Such a design is appropriate because the hypotheses are related to both strategic persistence and firm performance. Using Heckman's two-stage procedure, this study first estimates one probit model in which family business (=1) versus non-family firm (=0) is regressed against four instrumental variables and other controls mentioned above. According to the estimation results, the inverse Mills ratio is calculated for each yearly-firm observation and included as a control in all models.

Empirical Results

Descriptive statistics and correlations are reported in Table 1. In general, 23% of the sample are family firms, while 9% are lone-founder firms. These numbers are similar to other studies exploring publicly traded lone-founder and family firms (Miller et al., 2007). In addition, consistent with Chrisman and Patel (2012), as well as Miller and colleagues (2007), family firms are negatively while lone-founder firms are positively

correlated with R&D investments. Thus, it appears that the sample is comparable to other family business studies in publicly traded firms. Although the correlation between family business and strategic persistence is not significant (0.00 in 5 years period; 0.05 in 10 years periods), family management appears to have positive and significant relationships with strategic persistence (0.03 in 5 years period; 0.01 in 10 years periods). Also consistent with expectations, strategic persistence is negatively correlated with firm performance. In terms of the selection of instrumental variables, all four variables are positively and significantly related to family business variable(s). In addition, their correlations with family business variable(s) are much higher compared to their correlations with either strategic persistence or firm performance, which are largely not significant¹¹ (Table 1). All of these provide initial support that the selection of instrumental variables is appropriate. The highest variance inflation factor (VIF) is 2.78, suggesting that multi-collinearity is not a major concern.

11, Z-statistics reveal that the smallest difference between instrumental variables' correlation with family business variable and their correlation with strategic persistence or performance is significant at 0.001 level ($Z=-13.47$).

Table 1 Descriptive Statistics and Correlation

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1, Strategic Persistence (10 years)	0.00	0.48	1.00									
2, Strategic Persistence (5 years)	0.00	0.50	0.91	1.00								
3, TOBIN's Q	2.33	2.02	-0.09	-0.11	1.00							
4, ROA	0.44	0.24	0.06	0.06	0.24	1.00						
5, Family Business (Family TMT>0)	0.23	0.42	0.00	0.01	0.00	-0.03	1.00					
6, Family Ownership	9.82	20.15	-0.01	0.02	-0.02	-0.03	0.71	1.00				
7, Age	51.37	40.41	0.03	0.02	-0.02	-0.05	-0.06	0.01	1.00			
8, Organizational Slack	0.56	24.83	0.02	0.01	0.00	0.02	-0.03	-0.04	0.02	1.00		
9, Family Management (TMT)	0.35	0.70	0.03	0.05	0.00	-0.02	0.80	0.63	-0.07	-0.01	1.00	
10, Family Management (TMT+ BOD)	0.94	1.66	0.03	0.05	-0.01	-0.03	0.84	0.73	-0.02	-0.02	0.92	1.00
11, Lone-Founder Firm	0.09	0.29	-0.01	-0.03	0.04	0.00	-0.18	-0.15	-0.24	0.01	-0.16	-0.18
12, Blockholder Ownership	2.83	8.75	-0.05	-0.03	0.02	0.15	0.00	-0.04	-0.06	0.01	-0.01	-0.03
13, Firm Size	6.98	1.66	0.09	0.08	-0.02	-0.12	-0.12	-0.06	0.35	0.08	-0.11	-0.09
14, Debt Ratio	0.04	0.06	-0.03	-0.02	-0.04	-0.01	0.00	0.03	0.12	0.01	0.02	0.02
15, Firm Risk	8.57	10.99	0.03	-0.01	0.13	0.02	-0.05	-0.03	-0.06	-0.01	-0.05	-0.07
16, Advertisement Ratio	0.01	0.04	-0.11	-0.13	0.02	0.10	0.07	0.13	0.00	0.01	0.08	0.08
17, R&D Ratio	0.04	0.09	-0.11	-0.15	0.00	-0.02	-0.12	-0.14	-0.21	0.01	-0.10	-0.13
18, Plant Newness	0.53	0.14	-0.02	0.00	0.03	-0.10	0.10	0.10	-0.13	-0.05	0.10	0.09
19, Inventory Ratio	0.13	0.20	-0.06	-0.04	-0.02	-0.06	0.06	0.04	0.01	-0.27	0.05	0.05
20, Leverage Ratio	0.25	1.73	-0.02	-0.01	-0.01	-0.01	0.00	-0.01	0.02	0.00	-0.02	-0.01
21, International Sales	0.13	17.59	0.00	0.00	-0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
22, Past Performance	0.44	0.25	0.03	0.03	0.13	0.54	0.04	0.05	-0.06	0.03	0.04	0.04
23, Industrial Average Performance	0.44	0.19	0.00	0.00	-0.04	-0.03	0.08	0.09	-0.03	0.02	0.06	0.07
24, Family Trust-Holdings	0.36	0.48	-0.02	-0.02	0.03	-0.01	0.68	0.61	-0.11	-0.02	0.58	0.67
25, Family Firm Sales Ratio by Industry	0.20	0.31	0.01	0.02	0.02	0.02	0.49	0.43	-0.03	-0.03	0.46	0.48
26, Family Firm Advertisement Ratio by Industry	0.17	0.34	0.03	0.04	0.01	0.00	0.32	0.30	-0.02	-0.03	0.31	0.31
27, Family Firm Capital Ratio by Industry	0.19	0.31	-0.01	-0.01	0.01	0.02	0.49	0.41	-0.03	-0.03	0.46	0.48

Table 1 (continued)

11, Lone-Founder Firm	11	12	13	14	15	16	17	18	19	20	21	22
12, Blockholder Ownership	1.00	1.00										
13, Firm Size	-0.15	-0.19	1.00									
14, Debt Ratio	-0.06	0.00	0.16	1.00								
15, Firm Risk	0.11	-0.03	0.07	-0.02	1.00							
16, Advertisement Ratio	0.03	0.01	0.02	0.02	0.16	1.00						
17, R&D Ratio	0.16	-0.01	-0.25	-0.08	0.17	0.29	1.00					
18, Plant Newness	0.06	0.06	0.05	0.04	0.04	0.08	-0.11	1.00				
19, Inventory Ratio	-0.04	0.01	-0.08	0.08	0.08	0.07	0.30	0.07	1.00			
20, Leverage Ratio	-0.02	-0.01	0.08	0.23	0.00	-0.01	-0.01	0.02	0.04	1.00		
21, International Sales	0.00	-0.02	0.01	0.01	0.00	0.00	0.02	0.00	0.00	0.00	1.00	
22, Past Performance	0.03	0.13	-0.07	-0.03	0.02	0.21	-0.09	-0.09	-0.11	-0.04	0.01	1.00
23, Industrial Average Performance	0.04	0.05	0.00	-0.02	0.00	0.20	-0.08	-0.02	-0.09	-0.03	0.00	0.76
24, Family Trust-Holdings	0.21	0.15	-0.16	-0.03	-0.01	0.08	-0.06	0.07	0.03	-0.02	0.00	0.07
25, Family Business Sales Ratio by Industry	-0.10	-0.02	-0.07	0.06	-0.01	0.09	-0.16	0.13	0.05	0.00	0.00	0.07
26, Family Advertisement Ratio by Industry	-0.08	-0.05	-0.01	0.08	-0.02	0.13	-0.12	0.06	0.06	0.03	0.01	0.09
27, Family Capital Ratio by Industry	-0.10	-0.02	-0.08	0.04	-0.02	0.10	-0.15	0.10	0.04	-0.01	0.00	0.11
23, Industrial Average Performance	23	24	25	26	27							
24, Family Trust-Holdings	1.00	1.00										
25, Family Business Sales Ratio by Industry	0.10	0.36	1.00									
26, Family Advertisement Ratio by Industry	0.07	0.21	0.53	1.00								
27, Family Capital Ratio by Industry	0.11	0.36	0.95	0.50	1.00							

Note:

All variables are NOT adjusted by industrial average

All correlations above |0.03| are significant at 0.10 or better for a two-tailed test

Due to the nature of longitudinal data, Ordinary Least Square (OLS) regression analysis may yield biased estimations. The Hausman test (Chi Sq Statistic=303.90, P-Value<0.001) suggests that the fixed effect model is more appropriate than the random-effect. Thus, fixed-effect longitudinal regression is used as the primary analytic technique. In order to control for potential serial correlation and heteroscedasticity, Huber-White estimator clustered at the firm level is also used (Judson & Owen, 1999). In all models, a one year lag between dependent and other variables is used.

As mentioned above, this study uses Heckman's two-stage approach to partially control for endogeneity. Model 1 (Table 2) is the first-stage probit treatment model in which the binary variable of family business is regressed against instrumental variables and other controls. Lone-founder firms are not included as a control as this category is mutually exclusive from the family business variable. Overall, four instrumental variables are all positively and significantly related to the family business variable, suggesting that the selection of instruments is reasonable (Table 2, Model 1).

Model 2 (Table 2) tests H1. Firm risk ($B = -0.002$, $p\text{-value} < 0.001$), plant newness ($B = -0.225$, $p\text{-value} < 0.001$) and international sales ($B = -0.0001$, $p\text{-value} < 0.001$) are negatively related to strategic persistence. In support of H1, the family business variable is positively ($B = 0.047$, $p\text{-value} < 0.001$) related to strategic persistence. This means that, *ceteris paribus*, being a family business increases the extent of strategic persistence by 0.047 units compared to case of non-family business. Thus, the result indicates that family firms tend to be more persistent in strategic decision-making compared to non-family firms. It should also be noted that the estimated coefficients of lone-founder firms and blockholder ownership are not significant. Combined with the significant coefficient

of family ownership, it suggests that the result found here is not due to the effect of ownership concentration.

Model 3 (Table 2) tests H2a-H2c. Note that while H1 intends to address the difference between family and non-family businesses, H2a-H2c aim at exploring the heterogeneity in the family business population. Thus, Model 2 (Table 2) focuses on family firms only, and the control variable of lone-founder firm is taken out because this type of organization is mutually exclusive from family business.

In support of H2a and H2b, firm age ($B= 0.011$, $p\text{-value}<0.001$) is positively related to strategic persistence, while organizational slack ($B= -0.002$, $p\text{-value}<0.001$) is negatively related to strategic persistence.

Nevertheless, H2c is not supported as the family ownership ($B= -0.375$, $p\text{-value}>0.10$) variable is negatively but not significantly related to strategic persistence. Thus, it appears that in the family business population, family ownership does not have a linear and positive relationship with strategic persistence. Indeed, as mentioned earlier, it is possible that family ownership may have a non-linear impact upon the exercise of family's influence in business. This issue will be further discussed in the *post hoc* analysis.

Table 2 Fixed-Effect Longitudinal Regression Analysis, H1-H2c

Model	Model 1	Model 2	Model 3
Dependent Variable	Family Business Binary Variable	Strategic Persistence	Strategic Persistence
Sample	FB & NFB	FB & NFB	FB
Constant	-1.622***	0.058	0.405
Family Business (H1)		0.047***	
Firm Age (H2a)	-0.0004		0.011**
Organizational Slack (H2b)	-0.004**		-0.002***
Family Ownership (H2c)			-0.0002
Lone-founder Firm		0.029	
Blockholder Ownership	-0.020***	0.000	-0.003***
Firm Size	-0.160***	0.004	-0.096*
Debt Ratio	1.736***	-0.078	-0.378
Firm Risk	-0.006***	-0.002***	-0.001
Advertisement Ratio	0.506	-0.295	-0.192
R&D Ratio	-2.001***	-0.981	-0.190
Plant Newness	0.456	-0.225***	-0.142†
Inventory Ratio	0.000	0.400	-0.196
Leverage Ratio	0.326	-0.004	0.012**
International Sales	0.001	-0.0001***	0.001
Past Performance	-0.570	-0.005	-0.184†
Industrial Average Performance	0.438	0.015	-0.109
Inverse Mills Ratio		-0.023	0.024
Family Trust-Holdings	2.219***		
Family Sales Ratio by Industry	1.408***		
Family Advertisement Ratio by Industry	0.352***		
Family Capital Ratio by Industry	0.419*		
Cross-section	682	682	164
Periods	9	9	9
Sample Size	5,048	5,048	1,092
Within R Square	0.57	0.30	0.10
F-statistics		9.30***	25.47***
Absolute Log Likelihood	2300.65***		

Note:

1) Unstandardized estimation coefficients are reported

2) † p < .10; * p < .05; ** p < .01; *** p < .001.

3) Mills Ratio calculated by Model 1

Model 4 (Table 3) tests H3. The family business variable (B= -0.240, p-value<0.05) is negatively related to firm performance. Strategic persistence (B= -0.130, p-value>0.10) has a negative but not significant effect on firm performance. In support of H3, the interaction between the family business variable and strategic persistence is positive and significant (B= 0.130, p-value<0.05). This suggests persisting in previous

strategic decision-making may help improve performance in family owned and managed organizations. Model 5 (Table 3) tests H4. Supporting H4, the interaction between strategic persistence and family management is positive and significant ($B= 0.258$, $p\text{-value}<0.05$). It appears that family firms with high levels of family management primarily capture the positive effect of strategic persistence.

Figure 1 plots Model 3. It appears that, non-family firms have higher performance compared to family firms. In addition, the increase of strategic persistence is not associated with salient change in firm performance in non-family firms. In support of H3, there is a positive relationship between strategic persistence and firm performance in family business. Indeed, given the high level of strategic persistence, the performance difference between family and non-family firms becomes minimized.

Figure 2 plots Model 4. Similar to Figure 1, it appears that strategic persistence has a positive effect on firm performance given high family's involvement in management. Supporting H4, when strategic persistence approaches a relatively high level, family firms with high family management outperform those with low family management.

Table 3 Fixed-Effect Longitudinal Regression Analysis, H3-H4

Model	Model 4	Model 5
Dependent Variable	Firm Performance	Firm Performance
Sample	FB & NFB	FB
Constant	4.649*	2.193
Family Business	-0.240*	
Family Management		0.055*
Strategic Persistence	-0.130	-0.351
Family Business * Strategic Persistence (H3)	0.130*	
Family Management * Strategic Persistence (H4)		0.258*
Firm Age	-0.011	0.014
Organizational Slack	0.049***	0.003
Lone-founder Firm	0.137	
Blockholder Ownership	0.006	-0.001
Firm Size	-0.503***	-
		0.367***
Debt Ratio	-0.413	-0.265
Firm Risk	0.010***	0.006*
Advertisement Ratio	-1.726	-3.480
R&D Ratio	-1.323	-5.233*
Plant Newness	-0.931***	-0.376
Inventory Ratio	-0.631*	-0.449
Leverage Ratio	0.000	0.004
International Sales	0.004	-0.013**
Past Performance	1.009***	1.717***
Industrial Average Performance	-0.599*	-
		1.336***
Inverse Mills Ratio	0.048**	-0.034
Cross-section	669	133
Periods	7	7
Sample Size	4,056	713
Within R Square	0.21	0.31
F-statistics	12.87***	7.61***

Note:

1. Unstandardized estimation coefficients are reported
2. † p < .10; * p < .05; ** p < .01; *** p < .001.
3. Mills Ratio calculated by Model 1

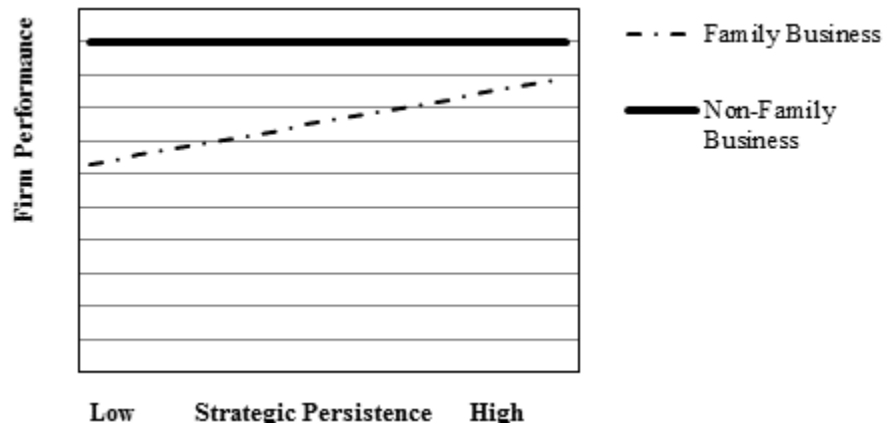


Figure 1 Family Business, Strategic Persistence and Firm Performance

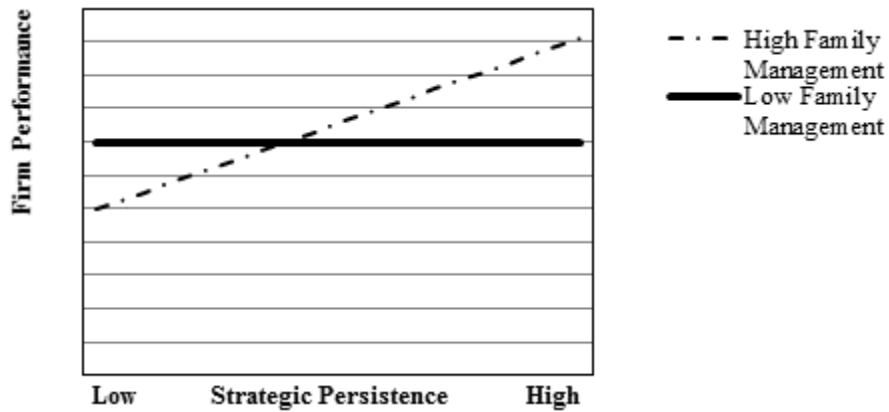


Figure 2 Family Management, Strategic Persistence and Firm Performance

Robustness Tests

A number of robustness tests are conducted to ensure that the results are not artificial. Firstly, instead of a 10 year window, 5 years is used to calculate the variable of strategic persistence. Note that 10 years is intentionally chosen because such a long time range ensures that the measure of strategic persistence is not determined by short-term dynamics. Using 5 years, H1 and H3 are still supported, as the family business variable is

positively related to strategic persistence (Table 4, Model 6, $B= 0.059$, $p\text{-value}<0.10$), while the interaction between the family business variable and strategic persistence is positively related to firm performance (Table 5, Model 8, $B= 0.074$, $p\text{-value}<0.01$). Nevertheless, among H2a-H2c (Table 4, Model 7), only H2c (positive relationship between family ownership and strategic persistence) is supported. Neither firm age (Model 7, $B= 0.072$, $p\text{-value}>0.10$) or organizational slack (Model 7, $B= - 0.0001$, $p\text{-value}>0.10$) are significantly related to strategic persistence, though the coefficients are in the hypothesized directions. In addition, H4 is not supported, as the coefficient of the interaction between family management and strategic persistence (Model 8, $B= 0.107$, $p\text{-value}>0.10$) is positive but nonsignificant. Thus, the basic conceptual idea (family firms tend to be more persistent and strategic persistence is more likely to result in superior performance in family business compared to non-family business) is reasonably robust, although hypotheses related to the heterogeneity among family business population are not supported for the 5 year window.

Table 4 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests H1-H2c

Model	Model 6	Model 7
Dependent Variable	Strategic Persistence (Five Years)	Strategic Persistence (Five Years)
Sample	FB & NFB	FB
Constant	-0.671	-2.417
Family Business (H1)	0.059†	
Firm Age (H2a)		-0.072
Organizational Slack (H2b)		0.000
Family Ownership (H2c)		0.008*
Lone-founder Firm	-0.024	
Blockholder Ownership	0.004*	0.011
Firm Size	0.131*	0.871†
Debt Ratio	-0.062	-0.657
Firm Risk	-0.002**	0.003†
Advertisement Ratio	-0.502	0.392
R&D Ratio	-1.277***	-0.544
Plant Newness	-0.324***	-1.055*
Inventory Ratio	0.303†	1.714†
Leverage Ratio	0.001	-0.029
International Sales	0.000†	0.000
Past Performance	0.014	-0.009
Industrial Average Performance	-0.195	-0.280
Inverse Mills Ratio	0.005	-0.008
Cross-section	794	179
Periods	14	14
Sample Size	8,785	1,747
Within R Square	0.15	0.15
F-statistics	5.56***	3.73***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

Furthermore, performance measure is changed from industry-adjusted Tobin'Q into industry-adjusted ROA¹². Indeed, Tobin's Q reflects more about the stock market's

12, This study also uses industry-adjusted ROS. Results are similar to industry-adjusted ROA in terms of directions, magnitudes and significances.

perception of the firm value, while ROA is more about the firm's yearly profitability.

Again, both H3 (Table 6, Model 10) and H4 (Table 6, Model 11) are supported.

Table 5 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests H3-H4

Model	Model 8	Model 9
Dependent Variable	Firm Performance	Firm Performance
Sample	FB & NFB	FB
Constant	4.048***	-0.321
Family Business	-0.045	
Family Management		0.131
Strategic Persistence (Five Years)	-0.062***	0.121
Family Business * Strategic Persistence (Five Years) (H3)	0.075**	
Family Management * Strategic Persistence (Five Years) (H4)		-0.107
Firm Age	-0.012	0.027*
Organizational Slack	0.000***	-0.007
Lone-founder Firm	-0.220**	
Blockholder Ownership	0.005†	0.007
Firm Size	-0.467***	-0.225*
Debt Ratio	-0.978***	0.684
Firm Risk	0.019***	-0.001
Advertisement Ratio	-1.295	-5.616***
R&D Ratio	-1.594†	-2.066
Plant Newness	-0.466	0.309
Inventory Ratio	-0.412***	-0.177
Leverage Ratio	0.001	-0.0003*
International Sales	0.001***	-0.003
Past Performance	1.412***	2.143***
Industrial Average Performance	-0.931**	-1.311***
Inverse Mills Ratio	-0.001	-0.006
Cross-section	787	172
Periods	12	12
Sample Size	7,642	1,410
Within R Square	0.21	0.22
F-statistics	11.94***	17.19***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

Table 6 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H3-H4

Model	Model 10	Model 11
Dependent Variable	Firm Performance (Industry-Adjusted ROA)	
Sample	FB & NFB	FB
Constant	0.096***	0.062
Family Business	-0.045***	
Family Management		-0.024
Strategic Persistence	-0.002**	-0.033
Family Business * Strategic Persistence (H3)	0.023***	
Family Management * Strategic Persistence (H4)		0.033*
Firm Age	0.000	0.000
Organizational Slack	-0.008	-0.029†
Lone-founder Firm	0.013	
Blockholder Ownership	0.0003*	-0.002*
Firm Size	-0.010**	-0.015
Debt Ratio	0.148***	0.007
Firm Risk	0.000	0.000
Advertisement Ratio	-0.010	-0.110
R&D Ratio	0.135	-0.284
Plant Newness	-0.014	-0.064†
Inventory Ratio	-0.019	-0.056*
Leverage Ratio	0.000	0.0001**
International Sales	0.000	0.000
Past Performance	0.447***	0.300**
Industrial Average Performance	-0.490***	-0.036
Inverse Mills Ratio	0.003†	0.005
Cross-section	669	136
Periods	7	8
Sample Size	4056	824
Within R Square	0.14	0.11
F-statistics	44.10***	16.13***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

Furthermore, note that the measure of family business does not necessarily captures the *vision* of the owning family. This may suggest an isolation between the definition and the measurement. Here, two alternative measures of family business are used in testing for H1 and H3.

To begin, instead of one family manager, this study uses at least *two* family managers in TMT to classify family business, aligned with at least 5% family ownership and at least two family members historically or currently involved in business. Such a measure highlights the presence of multiple family members in TMT, which may signal the presence of intra-family succession intention. Consistent with the primary analysis, H1 (Table 7, Model 12) and H3 (Table 8, Model 14) are supported.

In addition, family business is measured by the number of family managers in business if there is at least 5% family ownership and at least two family members historically or currently involved in business. This measure is continuous in nature and may better reflect the variance of family involvement in business. Also note that family managers are directly involved in daily-management in business. This issue is important as publicly-traded firms feature the isolation between ownership and management, thus family ownership may not have direct effect on firm decision-making. In addition, the number of family managers may better capture the vision of the owning family, as more family managers may signal a higher intention of maintaining family's control in business possibly across generations. Again, both H1 (Table 7, Model 13) and H3 (Table 8, Model 15) are supported.

Table 7 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H1

Model	Model 12	Model 13
Dependent Variable	Strategic Persistence	Strategic Persistence
Sample	FB & NFB	FB & NFB
Constant	0.059	0.052
Family Business (≥ 2 family managers, H1)	0.085**	
Family Management (H1)		0.037**
Lone-founder Firm	0.029	0.030
Blockholder Ownership	0.000	0.000
Firm Size	0.004	0.004
Debt Ratio	-0.077	-0.078†
Firm Risk	-0.002***	-0.002***
Advertisement Ratio	-0.295	-0.293
R&D Ratio	-0.983	-0.983
Plant Newness	-0.224***	-0.226***
Inventory Ratio	0.401	0.401
Leverage Ratio	-0.004	-0.004
International Sales	-0.0002***	-0.0001***
Past Performance	-0.006	-0.007
Industrial Average Performance	0.013	0.015
Inverse Mills Ratio	-0.022	-0.024
Cross-section	682	682
Periods	9	9
Sample Size	5,048	5,048
Within R Square	0.31	0.31
F-statistics	11.61***	11.60***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

Table 8 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H3

Model	Model 14	Model 15
Dependent Variable	Firm Performance	Firm Performance
Sample	FB & NFB	FB & NFB
Constant	4.606**	4.683**
Family Business (≥ 2 family managers)	-0.137**	
Family Management		-0.111*
Strategic Persistence	0.007	0.006
Family Business (≥ 2 family managers) *		
Strategic Persistence (H3)	0.209**	
Family Management *		
Strategic Persistence (H3)		0.100**
Firm Age	-0.009	-0.009
Organizational Slack	0.050***	0.049***
Lone-founder Firm	0.144	0.141
Blockholder Ownership	0.006	0.006
Firm Size	-0.503***	-0.505***
Debt Ratio	-0.417	-0.413
Firm Risk	0.010***	0.010***
Advertisement Ratio	-1.366	-1.579
R&D Ratio	-1.353	-1.338
Plant Newness	-0.922***	-0.916***
Inventory Ratio	-0.733**	-0.650*
Leverage Ratio	0.001	0.001
International Sales	0.004	0.004
Past Performance	0.839*	0.837*
Industrial Average Performance	-0.167	-0.158
Inverse Mills Ratio	0.031†	0.042**
Cross-section	669	669
Periods	7	7
Sample Size	4,056	4,056
Within R Square	0.21	0.21
F-statistics	9.29***	9.30***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

Lastly, this study also tries to use the sum of family TMT members and family board of directors (BOD) members as an alternative measure of family management in testing for H4. This measurement reflects the fact that family BOD members may engage

in monitoring firm operations thus may have extensive influences on daily management. Again, H4 (Table 9, Model 16) is supported.

To summarize, results of robustness tests show a high level of consistency with the primary results.

Table 9 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H4

Model	Model 16
Dependent Variable	Firm Performance
Sample	FB
Constant	2.213
Family Management	0.078*
Strategic Persistence	-0.232
Family Management * Strategic Persistence (H4)	0.073*
Firm Age	0.002
Organizational Slack	-0.030
Blockholder Ownership	0.002
Firm Size	-0.347**
Debt Ratio	-0.404
Firm Risk	0.006†
Advertisement Ratio	-4.694**
R&D Ratio	-3.827**
Plant Newness	-0.204
Inventory Ratio	-0.352
Leverage Ratio	-0.0003**
International Sales	-0.017*
Past Performance	1.578***
Industrial Average Performance	-1.065***
Inverse Mills Ratio	-0.010
Cross-section	142
Periods	8
Sample Size	835
Within R Square	0.30
F-statistics	8.35***

Note:

1. Unstandardized estimation coefficients are reported
2. † p < .10; * p < .05; ** p < .01; *** p < .001.
3. Mills Ratio calculated by Model 1

Post hoc Analysis

While most of hypotheses proposed in this study are supported, it is worth noting that H2c is rejected in the primary analysis. This section intends to explore this issue further.

Table 10 Fixed-Effect Longitudinal Regression Analysis, *Post hoc Analysis*

Model	Model 17	Model 18
Dependent Variable	Strategic Persistence	Strategic Persistence
Sample	FB	FB
Constant	0.647**	0.647**
Family Management	0.060**	
Family Ownership		-0.0095**
Family Ownership ^2		0.000095*
Firm Age	0.012**	0.012**
Organizational Slack	-0.002***	-0.002***
Blockholder Ownership	-0.003**	-0.003***
Firm Size	-0.093**	-0.119**
Debt Ratio	-0.384	-0.351
Firm Risk	-0.001	-0.001
Advertisement Ratio	-0.237	-0.521
R&D Ratio	-0.221	-0.216
Plant Newness	-0.149†	-0.123
Inventory Ratio	-0.152	-0.205
Leverage Ratio	0.013**	0.012**
International Sales	0.000	0.001
Past Performance	-0.193†	-0.119
Industrial Average Performance	-0.129	-0.148
Inverse Mills Ratio	0.023	0.022
Cross-section	164	164
Periods	9	9
Sample Size	1,092	1,092
Within R Square	0.14	0.14
F-statistics	25.62***	25.53***

Note:

1. Unstandardized estimation coefficients are reported
2. † p < .10; * p < .05; ** p < .01; *** p < .001.
3. Mills Ratio calculated by Model 1

To begin, family ownership is conceptualized as a measure of family’s control in decision-making. Nevertheless, it is possible that family management –rather than family ownership- is more directly related to family’s dominance in the decision-making

process. Indeed, compared to shareholders, managers are arguably more apt to affect what decisions can eventually lead to strategic actions in business. Hence, family ownership is replaced by family management in testing for H2c (Table 10, Model 17). It is found that family management (Model 17, $B= 0.60$, $p\text{-value} < 0.01$) has a positive and significant effect on strategic persistence.

In addition, it is possible that family ownership may have a curvilinear relationship with strategic persistence. In particular, when family ownership increases from low to moderate levels, the family owners may be under the pressure of conformity and have to adjust firm strategy in order to impress public shareholders as well as external institutes (Miller et al., 2011). At this stage, strategic change (rather than strategic persistence) may be favored by family shareholders. However, when family ownership reaches a certain threshold, family owners may not need to consider other minor shareholders' opinions in making decisions, and the increase of family ownership starts to be associated with the increase of strategic persistence. Indeed, the *post hoc* analysis suggests that there is a U-shape relationship between family ownership¹³ and strategic persistence (Table 10, Model 18), such that the estimated coefficient of family ownership is negative (Table 10, Model 18, $B= -0.0095$, $p\text{-value} < 0.01$), whereas the coefficient of the square term of family business is positive (Table 10, Model 18, $B= 0.0000095$, $p\text{-value} < 0.05$). After calculation, it is also found that the inflection of the U shape is 50.0% ($50.0 = 0.0095 / (2 * 0.000095)$); also see Figure 3). This result is consistent

13, To ensure that the curvilinear relationship is due to the family ownership's effect rather than the ownership's effect, the square term of blockholder ownership is also added into the regression model. The estimated coefficient of blockholder ownership and the estimated coefficient of its square term are both nonsignificant.

with the argument above. Indeed, although in general family firms have higher levels of strategic persistence compared to non-family firms, when the family ownership has not reached a majority ownership position, the relationship between the level of family ownership and strategic persistence is negative rather than positive¹⁴.



Figure 3 Family Ownership and Strategic Persistence

Discussion

Studies have highlighted that family's involvement in business may lead to distinctive strategic decisions and performance (Anderson & Reed, 2003; Villalonga, & Amit, 2006). One neglected area is the implementation of a family firm's strategy and how such implementation would lead to idiosyncratic firm performance. This essay

14, An alternative explanation is that high persistence may signal the presence of family tradition in business, thus motivating the family to gain more ownership in business. This argument means that strategic persistence may cause the change of family ownership rather than the vice versa. Nonetheless, one-year time lags have been used in the analysis to ensure the direction of causality. It is also possible that the presence of some exogenous factor (i.e. firm performance) will cause the co-variance of two variables, although the endogeneity has been controlled as mentioned above.

intended to address these gaps. In particular, it is hypothesized that family firms tend to be more persistent in their implementation of strategic decisions over time, and such strategic persistence is likely to contribute to superior performance in family firms. It is also hypothesized that family firms with higher firm age, lower organizational slack and higher family ownership are more likely to develop persistent strategic decisions. All hypotheses are supported except for the effect of family ownership on strategic persistence within the family business population. This section intends to discuss the implications of this study.

To begin, strategic persistence is important yet neglected in the family business literature. Indeed, the family business literature has long recognized that some family firms are oriented toward the long run, and such long-term orientation may contribute to superior performance (Miller & Le Breton-Miller, 2005). Nevertheless, few have developed theories regarding *what* types of family firms are more likely to express such an orientation, and *how* such an orientation would contribute to firm performance. More importantly, the attention is often drawn to short-term strategic behavior (e.g. Gentry et al., forthcoming) rather than to the long-term window for multiple strategic dimensions. Such neglect may result in inaccurate theoretical propositions as well as biased empirical results. This study intends to fill these gaps and shed light on the long-term orientation literature in the family business field. The empirical results suggest that in general family firms are more persistent compared to non-family firms, and this strategic persistence may help improve their performance.

In addition, drawing upon the behavioral theory of the firm, this study develops a theoretical framework related to goals, resources, and governance in family businesses.

Such a framework highlights that any strategic action in family business is the consequences of unique goals, resources, and governance stemming from the intertwining of family and business systems (Chua et al., 2012). Yet, the literature often highlights one but overlooks others, which leads to inconsistent or incomplete empirical findings regarding family firm's behavior and performance. Thus, the theoretical framework here is more comprehensive compared to prevailing theories such as the SEW perspective.

Furthermore, this study hypothesizes that firm age, organizational slack and family ownership would contribute to the variations of family-centered goal and governance respectively. This hypothesis highlights that family firms are indeed heterogeneous, and some family firms are more persistent compared to others. Note that the direct effect of family ownership (H3c) is not supported in the primary analysis. However, it is found in the *post hoc* analysis that such a result is primarily due to non-linearity in the influence of family ownership. While the basic hypotheses in this study are still robust, further researchers are encouraged to keep exploring this direction.

Lastly, this study conceptualizes that family endowments of resources are characterized by inseparability, specificity and intangibility, and such characteristics manifest mainly through the family's involvement in management. Here a contingency perspective is used, assuming that a high fit between strategic actions and resource configuration would lead to better performance. Hence, strategic action that require less adding, leveraging and shedding of resources are more suitable for family business, and are more likely to bring them competitive advantage. Note that such a contingency perspective has not been fully embraced by the family business literature (for a notable exception, see Kammerlander et al., 2015). Indeed, the theory may shed light on why and

how certain strategic actions are more likely to bring in competitive advantages compared to others.

Theoretical Implication

This essay may have potential to contribute to theories in the family business literature in several ways. Firstly, one notable view in the family business literature is that family firms need to learn from non-family firms in terms of favorable strategic choices (e.g. Stewart & Hitt, 2012). This view has its roots in the work of business historian Alfred Chandler (1962) who views family business as the relics of an old era. His followers compellingly argue that learning from non-family firms and embracing innovation (Block, 2012), risk-taking or corporate entrepreneurship (Chirico et al., 2011) may bring competitive advantage to family-owned and –managed type of organizations. The empirical result suggests that this is not necessarily the case. Indeed, while strategic persistence may bring in negative consequences by itself, its interaction with family business is positive and significant. Indeed, as Figure 1 shows, family firms with high strategic persistence perform better compared to family firms with low strategic persistence. Combined with the high strategic persistence found in family business (H1), it would imply that family business may have a unique way of implementing strategic decisions, and persisting in past strategy may help to narrow the performance difference between family and non-family firms.

In a similar inquiry, some scholars advocate that at least some if not all family firms should professionalize by employing non-family managers and experts. Such an argument is often based upon the assumption that family labor pool is often limited by its size and quality, and recruiting non-family talents may help overcome the defects of

family managers (Chua et al., 2009). This essay challenges this view. What have been found in this study suggest that, although in general family's involvement in management may bring in negative effects upon firm performance, its alignment with persist strategic decisions would result in even better performance. It appears that family managers may have certain advantages in some strategic actions. The view that non-family managers are always superior compared to family managers seems to be too absolute.

Such a finding is also consistent with the contingency view which proposes that there should be a "fit" between strategic action and implementation, and a high level of fit would likely lead to superior performance (Kammerlander et al., 2015). Such a view of "fit" may also shed light on the performance heterogeneity in family business. Indeed, family business scholars have recognized that performance heterogeneity in family business may stem from unique compositions of goals, resources, and governance structures in family business (Chrisman et al., 2013; Chua et al., 2012). What they have not recognized and what may further advance the family business filed is that the interaction among goal, resource and governance may be even more important. That is to say, further studies should further explore different combinations of goals, resources, and governance in terms of their interactive impacts on strategy and performance in family business.

One area that closely relates to the continuity of family governance in business is the temporality in family business. In strategy, temporality can be defined as an organization's variation in strategic actions and performances across time (Langley et al., 2013; Mosakowski & Earley, 2000). Temporality is closely related to family business because the continuity of family's control in business often across generations has been

highlighted as a distinguishing feature of family business (Chua et al., 1999), which may affect both strategic decision-making and performance in family business (Zellweger et al., 2012). In addition, generational difference in family business has been highlighted by scholars, as founding- and late-generations often differ regarding their strategic decision-making as well as their capabilities in appropriating rent from strategic decisions (Miller et al., 2007). Yet, except for a dedicated special issue in *Family Business Review* (2013, 27), not much attention has been paid in the area. This essay may shed light on this track, as it is hypothesized and found that family firms tend to be more persistent in their strategic decisions, and such persistence may bring in positive outcomes in this type of organizations.

In addition, as aforementioned, the theoretical framework in this study covers idiosyncratic goals, resources and governance structures in family business (Chua et al., 2012). Note that overly emphasizing one single dimension may result in inaccurate predictions regarding how family firms would behave and perform. Indeed, just as Chua and colleagues (2012, p2) have warned, “continuing to ignore family firm heterogeneity could institutionalize a distorted homogeneous view of family firms that generates “panaceas,” supposedly applicable to all family firms”.

Finally, recent development in the family business literature tends to emphasize the non-economic and socio-emotional goals of owning families (e.g. Berrone et al., 2012; Chrisman et al., 2012) and how such goals would affect family firm’s strategic decisions such as risk-taking (Chrisman & Patel, 2012) and diversification (Gomez-Mejia, 2010). Nonetheless, it is still not well known why some family firms have better performance compared to others from this perspective. Indeed, the SEW view is better

suited exploring the heterogeneity of family firm *behaviors*. On the other hand, the RBV has been used to explore the competitive advantages in some family firms. Nevertheless, existing RBV studies often draw attention to different categories of family resources in business, assuming having resource endowments from the family system is sufficient to ensure superior performance. This essay focuses on the overall features of family resources, which fundamentally affect the ways that owning families *manage* family-endowed resources (Sirmon & Hitt, 2003). Indeed, it is the management of resources that eventually determine the consequence of any strategic action. Thus, some family firms are better than non-family firms not only because these family firms have valuable, rare and non-imitable and non-substitutable resources, that also because these family firms have a better way of managing resources. Such a perspective also suggests that given high inseparability, specificity and intangibility, family firms may have advantages in strategic actions that require less acquisition, mobilization, and divestment of resources in the business systems.

Limitation

While this study may make several contributions, it is also important to recognize its limitations. Firstly, family ownership is used as a measure of family control in corporate governance. This treatment leads to the hypothesis that family ownership is positively relate to strategic persistence in the family business population (H2c). However, as shown in the primary and robustness tests, this hypothesis is not supported. Also as revealed in the *post hoc* analysis, family ownership may have multiple implications in terms of its effects on strategic behaviors. Indeed, family ownership may represent the legitimate right that owning family has in affecting a firm's decision-

making process, but it may not capture the actual power of the owning family in such a process. In this matter, family management may be a better measure associated with the family's actual control in daily management. In addition, family ownership may be seen as a signal of family's presence in business. In this manner, family firms especially those with low to moderate levels of family ownership may be exposed to public pressure of strategic conformity (Miller et al., 2011). Indeed, this theoretical issue may be one of the limitations, and future studies should further consider the multiple facets of family ownership in their studies.

Also, family business is defined by family's involvement in ownership and management as well as the family's *vision* of using the business to benefit the family and family members. Although several alternative measures of family business have been used, and some of the measures are related to the "vision" of the family, it is important to note that the "vision" of the family has not been directly measured, which may lead to an isolation between the theory and the methodology. Future studies should try to use better scales of family business in testing for the hypotheses in this study.

In addition, this study uses firm age, organizational slack and family ownership as three measures related to family tradition, resource parsimony and family control, respectively. Such a conceptualization was supported by the empirical results. However, family tradition, resource parsimony and family control are not directly measured in the study. One reason is the secondary data source, as it is rather difficult to gain primary data from publicly traded companies. Indeed, this issue may lead to the isolation between the theory and the methodology. Indeed, this is a limitation, and future studies should use valid scales to better test the relationship between the constructs and strategic persistence.

Furthermore, it is also important to note that these three variables mentioned above may only represent a small portion of variation in the family business population. Differently put, it is possible that there are more factors, especially those stemming from the family system that may further contribute to the heterogeneity in the family business population.

It is also important to note that, although there are multiple hypotheses in this study, they are tested separately. Note that some analytic techniques such as path analysis and structural equation modeling (SEM) may test multiple hypotheses simultaneously. Nevertheless, the data used in this study is longitudinal, meaning that for SEM or path analysis, cross-sections (682 firms) and years (9 years) must be added as control variables into the model (682+9), which may greatly limit the degree of freedom in the analysis and make the analysis infeasible. Future studies should try to use other analytic approaches to test all hypotheses simultaneously.

Moreover, this study uses publicly-traded firms in S&P 1500 manufacturing as the primary sample. Indeed, one feature of public-traded family firms is the limited range of family ownership, as it is impossible for family ownership to reach 100% by nature. In addition, it is impossible to collect data for firms with less than 5% family ownership, because only owners with more than 5% ownership are reported in the proxy statements. Such a sampling would limit the generalizability of the findings in small and privately owned family and non-family firms, as privately-owned or small- and medium-sized family firms often feature high family ownership as well as a higher variance of family ownership compared to publicly-traded family firms. Future studies are encouraged to replicate this study in the privately-owned small- and medium- sized firms.

In addition, note that this study excludes firms without at least five years continuous observations. Such a treatment is to ensure that the calculation of strategic persistence is meaningful. Nevertheless, it may also affect the generalability of the sampling, as newly founded firms or firms that are reluctant to release information to the public may be excluded from the sample. Future studies may try to use primary data collection in dealing with these issues.

Finally, this study chooses to focus on the 1996-2013 range in the analysis. Such a period is not homogenous regarding economic growth as well as market competition, which should provide enough variations in terms of strategic persistence as well as firm performance. However, even given such a long and dynamic period, the primary results remain significant. Future studies may further test the hypotheses in different periods.

Conclusion

To conclude, this essay intends to explore the antecedents and consequences of strategic persistence in publicly-trade family business. The differences between family and non-family firms as well as the heterogeneity among family firms themselves presented in this essay can help scholars, family business members, and investors better understand family involvement and how it affects strategic behaviors and firm performances.

CHAPTER III
ESSAY 2: FAMILY BUSINESS, DOMINANT STRATEGY AND FIRM
PERFORMANCE

Introduction

One critical yet under-researched strategy that family decision-makers must consider is diversification (Kontinen & Ojala, 2010), which involves the organization of multiple business units under the control of a single corporation (Markowitz, 1968; Rumelt, 1982; Chatterjee & Wernerfelt, 1991). Diversification can be extremely attractive to family businesses¹⁵, because it may reduce the overall business risk that a family-owned-managed corporation is exposed to (Gomez-Mejia et al., 2010). Yet the current inquiry of diversification in the family business literature largely focuses on the extent of diversification (Pukall & Calabrò, 2014), or the sequential pattern in which a family business chooses to diversify (Gomez-Mejia et al., 2010). This leaves unexplored inquiries related to the actual management of diversified units. It is not known, for example, how family firms manage their diversified units, and how family management of diversified units may impact performance in family businesses. Given the importance

15. Family firms are defined by a family's involvement in firm ownership and management and the pursuit of family-centered vision for how the firm will benefit the family, potentially across generations (e.g., Chua, Chrisman & Sharma, 1999).

of diversification strategies in family businesses, this inquiry is critical and valuable to both family business researchers and practitioners.

Drawing upon the literatures of the behavioral theory of the firm, diversification, and family business, this study intends to explore the extent that a family business chooses to use a dominant resource- allocation strategy among its diversified units, and how this dominant strategy may affect family business performance. In this regard, a dominant strategy is defined as a corporate-level strategy where similar patterns of resource allocation are utilized among related¹⁶ diversified units in a multi-business company (Lamberg et al., 2009; Turner & Rindova, 2012).

In this study, it is hypothesized that in comparison to non-family businesses, family businesses are more likely to have a dominant strategy due to the presence of family tradition, parsimony and family control in family-owned and –managed firms. It is also hypothesized that firm age, organizational slack and family ownership will influence the usage of a dominant strategy in family business. In the end, it is expected that a dominant strategy will lead to better performance in family businesses relative to non-family businesses, especially for family firms with high family involvement in management.

Thus, this essay intends to make several major contributions to the literature. First, building upon the concept of dominant strategy in diversified corporations, this essay develops theory on how family businesses may differ from non-family businesses,

16. This study follows Rumelt (1974) in using the portion of total revenue coming from a single business segment based on SIC-2 code to classify related and unrelated business units. To address the fact that resource are allocated among multiple areas in a business unit, three strategic dimensions are chosen for each unit. More discussions can be found in the methodology section.

and from one another in the manner in which they manage related diversification. Indeed, family firms tend to formulate idiosyncratic strategies (e.g. Chrisman & Patel, 2012; Gomez-Mejia et al., 2007). However, the literature has never explored how a family business realizes its strategy in terms of resource allocations in diversification (c.f. Hofer & Schendel, 1978). This essay attempts to fill this gap by exploring whether and how family businesses---in comparison to non-family businesses and one another---are more likely to use a dominant strategy across diversified units. Second, there is an increasing recognition that family businesses are heterogeneous in terms of firm behaviors and performance (Chua et al., 2012). In this essay it is argued that related business units in a family-owned corporation are rather homogenous in terms of allocations of key resources. Hence within the boundary of a family firm, firm behaviors tend to converge rather than diverge across business units. Third, this essay contributes to the diversification literature (e.g. Harrison et al., 1993; Lamberg et al., 2009), as it proposes that at least some family businesses may have unique ways to manage their diversified units and may benefit from doing that. Finally, this essay contributes to an improved understanding of family firm performance (e.g. Anderson & Reeb, 2003; Miller et al., 2007), as the model suggests that the pursuit of a dominant strategy can be one mechanism by which family governance contributes to firm performance.

This essay starts with an overview of the diversification literature followed by a review of diversification in family business. Then it builds hypotheses related to family business and dominant strategy. This essay also explore firm age, organizational slack and family ownership as three antecedents related to dominant strategy in family businesses. After that, this essay explores the relationship between dominant strategy and

firm performance in family business. Then, the methodology, analytic results and implications are discussed. This essay ends with discussions of theoretical implications, limitations and conclusion.

Dominant Strategy in Related Diversification

Related diversification may bring in competitive advantages to organizations. The relatedness of diversification refers to the existence of similarities among products, markets and/or technologies across diversified business units (Miller, 2006; Pehrsson, 2006; Tanriverdi & Venkatraman, 2005; Varadarajan & Ramanujam, 1987). Relatedness in diversification can create synergies when a firm shares production factors across related business units (Goold & Luchs, 1993; Markides & Williamson, 1994; Rumelt, 1974, 1982; Teece, 1980). Indeed, when managed properly, relatedness should result in superior performance such that the whole multi-business corporation is more profitable than the sum of the individual business units (Kanter, 1989; Porter, 1985).

Although there are numerous studies supporting the superiority of related diversification (Hitt et al., 2006; Rumelt, 1982; Mille, 2006), a substantial body of empirical research have found no significant relationship between diversification strategy and performance (Christensen & Montgomery, 1981; Grant et al., 1988). In order to explore this “paradox”, some theorists argue that the organization of related business units is at least as important as diversifying into related businesses (Hill & Hoskisson, 1987; Kazanjian & Drazin, 1987; Shayne Gary, 2005). Indeed, although synergy can result from relatedness, achieving synergy depends upon proper management (Grant, 1988; Hill et al., 1992; Markides & Williamson, 1996).

One appealing argument in this inquiry is that there should be a dominant strategy in all related business units so that synergy can be created (Grant, 1988; Hoskisson & Hitt, 1990; Prahalad & Bettis, 1986). As Mahoney and Pandian contend, "a rich connection among the firm's resources, distinctive competencies and mental models or 'dominant logic' ...of the managerial team drives the diversification process" (1992, p.365). Indeed, resource allocations across units need to be coherent to ensure the creation and sustainability of competitive advantage (Hofer & Schendel, 1978; Nath & Sudharstnan, 1994; Sirmon et al., 2007, 2010). Given the assumption that strategy concerns the acquisition, mobilization, utilization and divestment of resources (Hofer & Schendel, 1978; Mahoney & Pandian, 1992; Sirmon et al., 2007, 2011; Wernerfelt, 1984), a dominant strategy can be defined as a corporation-level strategy that involves similar patterns of resource allocations among related business units in a diversified multi-business company (Lamberg et al., 2009; Palich et al., 2000; Turner & Rindova, 2012).

To sum up, the diversification literature often assumes diversifying into related businesses is sufficient to create competitive advantage, while a dominant strategy perspective recognizes that related units need to be properly organized in order to create superior performance at the corporation level (Bettis & Prahalad, 1995; Govindarajan, 1988; Govindarajan & Fisher, 1990; Hoskisson et al., 1991). In this regard, a dominant strategy can be conceptualized as a special form of relatedness occurring in the manner that resources are located across related business units (Harrison et al., 1993).

Family Business and Diversification

Due to the particular focus in this essay, it is critical to review the diversification literature in family businesses. The literature remains controversial in terms of whether family business diversifies more or less (Kontinen & Ojala, 2010), but there appears to be a consensus that there are two primary drivers that distinguish diversification decisions between family and non-family firms: family-centered goals and family-endowed resources.

Family-centered goals refer to those coming from family owner-managers or other influential family members that affect strategic decision-making in a family firm (Berrone et al., 2012; Carney, 2005; Chrisman et al., 2012; Chua et al., 2012). Those goals include not only family-centered non-economic goals (Chrisman et al., 2012; Gomez-Mejia et al., 2011), but also the family's economic concerns regarding the creation and accumulation of family wealth (Anderson & Reeb, 2003; Chrisman et al., 2003). Family-centered non-economic goals include the preservation of the family's authority and influence in business, the emotional value of owning a firm, family members' identification with the firm, the closeness and cohesion among family members, and renewal of family bonds to the firm through dynastic succession (Berrone et al., 2012; Chrisman et al., 2012; Zellweger & Astrachan, 2008). There are several mechanisms by which family-centered goals may impact the extent of diversification in family business.

Firstly, the separation of ownership and control leads to information asymmetries and contractual problems, giving rise to the potential for agency conflicts between shareholders and managers (Jensen, 1994). However, family businesses are different

from other firms as owners and managers are more likely to belong to the same family or families (Jensen & Meckling, 1976, 1994). Thus, diversification is less likely to be embraced by family-owned and -managed firms because controlling families are often risk-averse (Gallo et al., 2004) and refuse to engage in risky strategies such as diversification (Gomez-Mejia et al., 2007; Chrisman & Patel, 2012). Diversification may also require the introduction of external investment and/or the employment of non-family experts, both of which may dilute family control (Gomez-Mejia et al., 2010).

Nevertheless, family owner-managers tend to have fast decision-making processes and often possess shared vision in strategic decisions (Carney, 2005). That would suggest that when family owner-managers decide to diversify, the decision-making process in the business system can be faster and the implementation of diversification decisions more efficient than those in a non-family business setting (Tsang, 2002).

Furthermore, scholars recognize that family businesses are unique, as the family's involvement endows the business with family-based resources. In this sense, the interaction of family units, the business entity and individual members (Gersick, et al., 1997), can lead to competitive advantages in family firms (Pearson et al., 2008). For instance, Habbershon and Williams (1999) and Habbershon et al. (2003) argue that a family's involvement in business may bring in distinctive resources unavailable to non-family firms, such as those based on human, social, patient, survivability, and governance capital (Sirmon & Hitt, 2003). Following the logic of the resource-based view of the firm (e.g. Barney, 1991), if resource attributes in an organization affect the process of strategic decision-making (Wernerfelt, 1984), then the family-endowed resources should affect the extent as well as the pattern of diversification in family firms (Carr & Bateman, 2009).

Indeed, it has been argued that family firms possess certain relation-based capital either among family members or with its stakeholders such as trust, altruism and social connections (Pearson et al., 2008; Zahra, 2003). This source of capital can positively influence relationships within the family as well as relationships with non-family stakeholders, including non-family managers, customers, business partners, governmental institutions, etc. (Zellweger & Nason, 2008). This source of capital may contribute to diversification as it increases the coordination among business units in family business as well as the collaboration between a family business and its stakeholders (Zahra, 2003). On the other hand, family-endowed human resources are characterized by high levels of specificity meaning family managers often possess deep knowledge, but only in certain strategic areas (Sirmon & Hitt, 2003). Hence, the specificity of family human resource may limit the scope of diversification in family business (Gedajlovic & Carney, 2010).

Although not documented directly, the literature implies that family firms may follow a generic approach in designing diversification strategies (Graves & Thomas, 2006, 2008). For instance, family businesses tend to diversify sequentially and are more likely to diversify in international markets that are geographically or culturally close to their headquarters (Claver et al., 2007; Gomez-Mejia et al., 2010). This would suggest that family firms differ from non-family ones not only in the extent to which they diversify but also in the way that they try to manage their diversified units.

Unfortunately, firm diversification is still an understudied research area in the family business literature (Kontinen & Ojala, 2010; Pukall & Calabrò, 2014). In particular, most studies have focused on the extent of diversification rather than the management of diversification in multiple business units. In addition, conflicting findings

concerning family businesses and diversification may be due to the fact that family firms manage diversification differently from non-family firms. The topic of this essay may have the potential to fill these gaps.

Hypothesis Development: Family Business and Dominant Strategy in Related Diversification

Theoretical Framework

There appears to be few if any studies in the family business literature that explicitly explore the management of diversified units or a dominant strategy in related diversification. In addition, existing studies of diversification in family business remains controversial in terms of whether family businesses diversify more or less, as well as the performance consequences of diversification in family firms (Kontinen & Ojala, 2010). Hence, it is reasonable to conclude that the management of diversification is still an understudied research area in the family business literature (Pukall & Calabrò, 2014).

Due to the uniqueness of family businesses, it is rather naive to directly borrow theories from non-family business settings (Berrone et al., 2012; Chua et al., 1999; Gedajlovic et al., 2012). In addition, the literature suggests that family firms have heterogeneous goals, resources and governance structures (Carney, 2005; Chrisman et al., 2005; Chua et al., 2012). Indeed, strategic decisions in family businesses are often initiated by family-centered goals (Chrisman et al., 2012), supported by family-endowed resources (Habbershon & Williams, 1999) and implemented by the family's dominant position in corporation governance (Carney, 2005). Accordingly, this paper follows a behavioral perspective (Cybert & March, 1963). Such a perspective assumes that a family's strategic decisions are influenced by the family's intention of achieving family-

centered non-economic goals that create or preserve its socio-emotional wealth¹⁷

(Berrone et al., 2012; Chrisman et al., 2012; Gomez-Mejia et al., 2007, 2011).

Furthermore, this perspective assumes that family governance is a necessary condition for the controlling family to realize its strategy in the organization (Carney, 2005). In other words, without strong family control, the presence of family-centered goals and/or family-endowed resources may not significantly influence strategic actions in family business simply because the family does not have the ability to do so (De Massis et al., 2014). In the end, the performance consequence of a specific strategic action is also influenced by the organization of resources such that a structure that may facilitate coordination of multiple tasks should lead to superior performance (Hofer & Schendel, 1978; Jones & Hill, 1988). This point is especially critical to diversification as the creation of synergy in diversification often results from coordination of resources in diversified yet related business units (Agarwal et al., 2012; Rawley, 2010; Zhou, 2011).

According to this perspective, the owning-family's management of diversification, such as using a dominant strategy in related diversification, is driven by its willingness to *maintain family tradition* and its intention to *invest parsimoniously*, being supported by *family's control* over the business. In addition, it is expected that family management also serve as a unique type of *governance of resource management* that may facilitate the coordination of related business units in diversification, hence dominant strategy should lead to better performance given high family involvement in daily management.

17. Socio-emotional wealth refers to non-financial aspects or “affective endowments” of members in the controlling families (Berrone et al., 2012).

The following section hypothesizes that relative to non-family businesses, family businesses are more likely to have a dominant strategy in related diversification than non-family businesses.

Family Business and Dominant Strategy

To begin, family-owned-managed businesses are characterized by family tradition in the business system (Berrone et al., 2012). Family tradition is chosen because it lies at the center of the family's socio-emotional or non-economic concerns (Berrone et al., 2005), and also because it is directly related to the continuity of family's control over generations (Tagiuri & Davis, 1992).

Indeed, family tradition consists of preservation, constancy, and durability (Lumpkin & Brigham, 2011), and concerns the preservation of long-standing aspirations and legacy in the family system (Miller & Le Breton-Miller, 2005; Gersick et al., 1997), ensures the constancy of family image and reputation in the eye of non-family stakeholders and local community (Berrone et al., 2010; Deephouse & Jaskiewicz, 2013), and directly relates to the family's intention to maintain control of the business, especially across multiple generations (Miller et al., 2003; Le Breton-Miller et al., 2004). Also, maintaining a strong family tradition may facilitate the rise of an individual family member's identification of "belongingness" to the family (Zellweger et al., 2010), strengthen a family member's emotional attachment with the business (Miller & Le Breton-Miller, 2005), and enhance the legitimacy that the business system adopts for the benefits of the individual family member (Schulze et al., 2001, 2003). Combined, it appears that family tradition is important to both the owning family and individual family

members (Sharma, 2004), and is strongly related to the owning family's non-economic goals and socio-emotional wealth (Berrone et al., 2012; Chrisman et al., 2012).

So, the presence of family tradition in business should strengthen a dominant strategy in related diversification. Firstly, family tradition may give rise to *rigid mindsets* of family decision-makers (König et al., 2013). The intention to maintain family tradition is based on the belief that that which is long-lasting has value to both the family and the business (Lumpkin & Brigham, 2011). Hence mental rigidity may make family decision-makers less open to new and alternative options (Chandler, 1962) and have whatever has been used in the past, unless the family's non-economic or socio-emotional goals have been threaten (Chrisman & Patel, 2012; Gomez-Mejia et al., 2007, 2013). Indeed, family decision-makers often continue existing mindsets in terms of the heuristic principals used in interpreting information as well as sorting possible alternative solutions (Gedajlovic et al., 2004). For the concern of diversification, family decision-makers often choose to diversify into areas that are similar to existing businesses (Gomez-Mejia et al., 2010). Using the same rationale, it is reasonable to assume that family decision-makers will continue the management approaches and practices used in existing businesses, leading to the rise of a dominant strategy in related diversification.

In addition, an owning-family may have incentives to build *family image and reputation* (Berrone et al., 2010; Deephouse & Jaskiewicz, 2013), especially for the local community and other external stakeholders who are important to the economic and non-economic success of the owning-family (Sharma & Manikuti, 2005; Zahra, 2010). On the other hand, the strength of family image and reputation in a multi-business family corporation can be further enhanced via the congruence of strategic actions across

individual business units (Carter, 2006; Highhouse et al., 2009). Put differently, to build a prominent family image and reputation, the owning family could intentionally manipulate strategic actions in multiple business units, such as diversifying into related businesses and choosing to use exiting patterns of resource allocation in managing newly acquired businesses. Thus, due to the presence of family tradition, family businesses are more likely to build dominant strategy in related diversification in comparison to non-family businesses.

Another reason behind the pursuit of a dominant strategy in family business is the family's tendency of being parsimonious in resource utilization. Unless it is unavoidable, owning families are often parsimonious in utilizing resources, because a large amount of resources in the business comes from the family system, and the family attempts to optimize the utilization of their resources (Carney, 2005). This would suggest that the owning family may be motivated to reduce unnecessary expenses and/or favor strategies that requires less additional investment. Diversifying into new areas and/or using new ways to manage diversified units often require extensive resource investments in research and development, production capacity, advertisement and administration (Chatterjee & Wernerfelt, 1991). Furthermore, building dominant strategy across related business units may be beneficial for family owner-managers, as they don't need to design idiosyncratic practices and routines for each unit (Lampel & Shamsie, 2000), and administrative experience in existing business units can be easily transferred into new ones (Agarwal et al., 2012; Breschi et al., 2003; Tanriverdi & Venkatraman, 2005).

In addition, to the arguments above, the pursuit of dominant strategy in family business is also supported by the family's control of the business. Indeed, family control

is a necessary condition to transfer the family's concerns of family tradition and resource parsimony into actual firm behaviors (Cyert & March, 1963). Family control may help facilitate the rise of a dominant strategy in related diversification for two primary reasons.

First, family owner-managers have *power, discretion, and legitimacy* in the dominant coalition in a family business, making their personalized goals more likely to be transmitted into the business system (Carney, 2005). This suggests that decision-makers in diversified units are more likely to behave in accordance with the owning family's goals and concerns such as maintaining family tradition and being parsimonious in resource investment, making dominant strategy more likely to arise.

Second, a definitive feature of a family business is the family's tendency to *maintain its control*. In this sense, family firms may intentionally avoid hiring non-family professional executives (McConaughy, 2000) or borrowing monetary resources from external sources (Anderson et al., 2003; Chua et al., 2011) as these practices would dilute family's direct control over firm operation (McConaughy et al., 1998). On the other hand, diversifying into new areas or using new ways to manage diversified units often depends upon skills and knowledge from professional executives as well as extra financial resources coming from external institutes (Kochhar & Hitt, 1998; Kor & Leblebici, 2005). One potential solution is to diversify into similar areas, which by definition should increase the relatedness of diversification in family businesses (Gomez-Mejia et al., 2010). At the same time, family firms may choose to replicate what has been used before in newly acquired businesses especially in related ones, leading to the rise of dominant strategy in related diversification.

Taken all the aforementioned together, because of the unique combination of family tradition, parsimony and family control, family firms are more likely to use similar resource allocations across their related business units than non-family firms.

Hypothesis 1: Family businesses are more likely to have a dominant strategy across related multiple business units than non-family businesses.

Hypothesis Development: Heterogeneity of Family Business and Dominant Strategy

Family businesses are heterogeneous due to idiosyncratic goals, resources, and governance structures aligned with the family's involvement in business (Chua et al., 2012). One remaining question is what causes the variance of the use of dominant strategy in the family business population. Framed differently, what are the conditions that make some family firms more likely to embrace such a strategic choice compared to other family firms? Indeed, it is possible that some family firms perceive family tradition as being more important, are more parsimonious in resource investment, and have more power in decision-making compared to others. Consistent with the theoretical framework mentioned above, firm age, organizational slack, and family ownership should be relevant to the use of a dominant strategy in family business.

Firm Age

Firm age is an important research focus in the strategic management literature (Durand & Coeurderoy, 2001; Hannan & Freeman, 1984). Indeed, scholars have long claimed that organizations tend to become rigid and slow to change when they grow older (Hannan & Freeman, 1984). As firms age, the behaviors of decision-makers become increasingly guided by institutionalized norms and habits (Deephouse, 1996). In particular, firms may develop well-embedded, robust routines derived from prior

operating experiences (Nelson & Winter, 1982), and pre-existing rules are increasingly used to understand their environment (Daft & Weick, 1984). Hence rigidity should be higher in older than younger firms (Hannan & Freeman, 1984). The same rationale can be applied to family firms, as relative to younger family firms, older ones would become more rigid in using family-centered practices and routines which are guided by family tradition. Indeed, while non-family firms only become inflexible in the business system, family firms become inflexible in both the family and the business systems (Gersick et al., 1997). In this regard, the preservation and continuity of family tradition in the family system would further facilitate the adoption of family tradition in the business system (Arregle et al., 2007). Hence, the use of a dominant strategy is expected to be greater in older compared to younger family firms, as older ones are more rigid in using family-centered traditions in strategic decision-making such as diversification.

Furthermore, more family members tend to be involved in firm management when family firms get older (Gersick et al., 1997). The inclusion of new family members would make family tradition more salient, as these family members are born, educated and groomed within family tradition. Thus, older family firms are more likely to embrace dominant strategy because more family members are included in the business, while these members are natural agents of family traditions. Although arguably there may be some especially late-generation junior family members who are unwilling to follow what other family members are doing, strong social connections among family members make these divergent behaviors more likely to be found, while strong family-centered norms may pose high social pressure upon those family members to conform (Pollak, 1985). Put differently, strong family connections and norms have the potential to strengthen family

tradition over time. As a comparison, non-family business may also have new members joining in over time, but these members often have diverse backgrounds and experiences hence their participations may weaken rather than strengthen the tradition in the organization (Schneider et al., 1995).

In sum, it appears that the effect of family tradition should be stronger in older family firms. Thus:

Hypothesis 2a: Firm age is positively related to the use of a dominant strategy in the diversification of family firms.

Organizational Slack

Organizational slack refers to organizational resources that are embedded in the firm as costs which are greater than those needed by the firm (Singh, 1986). Examples of organizational slack include excessive stocks of cash and securities (Greve, 2003). In this matter, firms may employ more individuals than necessary to operate effectively year round to provide a cushion or buffer from disruptions in output (Cyert & March, 1963).

As mentioned above, one distinguishing feature of family business is resource parsimony (Carney, 2005). Nonetheless, not all family firms are alike, and some may be more parsimonious than others. Given the fact that parsimony concerns the efficiency of resource utilization, a high level of organizational slack in family business would signal a lower level of resource parsimony in the owning family (Mishina et al., 2004; Voss et al., 2008).

Following this rationale, organizational slack should negatively relate to the use of a dominant strategy in family business. Indeed, increasing investment in organizational slack suggests that some family business are less parsimonious than others. Although

family firms tend to avoid specific non-deployable investments, some may choose to do so anyway due to threats to family-centered socio-emotional wealth (Chrisman & Patel, 2012; Gomez-Mejia et al., 2007, 2013). Given the fact that resource parsimony is an important factor driving the use of a dominant strategy, the increase of organizational slack would be negatively associated with the use of a dominant strategy in related diversification, meaning family firms with higher organizational slack would be less likely to use a dominant strategy. Hence:

Hypothesis 2b: Organizational slack is negatively related to the use of a dominant strategy in the diversification of family firms.

Family Ownership

Family firms vary by the extent of families' involvement in ownership (Arregle et al., 2012). Indeed, the extent of controlling family ownership may significantly impact the decision-making process, as it directly relates to the extent that the dominant coalition considers the family's interests in making decisions (Gomez-Mejia et al., 2013; Mitchell et al., 1997). This suggests that idiosyncratic firm decisions resulting from family's involvement in business is more salient given high family ownership compared to those with low family ownership.

Indeed, the increase of family ownership in family business could provide power and legitimacy to family owner-managers (Carney, 2005). In addition, the increase of family ownership should strengthen the salience of family interests and concerns in family business decisions such as the use of a dominant strategy in related diversification (Chrisman et al., 2012). On the other hand, non-family owners may have concerns that are not necessarily aligned with the non-economic interests of the owning family

(Gedajlovic et al., 2004). In this regard, non-family owners put more attention on growth in their investments, which is more aligned with a higher level of diversification and probably a more idiosyncratic way of managing each business unit. Although these non-family owners are not as powerful as family owner-managers, the presence of non-family blockholder or institutional investors may still be a hindrance, mitigating family influence on strategic decisions such as diversification (Arregle et al., 2012).

Combined, it is expected that relative to family firms with lower family ownership, those with higher family ownership should have more power as a result of less hindrance coming from non-family owners.

Hypothesis 2c: Family ownership is positively related to the use of a dominant strategy in the diversification of family firms.

Hypothesis Development: Dominant Strategy and Firm Performance

Regarding the consequence of pursuing a dominant strategy in family business, it is still not well known how a dominant strategy in related diversification affects family firm performance. As will be further discussed below, based upon the coordination and the resource management literature, it is argued that governance structure in family-owned and -managed business features better internal mobilization of resources thus lower coordination cost in diversification, hence facilitate the creation of synergy through a dominant strategy. This section intends to review relevant literature and develop hypotheses that link dominant strategy to firm performance in family business.

Resource Management and Coordination Cost

According to Teece (1980, p.224), “diversification can represent a mechanism for capturing integration economies associated with the simultaneous supply of inputs

common to a number of production processes geared to distinct final product markets.” In this sense, synergy is created when a firm shares input factors across multiple lines of business (Rumelt, 1982). Accordingly, it is generally believed that related diversification is preferable to unrelated or less related diversification because more inputs/resources can be shared and better synergy of resource utilization can be created in related diversification (Markides & Williamson, 1994; Miller, 2006).

The center of synergy creation lies in the sharing and free mobilization of key resources across business units (Penrose, 1959; Teece, 1980). So using a dominant strategy in related diversification can improve firm performance for a number of reasons. First, a dominant strategy across units itself is a critical organizational resource. Indeed, diversification often demands highly-specialized administrative resources or skills (Aiken & Hage, 1968), which are often not divisible and difficult to share across units (Penrose, 1959). Hence a dominant strategy in related diversification can improve corporate-level performance, because individual business units in this instance do not need to build idiosyncratic individual-based administrative strategy for each unit (Lampel & Shamsie, 2000). Second, a dominant strategy in related diversification can be perceived as a pattern of thinking in organizing resources, which may reduce physical and mental boundaries of resource transfer across business units. Resources here include tangible resources such as technology, employees, facilities, etc. as well as intangible resources such as organizational knowledge, culture, identity, etc. (Barney, 1986; Fiol, 2001; Grant, 1996; Harrison et al., 1991). Indeed, the successful transfer of intangible resources across business units has been highlighted as a key factor contributing to the effectiveness of diversification strategy (Agarwa net al., 2012; Breschi et al., 2003; Tanriverdi &

Venkatraman, 2005). Thus, a shared dominant strategy in related diversification may signal similar routines and practices under which resources are managed. In this regard, resources can be easily shed, leveraged and re-bundled as business units all share the same routines and practices in organizing these resources.

Nevertheless, having a dominant strategy in related diversification does not necessarily ensure superior performance as there may be coordination problems remaining. Here, coordination problems refer to barriers that may hinder resource mobilizations and leveraging across business units. Indeed, under a dominant strategy, although diversified business units may use similar patterns of resource distribution, managers may still have varying cognitions regarding what they are supposed to do. In addition, managers may have insufficient communication with each other and not fully understand the dynamics across multiple units. Lastly, managers may have conflicts which hinder resource sharing and mobilization across units. Hence, superior performance can be better achieved in dominant strategy when the company applies an appropriate governance structure to manage coordination (Datta, 1991; Larsson & Finkelstein, 1999; Pablo, 1994).

Sharing common inputs creates interdependencies between business lines (Gupta & Govindarajan, 1984). It requires joint designing, joint scheduling, and mutual adjustments, as well as setting transfer prices and designing incentive schemes (Williamson, 1981). Consequently, interdependencies in diversification challenge three fundamental elements of coordination: problem framing, communication and conflict resolution in the top management team (TMT) (Marschak & Radner, 1972). Problem framing refers to the interpretation of the focal problem in terms of potential causes and

alternative solutions in the mindsets of top managers (Tversky & Kahneman, 1986; Yeo, 1995). Accordingly, coherent problem framing in a top management team could reduce coordination problems resulting from cognitive divergences in the side of top managers (Amason & Sapienza, 1997). Communication means the exchange of personal options as well as the sharing of information in order to reducing information asymmetry within TMT (Priem, 1990). Conflict resolution refers to formal and informal approaches occupied by the focal organization to mitigate or diminish inter-personal conflicts in the TMT (Martinez & Jarillo, 1989; Simons & Peterson, 2000). These three elements refer to coordination problems stemming from cognitive divergence, miscommunication, and conflict among top managers (Mitchell et al., 2011). In other words, coordination costs in related diversification may increase if top managers do not have coherent problem framing, do not have sufficient communication, and/or have conflicts with each other.

Such a perspective assumes that managers in the TMT are largely in charge of coordinating activities in diversified business units, especially related ones. This assumption is built upon the fact that diversified units, although directly managed by middle-level executives in each unit, often follow orders and instructions from top managers (Michel & Hambrick, 1992). Hence coordination among diversified units is directly determined by coordination among the TMT (Kogut & Zander, 1996. Martinez & Jarillo, 1989). One notable feature of family business is the family's involvement in the top management team, which not only transmits the owning family's goals and concerns into firm's decision-making (Chrisman et al., 2012), but also provides power and legitimacy to ensure these strategic decisions are being implemented (Carney, 2005). This essay hypothesizes that firms with high family management are better at problem

framing, communication and conflict resolution, and hence have lower coordination cost and superior performance when using a dominant strategy in related diversification.

Problem Framing

Coordination costs in diversified business units initially stem from the divergence of the cognitions of top managers in framing a strategic problem. Arguably all strategic decisions stem from cognitions framed on top managers' mindsets (Gioia & Chittipeddi, 1991). It is a manager's cognition that allows comprehension of the complexity of threats and opportunities in the environment (Rainbow & Sullivan, 1987; Thomas & McDaniel, 1990), as well as the formulation of solutions that take advantage of business opportunities and/or to cope with environmental threats (Gioia & Chittipeddi, 1991). Indeed, cognition allows managers to "categorize an event, assess its consequences, and consider appropriate actions (including doing nothing), and to do so rapidly and often efficiently" (Prahalad & Bettis, 1986, p.489). Nevertheless, top managers often hold distinctive, and in under some circumstances even conflicting, beliefs about internal and external contexts (Health et al., 1998), and problems of coordination may result from that (Wilson & Brekke, 1994). It is found that TMTs with high diversity (e.g. Horwitz & Horwitz, 2007) of past experience (Mitchell et al., 2011), demographics (Klenke, 2003) and education (Simons et al., 1999) may have high cognitive divergence in framing problems. This in turn may result in high costs in coordinating firm activities even in related diversification, as top managers may hold idiosyncratic beliefs about what they are supposed to do (Martinez & Jarillo, 1989; Rawley, 2010).

On the other hand, family managers, compared to non-family managers, are more likely to frame problems in a coherent manner for two reasons. Firstly, family members

often have shared vision and language due to their long embeddedness in the family system (Adler & Kwon, 2002), hence they are more likely to have similar systems of meaning, interpretations and representations in handling day-to-day business (Pearson et al., 2008). In comparison, managers in non-family settings, due to their distinctive personal beliefs, educational backgrounds and working experiences, are more likely to have different cognitions for framing problems. Secondly, family managers often use the collective interest of the whole family as their primary reference point in framing problems (Pollak, 1985). In this regard, family managers often have converging cognitions regarding what best aligns with the interest of the family, and engage in behaviors that protect or fulfill family-centered interests, such as formulating and implementing a dominant strategy in related diversification to preserve family image and family reputation (Berrone et al., 2010). On the other hand, non-family managers are motivated to a great extent by their personal interests, which are by nature divergent from each other (Jensen & Meckling, 1994).

Combined, both points appear to suggest that, relative to non-family managers, family managers will have a higher level of similarity of cognition in framing problems. This is to suggest that family firm's advantages in coherent problem framing may improve the performance of a dominant strategy. Indeed, having a dominant strategy does not automatically ensure managers understand what to do to implement such a strategy. Coherent problem framing in family business would reduce the coordination costs associated with divergent understandings among family managers, which potentially improves the effectiveness of a dominant strategy.

Communication

Communication refers to the exchange of personal opinions and business information among managers. One advantage of using a dominant strategy in related diversification is that similarity of strategic activities across units may facilitate resource sharing and mobilizing among related units (Sirmon et al., 2007). In addition, communication may facilitate knowledge transfer, which allows knowledge gained in one business unit to be applied to problems being experienced in another unit (Agarwal et al., 2012). On the other hand, miscommunication may lead to problems in coordination, as managers often receive inconsistent, even conflicting, information regarding what others are doing and what they are supposed to react (Bergh, 1998).

Relative to non-family managers, family managers may have fewer communication problems for two reasons. First, family managers often have formal and informal channels of information flow, which are not likely to be shared by all managers in a non-family business setting (Pearson et al., 2008). This would suggest that besides communication channels in business, family managers may have additional and often informal ways to share opinions and exchange information in the family system (Hoffman et al., 2006). While arguably some non-family managers may also have informal communications, it is not likely that all of them share the same informal network of communication. Second, there is a large network overlap among family managers compared to non-family managers, meaning that even without intra-family communication, family managers are still more likely to get homogenous information compared to non-family managers.

Similar to coherent problem framing, frequent communication is expected to help the implementation of a dominant strategy in family business. Indeed, by communicating with each other, family managers may gather more information about what diversified units are doing, which may help to understand how resources should be mobilized and shared across units. This would in turn assure the creation of synergy among related units given a dominant strategy.

Conflict Resolution

It is certainly possible that top managers may have conflicts with each other (Simons & Peterson, 2000). Compared to non-family managers, family managers are expected to have more and better methods to resolve inter-personal conflicts for several reasons.

First, by nature, non-family managers are often driven by their personal interests while family managers are more likely to be influenced by the collective interest of the whole family (Carney, 2005; Jensen & Meckling, 1976, 1994). Indeed, individual family members often perceive themselves as part of the owning family (Zellweger et al., 2010), feeling that the family business' success is their own success (Berrone et al., 2012). Hence *ceteris paribus* interest divergence is higher among non-family managers compared to family managers, which may in turn result in more inter-personal conflicts among non-family managers. In addition, as mentioned above, family managers have informal as well as formal communication channels, which are absent among non-family managers (Pearson et al., 2008). This would suggest that frequent communications among family members may partially resolve conflicts stemming from information asymmetry among family managers. Lastly, there are strong family-centered norms in the

family system, making family managers being motivated and/or obligated to behave according to the best interest of the whole family (Chrisman et al., 2012; Eddleston & Kellermanns, 2007; Kellermanns & Eddleston, 2004; Pearson et al., 2008). Although arguably there may be some family members who are unwilling to understand or follow what other family members are doing, strong social connections among family members make these divergent behaviors more likely to be found, while strong family-centered norms may pose high social pressure upon those family members to conform (Pollak, 1985). Differently put, strong family norms have the potential to resolve intra-family conflicts over time.

Family firm's advantage in conflict resolution may help the implementation of a dominant strategy for two reasons. First, given the fact that top managers are often in charge of different units, conflict among top managers may give rise to antagonism among related business units, which in turn weakens resource sharing/mobilization across units and eventually hinder the synergy creation stemming from a dominant strategy (Hansen et al., 2005). Second, better methods of conflict resolution in family business may further contribute to coherent problem framing and effective communication, both of which are expected to support the implementation of a dominant strategy as mentioned above (Ensley et al., 2002).

In sum, insights from problem framing, communication and conflict resolution all taken, it is expected that family involvement in a business should strengthen the positive effect of a dominant strategy on firm performance.

Family Management

To this point, this essay proposes that in comparison to non-family business, the family business is a better form of governance to appropriate rent from a dominant strategy in related diversification. To justify this point, this essay suggests that family business can mitigate problems of problem framing, communication and conflict resolution in coordinating related business units in diversification, which is built upon the assumption that interactions among family managers may lead to less coordination problems. Nevertheless, not all family firms have a large number of family members involved in management. Indeed, the growth of the business may surpass the growth of the family hence the family may not have sufficient members to fill top managerial positions (Illias, 2006). In addition, some family members may prefer to stay in ownership instead of managerial positions (Gersick et al., 1997). In this instance family businesses may vary by family's involvement in management. Following the rationale above, it is expected that the higher family involvement in management the fewer the coordination problems that should occur in using dominant strategy in related diversification. That would suggest that compared to family businesses with low family involvement in management, those with high involvement should have better performance stemming from the use of a dominant strategy in related diversification. Hence it is expected:

Hypothesis 3: There is a positive interaction between family management and dominant strategy on firm performance in family firms.

Methodology

Data

The sample is composed of manufacturing firms listed in the S&P 1500 index from 1996 to 2013 with at least five years of continuous information available. Utility and service firms are excluded owing to differences in government regulations and feasible diversification options of these firms compared to manufacturing firms. Such exclusion ensures greater homogeneity in the sample. The data is longitudinal in nature. The 1996 to 2013 period is used because it covers the “Internet Bubble” and financial crisis periods in which firms’ diversification are likely to vary. Hence dominant strategy and firm performance should have sufficient variation in the sample. In addition, this range covers periods used in previous studies on family businesses (Anderson & Reeb 2003; Miller, Le Breton-Miller, Lester & Cannella, 2007) as well as observations in recent years. Firms without at least five years of continuous information are also excluded, because the measure of dominant strategy by nature requires sustained operation of the business units over an extended period of time.

To identify founding families, and the role of those families in a firm (as part of the top management team and/or board of directors), information in *Hoover’s*, *ExecuComp*, *Fundinguniverse.com*, *ancestry.com*, firm websites, and company proxy statements are collected. Measures related to corporate governance and family business such as family ownership and family management are obtained from annual firm proxy reports. Other variables including dominant strategy primarily come from the Historical Segment in the Compustat database. To ensure the direction of causality, one-year lags between the dependent variable and other variables are used. Also for all models,

dependent variables are adjusted by industry-averages, so that industry-specific effects can be mitigated.

In total, initial data collection generates 848 firms representing 13,401 firm-years observations from 1996 to 2013 for further cleaning. Nevertheless, missing data, especially those in the historical segment database in *compustat* reduces the actual sample size to 288 firms representing 2,296 firm-year observations from 1996 to 2013. This large amount of missing data is due to the need to calculate the variable of dominant strategy on all related business units in the corporation. Note that, instead of coding them as 0, missing data is excluded. Such a treatment ensures that the estimates are not biased by misrepresentation of observations in the sample. However, as will be further discussed below, such a treatment does not significantly affect the proportions of family firms and lone-founder firms as well as the average of other statistics (e.g. Miller et al., 2007). In addition, t-tests reveal that there are no significant differences in key statistics between the observations included and not included. Thus, it is reasonable to conclude that the sample is generally representative of publicly-traded manufacturing firms in North America. It is also worth noting that the actual sample size for each model varies due to missing data and the loss of time-series observations in manipulating the time lag between the dependent and other variables.

Independent and Dependent Variables

The primary independent variable is the *family business measure*. Although the definition of family business is not universally agreed (Chrisman et al., 2005; Gomez-Mejia et al., 2011), the literature generally measures family business via family ownership and family management. Thus, family business is defined by a family's

involvement in ownership and management, which help transfer owning family's vision into firm behaviors (e.g. Chua et al., 1999). This implies that family management is at least as important as family ownership, because it is the medium through which the owning family can transmit its goals and endow its resources into the firm's operations (Chrisman et al., 2012).

Consistent with this definition, family business is measured as a binary variable in which 1 indicates that the focal firm has at least 5 % family ownership, at least two family members who are or have been significant owners, top managers, or directors in the firm's history, and at least one family member who is currently involved in the TMT (Anderson & Reeb, 2003; Chrisman & Patel, 2012; Gomez-Mejia et al., 2013; Miller et al., 2007)^{18 19}. All firms that do not meet this condition are considered non-family firms and are coded as 0. This definition highlights the involvement of *multiple* family members in ownership and management, thus ensuring the presence of high possibility of intra-family succession in business. Such a definition also ensures that family firms can be differentiated from either lone-founder firms, which by definition do not have multiple family members involved in the business, or from non-family blockholder-controlled firms in which the significant owners are neither family members nor founders.

The dependent variable used to test H1 and H2a, b, c is the extent of use of a *dominant strategy* in related diversification. This variable is also the independent variable in testing H3. The measurement of this variable is relevant to the classification of related

18, For a robustness test, family business is also measured as firms with at least 5 % family ownership, at least two family members historically involved, and at least one family member currently employed as either CEO or chairman. Regression results are similar to the primary results.

19, A continuous measure of family ownership is also used in testing H1. Regression results are supportive of H1.

business, so the first step is to specify the level of relatedness of business units in a diversified company. This essay follows Montgomery (1982), Jacquemin and Berry (1979), and Rumelt (1974) in specifying that relatedness exists when at least 50%²⁰ of total revenue (i.e. sales) comes from a single business segment based on SIC 2-digit code.

Consistent with the definition above, in each related business unit three strategic dimensions related to resource investments are calculated: (1) research and development intensity (R&D/sales in the unit), (2) capital intensity (capital expenditure/sales in the unit), and (3) nonproduction overhead (selling, general, and administrative [SGA] expenses/sales in the unit) (Carpenter, 2000; Finkelstein & Hambrick, 1990). Previous studies have used these three variables in exploring strategic behaviors across business units (Harrison et al., 1991, 1993). Furthermore, these three dimensions cover the primary strategic areas of R&D, production, and administration. Thus, the combination of these dimensions should reflect strategic action in each unit. Note that advertisement intensity is not included because publicly-trade firms often associate advertisement expenses in their headquarters rather than diversified units. In addition, nonproduction overhead includes selling expense, which is a significant portion in the overall marketing expense. Only those in related business units are used in the calculations.

For each dimension, the standard deviation (S.D.) across all related business units is calculated. In total, this step leaves three S.D.s. Because S.D.s may be based on different scales, they must be standardized. Finally, the extent of a dominant strategy is calculated by the inverse of the average of these three standardized variables (S.D.s). The

20, 30% and 70% area also used as thresholds. Calculated variables are almost identical to the one based on 50%.

inverse value is used because S.D. measures the variance of a variable, meaning its inverse value would be a good measure of consistency of this variables, and that is naturally linked to the definition of dominant strategy.

This variable is continuous in nature as it intends to capture the extent of the use of a dominant strategy across related business units. If revenue coming from the largest group of business units is less than 50%, the firm-year observation is excluded from the sample. In other words, this yearly-firm observation is believed not having enough level of relatedness and is excluded from the sample.

Industry-adjusted Tobin's Q (market value to assets adjusted by industrial average as computed by Chung & Pruitt, 1994) is used as the measure of firm performance. This measure has been widely used in the family business literature (Anderson & Reeb, 2003; Miller et al., 2007). Industry-adjusted Return on Asset (ROA) is also used for a robustness test.

Firm age is calculated as the number of years that a company has been operating in the market. Firm age is also used as a control variable in testing H3 as firm performance may vary according to the time that the firm has been operating.

Organizational slack is defined as organizational resources that are greater than actually needed (Singh, 1986). Thus, organizational slack is calculated as a ratio of liquid assets (cash reserves and marketable securities) divided by sales (Tan & Peng, 2003). Similar to firm age, this variable is controlled in testing for H3, as organizational slack often affects the variation of firm performance.

Family ownership is measured as the overall percentage of family ownership (Anderson & Reeb, 2004). It is different from the family business measure as this

variable is continuous. Note that although family ownership has been used to classify family and non-family firms, it still significantly varies in family firms. This feature allows the test of H2c as some family firms may have higher family ownership compared to others. Also note that this variable is used to test for H2c, meaning that the focus here is the variation of family ownership in the family business population. Any firm with less than 5% family ownership is not included in the analysis.

Family management is measured as the number of family members among the Top Management Team (TMT). The sum of family members in the board of director (BOD) and family TMT members is also used as an alternative measure of family management for a robustness test. This alternative measure reflects the fact that family board members may engage in monitoring, potentially affecting the implementation of dominant strategy across related business units.

Control Variables

As mentioned above, two independent variables (*firm age* and *organizational slack*) are used as control variables in regressing firm performance (H3). In addition, following Anderson and Reeb (2003, 2004) and Miller et al. (2007), a number of control variables are included because of their potential influence on firm behaviors and performance.

This study also controls for *lone-founder firms*, measured by a binary variable in which 1 denotes the situation where the lone-founder has at least 5% ownership (Miller et al., 2007). Note that lone-founder firms are differentiated from family firms as the latter includes the involvement of at least two family members in the business. Also note that

lone-founder firms and family firms are mutually exclusive, thus this variable is not included in testing hypotheses for the family business sample (H2a-H2c & H3).

Non-family blockholder ownership, measured as the overall percentage of blockholder ownership in year t-1, is controlled as these non-family owners may have concerns that are incompatible with the owning family's interests (Morck et al., 2005). Note that these blockholder may be representative of institutional investors as their presence is often affiliated with financial institutions.

In addition, this study controls for *firm size* (i.e., log of the number of sales in year t-1, Anderson & Reeb, 2003, 2004), *debt ratio* (debt-to-asset ratio measured as a ratio in year t-1) and *firm risk* (the standard deviation of stock returns for the previous three years, Anderson & Reeb, 2003), as these factors often affect decision-making process and accordingly firm performance (Dean & Sharfman, 1996).

This study also includes five strategic actions at the corporate level for each firm-year observation. They are *advertising intensity* (advertising/ sales in t-1 period), *R&D intensity* (R&D/sales in t-1 period), *plant and equipment newness* (net P&E/gross P&E in t-1 period), *inventory level* (inventories/sales in t-1 period), and *financial leverage* (debt/equity in t-1 period), all measured as ratios. Indeed, strategic actions in the past may affect strategic decisions in future. It should be noted that the independent variable is calculated based on the standard deviations of R&D intensity, capital intensity and SGA ratio *across related business units*, thus it should be inherently distinctive from the control variables, which are calculated at the corporate level. Also note that this study does not include the measure of selling, general, and administrative ratio (SGA). This is because this variable is often used as a measure of organizational slack thus may be

theoretically redundant because a measure of organizational slack has already been included²¹. Capital intensity is not included because it may overlap with the R&D and plant and equipment variables mentioned above.

Because corporations often diversify into foreign markets, this study also includes a measure of *international sales* calculated by the percentage of sales coming from foreign domain measured in year t-1. Because performance may also affect diversification in family business, this study controls for *past performance* (ROA in t-1 term) because performance in the past may affect strategic action and performance in current term. This study also controls for industrial affiliation by *industrial average performance*, measured as industry averages of ROA at the four-digit SIC codes in year t-1. Finally, the inverse Mills ratio calculated to control for endogeneity is added as an additional control for all models.

Controlling for Endogeneity

It is possible that endogeneity may make the regression estimates biased. This study uses two approaches to control for endogeneity. First, as mentioned above, one-year lags are used between dependent variable and other variables to ensure the direction of causality, thus the probability of reverse causality would be mitigated. Second, this study uses the Heckman's (1979) two-stage technique (see Gómez-Mejía et al., 2007). The key here is to find instrumental variables that are highly related to the independent variable (family business measure) but are unrelated to the dependent variables. Put differently, high quality instrumental variables in this instance should be family-firm

²¹, Empirically, SGA ratio and the measure of organizational slack (quick ratio) show a high level of correlation which may bias the estimation.

specific and not strongly connected to either the dominant strategy of diversification or firm performance.

This study uses four instrumental variables. *Family trust-holdings* affiliated with significant owners are measured as a binary variable in which 1 denotes the situation where owners have either a trust or foundation associated with family members and 0 otherwise. Indeed, founders, family owners and other major shareholders often choose to use family trusts or foundations to take care of their family members. Nonetheless, there is no theory that can be used to link family trusts with either firm's management of diversification or firm performance. This variable is obtained from firms' annual proxy statements.

Second, this study controls for the fraction of industry sales that comes from family firms (i.e. *family firm sales fraction by industry*), which is naturally related with the probability that a firm in the industry is such a firm, yet is independent of the second stage dependent variables (dominant strategy and Tobin's Q) because the latter are industry-adjusted. Similar measures have been used in previous studies in family business (Amit et al., 2015) and finance (Campa & Kedia, 2002). Third, family firms' fraction of capital expenditure by industry (i.e. *family firm capital fraction by industry*) is also used. Finally, this study controls for family firms' fraction of advertisement expenditure by industry (i.e. *family firm advertisement fraction by industry*). Note that within three family firm fraction variables, one is related to performance (sales) and the other two are related to firm decision-making. Such a design is appropriate because the hypotheses are related to both dominant strategy and firm performance. Using Heckman's two-stage procedure, this study first estimates a probit model in which family business (=1) versus

non-family firm (=0) is regressed against the four instrumental variables and other controls mentioned above. According to the estimation results, the inverse Mills ratio is calculated for each yearly-firm observation and included as a control in all models.

Empirical Results

Descriptive statistics and correlations are reported in Table 1. In general, 20% of the observations can be classified as family firms, while 10% are lone-founder firms. These numbers are similar to other studies exploring public-traded lone-founder and family firms (Miller et al., 2007).

In addition, consistent with Chrisman & Patel (2012) as well as Miller and colleagues (2007), it is found that the family firm variable is negatively correlated (-0.15, p -value<0.001), while the lone-founder firm variable is positively correlated (0.20, p -value<0.001), with R&D investments. Thus, it appears that the sample is comparable to other family business studies of public-traded firms, and missing observations do not seem to affect the validity of the sampling. In support of the hypotheses, dominant strategy is positively correlated with the family business measure (0.04, p -value<0.05), family ownership (0.07, p -value<0.01), and family management (0.09, p -value<0.001). Also note that, consistent with the expectations, dominant strategy is positively correlated with ROA (0.14, p -value<0.001), but negatively correlated with Tobin'Q (-0.06, p -value<0.01).

In terms of the selection of instrumental variables, all four variables are found significantly related to the family business variable(s). In addition, their correlations with family business variable(s) are much higher compared to their correlations with either

dominant strategy or firm performance²². All of these suggest that the selection of instrumental variables is appropriate.

The highest Variance Inflation Factor (VIF) is 3.47, suggesting that multicollinearity is not a big concern. Due to the nature of longitudinal data, Ordinary Least Square (OLS) regression analysis may yield biased estimations. In addition, the Hausman test (Chi Sq Statistic=349.95, p-value<0.001) suggests that a fixed effect model is more appropriate than a random-effect model. Thus, fixed-effect longitudinal regression is used as the primary analytic technique. In order to control for serial correlation and heteroscedasticity, this study also uses the White cross-section sandwich estimator clustered at the firm level (Judson & Owen, 1999). In all models, one year lags between dependent and other variables is used.

22, Z-statistics reveal that the smallest difference between instrumental variables' correlation with family business variable and their correlation with dominant strategy or performance is significant at 0.001 level (Z= - 9.47).

Table 11 Descriptive Statistics and Correlation

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1, Dominant Strategy	0.03	1.01	1.00									
2, TOBIN's Q	2.43	1.44	-0.06	1.00								
3, ROA	0.49	0.28	0.14	0.27	1.00							
4, Family Business (Family TMT>0)	0.20	0.40	0.04	-0.09	-0.01	1.00						
5, Family Business (Ownership >10%)	0.14	0.34	0.07	-0.08	0.02	0.79	1.00					
6, Family Ownership	6.01	14.80	0.09	-0.11	0.05	0.63	0.73	1.00				
7, Age	38.85	30.03	0.19	-0.19	0.12	-0.01	0.08	0.17	1.00			
8, Organizational Slack	0.05	0.47	-0.10	0.08	0.04	0.09	0.04	0.01	-0.16	1.00		
9, Family Management (TMT)	0.29	0.63	0.04	-0.06	0.01	0.91	0.77	0.65	0.00	0.08	1.00	
10, Family Management (TMT+ BOD)	0.69	1.40	0.06	-0.08	0.01	0.90	0.77	0.68	0.05	0.06	0.95	1.00
11, Lone-Founder Firm	0.10	0.30	-0.06	0.22	0.03	-0.17	-0.13	-0.14	-0.23	0.05	-0.15	-0.17
12, Blockholder Ownership	2.74	8.33	0.03	-0.01	0.14	0.04	0.07	0.04	-0.05	0.01	0.04	0.02
13, Firm Size	6.79	1.63	0.25	-0.12	0.11	-0.17	-0.10	-0.02	0.34	-0.27	-0.16	-0.14
14, Debt Ratio	0.02	0.06	0.06	-0.09	0.02	0.13	0.11	0.25	0.07	-0.17	0.14	0.13
15, Firm Risk	8.86	11.02	-0.18	0.17	-0.05	-0.09	-0.06	-0.08	-0.10	-0.04	-0.08	-0.09
16, Advertisement Ratio	0.01	0.03	0.06	0.08	0.42	-0.02	0.00	0.04	0.08	-0.04	0.01	0.00
17, R&D Ratio	0.08	0.10	-0.47	0.05	-0.27	-0.15	-0.17	-0.21	-0.37	0.19	-0.15	-0.19
18, Plant Newness	0.49	0.15	0.04	0.00	-0.04	0.09	0.11	0.14	-0.03	-0.06	0.12	0.13
19, Inventory Ratio	0.12	0.10	0.04	-0.23	-0.05	0.19	0.13	0.14	0.24	0.03	0.12	0.17
20, Leverage Ratio	0.42	14.28	0.01	-0.02	0.00	0.04	0.05	0.10	-0.01	-0.01	0.06	0.06
21, International Sales	0.02	20.13	0.00	0.01	-0.01	0.00	0.00	0.00	0.01	-0.02	0.00	0.00
22, Past Performance	0.49	0.28	0.15	0.26	0.93	-0.01	0.02	0.04	0.11	0.05	0.01	0.01
23, Industrial Average Performance	0.47	0.19	0.16	0.15	0.75	0.05	0.08	0.08	0.18	0.06	0.05	0.07
24, Family Trusts	0.35	0.48	0.01	0.03	0.05	0.61	0.51	0.52	-0.03	0.11	0.56	0.61
25, Family Firm Sales Ratio by Industry	0.14	0.26	0.11	-0.08	0.15	0.42	0.46	0.40	0.15	0.02	0.43	0.45
26, Family Firm Advertisement Ratio by Industry	0.13	0.29	0.12	-0.04	0.21	0.37	0.39	0.38	0.13	-0.01	0.37	0.40
27, Family Firm Capital Ratio by Industry	0.14	0.26	0.11	-0.07	0.17	0.45	0.48	0.41	0.17	0.03	0.44	0.47

Table 11 (continued)

	11	12	13	14	15	16	17	18	19	20	21	22
11, Lone-Founder Firm	1.00											
12, Blockholder Ownership	0.04	1.00										
13, Firm Size	-0.12	-0.13	1.00									
14, Debt Ratio	-0.10	-0.03	0.12	1.00								
15, Firm Risk	0.14	-0.05	0.08	-0.03	1.00							
16, Advertisement Ratio	0.01	0.10	0.10	0.03	-0.01	1.00						
17, R&D Ratio	0.20	-0.09	-0.40	-0.12	0.15	-0.17	1.00					
18, Plant Newness	0.06	0.02	0.25	0.12	0.17	0.04	-0.30	1.00				
19, Inventory Ratio	-0.15	0.07	0.04	0.11	-0.08	-0.11	-0.18	0.14	1.00			
20, Leverage Ratio	-0.01	-0.01	0.03	0.17	-0.01	-0.01	-0.02	0.03	0.00	1.00		
21, International Sales	0.00	0.00	0.02	0.00	-0.04	0.00	0.02	0.01	0.00	0.00	1.00	
22, Past Performance	0.03	0.14	0.11	0.00	-0.04	0.41	-0.28	-0.03	-0.07	0.00	-0.02	1.00
23, Industrial Average Performance	0.05	0.11	0.24	-0.04	0.00	0.34	-0.33	0.11	0.03	-0.01	-0.02	0.77
24, Family Trusts	0.35	0.14	-0.19	0.01	-0.04	0.02	-0.04	0.06	0.09	0.03	0.01	0.06
25, Family Firm Sales Ratio by Industry	-0.12	-0.02	-0.04	0.03	-0.04	0.08	-0.26	0.13	0.12	0.00	-0.02	0.15
26, Family Firm Advertisement Ratio by Industry	-0.10	0.02	0.06	0.03	0.00	0.12	-0.28	0.15	0.11	0.01	0.00	0.21
27, Family Firm Capital Ratio by Industry	-0.12	-0.01	-0.02	0.02	-0.03	0.09	-0.26	0.14	0.13	0.00	-0.03	0.17
23, Industrial Average Performance	1.00											
24, Family Trusts	0.11	1.00										
25, Family Firm Sales Ratio by Industry	0.20	0.23	1.00									
26, Family Firm Advertisement Ratio by Industry	0.27	0.23	0.68	1.00								
27, Family Firm Capital Ratio by Industry	0.22	0.26	0.96	0.67	1.00							

Note:

All variables are NOT adjusted by industrial average

All correlations above |0.03| are significant at 0.10 or better for a two-tailed test

As mentioned above, this study uses Heckman's two-stage approach to partially control for endogeneity. Model 1 is the first-stage probit treatment model in which the binary variable of family business is regressed against instrumental variables and other controls. The variable of lone-founder firm is not included as a control as the variable is mutually exclusive from the family business variable. Overall, the four instrumental variables are all positively and significantly related to the family business variable, suggesting that the selection of instruments is reasonable.

Model 2 (Table 2) tests H1. Firm risk ($B = -0.0001$, $p\text{-value} < 0.05$) R&D ratio ($B = -0.334$, $p\text{-value} < 0.001$) and leverage ratio ($B = -0.0001$, $p\text{-value} < 0.01$) are negatively related to the dominant strategy variable, while firm size ($B = 0.010$, $p\text{-value} < 0.01$) is positively related to the dominant strategy variable. H1 is supported, as the family business measure ($B = 0.013$, $p\text{-value} < 0.001$) is positively and significantly related to dominant strategy. Such a result suggests that *ceteris paribus*, being a family business increases the extent of dominant strategy by 0.013 units compared to the case of non-family business.

Model 3 (Table 2) tests H2a-H2c. Note that while H1 intends to address the difference between family and non-family businesses, H2a-H2c aim at exploring the heterogeneity in the family business population. Thus, Model 2 focuses on family firms only, and the control variable of lone-founder firm is taken out because this type of organization is mutually exclusive from family business. In support of H2a and H2c, firm age ($B = 0.002$, $p\text{-value} < 0.05$) and family ownership ($B = 0.0004$, $p\text{-value} < 0.01$) are both positively related to dominant strategy. Nevertheless, H2b is not supported as

organizational slack is not significantly related to dominant strategy, although the coefficient of the variable is positive.

Table 12 Fixed-Effect Longitudinal Regression Analysis, H1-H2c

Model	Model 1	Model 2	Model 3
Dependent Variable	Family Business Binary Variable	Dominant Strategy	Dominant Strategy
Sample	FB & NFB	FB & NFB	FB
Constant	0.965***	-0.007	-0.014
Family Business (H1)		0.013***	
Firm Age (H2a)	-0.012*		0.002*
Organizational Slack (H2b)	-0.030		0.001
Family Ownership (H2c)			0.0004**
Lone-founder Firm		0.000	
Blockholder Ownership	-0.015***	0.000	-0.001†
Firm Size	-0.357***	0.010**	-0.004
Debt Ratio	4.714***	0.011	-0.034
Firm Risk	-0.019***	-0.0001*	0.000
Advertisement Ratio	-0.619	-0.012	0.034
R&D Ratio	-6.534***	-0.334***	-0.405***
Plant Newness	-0.636	-0.043	0.032
Inventory Ratio	-0.001	0.066	0.060†
Leverage Ratio	2.705**	-0.0001**	0.000
International Sales	0.001	0.000	-0.007*
Past Performance	-0.765***	-0.005	0.034
Industrial Average Performance	-0.551†	-0.005	-0.092
Inverse Mills Ratio		0.000	-0.023
Family Trust	2.548***		
Family Sales Ratio by Industry	1.618***		
Family Advertisement Ratio by Industry	0.768***		
Family Capital Ratio by Industry	3.347***		
Cross-section	288	285	55
Periods	15	15	14
Sample Size	2,250	2,250	409
Within R Square	0.61	0.33	0.14
F-statistics		382.23***	551.21***
Absolute Log Likelihood	416.72***		

Note:

1. Unstandardized estimation coefficients are reported
2. † p < .10; * p < .05; ** p < .01; *** p < .001.
3. Mills Ratio calculated by Model 1

Model 4 (Table 3) explores the performance consequence of dominant strategy in family business. It is found that the coefficient of the interaction between the family business measure and dominant strategy is positive but not significant. Thus, dominant strategy does not appear to significantly affect firm performance in family business.

Model 5 (Table 3) tests for H3. Similar to Model 4, the estimated regression coefficient of dominant strategy is positive but not significant ($B= 2.530$, $p\text{-value}>0.10$). H3 is not supported as the interaction between family management and dominant strategy is positive but not significant ($B= 2.021$, $p\text{-value}>0.10$). Note that for the Model 4 and 5, the estimated coefficients of interactions are consistent with the expectations although neither is significant. Among all hypotheses, H1, H2a and H2c are supported, while H2b and H3 are not supported.

Robustness Test

This study runs a number of robustness tests to ensure that the results are not artificial. Firstly, the performance measure is changed from industry-adjusted Tobin'Q to industry-adjusted ROA²³ (Table 4, Model 6&7). Indeed, Tobin's Q reflects more about the stock market's perception of firm value, while ROA is a measure of firm's annual profitability. Interestingly, consistent with the expectation, both the interaction between the family business measure and dominant strategy (Table 4, Model 6) and the interaction between family management and dominant strategy (Table 4, Model 7) become significant.

23, Industry-adjusted ROS is also used. Results are similar to industry-adjusted ROA in terms of directions, magnitudes and significances.

Table 13 Fixed-Effect Longitudinal Regression Analysis, H3

Model	Model 4	Model 5
Dependent Variable	Firm Performance (Industry-Adjusted Tobin'Q)	
Sample	FB & NFB	FB
Constant	6.913***	3.456
Family Business	1.026	
Family Management		2.182
Dominant Strategy	0.748	2.530
Family Business * Dominant Strategy	1.355	
Family Management * Dominant Strategy (H3)		2.021
Firm Age	-0.011	0.013
Organizational Slack	-0.013	-0.003
Lone-founder Firm	-0.144	
Blockholder Ownership	0.000	-0.012
Firm Size	-0.961***	-0.896*
Debt Ratio	0.000	0.249
Firm Risk	0.029***	0.093**
Advertisement Ratio	-5.307***	-4.699†
R&D Ratio	-2.996***	-3.908
Plant Newness	-1.548***	-2.739***
Inventory Ratio	-2.488**	-0.942
Leverage Ratio	-0.023	-0.314
International Sales	0.001**	0.184†
Past Performance	1.255***	1.848**
Industrial Average Performance	-1.611*	-1.316
Inverse Mills Ratio	-0.206**	-0.152
Cross-section	282	55
Periods	13	13
Sample Size	1,941	389
Within R Square	0.20	0.20
F-statistics	8.08***	6.09***

Note:

1. Unstandardized estimation coefficients are reported
2. † p < .10; * p < .05; ** p < .01; *** p < .001.
3. Mills Ratio calculated by Model 1

Table 14 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H3

Model	Model 6	Model 7
Dependent Variable	Firm Performance (Industry-Adjusted ROA)	
Sample	FB & NFB	FB
Constant	0.032	0.029
Family Business	0.032*	
Family Management		-0.015 *
Dominant Strategy	-0.019	0.110
Family Business * Dominant Strategy	0.273***	
Family Management * Dominant Strategy (H3)		0.352*
Firm Age	0.003**	0.003†
Organizational Slack	-0.001***	-0.001*
Lone-founder Firm	-0.004	
Blockholder Ownership	-0.0003*	-0.001
Firm Size	-0.016**	-0.009
Debt Ratio	0.004	-0.037
Firm Risk	0.000	0.002***
Advertisement Ratio	-0.441***	-0.203†
R&D Ratio	0.087	0.568***
Plant Newness	0.003	-0.041
Inventory Ratio	-0.256***	-0.308***
Leverage Ratio	-0.001	-0.036***
International Sales	0.00005***	0.005
Past Performance	0.038	0.026
Industrial Average Performance	0.004	-0.042
Inverse Mills Ratio	-0.009*	0.010
Cross-section	282	55
Periods	13	13
Sample Size	1,941	389
Within R Square	0.11	0.10
F-statistics	47.64***	25.15***

Note:

1. Unstandardized estimation coefficients are reported
2. † p < .10; * p < .05; ** p < .01; *** p < .001.
3. Mills Ratio calculated by Model 1

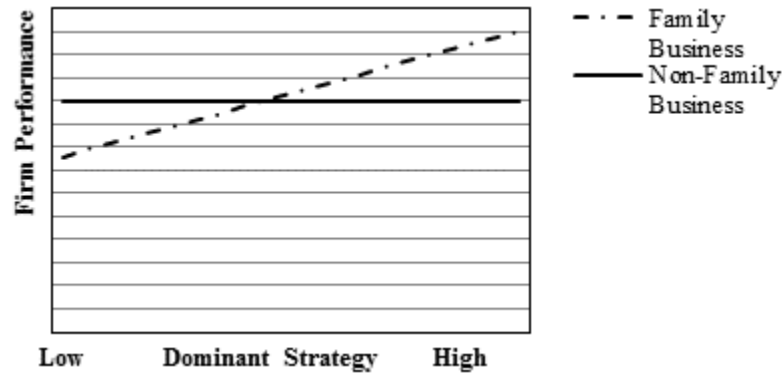


Figure 4 Family Business, Dominant Strategy and Firm Performance (ROA)

Figure 4 plots Model 6. It is found that the use of dominant strategy does not cause any change in performance in non-family business. However, dominant strategy has a positive effect on family firm's performance. When the extent of dominant strategy is low, non-family firms outperform family firms. But when dominant strategy reaches a relatively high level, family firms outperform nonfamily firms.

Figure 5 plots Model 7. Even in the family business population, dominant strategy tends to show a positive relationship with firm performance given high family management. Indeed, when dominant strategy reaches a relatively high level, family firms with high family management tend to outperform those with low family management. Note that, it appears that the hypothesized moderating effect of family involvement is more salient when using ROA as the performance measure compared to the measure of Tobin's Q. This finding will be further elaborated in the discussion section.

Furthermore, note that the measure of family business does not necessarily captures the *vision* of the owning family. This may suggest an isolation between the

definition and the measurement. Here, two alternative measures of family business are used in testing for H1.

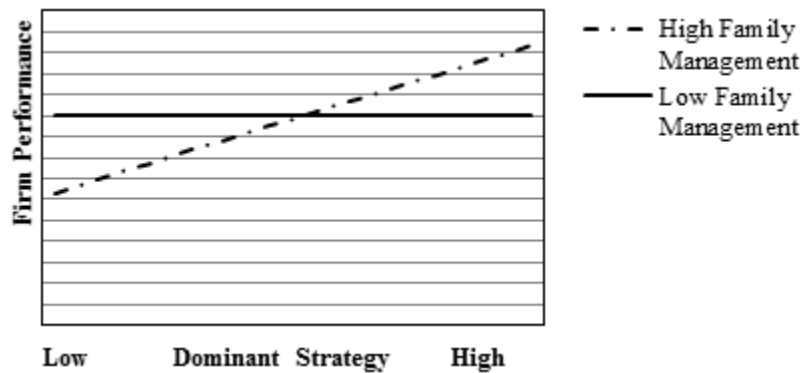


Figure 5 Family Management, Dominant Strategy and Firm Performance (ROA)

To begin, instead of one family manager, this study uses at least *two* family managers in TMT to classify family business, aligned with at least 5% family ownership and at least two family members historically or currently involved in business. Such a measure highlights the presence of multiple family members in TMT, which may signal the presence of intra-family succession intention. Consistent with the primary analysis, H1 (Table 5, Model 8) is supported. In addition, family business is measured by the number of family managers in business if there is at least 5% family ownership and at least two family members historically or currently involved in business. This measure is continuous in nature and may better reflect the variance of family involvement in business. Also note that family managers are directly involved in daily-management in business. This issue is important as publicly-traded firms feature the isolation between ownership and management. In addition, the number of family managers may better

capture the vision of the owning family, as more family managers may signal a higher intention of maintaining family's control in business possibly across generations. Again, H1 (Table 5, Model 9) is supported.

Table 15 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H1

Model	Model 8	Model 9
Dependent Variable	Dominant Strategy	Dominant Strategy
Sample	FB & NFB	FB & NFB
Constant	-0.001	-0.005
Family Business (≥ 2 family managers, H1)	0.004 [†]	
Family Management (H1)		0.005**
Lone-founder Firm	-0.0001	-0.0001
Blockholder Ownership	0.000	0.000
Firm Size	0.010**	0.010**
Debt Ratio	0.012	0.012
Firm Risk	0.000*	0.000*
Advertisement Ratio	-0.019	-0.013
R&D Ratio	-0.335***	-0.335***
Plant Newness	-0.042*	-0.043*
Inventory Ratio	0.068*	0.067*
Leverage Ratio	-0.00001**	-0.00001**
International Sales	0.000	0.000
Past Performance	-0.005	-0.005
Industrial Average Performance	-0.006	-0.006
Inverse Mills Ratio	0.002	0.001
Cross-section	285	285
Periods	15	15
Sample Size	2,250	2,250
Within R Square	0.33	0.33
F-statistics	385.10***	385.10***

Note:

1. Unstandardized estimation coefficients are reported
2. [†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

In addition, this study also tries to use the sum of family members on the TMT and the board of directors (BOD) members as an alternative measure of family management in testing for H3 (Table 6, Model 10). This measurement reflects the fact

that family BOD members may engage in monitoring the operations of diversified units thus may have extensive influences in the daily management of diversified units. Again, H3 is supported.

Table 16 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H3

Model	Model 10
Dependent Variable	Firm Performance (Industry-Adjusted Tobin'Q)
Sample	FB
Constant	30.309**
Family Management (TMT& BOD)	-8.469*
Dominant Strategy	-23.767*
Family Management (TMT& BOD) * Dominant Strategy (H3)	8.229*
Firm Age	0.000
Organizational Slack	-0.006
Blockholder Ownership	-0.002
Firm Size	-0.762†
Debt Ratio	0.405
Firm Risk	0.090*
Advertisement Ratio	-4.590†
R&D Ratio	-2.689
Plant Newness	-3.599***
Inventory Ratio	-2.274
Leverage Ratio	-0.276
International Sales	0.196*
Past Performance	0.677
Industrial Average Performance	0.452
Inverse Mills Ratio	-0.013
Cross-section	55
Periods	13
Sample Size	389
Within R Square	0.20
F-statistics	3.03***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

It is worth noting that H2b is rejected in the primary and the robustness tests. In addition, there is a high level of instability regarding the relationship between dominant

strategy and firm performance in family business. The following tests intend to provide further analyses on these two issues. To begin, in the primary analysis the quick ratio (case reserves and market securities divided by annual sales) is used as the measure of organizational slack. This measure represents the unabsorbed slack at the corporate level. Nonetheless, such a measure may not be a good indicator to capture the extent of parsimony at the business unit level. In another words, having high slack at the headquarters of a diversified corporate does not mean the same level of slack in diversified business units. Thus, this measure is replaced by the SGA ratio, which is the aggregation of selling, general, and administrative expenditures in all business units. Different from the quick asset ratio which is largely managed by the corporate headquarters. The SGA is the aggregation of marketing and administrative expenses from business units. Indeed, consistent with the hypothesis, it is found that the estimated coefficient of the SGA ratio is negative and significant (Table 7, Model 11). It appears that the nonsignificant result of H2b in the primary analysis is due to the way organizational slack is measured.

Table 17 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H2b

Model	Model 11
Dependent Variable	Dominant Strategy
Sample	FB
Constant	0.036
Firm Age (H2a)	0.003***
Organizational Slack (SGA ratio) (H2b)	-0.129**
Family Ownership (H2c)	0.0002*
Blockholder Ownership	0.000
Firm Size	-0.011*
Debt Ratio	-0.025
Firm Risk	0.000
Advertisement Ratio	0.113
R&D Ratio	-0.151
Plant Newness	0.047
Inventory Ratio	0.048
Leverage Ratio	0.000
International Sales	-0.008*
Past Performance	0.026
Industrial Average Performance	-0.074
Inverse Mills Ratio	-0.026†
Cross-section	53
Periods	13
Sample Size	390
Within R Square	0.13
F-statistics	374.06***

Note:

1. Unstandardized estimation coefficients are reported
2. † p < .10; * p < .05; ** p < .01; *** p < .001.
3. Mills Ratio calculated by Model 1

In addition, the analyses mentioned above show some inconsistency regarding the interactive effect between family business and dominant strategy. One possible explanation is that, different from strategic decision-making at the corporate level, managing diversified business units requires a higher extent of family control by which the owning family can transfer its influence into the actual management of diversified business units. This argument suggests that the positive interaction between the family

business measure and dominant strategy should be more salient when the owning family has relatively high control of the business.

Hence, family business is measured by a 10%²⁴ threshold of family ownership, as well as at least two family members historically involved in business and at least one family member currently in TMT. Here, it is found that the coefficient of the interaction becomes positive and significant (Table 8, Model 12). Compared to the result in the primary analysis, it seems that the positive effect of dominant strategy in family business is salient only when the owning family has sufficient control in business.

Following the same logic, it is expected that the interactive effect between family management and dominant strategic become more salient when the owning family has sufficient ownership in business. This means that the effect of H3 would be more salient if the owning family has higher control in business. Thus, H3 is tested in the family business observations where the owning family has at least 10% ownership (Table 9, Model 13). H3 is supported at the 0.001 level of significance.

²⁴, 20% threshold is also used. And regression results are similar to the one reported here in terms of direction, magnitude and significance

Table 18 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H3

Model	Model 12
Dependent Variable	Firm Performance (Industry-Adjusted Tobin'Q)
Sample	FB & NFB
Constant	2.823***
Family Business (10%)	-3.648†
Dominant Strategy	0.387
Family Business (10%) * Dominant Strategy	3.993*
Firm Age	0.014
Organizational Slack	-0.025*
Lone-founder Firm	-0.063
Blockholder Ownership	0.003
Firm Size	-0.483*
Debt Ratio	0.282
Firm Risk	0.021***
Advertisement Ratio	-4.970***
R&D Ratio	-2.560***
Plant Newness	-0.731**
Inventory Ratio	-1.302*
Leverage Ratio	-0.005
International Sales	0.001*
Past Performance	1.186**
Industrial Average Performance	-1.401†
Inverse Mills Ratio	-0.173*
Cross-section	282
Periods	13
Sample Size	1,941
Within R Square	0.21
F-statistics	10.31***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

Table 19 Fixed-Effect Longitudinal Regression Analysis, Robustness Tests, H3

Model	Model 13
Dependent Variable	Firm Performance (Industry-Adjusted Tobin'Q)
Sample	FB
Constant	2.100
Family Management	-3.456***
Dominant Strategy	-1.096*
Family Management (10% FO Threshold) * Dominant Strategy	3.357***
Firm Age	0.015
Organizational Slack	0.009
Blockholder Ownership	-0.021
Firm Size	-0.231
Debt Ratio	0.732
Firm Risk	0.040*
Advertisement Ratio	-4.329**
R&D Ratio	-5.623†
Plant Newness	-0.261
Inventory Ratio	-0.271
Leverage Ratio	-0.506
International Sales	0.167*
Past Performance	1.281*
Industrial Average Performance	-1.491*
Inverse Mills Ratio	0.022
Cross-section	46
Periods	13
Sample Size	262
Within R Square	0.25
F-statistics	11.28***

Note:

1. Unstandardized estimation coefficients are reported
2. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
3. Mills Ratio calculated by Model 1

To summarize, results of robustness tests show some consistency with the primary results. Nevertheless, after changing the measure and ownership threshold, all hypotheses are supported.

Discussion

Studies have highlighted that family's involvement in business may result in distinctive strategic decisions (Gomez-Mejia et al., 2011). One area attracting particular

attention is family business diversification. Yet no one has looked at the specific management of diversified businesses, which is at least equally important as the diversification itself (Hill & Hoskisson, 1987; Kazanjian & Drazin, 1987; Shayne Gary, 2005). Indeed, without proper management, any diversification or acquisition attempt would inevitably fail.

This essay addresses this area. In particular, it is hypothesized that in comparison to nonfamily firms, family firms are more likely to use a dominant strategy in managing diversification, characterized by a high level of similarity in the patterns of resource allocations across related business units. It is also hypothesized that family firms with higher firm age, lower organizational slack and higher family ownership are more likely to use such a strategy. In addition, it is hypothesized that such a unique way of managing diversification would improve performance in family business, especially those with high family's involvement in management. Despite some inconsistent findings, the primary and robustness tests provide supports to all hypotheses.

It is worth noting that H2b is not supported by the primary analysis but is supported in the robustness test when the SGA ratio –rather than the quick asset ratio- is used as a reverse measure of resource parsimony. This is because SGA is a better measure to capture the extent of resource parsimony in business units whereas the quick ratio is a better measure at the corporate headquarters level. Indeed, it appears that conceptualizations and measurements at the headquarters are not analogous to those at the business unit level.

Also note that H3 is not supported when industry-adjusted Tobin'Q is used as the performance measure, but it becomes supported when industry-adjusted ROA is used.

This may reflect the fact that Tobin's Q primarily captures the market's valuation, while ROA is more related to the profitability of the company in creating wealth. Thus, the relatedness resulting from the usage of a dominant strategy across diversified units should result in higher profitability but may not necessarily improve market's valuation. This is because market investors do not have perfect information about strategies at the unit level, hence having a dominant strategy in related units may not necessarily improve investor's evaluation toward the corporate. Another explanation is that Tobin's Q is a measure based upon the long-term accumulated performance of the company, whereas ROA primarily captures the short-term fluctuation in performance. Nevertheless, the theory used in this essay largely concern with short-term rather than long-term performance, and the ROA performance measure may be more aligned with the theory.

In addition, H3 is also supported when the ownership threshold is increased from 5% to 10% in classifying family firms. As Gomez-Mejia and colleagues (2011, p659) suggested, "it is safe to conclude that every operational definition (of family business) is context specific rather than generalizable." Indeed, diversification may create a unique context that demands a high threshold effect of family ownership. In another words, the increasing complexity in organizational structure in a diversified corporate requires a higher ownership threshold to ensure that the owning family can successfully transfer its goals into strategic behaviors at the unit level. Indeed, there often exists interest divergence between unit managers and corporate owners (Govindarajan, 1989), thus decision-making at the unit level may not reflect goals of corporate owners unless the owners have sufficient control over the whole corporation. In addition, managerial hierarchy may distort messages sent by significant owners in the headquarters

(Govindarajan, 1986). Thus, certain ownership thresholds used at the corporate level may no longer be appropriate when studying starties at the unit level.

All combined, it appears reasonable to conclude that the diversification setting may create a unique context such that conceptualizations and operationalization used in previous family business studies are no longer valid.

Theoretical Implication

This section intends to discuss the theoretical implications of this study which may help shed light on future studies.

To begin, the family business field has experienced notable advancement with exceptional theoretical developments in understanding how and why family firm's strategic behaviors would be distinctive and heterogeneous (Chrisman et al., 2013; Chua et al., 2012). Nevertheless, these studies largely fail to distinguish corporate-level and business-level strategies, neglecting the fact that publicly-traded family firm often holds a portfolio of diversified business units. Note that corporate-level strategy is inherently different from business-level strategy as the former is concerned with managing a portfolio of multiple business areas while the latter focuses on a single business.

This essay is the first attempt to investigate how family firms manage diversified business units as well as the performance consequence of such a unique way of management. As discussed above, inconsistencies among the primary and robustness tests seem to suggest that some well-grounded theoretical predictions as well as empirical operationalization at the business level may not be valid at the corporate level. Indeed, it is possible that strategies in some units may deviate from the owning family's goals and objectives given a relatively low level of family control. In particular, the findings

suggest that transferring family shareholder's goals to unit behaviors would require a higher extent of controlling power compared to the case at the business level. Thus, the operationalization of family business may need to be revised to fit into the setting of diversified family corporations with multiple business units.

It is also worth noting that this research area remains under-developed with multiple research opportunities existing. For instance, it is still not well known whether family involvement in the dominant coalition may or may not affect the strategies and performance in all business units in family-controlled and -managed corporations. In addition, given the presence of multiple goals and objectives in a owning family, it is also possible that units may be assigned with distinctive goals. This issue may become salient given the coexistence of related and unrelated business units in diversified corporates. In other words, related units may be used to achieve the goal(s) with high priorities while unrelated ones may be used to achieve those with low priorities. It is also possible that individual family members may be in charge of business units, thus unit strategies may reflect their individual interests rather than the collective interest of the whole family. Furthermore, the owning family may endow more resources to some units instead of others, thus the link between family resource-endowment and unit strategy/performance may be more salient in some units rather than others. Due to the limitation of the data especially the lack of information on owning families, this study is not able to directly test these predictions.

In addition, the theory is based upon the argument that family firms are more likely than non-family firms to adopt a dominant strategy in diversification. This is because the owning family has family-centered traditions which are expected to increase

over time, because the owning family is parsimonious in resource utilization, and because the owning family has the power to transmit its influence in firm decision-making. Based upon the behavioral theory of the firm, such a theoretical framework highlights that the combination of family goals, resources, and governance structures results in unique decision-making patterns in managing diversified business units. Note that compared to other theories that highlight one or two rather than all three elements, the theory used in this study ensures that the framework is comprehensive yet parsimonious.

Furthermore, when exploring the link between dominant strategy and firm performance in family business, this study relies upon the coordination literature to build the theory. In particular, it is argued that there are three primary sources of costs in coordination: problem-framing, communication and conflict resolution. It is also argued that interactions among family managers may lead to less coordination problems, thus the performance consequence of a dominant strategy is likely to be higher in family firms, especially those with more family managers. Although such a theoretical framework is developed for this essay, the theory can also be applied in other settings of coordination in family business including inter-firm alliances, new product development, creativity and innovation, self-managing teams and others.

Finally, while previous family business studies have highlighted some potential distinctive effects between family ownership and management upon firm performance, it is further argued that this effect is due to the advantage of family management in coordinating complex activities. Thus, it appears that family management can be conceptualized as having a moderating effect on the relationship between firm strategy and firm performance. Indeed, future studies can keep exploring this line of inquiry.

Limitations

While this study can make several contributions, it is also important to recognize its limitations. First, there are a large amount of missing data in the database on business units. Based upon the portions of lone-founder and family firms, this does not appear to be a problem. Nevertheless, this is still a potential issue that may affect the accuracy of the findings. Indeed, missing data is relatively common in previous studies on business units (e.g. Prahalad & Bettis, 1986). Future studies may try to validate the findings with primary data collection or other sources that would ensure a lower level of missing data.

Furthermore, family business is defined by a family's involvement in ownership and governance with a vision for how the firm will benefit the family, potentially across generations (Chrisman & Patel, 2012; Chua, Chrisman & Sharma, 1999). However, family business is measured by family's involvement in ownership and management, and did not directly measure the owning family's vision. This is largely due to the secondary data source. In addition, the measurement has been widely used by previous studies in family business (e.g. Chrisman & Patel, 2012; Gomez-Mejia, et al., 2003, 2010; Miller et al., 2007, 2011). Moreover, the family's involvement in ownership and management may reflect the family's *ability* in transferring family's vision into firm behaviors. Finally, the involvement of multiple family members in business may signal the presence of existing or potential intra-family succession intention. Nonetheless, the vision of the family has not been directly measured. Future studies may try to use a more valid measure that can directly reflect the vision of the dominant family coalition.

Similarly, the theory is developed upon concepts such as tradition, parsimony, and control. Nevertheless, these concepts are not directly measured. Instead, these concepts

are used to develop testable hypotheses based upon accessible secondary data in publicly-traded family firms. Indeed, the secondary data source largely limits the abilities to directly measure these constructs and test the theories accordingly. For instance, arguably some junior late-generation family members may choose to deviate from rather than completely follow family tradition. Indeed, the usage of proxy measurement may become a potential issue that may affect the validity of the study design. Future studies may try to develop valid scale measurement of these concepts to further test the hypotheses.

In addition, strategies and performance at the business unit level may be affected by the status of business unit managers. In particular, whether the manager belongs to the owning family may be a critical factor. Due to the limitation of the secondary data, this information is not accessible. Future studies may try to collect primary data at the unit level to further test the hypotheses.

In addition, this study focuses on firm age, organizational slack and family ownership as three determinants in exploring the heterogeneity in family business. Such a conceptualization was supported by the empirical results. Nevertheless, it is also important to note that these three variables represent a small portion of variation in the family business population. Put differently, there are more factors related to goals, resources and governance, especially those stemming from the family system that may further contribute to the heterogeneity of the family business population.

It is also important to note that, although there are multiple hypotheses in this study, they are tested separately. Note that some analytic techniques such as path analysis and structural equation modeling (SEM) may test multiple hypotheses simultaneously. Nevertheless, the data used in this study is longitudinal, meaning that for SEM or path

analysis, cross-sections (682 firms) and years (9 years) must be added as control variables into the model (682+9), which may greatly limit the degree of freedom in the analysis and make the analysis infeasible. Future studies should try to use other analytic approaches to test all hypotheses simultaneously.

Moreover, this study uses publicly-traded firms in S&P 1500 manufacturing as the primary sample. Indeed, one feature of public-traded family firms is the limited range of family ownership, as it is impossible for family ownership to reach 100% by nature. Thus, the generalizability of the findings to small and privately owned family and non-family firms may be limited. Future studies are encouraged to replicate this study among privately-owned small- and medium- sized firms.

In addition, this study excludes firms without at least five years continuous observations. Such a treatment is to ensure that the calculation of dominant strategy is meaningful. Nevertheless, it may also affect the generalability of the sampling, as newly-founded firms or firms that are reluctant to release information to the public may be excluded from the sample. Future studies may try to use primary data collection in dealing with these issues.

Finally, this study chooses to focus on the 1996-2013 range in the analysis. Such a period is not homogenous regarding economic growth as well as market competition, which should provide enough variations in terms of dominant strategy as well as firm performance. However, variations in such a turbulent period may bias the empirical results. Nonetheless, even given such a long and dynamic period, the primary results are still significant. Future studies may future test the hypotheses in different periods.

Conclusion

To conclude, this essay intends to explore the antecedents and consequences of dominant strategy among diversified publicly-trade family and non-family business. The differences between family and non-family firms as well as the heterogeneity among family firms themselves presented in this essay can help scholars, family business members, and investors better understand family involvement and how it impacts the management of diversified business units and firm performance.

CHAPTER IV

CONCLUSION

Drawing upon the behavior theory of the firm, this dissertation aims to explore the homogeneity of family firms' strategic decision-making over time (strategic persistence) and across related business units (dominant strategy), as well as their antecedents and performance consequences in family business. The theme that both essays share intends to highlight that family businesses may show high levels of internal constancy in strategic decision-making. Indeed, based upon S&P 1500 manufacturing firms from 1996 to 2013, it is found that family firms have a higher level of strategic persistence and a more consistent dominant strategy than non-family firms. In addition, it appears that being older, with less organizational slack and having higher family involvement in ownership and management tends to strengthen the two kinds of homogeneity in family businesses. Finally, it is found that high homogeneity in decision-making can result in better performance in family business compared to non-family firms, especially for those with high family involvement in management. This chapter intends to summarize the findings and discuss the implications of the two essays together.

To begin, recent development in the family business literature highlights that family firms are heterogeneous (Chua et al., 2012), and a higher level of heterogeneity may be a feature that distinguishes family from non-family firms (Chrisman & Patel, 2012). While this view is compelling, it does not take into account that family firms may

show high levels of internal homogeneity in their strategic behaviors. Note that the argument does not contradict the view of family business heterogeneity, as the focus here is the homogeneity in an individual family business, while the heterogeneity view focuses on inter-family-firm differences. Indeed, findings in this dissertation seem to suggest that, although as a whole population, family firms show a high level of heterogeneity, individual family businesses may show high levels of internal homogeneity. Thus, to get a comprehensive understanding of this unique type of organization, we need to recognize that both heterogeneity and homogeneity exist, but are manifested in different ways and at different levels.

In addition, our theoretical framework covers idiosyncratic goals, resources and governance structures in family business (Chua et al., 2012). Note that overly emphasizing a single dimension may result in inaccurate predictions regarding how family firms would behave and perform. Indeed, just as Chua and colleagues (2012, p2) have warned, “Continuing to ignore family firm heterogeneity could institutionalize a distorted homogeneous view of family firms that generates ‘panaceas’, supposedly applicable to all family firms”. Nonetheless, few theories in the family business literature cover all three dimensions; more than often theories only emphasize one at the expense of others (one notable exception is Carney’s work in 2005). Thus, the theoretical framework proposed in this dissertation is more comprehensive compared to prevailing theories in the family business field.

Furthermore, one notable view in the family business literature is that family firms need to learn from non-family firms to make more favorable strategic choices (e.g. Stewart & Hitt, 2012). This view has its roots in the work of business historian Alfred

Chandler (1990) who views family businesses as relics of an old era. His followers argue that learning from non-family firms and embracing innovation (Block, 2012), risk-taking or corporate entrepreneurship (Chirico et al., 2011) may bring competitive advantages to family-owned and –managed type of organizations. Findings in this dissertation suggest that this is not necessarily the case. Indeed, both essays suggest that family firms have a more homogeneous pattern in making and implementing its decisions, and family firms can benefit from such a homogeneous pattern of decision-making. These findings seem to suggest that competitive advantages in family business may stem from unique sources, and simply imitating non-family firms may not be the best way for family firms to achieve superior performance.

In a similar inquiry, some scholars advocate that at least some if not all family firms should professionalize by employing non-family managers and experts. Such an argument is often based upon the assumption that the family labor pool tends to be limited in its size and quality, and recruiting non-family talents may help overcome the defects of family managers (Chua et al., 2009). This dissertation challenges this view. What have been found in both essays suggest that, the combination of family management and homogeneous decision-making improves family firm performance. Indeed, studies have already recognized that family managers are different from family owners regarding their effects on firm strategies and performance (Block, 2010; Villalonga & Amit, 2006; Wu et al., 2007). This dissertation further demonstrates that family managers may have certain advantages in some strategic actions. The view that non-family professional managers are always superior compared to family managers seems to be too simplistic. This dissertation is also consistent with the contingency view

which proposes that there should be a “fit” between strategic action and implementation, and a high level of fit would likely lead to superior performance (Kammerlander et al., 2015). In this regard, it appears that family’s control in general and family involvement in management in particular would fit better with a more homogenous pattern in a family firm’s strategic decision-making.

The focal concern of essay 1 is strategic persistence, which is naturally related to long-term orientation in the literature (e.g. Lumpkin & Brigham, 2011). Indeed, the family business literature has long recognized that some family firms are oriented toward the long run, and such long-term orientation may contribute to superior performance (Miller & Le Breton-Miller, 2005). Nevertheless, few has developed theories regarding *what types* of family firms are more likely to express such an orientation, and *how* such an orientation would contribute to firm performance. More importantly, the attention is often drawn to short-term strategic behavior rather than to the long-term window for multiple strategic dimensions. Such neglect may result in inaccurate theoretical propositions as well as biased empirical results. This study helps to fill these gaps and shed light on the long-term orientation literature in the family business field. Indeed, strategic persistence can be viewed as a manifestation of long-term orientation in firm behavior. Our empirical results suggest that in general family firms are more persistent compared to non-family firms, and this strategic persistence may help improve their performance.

In addition, essay 1 uses a resource management view (e.g. Simon et al., 2007; 2008) in exploring the relationship between strategic persistence and firm performance. Indeed, the RBV (e.g. Habbershon & Williams, 1999) has been used to explore the

competitive advantages in some family firms. Nevertheless, existing RBV studies often draw attention to different categories of family resources in business, assuming having resource endowments from the family system is sufficient to ensure superior performance. Different from this line of inquiry, essay 1 focuses on the overall features of family resources, which may fundamentally affect the ways that owning families *manage* family-endowed resources (Sirmon & Hitt, 2003). Indeed, it is the management of resources that eventually determines the consequence of any strategic action. Thus, some family firms are better than non-family firms not only because these family firms have valuable, rare and non-imitable and non-substitutable resources, but also because these family firms have a better way of managing resources. Such a perspective also suggests that given high inseparability, specificity and intangibility, family firms may have advantages in strategic actions that require less acquisition, mobilization, and divestment of resources in the business systems.

Essay 2 explores the pursuit of dominant strategy in family business. To the best of our knowledge, this essay is the first attempt to investigate how family firms manage diversified business units as well as the performance consequence of such a unique way of management. Indeed, most of family business studies at present tend to focus on the business level, overlooking the fact that some family firms are large corporations with diversified portfolios of multiple business units. Findings in essay 2 suggest that publicly-traded family firms are more likely to pursue a dominant strategy in their related business units. Such a finding may shed light to the family business literature in terms of the management of diversification in diversified family corporations.

It should also be noted that essay 2 relies upon the coordination literature in exploring the link between dominant strategy and firm performance. In particular, it is argued that there are three primary sources of costs in coordination: problem-framing, communication, and conflict resolution. It is also argued that interactions among family managers may lead to less coordination problems, thus the performance consequence of a dominant strategy is likely to be higher in family firms, especially those with more family managers. Although such a theoretical framework is developed for this essay, the theory can also be applied in other settings of coordination in family business. For instance, coordination may take the form of inter-firm alliances, new product development, creativity and innovation, self-managing teams and others. This suggests that family firms may have better performance in these coordination activities when they are managed by family members. Future studies should try to apply this theoretical view to other coordination in family businesses.

Future Research Directions

While this study may make several contributions, it is also important to recognize its limitations, which may help shed light on future studies. To begin, one underlying argument in this dissertation is that consistent patterns of decision-making are beneficial to family-owned and –managed businesses. While this argument is arguably accurate, there may be some contingencies that may affect the performance consequences of strategic persistence and dominant strategy in family business. For instance, given high uncertainties and dynamics in the market, being overly persistent may lead to path dependency and prohibit the family firm from adapting to changing environments. Similarly, given the context that features frequent changes at the industrial level, having

dynamic capability –rather than being consistent over time and/or across diversified units- may help build competitive advantages in family business. Future studies may further explore these contingencies to obtain better understandings of the performance consequences of strategic persistence and dominant strategy in family business.

Also, this dissertation defines family business by the family’s involvement in ownership and management as well as the family’s *vision* of using the business to benefit the family and family members. Although several alternative measures of family business have been used, and some of the measures are related to the “vision” of the family, it is important to note that the “vision” of the family has not been directly measured, which may lead to isolation between the theory and the methodology. Future studies should try to use better scales of family business in testing for the hypotheses in this study.

In addition, this study uses firm age, organizational slack and family ownership as three measures related to family tradition, resource parsimony and family control, respectively. Such a conceptualization was supported by the empirical results. However, family tradition, resource parsimony and family control are not directly measured in the study. One reason is the secondary data source, as it is rather difficult to gain primary data from publicly traded companies. This issue may lead to the isolation between the theory and the methodology. Indeed, future studies should use valid scales to better test the relationship between the constructs and strategic persistence.

Furthermore, this study uses publicly-traded firms in S&P 1500 manufacturing as the primary sample. One feature of public-traded family firms is the limited range of family ownership, as it is impossible for family ownership to reach 100% by nature. In addition, it is impossible to collect data for firms with less than 5% family ownership,

because only owners with more than 5% ownership are reported in the proxy statements. Such a sampling would limit the generalizability of the findings in small and privately owned family and non-family firms, as privately-owned and/or small- and medium-sized family firms often feature high family involvement as well as a higher range of family involvement compared to publicly-traded family firms. Future studies are encouraged to replicate this study in the privately-owned small- and medium- sized firms.

Finally, this dissertation chooses to focus on the 1996-2013 range in the analysis. Such a period is not homogenous regarding economic growth as well as market competition, which should provide enough variations in terms of strategic persistence, dominant strategy, and firm performance. However, even given such a long and dynamic period, the primary results remain significant. Future studies may further test the hypotheses in different periods.

In sum, this dissertation explores the homogeneous patterns of decision-making in single family business, as well as their antecedents and performance consequences. The findings of this dissertation can help scholars and practitioners better understand how and why family involvement may affect the pattern of strategic decision over time and across diversified business units, and how and why such a homogenous pattern of decision-making would bring competitive advantages to family firms.

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