

**TOP MANAGEMENT TEAM PERSONAL WEALTH, WITHIN-TEAM
DIVERSITY AND THE IMPLICATIONS FOR FIRM-LEVEL RISK TAKING**

A Dissertation

by

JOANNA TOCHMAN CAMPBELL

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2012

Major Subject: Management

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Approved by:

Co-Chairs of Committee,	Michael A. Hitt
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	Shane Johnson
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ABSTRACT

Top Management Team Personal Wealth, Within-Team Diversity and the Implications
for Firm-Level Risk Taking. (May 2012)

Joanna Tochman Campbell, B.S., Arizona State University

Co-Chairs of Advisory Committee: Dr. Michael A. Hitt
Dr. David G. Sirmon

The manager's personal wealth is one of the central building blocks of agency theory, which considers wealth to be an especially important source of individual utility. The managers' financial position, or the portion of their financial well-being that is not dependent on the firm, is also introduced in the original formulation of upper echelons theory. However, despite the importance of executive personal wealth to both theories, it is rarely mentioned, and even more scarcely studied. My research builds on and extends agency and upper echelons theories by focusing on executive personal wealth, defined here as the portion of executive net worth that is not attached to current employment at the firm (i.e., not contingent on current or future earnings). As such, this research provides an initial answer to the following research question: how does the average personal wealth of the top management team as well as within-team differences in wealth influence firm strategic choices with respect to risk?

Specifically, I argue that external wealth alters how managers view firm decisions regarding risk; thus, I hypothesize that average top management team (TMT) wealth is negatively related to firm unrelated diversification, positively related to R&D

investments, and positively related to firm risk. Next, I propose that two types of within-group diversity – TMT wealth diversity and TMT pay dispersion – attenuate the effect of average TMT wealth on these firm outcomes. I test my hypotheses on a panel dataset of over 700 firms/TMTs from the S&P1500 over 2002–2008 using panel tobit and fixed effect models, and conduct multiple robustness checks. Empirical results strongly and consistently support the hypothesized main effects of wealth. However, the results regarding the moderating effect of within-group diversity are weak, as the majority of the moderation hypotheses are not supported. The main conclusion is that wealthier TMTs are less risk averse with respect to firm strategic decisions, which manifests in greater R&D spending, lower unrelated diversification, and higher overall firm risk. Theoretical and empirical implications as well as suggestions for future research are discussed.

DEDICATION

To my amazing husband, Colin, who is always my biggest fan.

ACKNOWLEDGEMENTS

This research would not have been possible without the help and support of many others. First and foremost, I would like to thank God for giving me the ability to do work that I love, and for guiding me on the right path to this profession by surrounding me with amazing people throughout my life. Thank you, Grandma, for reminding me how truly blessed I am. I would also like to extend special thanks to several people who supported me and touched my life leading up to and throughout the dissertation process.

My committee has played a great role in my time in the doctoral program and in the completion of this project. With enormous gratitude I would like to thank my Chairs and mentors, Mike Hitt and David Sirmon. Both of you have influenced my life in many ways. I hope that I will meet your expectations for me, and come to show you that your time with me was not wasted.

Mike, thank you for taking me on as a student despite your enormous time commitments. Your wisdom, humility, dedication, and spirit of service to this profession are something I will always aspire to. Despite your immense success and contributions to the field, you always exemplify modesty and kindness. Thank you for always being there for me when I needed guidance and someone to talk to, and for your undying patience.

David, thank you for taking a chance on me fully knowing how difficult I can sometimes be. I am amazed at your drive, patience, and work ethic. Thank you for instilling a passion for research in me. I feel very lucky that I got a chance to work with

you while our lives overlapped at Texas A&M. I have learned so much from you and I hope to one day inspire doctoral students the way you have inspired me.

I would also like to thank my other committee members, Duane Ireland and Shane Johnson. I will always be better as a scholar for working with both of you. Duane, your excitement for research and passion for helping others is contagious. Your presence among my advisors reminded me that every word matters. Shane, thank you for your understanding regarding the differences in our fields, and for keeping me on my toes while I was scrutinizing my methods.

Thanks to my husband, who was always there to share his keen insight and offer his point of view, at all hours of day and night. Thank you for your love, support, and understanding, even when I was stressed beyond belief. You are my rock. Thank you for always reminding me to strive for excellence, even when an easy way out seems, well, so much easier.

To other professors and co-authors, thank you for sharing your wisdom and helping me transition into this profession. Special thanks to the amazing women I got a chance to work with – Lorraine Eden, Brett Gilbert, Kati Takacs Haynes, and Elizabeth Umphress. Luis Gomez-Mejia and Trevis Certo were also instrumental in my development as a young scholar. Len Bierman, thank you for sharing your great ideas with me. Brad Kirkman and Dick Woodman, thank you for instilling in me the appreciation of “micro” theory and methods. I would also like to thank Laszlo Tihanyi, who helped to stimulate my interest in strategy research and saw kernels of good theorizing in my first term strategy paper.

I would have never been able to get through the doctoral program without the support of fellow Ph.D. students. We shared so many great times together, it makes it difficult to recall that it was not always easy. To members of my cohort – Rhett Brymer, Li Dai, and Brian Swider – thank you for your friendship and support throughout the program, beginning with my very first day. I am grateful that we got to go through our time at Texas A&M together. To the cohort a year junior – Brad Harris, Ning Li, Adam Stoverink, and Cheryl Trahms – thank you for making my time in College Station so much better. I think we have all come to realize how lucky we were to have had each other to lean on. Richard Gardner and Christina Matz, I am glad to have gotten to know you and sorry that we did not get to spend more time together. I would also like to thank other members of the A&M student family – especially Andy Hinrichs (Western Australia), Curtis Wesley (Indiana–Indianapolis), Michael Holmes (Florida State), Tim Holcomb (Florida State), Chris Tuggle (Nebraska), and Brian Connelly (Auburn).

Thank you to all my friends, old and new, who have supported me in my time as a doctoral student. Special thanks to Melissa Brown, Melanie Harris, Alex and Marina Petkevich, Traci Boyle, Gosia Krauze-Kociszewska, and Magdalena Wasilewska. Thank you to my friends in Oxford, OH – Maria and Brandon Flessner, Mirabai McCarthy, Jeremiah Jonaitis, Laura Klein, and Jess and Steve Rybczynski – for keeping up with my crazy schedule and great times together.

Last but not least, thank you to my family in Poland and in Lynchburg. My parents, who always believed in me and supported me throughout my education. My sister, Kasia, for being the best cheerleader a sister can ask for. My grandparents, who

always kept me grounded and reminded me how lucky I am. My in-laws, who cheered me on and celebrated each little success with me. My sister-in-law, for being a constant reminder to follow my dreams. And to my extended family, who are all amazing in their own way and inspire me to be the best that I can be.

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CHAPTER I

INTRODUCTION

Ever since Barnard's early account of work at the executive level (Barnard, 1938), corporate elites have continued to fascinate the media, practitioners and scholars alike, prompting a reference to "the romance of leadership" (Meindl, Ehrlich, & Dukerich, 1985). Two prominent theories have addressed the issues associated with top executives and how they manage their organizations – agency theory and upper echelons theory. Agency theory (Jensen & Meckling, 1976) emerged from the writings of early managerialists (Berle & Means, 1932), and is primarily concerned with the implications of the agency relationship (Eisenhardt, 1989) – the delegation of decision rights from owners to professional managers. According to agency theorists, this separation of ownership and control in modern day corporations leads to the fundamental agency problem (Dalton, Hitt, Certo, & Dalton, 2007) – the misalignment of interests between owners and managers, which can lead executives to pursue their own private interests at the owners' (shareholders') expense. In other words, the agency problem arises because owners' and managers' goals conflict and shareholders cannot perfectly monitor managerial work, because it is too difficult or expensive to do so (Eisenhardt, 1989).

Upper echelons theory, while also primarily focused on the corporate elite, has a different but complementary focus; it proposes that executives act based on personalized interpretations of the strategic situations they face, and as a result organizations become

This dissertation follows the style of *Academy of Management Journal*.

reflections of their top management teams, or the upper echelon of the organization (Hambrick, 2007; Hambrick & Mason, 1984). According to this theory, top managers' characteristics influence the firm's strategic choices, such as innovation, capital intensity, unrelated diversification, and financial leverage (Hambrick & Mason, 1984). Since its inception, the upper echelons perspective has spurred numerous studies centered around top management team composition, top executives and their impact on organizations (see Carpenter, Geletkanycz & Sanders, 2004, for a review).

While both theories have generated important insights about the impact of top-level managers on firm outcomes, agency theory has been the primary theoretical lens utilized by corporate governance scholars, and research building on it has greatly enhanced our understanding of the issues surrounding the incentivizing and monitoring of the corporate leaders. However, accumulated evidence suggests that our understanding of the complex relationship among owners, top managers and firm-level outcomes is incomplete. Specifically, the theory proposes a number of alignment or policing mechanisms aimed at reducing the residual loss to firm value due to managerial opportunism. Yet, a recent review concludes that the empirical evidence regarding the efficacy of the three main agency problem mitigation mechanisms – board independence, equity ownership, and the market for corporate control – offers little support for their effectiveness (Dalton et al., 2007), thereby posing questions about the comprehensiveness of the current conceptualization of agency theory. Perhaps the biggest criticism of agency theory can be leveled based on findings from the stream of research concerned with executive compensation. In theory, effective compensation

packages help to align executive interests with those of shareholders, thereby prompting the maximization of firm performance. However, despite numerous attempts, executive compensation research to date has been unable to uncover a systematic pay-performance relationship; researchers have reported negative, weakly positive, and non-significant results (see Gerhart, Rynes, & Fulmer, 2009, for a review). Exemplifying disenchantment with this theoretical lens by a number of scholars, Ghoshal (2005) proposed that teaching and issuing recommendations focused on agency theory may in fact lead to the very behaviors they are aimed at preventing.

In contrast to research in the stream of agency theory, which tends to overlook personal differences between executives (Hambrick, 2007), upper echelons research focuses on these differences and their implications for firm-level outcomes. In fact, the theories are complementary and are uniquely suited for integration; building on the commonalities between the two can help generate unique insights and answer recent calls to generate research combining multiple perspectives (Okhuysen & Bonardi, 2011). Despite a significant amount of research in both the agency theory and upper echelons theory traditions, one individual characteristic—executive personal wealth—has not been addressed despite its importance to both theories' predictions. Executive wealth is highlighted in the original conceptualization of upper echelons theory (Hambrick & Mason, 1984): “financial position” of the “upper echelon” is proposed, alongside age and formal education, as one observable managerial characteristic that can influence executive preferences. However, the issue of executive wealth has not been addressed further by upper echelons researchers. Executive personal wealth also plays an important

role in the original formulation of agency theory (Jensen & Meckling, 1976), where it is assumed that all of the manager's personal wealth is tied to the firm he or she manages in the form of equity ownership. In other words, external (non-firm) personal wealth is held constant at zero; however, Jensen and Meckling (1976) recognize that because of the benefits of diversification and managers' desire to avoid risk, in reality, managers will not hold all their equity in one firm. Thus, external managerial wealth is introduced in both agency and upper echelon models, and this linkage presents an opportunity to integrate these two theories centered on top managers at the construct level.

I propose that agency theory could greatly benefit from scholarly consideration of differences in personal wealth between executives, which could affect managerial risk preferences and the agency problem. Moreover, the consideration of top management team (TMT) personal wealth and the differences in wealth within a TMT extends upper echelons theory and our understanding of team dynamics by further developing a previously unexamined construct. Specifically, I focus on executive personal wealth defined as the portion of executive net worth that is not attached to current employment at the firm (i.e., not contingent on current or future earnings). As Milgrom and Roberts (1992: 35) note, in "many economic decisions, the choice actually made depends on the decision maker's wealth." Choices made by top managers, and the impact of those choices on firm outcomes (such as firm risk and performance), lie at the core of the field of strategic management (Nag, Hambrick, & Chen, 2007). Thus, the goal of this research is to take the first step toward answering the question: how do executives with more personal (external) wealth differ from their less wealthy counterparts in terms of their

preferences, and what implications do these differences have for top management team dynamics and for the firms they manage? More specifically, *how does average external wealth of the top management team (upper echelon) as well as within-team differences in wealth influence firm strategic choices with respect to risk, and what are the implications for the agency problem?*

For the most part, upper echelons theory and agency theory research have developed along separate lines, although researchers have jointly considered executive functional background and the position occupied in the organization (Jensen & Zajac, 2004). Despite the fact that executives' personal wealth is important to both theories, its implications for the agency theory's predictions, as well as the influence of wealth and its distribution within a TMT on decision-making by the upper echelon, remain to be examined. As some scholars noted, "the formal analysis of problems in the economics of organizations is greatly simplified" when wealth effects are disregarded (Milgrom & Roberts, 1992: 35). This simplification, and the lack of readily available data, has perhaps contributed to the absence of attention given to the issue of executive wealth. However, the consideration of executive personal wealth introduces important contingencies to agency theory's predictions. Moreover, fully developing the construct of executives' personal wealth at the top management team level and its implications for executives' preferences allows us to better understand the causal mechanisms behind executives' decision-making, thereby extending upper echelons theory. I elaborate on these extensions below.

The three main agency theory assumptions with respect to human nature—and

managerial behavior specifically—include bounded rationality, (firm value-destroying) self-interest, and uniform risk aversion (Eisenhardt, 1989). Introducing differences in executive wealth allows for relaxing the third assumption. First, individual personal wealth is important to an executive's willingness to bear firm-specific risk. As Wiseman and Gomez-Mejia point out, “agency theory's contribution to corporate governance has been limited by its simplistic assumptions of consistent risk aversion among agents (1998: 134).” Specifically, at the core of the theory lies the assumption that managers are significantly more risk averse with respect to firm investments than are shareholders because the majority of executives' financial capital is tied to the firms they manage, and they are unable to diversify away that risk. This risk misalignment—between risk-neutral shareholders and risk-averse managers—is one of the fundamental agency issues that governance mechanisms seek to remedy. In fact, an entire stream of agency theory research, the so-called normative principal-agent literature, addresses the optimal design of compensation contracts and their risk-sharing properties with the goal of mitigating executives' risk aversion (Beatty & Zajac, 1994).

However, wealth effects introduce an important contingency to the model. Executives with high personal wealth are able to diversify their financial capital that is independent of the firm via various investment strategies, thus diluting the impact of firm-specific risk, and thereby potentially altering the risk alignment between managers and firm owners. TMTs with greater personal (external) wealth should be willing to bear more firm-specific risk than TMTs with a greater proportion of their financial well-being tied to the firm they manage, because the impact of downside risk posed by their

employment on their total wealth position is smaller. This consideration has important theoretical implications as it addresses one of the major assumptions of agency theory. And given the changes in the 21st century business landscape, such as increasing technological intensity in many industries, which requires top managers to make concerted efforts to invest in R&D and develop their firms' technological capabilities, an inherently risky endeavor, it also has important practical implications.

Second, building on the upper echelons theory allows me to address the second major assumption of agency theory – value-destroying self-interest – and homogeneous interest misalignment between shareholders and managers. In agency theory, managerial and executive self-interests diverge, as managers will seek to minimize risk and expend effort up to the point where their benefits (as a fraction of the benefit to the firm) equals their costs. In other words, managers stop expending effort before firm value reaches the maximum level, while shareholders' primary goal is firm value maximization. However, the consideration of wealth effects introduces another important contingency into the model. Specifically, as executive personal wealth increases, the marginal utility of an additional dollar decreases; thus, as the executive comes closer to achieving financial security, other motivators are likely to become more important and influence executive cognitions, such as concerns over reputation.

Third, considering TMT personal wealth extends upper echelons theory by examining an important causal mechanism behind TMTs' attitudes toward risk-taking with respect to the firm. The construct of personal wealth was briefly introduced by Hambrick and Mason (1984), but unlike the other TMT characteristics introduced

therein, has not been theoretically or empirically examined since. Importantly, examining this construct at the team as opposed to individual level allows for full consideration of different types of within-team diversity and their implications for TMT dynamics. In this study, I integrate theory on different types of within-group diversity – diversity as separation and disparity (Harrison & Klein, 2007). I propose that wealth diversity or differences in wealth within a top management team represent *separation*: differences along a continuum on the dimension of personal wealth. Further, I propose that diversity in pay or top management pay dispersion represents *disparity*: within teams, executives differ “in the extent to which they hold or receive a share, amount, or proportion” of a socially-valued good – firm allocated executive pay (Harrison & Klein, 2007: 1206). I then argue that these two types of diversity introduce important contingencies to the model and reduce/diminish the effect of executive personal wealth on the proposed firm outcomes. This study is the first to examine differences in personal wealth between executive team members, and as such the first to examine the effects of wealth and pay in tandem.

Therefore, integrating agency and upper echelons theories through the construct of executive personal wealth contributes to and extends both theories. It allows me to re-examine two major assumptions of agency theory – risk misalignment and interest misalignment – by introducing an important confounding influence, TMT personal wealth. It also extends upper echelons theory by examining an important mechanism behind team decision-making with regard to firm risk, and considering the influence of different types of diversity on the decision and interpersonal dynamics within the team.

As such, integrating insights from these two perspectives, this study theoretically and empirically investigates the impact of TMT personal wealth on strategic decisions taken by top managers and on firm outcomes related to risk. Specifically, I develop several hypotheses regarding the impact of TMT average wealth on strategic decisions related to risk, including R&D investment and diversification, as well as the overall risk of the firm. I also introduce and evaluate the impact of different types of within-team diversity as moderators to the primary relationships. I then test my theory with a longitudinal dataset, which includes estimated TMT external wealth. The theory and the results enrich our understanding of wealth effects (Milgrom & Roberts, 1992), extend agency and upper echelons theories, and contribute to the literature on corporate governance. More specifically, this study makes four contributions to the literature.

First, this study makes a number of important theoretical contributions. I extend agency theory by introducing the construct of executives' external (personal) wealth and considering the relevance of TMT external wealth for the predictions derived from agency theory. Specifically, I introduce an important intervening factor to the fundamental agency problem, which influences risk misalignment. By re-examining the core assumptions and investigating contingencies in the agency model, we can develop a more realistic and, perhaps, more useful theoretical model to explain executive decision-making. Integrating insights from upper echelons theory is also consistent with Eisenhardt's (1989: 71) call to "use agency theory with complementary theories," and fills the "pressing" need "to develop theoretical perspectives combining multiple lenses" (Okhuysen & Bonardi, 2011: 6). Examining executives' personal wealth using an

integration of upper echelon theory and agency theory allows for delineating the causal mechanisms in the agency model, answering the question of *when*, but more importantly *how* executives as agents can achieve closer alignment with firm owners through greater financial security and ability to diversify firm risk.

I also extend upper echelons theory by fully developing a construct that was briefly introduced in early work by Hambrick and Mason (1984), but has not been fully theoretically developed or empirically examined since. Moreover, I build on this concept to address TMT wealth diversity (i.e., diversity in accumulated personal wealth within a top management team) – and examine its implications for TMT agreement regarding risk-oriented strategic decisions. As such, I introduce a novel type of diversity to the study of corporate elites, and team dynamics in general. In addition, I examine the implications of TMT pay dispersion for one of the upper echelons' core constructs, TMT behavioral integration. By theoretically examining two unique types of diversity (wealth and pay dispersion) and accounting for TMT heterogeneity, this study adds richness to the theoretical treatment of within-group diversity, and allows for a more complete empirical investigation. In doing so, it opens new avenues for future research on contingencies in the effects of TMT characteristics on firm-level outcomes.

Second, this study offers a methodological contribution by developing a novel model to proxy for executive wealth based on publicly available data, which can be used in future empirical studies. Obtaining information about executives' wealth is extremely difficult due to issues of privacy, and direct public disclosure of such information may never be feasible (Core & Guay, 2010). Thus, this study provides an opportunity for

future research on the implications of executive personal wealth for firm-level strategic decisions and outcomes.

Third, the empirical results offer a number of implications for corporate governance practices and can contribute to the public discourse on executive pay. The results enrich our understanding of how top-level executive external wealth can affect firm outcomes, and just as importantly, can inform our understanding of the influence of incentives received from compensation. Core and Guay (2010) propose that boards of directors should consider (privately disclosed) information regarding executive wealth when structuring performance-based incentives; this research provides additional information that boards would have at their disposal when making such decisions.

Finally, my results have the potential to inform other streams of literature within the field of strategic management, including top management team dynamics and their influence on firm-level outcomes, the management of innovation, corporate diversification, and executive compensation. The novelty of the executive personal wealth construct offers multiple opportunities for future research in management and related social science disciplines.

CHAPTER II

THEORETICAL BACKGROUND

Agency Theory

Concern about the agency problem created by the separation of ownership and control of an enterprise dates back to the 18th century. Adam Smith wrote about managers of “joint-stock” companies, “being the managers rather of other people's money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own” (Smith, 1776: V.1.107). More recently, early managerialists emphasized the consequences and potential hazards of a growing dispersion of ownership in modern corporations. According to Berle and Means (1932: 244), through a shift of control from the hands of stockholders to the separate group of corporate officers, “the shareholder in the modern corporation has surrendered a set of definite rights for a set of indefinite expectations.” As such, “the stockholder is left as a matter of law with little more than the loose expectation that a group of men, under a nominal duty to run the enterprise for his benefit and that of others like him, will actually observe the obligation” (Berle & Means, 1932: 244). Modern agency theory began to emerge from these roots in the late 1970s (Lim, Das, & Das, 2009).

Simply put, the agency problem arises because owners’ and managers’ goals and desires likely conflict and shareholders cannot perfectly monitor managerial work, because it is too difficult or expensive to do so (Eisenhardt, 1989). According to Jones,

“Whether we like it or not, people’s personal goals play a dominant role in company decision-making. When a man is making company decisions (...), he examines them in part with a view to whether they will further his own goals” (1957: 89). The set of potential detrimental behaviors on the part of managers as a result of the principal-agent relationship includes suboptimal effort, perquisite consumption and the pursuit of “pet projects,” and under/overinvestment (Brickley, Smith, & Zimmerman, 2004), as well as pursuing higher than optimal salary (Boyd, 1994), unrelated diversification to reduce personal exposure to risk (Amihud & Lev, 1981), and empire-building (Jensen, 1986), among others.¹ Jensen and Meckling (1976) provided a formal derivation of agency costs, building on the literature on the firm and property rights (Coase, 1937; Alchian & Demsetz, 1972). These costs, which are a direct result of the agency problem (i.e., the separation of ownership and control), include the monitoring expenditures on the part of the owner/principal (such as the costs of monitoring, compensation to the manager/agent, etc.), the bonding costs incurred by the agents – or the cost to the managers of expending resources to guarantee to the principals that they will not take actions against them, and the residual loss to firm value as a result of the agency conflict. Agency costs can also be viewed as the difference in payoffs to the owners when their interests and those of management are perfectly aligned versus when they are not (Lim, Das, & Das, 2009).

There are three primary mechanisms aimed at mitigating the adverse effects of the agency conflict on firm performance, and by extension, firm value: the market for

¹ See Hendry (2002) for a treatment of incompetence as an agency cost.

corporate control, board monitoring, and incentive alignment through executive compensation. Specifically, the market for corporate control represents an external policing mechanism, while monitoring by a board of directors and providing appropriate incentives to managers through pay and its various components are the two main internal control mechanisms. Monitoring is a lower cost mechanism for replacing or disciplining managers than an outside takeover (Fama, 1980); thus, the market for corporate control only intervenes when the two abovementioned internal mechanisms fail.

Manne (1965) was the first to elaborate on the market for corporate control as a corporate governance mechanism. According to the argument, the firm's stock price is an objective standard of managerial efficiency; as such, the stock price of companies that are poorly managed will decline relative to the industry or market as a whole, which will facilitate a takeover by a more efficient group of managers. This threat of takeover "provides some assurance of competitive efficiency among corporate managers" (Manne, 1965: 113). The market for corporate control was extremely active in the 1980s, when corporate takeovers and takeover attempts were taking place at an unprecedented rate. According to Davis (1990: 584), due to a confluence of factors, "the 1980s have been the decade of a large takeover." Of the 1980 *Fortune 500* companies, over one quarter were acquired by the end of 1989, and many of the transactions were hostile (Shleifer & Vishny, 1991).

However, because of widespread adoption of various antitakeover provisions in response, which involved a change in corporate charter or operating policy to make a takeover more expensive (Sundaramurthy, 2000), this option became increasingly

unattractive to potential acquirers. Moreover, the market for corporate control suffered heavy criticism both in the 1980s and shortly thereafter, such as they provided a redistribution of wealth rather than creation of new wealth. Additionally, it was criticized for creating a second set of agency costs by “corporate raiders,” and substantial negative spillovers for other stakeholder groups, including the employees of acquired firms (Dalton et al., 2007). These reasons contributed to the demise of the market for corporate control, which began in the late 1980s. This, combined with the paucity of empirical evidence to suggest that the majority of companies targeted by corporate raiders were performing poorly or exhibited significant agency problems—in fact, many of them outperformed the market (Walsh & Kosnik, 1993), resulted in the effective disappearance of the market for corporate control in recent years (Dalton et al., 2007). The scholarship on the subject shared a similar fate, and it would be hard to argue that the threat of a takeover is an effective means for disciplining top management today.

The market for corporate control can be viewed as a very distal mechanism, which may not be salient to executives on an everyday basis. Monitoring by a board of directors, however, is a more proximal mechanism for ensuring the appropriate (i.e., shareholder wealth-maximizing) behavior of agents. Directors have a fiduciary responsibility to the firm’s shareholders, and are charged with acting in their best interests through their role in advising, monitoring, and disciplining management. Board independence, or the degree to which the board is free from the influence of the firm’s management, is considered key to efficient board monitoring (Lynall, Golden, & Hillman, 2003). Outside directors are considered to be better monitors, because they are

not beholden to the current CEO, even though inside directors may have an incentive to monitor/discipline the CEO with the hope of replacing him or her in case of negligence or poor performance (Fama, 1980).

However, extant empirical research fails to support the idea that board composition is an important determinant of governance quality. For example, Abrahamson and Park (1994) found that outside directors who are also shareholders may facilitate concealment of negative firm outcomes in annual reports for private gain. Certo and colleagues (2008) found that outside directors received greater pay following acquisitions by the firm, suggesting that they may approve firm expansion for personal gain. Moreover, a stream of research by Westphal and colleagues suggests that corporate boards are subject to various sociopolitical influences, including social distancing (Westphal & Khanna, 2003), director ingratiation (Westphal & Stern, 2007), and friendship ties between directors and the CEO (Westphal, 1999), all of which can limit the effectiveness of monitoring. A study by Brick, Palmon and Wald (2006) points to the evidence of cronyism, or the fact that firms with overcompensated CEOs tend to have overcompensated directors, which in turn is associated with below average firm performance. Also, recent evidence suggests that there is significant variation in the board's allocation of attention to the function of monitoring (Tuggle, Sirmon, Reutzel, & Bierman, 2010), and independence alone does not guarantee monitoring effectiveness.

Lastly, in theory, more effective monitoring reduces agency costs associated with executive shirking and opportunism, and should thus translate to higher firm performance. However, an extensive meta-analysis failed to uncover a systematic

relationship between board composition, a proxy for board monitoring effectiveness, and firm financial performance (Dalton, Daily, Ellstrand, & Johnson, 1998). In light of the accumulated empirical evidence, a recent editorial article deems the literature on board composition and firm performance “astonishingly inconclusive” (Dalton & Dalton, 2011: 406).

Adding another level of complexity, a nascent stream of research within the broader agency theory literature suggests that directors can be subject to similar agency issues as the firm’s management, implying a *multiple* agency problem (e.g., Arthurs, Hoskisson, Busenitz, & Johnson, 2008; Bruton, Filatotchev, Chahine, & Wright, 2010). Multiple agency theory proposes that directors, regardless of their independence, are subject to agency issues parallel to the agency issues related to the firm’s executives. Thus, beyond the primary agents, executives (or managerial–agents), the multiple agency view recognizes secondary groups of agents, who intervene between shareholders and managerial–agents. The most prevalent of such groups is the board of directors. As such, this view highlights that the delegation of monitoring duties from the owners to the board creates a secondary agency problem, as directors themselves may be prone to pursuing their own agendas, and—as research suggests—may be beholden to the CEO as opposed to the firm’s shareholders (Kumar & Sivaramakrishnan, 2008).

Given the nascent literature on the topic, empirical studies utilizing a multiple agency perspective are scarce. And although corporate directors are the largest and most prominent group of secondary agents, the majority of extant work has examined multiple agency conflicts in the context of initial public offerings (Allcock & Filatotchev, 2009;

Arthurs et al., 2008; Bruton et al., 2010). However, studies are beginning to address the “dual-agency” problem in the realm boards of directors (i.e., Deutsch, Keil, & Laamanen, 2010).

The final pillar of governance mechanisms, incentive alignment through executive compensation, has arguably generated the greatest amount of controversy, both in the public and academic domain. In theory, efficient executive compensation packages help align managerial interests with those of shareholders, leading them to maximize firm value. However, despite the extensive amount of research devoted to executive compensation, researchers failed to find support for a systematic pay–firm performance relationship (see Gerhart, Rynes, & Fulmer, 2009, for a review), fueling debates regarding the efficiency and legitimacy of executive compensation as a governance mechanism (Kaplan, 2008a, 2008b; Walsh, 2008). In fact, stock options, widely issued with the intent of aligning the risk propensities of owners and managers, have been found to produce several unintended deleterious outcomes in some circumstances, including excessive risk-taking and fraud (e.g., Burns & Kedia, 2006; Hanouna, & Sarin, 2006; O'Connor Jr. et al., 2006; Sanders & Hambrick, 2007; Zhang et al., 2008). Wowak, Hambrick and Henderson (2011) find some evidence supportive of Fama’s (1980) concept of “settling-up,” whereby the board takes into account the history of CEO performance when making current pay decisions. However, they also find that the CEO’s earlier overpayment is positively, rather than negatively as theory would predict, related to the size of the current raise. As such, some scholars argue that executive compensation is often driven by managerial power rather than board attempts

at interest alignment (Barkema & Pennings, 1998; Bebchuk & Fried, 2004; Bebchuk & Fried, 2005). Others highlight the role of executive pay packages as a symbol to internal and external stakeholders (Bodolica & Spraggon, 2009; Pfeffer & Salancik, 1978; Westphal & Zajac, 1998).

In sum, evidence on the efficacy of the three main governance mechanisms is, at best, weak (see Dalton et al., 2007, for a review). The lack of strong support for agency theory's tenets has prompted some to question whether researchers should further rely on and provide prescriptions based on agency theory (Ghoshal, 2005). Others, however, recognize the utility and promise in combining agency theory with complementary theories (e.g., Eisenhardt, 1989; Hambrick, 2007). Redefining agency theory using a close area of research, but with different underlying assumptions—such as upper echelons theory—speaks to the “pressing” need “to develop theoretical perspectives combining multiple lenses” (Okhuysen & Bonardi, 2011: 6). Both theories acknowledge the importance of the upper layer of management for the performance of the entire enterprise. However, in contrast to agency theory, which assumes that *ex ante* all executives must be viewed as uniformly self-seeking, the upper echelons perspective concentrates on the heterogeneity in executive personal preferences. Despite the appeal of combining the two theoretical perspectives, studies introducing the upper echelons perspective to the study of corporate governance are rare [for exceptions, see Jensen & Zajac (2004); Kor (2006); Kor & Misangyi (2008)]. I introduce the basic tenets of upper echelons theory next.

Upper Echelons Theory

The idea that executive personal characteristics may influence organizational outcomes has a much shorter intellectual lineage than agency theory. Its early roots can be traced back to Herbert Simon (1957) and the Carnegie Mellon School of thought, which, in contrast to the idea of a perfectly rational ‘Economic Man’, portrayed individuals as rational beings, but only boundedly so. March and Simon (1958) argued that decision-makers bring a set of idiosyncratic ‘givens’ to each situation. In an early work, Dauten, Gammill, and Robinson (1958: 41) point out that, “the activities of all managers are guided and controlled broadly by such things as personal goals, and values,” and even though “such human values seem to defy complete analysis, it is sometimes overlooked that they serve as the master control of all organizational activity.” According to the authors, such managerial values “control and direct” managerial behavior. Early research on executive characteristics, however, concentrated on questions such as how the type of industry or the size of the firm correlate with the educational background of executives, with an emphasis on sorting effects according to organizational needs (e.g., Gaither, 1975; Price, 1972).

The empirical beginnings of upper echelons research are preceded by research on organizational demography, defined as the “composition, in terms of basic attributes such as age, sex, educational level, length of service or residence, race and so forth of a social entity under study” (Pfeffer, 1983: 303). In the 1983 review article, Pfeffer proposed that demographic variables affect a number of intervening variables and processes, which in turn influence organizational outcomes (Pettigrew, 1992). He also

points out the advantage of using demographic variables in that they are “readily measured and reasonably objective,” as opposed to “hypothetical unobservable constructs such as commitment” (Pfeffer, 1983: 352; Pettigrew, 1992). Importantly, organizational demography “is based on the data gathered on individuals,” such as individuals’ age and tenure, “but is, in fact, a collective or unit-level property” (Pfeffer, 1985; 68). In other words, demography is a property of organizations.

In 1984, Hambrick and Mason published their seminal work, which became the starting point of the empirical stream of research on the ‘upper echelon’ of organizations. In contrast to organizational demography research, which highlighted the importance of the demographic make-up of entire organizations (i.e., spanning multiple organizational levels), Hambrick and Mason brought the focus to the organization’s top level. They argue that characteristics of the upper echelon—executive values and preferences—are reflected in organizational outcomes. An important point of the paper is that executives matter² – contrary to the belief held by population ecology scholars (e.g., Hannan & Freeman, 1977), and some institutional scholars (e.g., DiMaggio & Powell, 1983). This point would not go uncontested; in fact, some oft cited early studies seemed to indicate that executives account for very little variance in organizational outcomes (Lieberson & O’Connor, 1972; Salancik & Pfeffer, 1977). However, recent research using large samples and more advanced analysis techniques suggests otherwise – in the United States, the CEO effect on corporate outcomes seems to be larger than the

² A related but separate literature highlights the role and importance of managerial characteristics as *signals* to external constituents, which may in turn influence organizational outcomes, especially at the IPO stage of the organization (e.g., Certo, 2003; Higgins & Gulati, 2003; Higgins & Gulati, 2006; Zhang & Wiersema, 2010).

effect of the industry the firm operates in (Crossland & Hambrick, 2007; Mackey, 2008).³ Moreover, Sirmon, Gove, and Hitt (2008) showed that managerial decisions regarding resource bundling and deployment actions have important implications for competitive outcomes and sustainable competitive advantage. In related research, Holcomb, Holmes, and Connelly (2009) showed that managerial ability has significant implications for firm performance, and is thus an important source of value creation. Together, these findings suggest that executives and their choices matter in terms of organizational outcomes. Still, exactly how much the executive matters partly depends on how much managerial discretion, or latitude of action, they are afforded (Finkelstein & Hambrick, 1990; Hambrick & Finkelstein, 1987; Hambrick & Abrahamson, 1995).

Among upper echelon characteristics that may influence strategic choices, Hambrick and Mason (1984) included age, functional experience of executives, education, socioeconomic roots, and group heterogeneity. Similar to Pfeffer (1983), Hambrick and Mason emphasized the utility of using observable, demographic variables as proxies for unobservable constructs such as executive cognitive bases and values. While values and preferences are considered important theoretical drivers, the “primary emphasis is placed on observable managerial characteristics as indicators of the givens that a manager brings to an administrative situation” (Hambrick & Mason, 1984: 196). The reasons they present are manifold, including the extraordinary difficulty in direct measurement considering the target group, success of earlier research in using demographic variables, and the lack of psychological equivalent for some constructs,

³ Moreover, untimely departures of CEOs, especially when due to sudden death, are met with a significant negative market reaction (Worrell, Davidson, Chandy, & Garrison, 1986).

such as executive tenure or functional background.

Since the publication of the seminal article, a stream of studies on executive characteristics and their impact on organizational outcomes has followed. For example, one of the more frequently studied characteristics is executive tenure. Hambrick and Fukotomi (1991) presented a theory of executive tenure, where they proposed five discernible phases, or “seasons”, each CEO goes through during a period of his or her employment. Finkelstein and Hambrick (1990) found that tenure is positively related to strategic persistence and strategic conformity. In a related vein, Hambrick et al. (1993) found that executive tenure in the industry, even more so than organizational tenure, is positively related to the executive commitment to the status quo. Additionally, Miller (1991) showed that CEO tenure is negatively related to the optimal match between the organization and the environment, which has a detrimental effect on firm performance.

In addition to CEO tenure, researchers have examined the effects of executive hubris (Hayward & Hambrick, 1997), CEO narcissism (Chatterjee & Hambrick, 2007; Lubit, 2002), CEO charisma (Waldman, Javidan, & Varella, 2004), CEO personality (Simsek, Heavey, & Veiga, 2010), as well as CEO positive and negative affectivity (Delgado-Garcia & de la Fuente-Sabate, 2010). However, in addition to this focus on the chief executive, a large portion of upper echelons research examines the effects of top management team characteristics on firm-level outcomes.

Researchers have examined relationships between TMT composition/demographic characteristics, such as tenure or functional background, and business diversification strategy (Michel & Hambrick, 1992), international diversification

(Tihanyi, Ellstrand, Daily, & Dalton, 2000), changes in corporate strategy (Wiersema & Bantel, 1992), strategic planning (Bantel, 1993), managerial turnover (Wagner, Pfeffer, & O'Reilly, 1984; Wiersema & Bird, 1993), and innovation (Bantel and Jackson, 1989), among others (see Carpenter, Geletkanycz & Sanders, 2004, for a review). A recent meta-analysis provided modest evidence of positive relationships between TMT size as well as TMT heterogeneity and firm financial performance; however, the authors also detected moderating influences on these relationships (Certo, Lester, Dalton, & Dalton, 2006).

While most studies tend to focus on organizational outcomes, some have targeted more proximal outcomes; for example, Sutcliffe (1994) examined the effect of functional diversity and tenure on executive perceptions of environmental instability and environmental munificence. Similarly, Waller, Huber, and Glick (2005) examined the effect of executives' functional backgrounds on their perceptions of changes in the organizations' environments and effectiveness. Moreover, Miller, Burke and Glick (1998) found a negative effect of cognitive diversity on decision comprehensiveness and extensiveness, while Olson and colleagues (2007) showed a positive effect of cognitive diversity on task conflict. Knight and colleagues (1999) showed that different types of demographic diversity are mostly negatively related to strategic consensus. Introducing a novel construct, Souitaris and Maestro (2010) studied the effect of TMT polychronicity (i.e., the degree to which TMT members mutually prefer to multitask) on strategic decision speed and comprehensiveness, in addition to new venture performance.

Nevertheless, among the plethora of executive team characteristics examined,

one construct mentioned by Hambrick and Mason (1984) – the “financial position” of the upper echelon – has not been given much research consideration. The financial position TMT members enjoy, or the average wealth of the top echelon of the organization, remains a relatively unexplored concept. This is perhaps especially surprising given the heated academic and public discourse regarding the size of executive compensation packages. This debate, however, centers largely on the “deservingness” (Cowherd & Levine, 1992), or lack thereof, of such wealth acquisition and accumulation. To date, the effects of executive accumulated wealth on individual-level and firm-level outcomes remain to a large extent unknown to organizational researchers. One of the reasons behind this gap is likely the lack of readily available data on managers’ external wealth. Obtaining information about executives’ wealth is extremely difficult because of privacy issues, and as Core and Guay (2010) note, public disclosure of such information may never be possible. Nonetheless, a handful of studies incorporate this important construct. I summarize the relevant literature below.

Executive Wealth

The manager’s personal wealth is one of the central building blocks of agency theory, as in “the economic view in which agency theory is grounded, personal wealth is an especially important source of subjective utility” (McDonald, Khanna, & Westphal, 2008: 455). As such, because executives seek to maximize their own utility (Jensen & Meckling, 1976), the desire to increase and protect their financial resources is a key motive around which monitoring mechanisms are structured. However, despite the central position that executive personal wealth occupies in agency theory, it is rarely

mentioned, and even more scarcely studied. Similarly, the upper echelons literature has ignored one of the individual characteristics introduced by Hambrick and Mason (1984: 202), specifically, the managers' financial position, or the portion of their financial well-being that is dependent on the firm. As they note, the executive's objectives may change once he or she has substantial income that is not tied up in the focal firm. Hence, the importance of executive wealth figures is highlighted in both theories, and enables a linkage between the upper echelons theory and agency theory at a construct level.

Personal wealth has been studied in the domain of entrepreneurship, in the context of firm founders.⁴ For example, Sorensen's (2007) findings from the Danish labor market suggest that windfall gains to personal wealth (i.e., a sudden large increase in wealth) are a strong predictor of entry into entrepreneurship (self-employment), which is consistent with prior research (e.g., Lindh and Ohlsson, 1996).⁵ Moreover, based on a sample of business start-ups in Norway, Hvide and Moen (2010) found that wealth is correlated with start-up size, suggesting that wealthy individuals are able to overcome liquidity constraints; they also find a curvilinear relationship between founder wealth and firm profitability, whereby profitability increases in the first three quartiles of wealth, but drops in the top quartile.

Only a few studies empirically examined the effects of executive wealth in the

⁴ This setting is unique in that 1) the agency problem does not apply to owner-managers (Jensen & Meckling, 1976), and 2) meta-analytic findings point to individual differences between entrepreneurs and professional managers (Zhao & Seibert, 2006). Moreover, the majority of such studies have relied on data from Scandinavian countries, where strong institutional norms favoring social democracy may affect their generalizability.

⁵ Interestingly, this finding is contrary to Durkheim's (1951) theory of anomie in sociology, which suggests that sudden wealth has detrimental consequences to individual motivation (Abrahamson, 1980).

context of professional managers. May (1995) estimated the proportion of CEO wealth that is vested in firm equity, and his findings suggest that it is positively associated with diversification based on 226 acquisitions made between 1979 and 1990, which supports the executive risk reduction motive. MacCrimmon and Wehrung (1990), based on a sample of Canadian executives, found that “success”—measured as a factor of income, wealth, position in the firm (top versus lower level), and authority—was positively related to some measures of risk taking. Finally, using data from tax filings of Swedish CEOs, Becker (2006) found that wealthier CEOs have higher share ownership in the company compared to their less wealthy counterparts, which the author interprets as “receiving stronger incentives.” While limited in number and scope, these studies suggest that executive wealth is an important variable, which can influence decision-making with regard to risk, acquisition behavior, and potentially a host of other firm-level decisions and outcomes.

Theoretical Model

My theoretical model is guided by three key insights from extant theory and empirical research. First, agency theory highlights the problem of risk sharing (Beatty & Zajac, 1994), which arises because agents and principals likely have different attitudes toward risk, and their risk preferences with respect to the firm’s strategic choices diverge (Eisenhardt, 1989). Second, upper echelons theory proposes that top managers’ characteristics influence the firm’s strategic choices, such as those related to important outcomes including innovation, capital intensity, unrelated diversification, and financial leverage (Hambrick & Mason, 1984). Finally, as reviewed above, the relatively few

studies that examined the effects of wealth indicate that it has important implications for the individual's willingness to take risk (MacCrimmon & Wehrung, 1990; May, 1995), including taking the personal risk of starting an entrepreneurial venture (Lindh and Ohlsson, 1996; Sorensen, 2007). As such, research findings suggest that the wealth of top management team members is likely to influence strategic choices related to risk-taking at the firm-level. Therefore, integrating the theory and empirical research on agency theory, upper echelons theory, and personal wealth, I structure a theoretical model based on the following proposition: *external wealth of the upper echelon influences their strategic choices with respect to risk, which has important implications for the agency problem.*

Expanding upon the above stated proposition, I develop a number of hypotheses concerning the relationship between executives' personal (i.e., external) wealth and three risk-related firm-level outcomes: unrelated diversification, R&D intensity (i.e., the firm's innovation posture), and the overall risk of the firm. I define executive personal/external wealth as the portion of executive net worth that is not attached to current employment at the firm (i.e., not contingent on current or future earnings). While much of extant research focuses on the CEO as the single most important decision-maker, expanding the focus to the top management team increases the predictive power of both agency and upper echelons theories, as CEOs share tasks and, to a certain degree, power with other TMT members (Hambrick & Mason, 1984). To the extent that TMT members share in the decision-making process regarding some firm strategy choices, and the upper echelon of the organization represents a 'dominant coalition'

(Cyert & March, 1963), theory should be tested at the team level. Indeed, TMT incentives have been shown to matter for firm risk-taking (Wright, Kroll, Krug, & Pettus, 2007). Moreover, as Hambrick and Mason note, “the study of an entire team has the added advantage of allowing inquiry into dispersion characteristics” (1984: 197). As such, I develop theory at the TMT level.

The first set of hypotheses holds within-group differences constant and assumes a relatively high level of agreement within a TMT on the executive characteristic of interest, his or her accumulated personal wealth. As such, where hypotheses wording refers to “executives” or “managers”, it pertains to all top managers (as opposed to, for example, CEOs alone) and treats them in the aggregate. The second set of hypotheses, however, introduces the element of dispersion to the study. Specifically, I later introduce and integrate theory on different types of within-group diversity – diversity as *separation* and *disparity* (Harrison & Klein, 2007) – and argue that they reduce/diminish the effect of personal wealth on the proposed outcomes through their impact on (1) TMT agreement regarding risk through differences in wealth between members of the same executive team (i.e., decision conflict) and on (2) TMT behavioral integration through TMT pay dispersion (i.e., relationship conflict). I examine the sources and types of diversity that are relevant to my theoretical framework, because as Zellmer-Bruhn et al. (2008: 42) note, “it is neither methodologically possible nor theoretically desirable to study all possible sources of team diversity in any given study.” An outline of proposed relationships is shown in Figure A1.

CHAPTER III

HYPOTHESES

Top Management Team Wealth and Attitudes Toward Risk Taking

Investment in innovation. The preferences of shareholders and managers regarding firm investment in innovation can diverge, which can result in substantial agency costs. R&D investment is considered to be a crucial means for gaining market share (Franko, 1989), a necessary prerequisite for creating absorptive capacity (Cohen & Levinthal, 1990; Tsai, 2001), a strong determinant of the firm's innovation output (Ahuja, Lampert, & Tandon, 2008), and—on a national level—a major determinant of domestic productivity growth (Park, 1995). Internal investments in innovation are tied to the firm's long-term survival prospects.

However, R&D investments are also inherently risky (Kor, 2006). It often takes several years for R&D investments to yield a profit (Lee & O'Neill, 2003), and such projects have notoriously high failure rates (e.g., Hill & Snell, 1988; Mansfield, 1968). As such, R&D spending has been utilized as a proxy for firm strategic risk (Devers et al., 2008; Miller & Bromiley, 1990). Investment in R&D is a high risk-high return strategy that is preferred by shareholders, because they can diversify their personal portfolios; managers, on the other hand, unable to diversify away their employment risk, are reluctant to invest in long-term R&D projects (Baysinger, Kosnik, & Turk, 1991). The outcomes of R&D investments are far less predictable than those of possible substitute strategies, such as acquisitions (Hitt, Hoskisson & Ireland, 1990; Hitt, Hoskisson,

Ireland, & Harrison, 1991). Moreover, as Smith and Tushman (2005: 525) point out, “Levinthal and March (1993) suggest that managers are myopic – privileging short term over long term, close rather than far, and certainty of success over risk of failure.” As such, because of the uncertain and long-term nature of R&D investments, executives tend to under-invest in internal innovation prospects, and exhibit preference for less risky projects and strategies.

However, an important factor to consider is executive personal wealth, which is likely to influence the preferences of TMT members regarding R&D investment, and as upper echelons theory suggests, these preferences will be reflected in firm actions. All else equal, wealthier executives will be relatively less risk averse in terms of firm actions compared to their less wealthy counterparts (Becker, 2006). Personal wealth allows them greater financial security, and can act as a buffer when R&D projects fail or take a long time to provide a financial payoff. Because most innovations take a long-time to materialize, the market may become disenchanted with the long-run strategy of emphasizing R&D as opposed to more incremental modifications to current, potentially still very popular, products. If the stock price suffers as a result, it will affect managerial well-being to the extent that his/her wealth is tied up in firm equity. This becomes less of a concern for top management team members as their external personal wealth increases. As such, having access to substantial personal wealth can extend the executives’ time horizon, making R&D investments more attractive. In a similar vein, Hoskisson and colleagues (Hoskisson, Hitt, Johnson, & Grossman, 2002) showed that pension fund ownership (i.e., ownership by investors with long time horizons) was positively related

to internal innovation, measured by R&D intensity and new product intensity.

Moreover, executives can use their personal wealth holdings to diversify firm-specific risk (Jensen & Meckling, 1976), which is likely to increase following investments in R&D. Accordingly, wealthy executives that are able to diversify their portfolios will not be deterred by increases in risk. In fact, they may even view their focal firm equity as the riskier part of their total portfolio and increase investment in risky strategies, such as R&D, to amplify their chances of a large payoff. As Hill and Snell (1988: 58) note, “An innovation strategy may be attractive to investors who hold a balanced portfolio (...) It is less attractive to managers who have to bear the consequences of failure.” In other words, greater external wealth decreases executives’ reliance on the firm, and lessens the relative financial consequences of failed innovation projects; thus, as the accumulated external wealth of executives increases, they should be more willing to pursue successful innovation outcomes despite the inherent risk involved.

Finally, agency theorists propose that executives maximize a utility function in which status, income and financial security play a key role (Hoskisson et al., 2002). As executives’ personal wealth increases, the additional utility of a marginal dollar decreases – simply put, additional income is not “worth” as much when the executive has already amassed personal wealth. It is likely that when the managers are coming closer to achieving relative financial security, both current and future income become less important compared to managerial status or reputation. This greater emphasis on reputation can translate into greater willingness to engage in exploratory activities with the aim of discovering what will eventually become the next breakthrough innovation.

For example, Apple's former CEO famously received \$1 salary, but prided himself on the successful innovations that Apple consistently introduced into the marketplace.

In sum, the high risk-high return strategy of pursuing internal innovation through R&D investments will be more appealing to top management teams with greater average personal wealth of its members. Formally:

Hypothesis 1: TMT average personal wealth is positively related to firm investment in internal innovation (research-and-development intensity).

Firm diversification. Managerial motives have important implications for the firm's business diversification. Shareholders can diversify their holdings across a number of firms; as such, they are assumed to be risk-neutral with respect to the firm. Executives, on the other hand, have significant amounts of human and financial capital tied to the firms they manage. Firm officers are, for example, not allowed to short sell their firm's stock to prevent hedging, they are forbidden from exercising or selling their stock options within a pre-specified period, and may be required to forfeit profits from firm stock-based transactions (Lambert, Larcker, & Verrecchia, 1991); these and other factors prevent them from diversifying their holdings in ways that shareholders are able to do so. Because the managers' investments are non-diversifiable (and, in the case of human capital, non-tradable), this can cause overexposure to firm-specific risk (Zajac & Westphal, 1994). As a result of this exposure, managers may be motivated to reduce the amount of risk to their personal holdings. One possible way to achieve this is through unrelated diversification (Amihud & Lev, 1981; Hill & Snell, 1988). Research shows that unrelated diversification is associated with lower returns than related diversification

(see Palich, Cardinal, & Miller, 2000, for a review), but also lower risk (e.g., Bettis & Mahajan, 1985). Agency theory suggests that managers may be willing to trade-off lower efficiency for reduced operating risk (Hill & Snell, 1989). Thus, unrelated diversification increases managers' personal financial well-being at the expense of shareholders (Westphal & Graebner, 2010).

However, an important managerial characteristic that is likely to influence the executives' willingness to pursue potentially value-reducing diversification is their 'financial position' (Hambrick & Mason, 1984) or personal wealth, which does not depend on current or future income, and is thus not tied to the firm. For instance, if firm equity represents "a significant proportion of a corporate insider's total wealth, the result of such ownership may be an increasingly undiversified personal wealth portfolio" (Wright, Ferris, Sarin, & Awasthi, 1996: 442). Indeed, May's (1995) finding that the estimated proportion of CEO wealth that is in the form of firm equity (i.e., tied to the firm) is positively associated with diversification through acquisitions is suggestive of the idea that executives pursue risk reduction through unrelated diversification. Wealthy managers, on the other hand, can use their personal (external) wealth to structure a well-diversified total wealth portfolio, mitigating the effect of firm-specific risk, thereby reducing the motivation for unrelated diversification.

In fact, Jensen and Meckling (1976: 349) concede that most managers "hold personal wealth in a variety of forms, and some have only a relatively small fraction of their wealth invested in the corporation they manage," and managers can decrease risk bearing through personal diversification and optimal portfolio selection. In other words,

if executives have a substantial portion of personal, non-firm wealth (i.e., financial capital that is not contingent on current or future firm performance), they can use their personal wealth holdings to diversify away firm specific risk, similar to the way an ordinary shareholder would diversify his or her stock portfolio across multiple holdings. Managers can use their personal wealth that is not currently tied to the firm to purchase equity in other firms, as well as other financial instruments, such as bonds or shares in exchange-traded funds. Hung, Liu and Tsai (2012), using a unique dataset of executives from Taiwan, document this managerial risk-reduction motive by showing that managers trade in other firms' equities in order to reduce their exposure to firm-specific risk; moreover, the proportion of managerial wealth that is tied up in firm equity is directly related to the degree of portfolio diversification. This supports this idea that managers "self-select among different equities beyond those of their own firm" (Hung et al., 2012: 39) using financial capital that is not tied to the focal firm that is available to them. In sum, as TMT members' personal wealth increases, the portion of that wealth that is unavoidably exposed to firm-specific risk decreases; as a result, the motivation to pursue unrelated diversification should decrease accordingly. Thus:

Hypothesis 2: TMT average personal wealth is negatively related to the unrelated portion of business diversification.

Firm risk. Agency theory assumes that agents are risk-averse with respect to firm investments (Eisenhardt, 1989), and without proper incentives are thus unwilling to undertake an optimal (firm-value maximizing) amount of risk from the standpoint of the firm's shareholders. Specifically, bearing firm specific risk by having their financial and

human capital tied to the firm may influence managers' risk propensity; if executives are unable to diversify away firm-specific risk (e.g., the majority of their wealth is tied up in long-term incentive compensation), they are prone to act in a risk-averse manner and decrease risk taking. Research evidence indicates that risk reduction can be detrimental to firm value (Low, 2009). However, upper echelons theory suggests that this assumption of universal risk aversion can be relaxed, because individuals vary in their attitudes toward risk. For example, Hambrick and Mason (1984) proposed that firms with older managers will pursue less risky strategies than firms with younger managers at the helm; they suggested three explanations of this managerial behavior: having less mental stamina and being less able to learn new behaviors, exhibiting greater commitment to the status quo, and financial/career security becoming relatively more important as managers want to ensure certain levels of retirement income.⁶ Also, a study by Miller and Shamsie (2001) suggests that late in their tenures, top managers reduce product line experimentation, which is associated with a decline in the organization's financial performance.

The relevance of managerial individual characteristics for firm risk is not limited to executives' age. Personal wealth is another important personal characteristic that may influence managers' willingness to bear overall firm risk. Managers whose wealth is largely tied to the firm are likely to act in a risk-averse manner (Gray & Cannella, 1997); this is due to their inability to effectively diversify their personal wealth risk (Devers,

⁶ Interestingly, the consideration of executives' accumulated personal wealth introduces an important contingency to the third suggested explanation, because as executive age increases, the likelihood that he or she has already achieved financial security also increases.

Cannella, Reilly, & Yoder, 2007). Therefore, as their wealth increases, executives become “increasingly less risk averse” (Eisenhardt, 1989: 62). For the same reasons that wealthier executives are less likely to try to reduce firm risk through unrelated diversification, wealthier executives are also more willing to take strategic actions that *increase* firm risk, which include but are certainly not limited to R&D investments. In other words, firm risk represents a collection of multiple strategic actions, which together help to determine the firm’s overall risk profile. The effect of wealth is to mitigate risk aversion, making top managers more willing to take risks that are beneficial to the firm. Because of the financial security and diversification benefits personal wealth provides, wealthy TMTs are less likely to be dissuaded from accepting positive NPV projects by the amount of risk involved, and should be more willing to accept a greater variety of investments and strategies, even if they entail risk. Preliminary empirical evidence supports the idea that wealth is an important factor in decisions regarding risk. A study by MacCrimmon and Wehrung (1990) showed that a socio-economic factor, which included wealth, income, authority and position, was significantly correlated with greater risk taking on 3 of the 7 risk factors included in the study. Moreover, the findings of Hung et al. (2012) suggest that managerial portfolio diversification (which is likely to increase with external wealth) is positively related to the firm’s leverage ratio.

In sum, top management team wealth should be positively related to firm risk, such that firms with wealthier TMT members, who are willing to take and bear more

firm-specific risk, exhibit greater risk than firms with relatively less wealthy TMTs.⁷

Thus:

Hypothesis 3: TMT average personal wealth is positively related to firm risk.

The Moderating Effects of TMT Diversity

The arguments presented thus far focus on the main effects of executives' wealth. However, executive actions occur in a context in which contingencies exist. I now consider important contingencies. Specifically, the arguments that follow introduce and evaluate the impact of diversity on the theoretical model's predictions. Harrison and Klein (2007), in their review and extension of the theory and research on diversity, proposed that diversity can assume three different forms: separation (differences on a particular dimension along a continuum), variation (differences in kind), and disparity (differences in concentration or distribution of a valued good, such as pay or within-group status, among unit members). Below, I address two particular forms of diversity in the context of my model.

First, I argue that wealth diversity or differences in wealth within a top management team represent *separation*: differences along a continuum on the dimension of personal wealth and the resulting financial security. As Harrison and Klein (2007) discuss, diversity as separation is usually conceptualized under the following

⁷ One might in fact expect a curvilinear relationship, because once wealth has increased to the point that the managers would act in an effectively risk-neutral manner, there is no clear theoretical reason that additional wealth would increase the amount of risk that they would take, and thus the relationship curve would "flatten out." However, the difficulty in estimating this relationship is that the point at which the amount of risk is optimal *for the firm* can differ for each individual firm, and the optimal amount of risk cannot be directly observed by the researcher. Thus, it is unclear how one could determine or estimate the average risk-neutral "tipping point" (the point at which the relationship between wealth and firm risk ceases to be positive and significant). Nevertheless, the first order relationship would still be positive.

assumptions: members within units (e.g., teams) differ along a single continuous attribute, for example, in positive affect; and units (i.e., teams) differ in the extent to which members are clustered or separated along the continuum.

Next, I argue that diversity in pay or top management pay dispersion represents *disparity*: within units, members differ “in the extent to which they hold or receive a share, amount, or proportion” of a socially-valued good, and units differ as to how the good is distributed among members (e.g., equal versus disproportionate distribution) (Harrison & Klein, 2007: 1206). These arguments are further developed below.

TMT wealth differential and diversity as separation. Diversity in accumulated personal wealth within a top management team, or TMT wealth diversity, best corresponds to the conceptualization of diversity as *separation*: “differences in position or opinion among unit members” or “horizontal distance along a single continuum representing dissimilarity in a particular attitude” (Harrison & Klein, 2007: 1200). Specifically, differences in personal wealth between TMT members represent differences in their attitude/preferences regarding firm decisions related to risk (i.e., firm-level risk taking). For the reasons outlined in the previous section, members of the top management team with greater amounts of external wealth are less risk-averse with respect to firm projects compared to the less wealthy team members. Separation on this attribute is likely to create disagreement and divergent opinions regarding the task at hand (Harrison & Klein, 2007), here – making strategic decisions involving risk. As such, TMT wealth differential contributes to decision or task conflict (Jehn, 1997).

Because of the divergent attitudes toward risk, when TMT diversity is high, the

resulting firm risk posture is likely to reflect a compromise among the top managers. Wealth diversity contributes to task conflict in this context, which creates greater discussion of differing viewpoints, alternatives, and challenging the status quo (Jehn, 1995). Therefore, it is more likely that a certain degree of compromise will be reached when TMT members differ greatly on the wealth continuum; a large variance in personal wealth will thus buffer the effect of average TMT wealth. On the other hand, when the TMT wealth differential is low, “No one challenges anyone else’s position on the (...) continuum, because each of their positions is equivalent” (Harrison & Klein, 2007: 1204). In this situation, the relationship between TMT average personal wealth and the firm-level outcomes of interest will be stronger than when TMT wealth diversity is high. Thus:

Hypothesis 4a: TMT wealth diversity negatively moderates the relationship between TMT average wealth and R&D intensity, such that the relationship is weaker when TMT wealth diversity is high, and stronger when TMT wealth diversity is low.

Hypothesis 4b: TMT wealth diversity negatively moderates the relationship between TMT average wealth and unrelated diversification, such that the relationship is weaker when TMT wealth diversity is high, and stronger when TMT wealth diversity is low.

Hypothesis 4c: TMT wealth diversity negatively moderates the relationship between TMT average wealth and firm risk, such that the relationship is weaker when TMT wealth diversity is high, and stronger when TMT wealth diversity is low.

Top management team behavioral integration. According to Hambrick (2007: 366), top management behavioral integration can be defined as the “degree to which a TMT engages in mutual and collective interaction” and is an additional refinement of the

upper echelons logic. He introduced this construct based on his observations that many TMTs share few team characteristics (Hambrick, 1994; 1995). It was intended as a substantial refinement of upper echelons theory, and aimed to “capture the level of the senior team’s wholeness and unity of effort” (Lubatkin, Simsek, Ling, & Veiga, 2006: 647). At a basic level, it reflects how well managers work together (Chen, Lin, & Michel, 2010).

Behavioral integration affects the degree to which group-level properties, such as average top management team wealth, are reflected in organizational outcomes. Teams that are highly behaviorally integrated will have stronger relationships between group-level characteristics than teams with low levels of behavioral integration. Below, I develop arguments about how diversity as *disparity* is likely to influence relationship conflict within the team, and thus make achieving behavioral integration more challenging.⁸

TMT pay dispersion and diversity as disparity. The dollar amount and “deservingness” of executive compensation packages has been the subject of both academic and public debate, especially in the last two decades (Core, Guay, & Larker, 2008; Cowherd & Levine, 1992; Wade, O’Reilly, & Pollock, 2006; Walsh, 2008). While much of this discussion focuses on the average trend of increasing executive compensation size, a stream of literature on compensation highlights the variation of rewards between executives.

⁸ Studies are beginning to assess behavioral integration more directly using survey measures; for example, prior studies employed surveys in the context of small and medium-sized enterprises (SMEs) in New England (Lubatkin et al., 2006) and firms in Taiwan (Chen et al., 2010). However, this study’s setting (large U.S. public corporations) would make achieving satisfactory responses extraordinarily difficult.

TMT pay dispersion is best conceptualized as a *disparity* type of diversity: “differences in concentration of valued social assets or resources such as pay and status among unit members” (Harrison & Klein, 2007: 1200). The dispersion of pay within a top management team is particularly well-suited to the category of disparity, because the current level of pay at the firm confers both status within the firm’s hierarchy (Christie & Barling, 2010) and signals the value of the particular team member to the organization (Brown, Sturman, & Simmering, 2003). Thus, pay level becomes a basis for comparison among team members, as it signifies “relative worth” to the organization (Bloom, 1999: 26). Moreover, when “disparity in a group is at its maximum, one member of the unit outranks all others” (Harrison & Klein, 2007: 1207), which is the case in a vast majority of organizations, with the CEO outranking other top managers in terms of status, power, recognition and pay. Finally, although private organizations often resort to pay secrecy (Colella, Paetzold, Zardkoohi, & Wesson, 2007), the Securities and Exchange Commission requires that the compensation of the top five executives⁹ of publicly-traded firms be disclosed, making it highly salient and the comparisons easy.

Pay dispersion is said to influence a host of organizational outcomes, including firm performance, but accumulated empirical evidence is not consistent as to whether this effect is positive or negative (Kepes, Delery, & Gupta, 2009). Similarly, different theories predict different outcomes, offering competing insights (Shaw & Gupta, 2007). Research on pay dispersion in the behavioral tradition is usually rooted in equity theory

⁹ The CEO and the four highest paid members of his or her team (Fredrickson, Davis-Blake, & Sanders, 2010). Because further disclosure is not required, compensation for other TMT members is rarely reported.

(Adams, 1965), or its derivative, relative deprivation theory (Crosby, 1976; Martin, 1981, 1982). Both perspectives, which fall within the broader distributive justice literature (e.g., Folger & Konovsky, 1989; Greenberg, 1990),¹⁰ suggest that more equal pay promotes teamwork and collaboration (Henderson & Fredrickson, 2001).¹¹ Conversely, pay dispersion fuels feelings of inequity and injustice, potentially leading to greater conflict, competition between team members, and even sometimes political sabotage (Henderson & Fredrickson, 2001). Thus, large pay dispersion can negatively affect employee morale, effort, individual job performance, and—ultimately—be detrimental to organizational effectiveness and performance.

Research on pay dispersion in the economic tradition, on the other hand, builds on tournament theory (Lazear & Rosen, 1981; Rosen, 1986), which suggests that large pay gaps act as “prizes” in a corporate tournament and incentivizes employees to expend greater effort, so that they may be promoted to a higher level within the organization (see Devaro, 2006, for a recent example). Thus, pay dispersion is akin to a self-policing mechanism, which allows the “cream to rise to the top” (Fredrickson, Davis-Blake, & Sanders, 2010), enhancing organizational efficiency and performance.

Empirical studies have found some support for both theories (Gerhart et al., 2009), and the theories seem equally matched concerning their empirical support and predictions regarding firm performance (Henderson & Fredrickson, 2001). In contrast to

¹⁰ See Colquitt, Conlon, Wesson, Porter, and Ng (2001) for a review.

¹¹ The key difference between the two theories is that equity theory suggests that individuals compare their inputs (i.e., effort) and outputs (i.e., organizational rewards, including pay) to those of a referent other. Relative deprivation theory however, does not rely on such ratios and “involves comparisons of outcomes with little regard for differences in inputs, such as effort, ability, or skills” (Henderson & Fredrickson, 2001: 97).

more distal organizational outcomes, such as firm performance, the predictions for pay disparity concerning group dynamics are unequivocal. Social comparisons carry tremendous power (Moore & Klein, 2008), especially in the context of a TMT, as top executives tend to be achievement-oriented and status-driven (Fredrickson et al., 2010), which can amplify feelings of injustice resulting from differences in pay. Also, top managers in non-CEO positions are in competition for the coveted spot at the top of the organizational hierarchy both with the current CEO and fellow TMT-members, and “perceive that they can gain by stepping over” (Fama, 1980: 293) those above them. Thus, pay dispersion is likely to generate conflict and competition within the team, including self-serving behaviors at the expense of other team members (Henderson & Fredrickson, 2001). As such, because lower pay dispersion promotes cohesiveness, cooperation and reduces conflict, when work is interdependent, theory suggests that a more compressed pay structure is preferable (Deutsch, 1985; Pfeffer, 1995; Shaw, Gupta, & Delery, 2002).

Extant research supports the collaboration–competition tradeoff. In work contexts where teamwork is considered vital, pay dispersion within a team has been shown to decrease team performance, including NFL teams (Mondello & Maxcy, 2009) and major league baseball teams (Bloom, 1999). Pay dispersion has also been shown to decrease satisfaction, individual research productivity, and reduce the likelihood of working collaboratively in academic settings (Pfeffer & Langton, 1993). In the context of top management teams, studies found pay disparity to be detrimental to organizational performance when work is considered more interdependent – when the degree of

internationalization is high (Carpenter & Sanders, 2004), and in high technology firms (Siegel & Hambrick 2005). Moreover, research shows that relatively compressed pay structures create a more egalitarian environment, promoting managerial retention, while pay dispersion is positively related to managerial turnover (Bloom & Michel, 2002).

In sum, the above arguments unambiguously suggest that TMT pay dispersion will make achieving TMT behavioral integration more challenging as a result of increased likelihood of relationship conflict (Jehn, 1997). Because TMT characteristics have a less strong influence on firm-level outcomes when behavioral integration is weaker, TMT pay dispersion will moderate (buffer) the impact of TMT average wealth on unrelated diversification, R&D intensity, and firm risk. Therefore:

Hypothesis 5a: TMT pay dispersion negatively moderates the relationship between TMT average wealth and R&D intensity, such that the relationship is weaker when TMT pay dispersion is high, and stronger when TMT pay dispersion is low.

Hypothesis 5b: TMT pay dispersion negatively moderates the relationship between TMT average wealth and unrelated diversification, such that the relationship is weaker when TMT pay dispersion is high, and stronger when TMT pay dispersion is low.

Hypothesis 5c: TMT pay dispersion negatively moderates the relationship between TMT average wealth and firm risk, such that the relationship is weaker when TMT pay dispersion is high, and stronger when TMT pay dispersion is low.

CHAPTER IV

METHODOLOGY

Data Sources and Estimation of Personal Wealth

Work in sociology recognizes that an individual's total wealth consists of two components – personal, human, and physical wealth that is obtained through family relations, education, etc., and wealth acquired through employment relations (Sørensen, 2000); herein, I concentrate on the latter, investigating the impact of individual accumulated wealth. Current SEC regulations do not require firms to report the total wealth of executives, and there are no other archival data sources that provide access to this type of information in the United States. As Core and Guay (2010) discuss, for several reasons, information on executive personal wealth may never become available. However, compensation arrangements must be disclosed, including cash compensation, equity and option grants, and other forms of compensation paid to the executive. I therefore estimate personal (external) wealth based on the *past* compensation earned by the executive (thus, personal wealth estimated herein is not contingent on current or future compensation, consistent with my definition), and then aggregate it to the TMT (firm) level as explained below.¹²

Executive compensation data including cash, equity, bonus and other compensation, as well as other information on individual executives, is collected for all the S&P 1500 firms from Compustat's Execucomp database, starting with the first year

¹² This likely represents a conservative estimate of personal wealth; this issue is discussed in more detail in the next subsection, which outlines personal wealth estimation.

of available data, for the period from 1992 through 2008. Firm-level independent and control variables are collected from Compustat and CRSP. Data on firm governance characteristics are obtained from Risk Metrics, and data on institutional ownership from Thompson Financial Institutional Holdings database. Finally, data on marginal individual tax rates are obtained from the Internal Revenue Service website.

Executive personal wealth model. Using data on executive compensation from 1992 through 2001, I calculate an initial executive personal wealth endowment at the end of 2001. I place a restriction on my sample requiring that the data for the executive be available for at least 5 years for them to be included. This means that the individual was employed as one of the top five executives at an S&P1500 firm for at least 5 years during the initial sample period, but not necessarily at the same firm, as using an executive identifier I can track executives across firms. This restriction ensures some degree of consistency in the measure and alleviates potential problems, which could arise due to a short wealth estimation period.

I calculate my estimate of executive personal wealth based on 1992-2001 data under a number assumptions, which are arguably very conservative in nature. First, executives are assumed to save and consume at the average rate for high-income individuals. In an extensive study, Dynan, Skinner, and Zeldes (2004) estimate the average saving rate for high-income households based on several years of data from the *Consumer Expenditure Survey*, the *Survey of Consumer Finances*, and the *Panel Study of Income Dynamics*. In my model, I use .236, or 23.6%, which was the estimate provided by Dynan et al. (2004) for the group of individuals in the highest income

quintile;¹³ all of the executives in my sample meet the annual income threshold for that group (\$83,131 in 1992). Second, the value of accumulated savings is calculated based on two different rates, the return of the S&P 500 index each year over the sample period, as well as the risk-free rate.¹⁴ I ensure that my results are robust to either specification as discussed later, but I present the results based on the market return, as there are index funds available to individual investors which track the S&P 500 portfolio, and such an investment results in a reasonable degree of diversification. Third, I use the highest marginal tax rate bracket each year to derive income after tax for each executive. While the Internal Revenue Service each year reports summary statistics for high-income tax returns, several measures are put in place to make the data anonymous and available only in the aggregate. Therefore, I am unable to estimate the precise effective tax rate for each executive or even the average effective tax rate for high-income individuals. However, using the highest individual marginal tax rate is more conservative and potentially less biased, and should provide a lower-bound estimate of personal wealth.

Finally, I assume that executive personal wealth at the beginning of 1992, the first year the information is available in Execucomp, is zero. Clearly, this is a very conservative assumption, and may not be the case in most instances.

A simplified model of personal wealth is represented by the following formula, where X is income after tax, C is consumption (the inverse of the saving rate), and r is the average interest rate over the period (the interest rate is not assumed to be constant

¹³ More precise estimates are not available.

¹⁴ The risk-free rate is obtained from Execucomp to coincide with the rate used to calculate Black-Scholes option values.

over time):

$$wealth_i = \sum_{t=1}^T [(X_{it} - C_{it}) \times (1 + r_m)^{T-t}]$$

The marginal tax rates and the rates of return for the sample period are shown in Table B1.

Types of compensation included in the income calculation are cash compensation (salary and bonus) and income received from executive stock options upon their sale by the executive. This is because the goal is to derive executive personal or external wealth – the portion that is not tied to the firm (and by definition must exclude wealth vested in firm equity, which is controlled for separately). I calculate executive wealth endowment at the end of 2001 and, importantly, update the estimate each year following the same methodology (through 2008). I then conduct hypothesis testing over the 2002-2008 period. Further details on the calculation of the executive personal wealth variable not discussed in this section are provided in the following section, along with a description of the aggregation procedure to arrive at the estimate of TMT wealth.

Clearly, my measure provides a conservative, lower-bound estimate of executive wealth. Reliable information on executive wealth from non-employment relations is simply not available. This means that the statistical analyses should provide a conservative test of my hypotheses. If the my estimates suggest that executives are less wealthy, but they indeed are very wealthy (for example, through family bequests), I would underestimate average TMT wealth and wealth differential thereby making support for my main hypotheses less likely. Moreover, my reliance on data provided in

audited and certified statements increases the validity of the measure. Finally, because my measure is based on publicly available data for executives of large firms (arguably, the most widely studied group by governance researchers), it lends itself to systematic study by future governance/compensation research. While studying wealth acquired through bequests or family ties may undeniably lead to new insights, it does not allow for as much generalizability as studying wealth obtained through past employment.

Nevertheless, to confirm the validity of my external wealth proxy, I investigate the correlation of the wealth measure with one popular business press ranking, the *Forbes 400 Richest Americans*, for the year 2001 (the last year of my estimation model, before I begin hypothesis testing). 53 executives for whom I was able to estimate wealth also made the *Forbes* list. As expected, my estimates are overall much lower compared to the *Forbes* estimates, as the magazine aims to include all forms and symbols of wealth (houses, boats, etc.), including wealth tied up in the firm's stock, which is contrary to my goals. The correlation of my measure and the *Forbes* index is 0.17 – modest, but positive. However, because of small sample size (53 matched observations), this statistic is highly sensitive to outliers. If I exclude four outliers from the computation,¹⁵ the correlation is 0.70. It is also important to note that I am using a firm average TMT wealth; as such, the impact of extreme individual outliers should decrease. Moreover, I am relying on a much broader sample (the final sample consists of over 700 firms, with at least three executive wealth estimates from each firm *per year*).

¹⁵ Those observations are: Warren Buffet (Berkshire Hathaway), Sumner Redstone (Viacom), Steven Ballmer (Microsoft), and Michael Eisner (Disney).

Measures

Dependent variables. *Unrelated diversification* is measured using an SIC-based entropy index (Hoskisson, Hitt, Johnson, & Moesel, 1993) at time $t+1$. Following Hitt, Hoskisson and Kim (1997), I calculate the entropy index as follows:

$$\sum_i [P_i \times \ln(1/P_i)]$$

where P_i represents the proportion of sales attributed to business segment “i.” The advantage of this measure is that, in addition to being validated and extensively used in strategic management research, it applies both to related and unrelated diversification (Baysinger & Hoskisson, 1989). Thus, following Lim et al. (2009) I compute separate indices for related and *unrelated diversification* (DR and DU respectively); where the total diversification index (DT) is the sum of these two.

R&D intensity is calculated as R&D expenditures divided by annual firm sales (Baysinger & Hoskisson, 1989; Balkin, Markman, & Gomez-Mejia, 2000; Devers, McNamara, Wiseman, & Arrfelt, 2008). I use a one-year lag for this dependent variable (the variable is measured at time $t+1$ relative to the independent variable). Following SEC rules, COMPUSTAT does not report “very small R&D amounts that are not material to a firm's decision-making” (NSF, 2010). Because of this, many values for R&D expenses in COMPUSTAT appear to be missing; as they are not missing-at-random (MAR), however, these observations cannot be simply omitted from analysis. Since the 1970's,¹⁶ firms have been required to separately expense all but negligible

¹⁶ In 1974, the Financial Accounting Standards Board (FASB) issues SFAS (Statement of Financial Accounting Standards) no. 2, which required all firms to expense R&D costs as they are incurred, effectively banning the deferral/capitalization method of accounting for R&D costs (prior to the

R&D investments (O'Brien, 2003; White, Sondhi, and Fried, 1994); thus, treating missing values as negligible investment, or “unobservable minimal R&D expenses” (Chen & Miller, 2007: 372), is both theoretically justifiable and common practice (O'Brien, 2003).¹⁷ Thus, following previous studies (e.g., Chang & Dasgupta, 2009; Coles, Daniel, and Naveen, 2006; O'Brien, 2003; Uotila, Maula, Keil, & Zahra, 2009), I replace missing R&D values with a 0, treating extremely low levels as zero investment.¹⁸

Firm risk is operationalized as volatility, or the variance of the firm's daily stock return during the year (Aggarwal & Samwick, 1999; Coles et al., 2006; Demsetz & Lehn, 1985). This conceptualization of risk is chosen due to its relevance to theory and its implication for shareholders. Again, a one-year lag is employed (the variable is measured at $t+1$).

Independent variable. Executive personal (external) wealth is measured as outlined in the previous section, based on past cash (salary and bonus) and option compensation.¹⁹ Proceeds from stock options are incorporated into the measure as they are exercised, under the assumption that the executive sells the stock (instead of exercising the option and holding onto the firm's stock), as in the vast majority of cases this action would be in the best interest of the executive. About 95% of stock options are

statement's release firms could select to capitalize R&D expenses). FAS no. 2 also provided a strict and inclusive definition of what constitutes both *research* and *development*, affording firms with little leeway in determining what constitutes R&D.

¹⁷ R&D expenses are reported as one aggregate item; therefore, it is unlikely that R&D reporting provides valuable, private information to competitors.

¹⁸ Following other studies, I used a dummy variable to control for the potential effect of this treatment as a robustness check (e.g., Huang & Ritter, 2009; Uotila et al., 2009). The results are substantively unchanged from those reported.

¹⁹ As discussed later, I conduct robustness checks using a version of the wealth measure based solely on cash compensation to ensure that the results are not driven by option-specific factors.

issued as non-qualified stock options, which means that they are taxed at the personal income tax rate on option sale profits (Jin & Kothari, 2008). Thus, I incorporate tax considerations for all stock option sales treating them as nonqualified stock options.

I then aggregate the individual executive wealth measures to the team (i.e., firm) level for each year, starting in 2001. Based on Chan's (1998) typology of composition models, *average TMT wealth* is conceptualized as an additive model; within-group agreement is *not* necessary.²⁰ Thus, this variable is calculated as the simple average of the individual executive wealth measures within a single TMT. Teams for which personal wealth data on less than three members are available are excluded from further analysis. The variable was then log-transformed due to skewness.²¹

Moderator variables. TMT wealth diversity is measured using a Gini coefficient (e.g., Bloom, 1999; Brown et al. 2003; Shaw et al., 2002):

$$G(Wealth)_k = \frac{\sum_{i=1}^n |Wealth_i - Wealth_j|}{2 * n^2 * Wealth_{mean}}$$

where the numerator represents the sum of all pairwise absolute differences between members on team k (Harrison & Klein, 2007), n is the number of team members, and $Wealth_{mean}$ is the mean TMT wealth.

Following prior research, *TMT pay dispersion* is also measured using a Gini coefficient (e.g., Bloom, 1999; Brown et al. 2003; Shaw et al., 2002):

²⁰ Within-group agreement, or rather the degree of disagreement/variance, is addressed theoretically and modeled separately.

²¹ Upon transformation, the variable meets the criteria to be considered normally distributed. The only change in the interpretation is that the variable metric is now in log form, so the impact of wealth will decrease as wealth increases, which is consistent with decreasing marginal utility of wealth; as such, this measure is superior on both theoretical and empirical grounds. However, the results are substantively unchanged if I use the raw, untransformed variable.

$$G(Pay)_k = \frac{\sum_{i=1}^n |Pay_i - Pay_j|}{2 * n^2 * Pay_{mean}}$$

where the numerator represents the sum of all pairwise absolute differences between members on team k (Harrison & Klein, 2007), n is the number of team members, and Pay_{mean} is the mean team pay. Following Bloom & Michel (2002), I compute two versions of the coefficient – one using total compensation (salary, all forms of incentive pay, and other compensation), and one based solely on salary and bonus data.

Control variables. Several controls are included following prior literature on diversification, innovation and/or firm-level risk. Both firm size and firm performance have been proposed to influence both firm risk and diversification (Deutsch et al., 2011; Goranova, Alessandri, Brandes, & Dharwadkar, 2007). Therefore, I include a control for *firm size* (measured as natural logarithm of the firm's total assets; Lim et al., 2009; Marki, Lane, & Gomez-Mejia, 2006) and *firm performance*, which is operationalized as stock return or total shareholder return, calculated as change in share price over the year plus dividends divided by beginning-of-the-year price (Chatterjee & Hambrick, 2007; Sanders & Hambrick, 2007). I also include a control for *free cash flow*, which can encourage unrelated acquisitions (Jensen, 1986).

A number of control variables for the firm's governance characteristics are also included. *Duality* is an indicator variable equal to 1 if the CEO is also the Chair of the Board and 0 otherwise (Fong et al., 2010; Tuggle et al., 2010; Takacs Haynes & Hillman, 2010). *Board size* is the total number of directors on board (Coles, Daniel, & Naveen, 2008; Deutsch et al., 2011). *Proportion of outside directors* is measured as the percentage of non-firm executives on board (Dalton et al., 1998; Deutsch et al., 2011;

Wright et al., 2006); *outsider ownership*, calculated as the percentage of the firm's stock owned by outside directors, is included as a proxy for outsiders' incentive to monitor (Goranova et al., 2007). Moreover, I control for the percentage of *institutional investor ownership* (Deutsch et al., 2011; Kor, 2006).

Next, I include controls at the TMT level. Observable differences, such as age and gender, are correlated with and are thought to represent differences in underlying perspectives, experiences, and cognitive schemas (Hambrick & Mason, 1984; Milliken & Martins, 1996). Extant research suggests TMT heterogeneity may affect top management team behavioral integration, with more diverse teams likely to exhibit lower levels of behavioral integration (Amason, Shrader, & Tompson, 2006; Carpenter, 2002; Carpenter & Sanders, 2002; Miliken & Martins, 1996). *TMT heterogeneity* is measured using Blau's index (Blau, 1977). I calculate standardized Blau index measures for diversity in age, gender and tenure at the firm. The diversity of age and gender are included because both represent salient observable demographic characteristics,²² and are important determinants of individuals' social identification (Tajfel & Turner, 1986). Additionally, tenure diversity reflects differences in shared experiences, as well as differences in time-based frames of reference, and internal and external network ties associated with cohort effects (Hambrick, Cho, & Chen, 1996; Harrison & Klein, 2007). I then create a composite measure of TMT heterogeneity, treating the three individual proxies as formative indicators (i.e., they need not co-vary and load on one underlying construct). I also include controls for *TMT average tenure* and *TMT average age*, as

²² Data on executive ethnicity is not available for non-inside-directors.

these characteristics may influence executives' willingness to take risks; moreover, the likelihood that an executive has already achieved financial security also increases with age/tenure, making it important to control for the independent effects of age and tenure. To control for the amount of wealth that managers have tied to the focal firm, I include measures of *TMT average \$ owned* (the amount of firm-specific wealth, expressed in dollar amounts based on executive share ownership and the value of firm shares at the end of the firm's fiscal year) and *TMT average % ownership* (percentage ownership of firm equity outstanding). I also control for *TMT average total compensation*.²³

Finally, year dummy variables are included to control for general macroeconomic fluctuations and other time-dependent variation. The inclusion of time dummy variables also deals with the issue of contemporaneous correlation in panelized data (Certo & Semadeni, 2006).

²³ Controlling for different types of compensation separately did not affect the results.

CHAPTER V

ANALYSES AND RESULTS

Analysis

Given the panel structure of my data, I use model specification with firm effects (except is some tests of robustness), and use the Hausman test to select between fixed-effects and random-effects models.²⁴ In the case of firm risk as a dependent variable, the test confirms that a fixed effect is necessary. In analyses with R&D intensity and unrelated diversification as the dependent variables the data are analyzed using a tobit model to account for the limited nature of these variables (i.e., the value has a limited range and cannot be below zero) and a high number of observations that take the value of the lower limit of zero (Chen & Miller, 2007). Distinct from standard panel models, in which fixed effect estimates are always consistent, the reverse is true in a tobit framework, and fixed effects are not appropriate in this setting. In this case, a random effects model is used, as a conditional-effect model cannot be estimated, because “there does not exist a sufficient statistic allowing the fixed effects to be conditioned out of the likelihood” (Stata10, 2007: 455). Additionally, while an unconditional fixed effects model might be estimated, the resulting estimates are biased (Stata10, 2007) and cannot be considered reliable, making any statistical inference potentially invalid. As such, I use tobit models with a firm random effect for my primary analyses, and conduct several robustness checks (including alternative models) as discussed later.

²⁴ Generally, a fixed effects model is always consistent, but less efficient; a random effects model is more efficient, but not consistent if the effect being estimated is correlated with the error term.

When available (based on the type of analysis), I use clustered robust standard errors in all regressions to mitigate concerns about heteroskedasticity and account for intragroup correlation (here, the errors are clustered by a firm identifier). This specification provides for a more conservative test of my hypotheses. Finally, all significance tests in the models reflect a two-tailed test.

Results

All the continuous variables used in creating interaction terms were first mean-centered. Based on multicollinearity diagnostics, all of the individual variable VIF values were below 4 and the mean VIF was below 2.5 for all models, which is well below the recommended threshold of 10; these results indicate that multicollinearity is not a concern. Table B2 lists descriptive statistics and pair-wise correlations for the variables. The mean top management team average wealth is \$2.83 million (the average value for my key construct), but there is considerable variance across firms/teams, as evidenced by the \$4.27 million standard deviation. TMT average wealth is correlated with TMT average pay at .53, which is to be expected given the variable construction; it is important to point out, however, that the two variables share only 28.1% of variance, and the remaining variance is unique. Wealth is also similarly related to firm size (22.1% shared variance), partly because total pay and firm size are highly correlated (as expected based on prior research).

Table B3 shows the results of tobit panel regressions for R&D intensity. Hypothesis 1 stated that average TMT personal wealth is positively related to R&D investments. In Model 2 of Table B3, the coefficient of the average TMT wealth

variable shows a positive and statistically significant ($p < 0.001$) relationship with R&D intensity, thereby providing strong support for Hypothesis 1.

Table B4 shows the results of tobit panel regressions for unrelated diversification. Hypothesis 2 stated that average TMT personal wealth is negatively related to unrelated diversification. In Model 2 of Table B4, the coefficient of the average TMT wealth variable shows a negative and statistically significant ($p < 0.001$) relationship with unrelated diversification, which provides strong support for Hypothesis 2.

Table B5 shows the results of the fixed effect regression models for firm risk. Hypothesis 3 stated that average TMT personal wealth is positively related to firm risk. In Model 2 of Table B5, the coefficient of the average TMT wealth variable shows a positive and statistically significant ($p < 0.001$) relationship with firm risk, which provides support for Hypothesis 3.

Hypothesis 4a suggested that TMT wealth diversity negatively moderates the relationship between average TMT wealth and R&D intensity, such that the relationship is weaker when TMT wealth diversity is high, and stronger when TMT wealth diversity is low. The coefficient of the interaction between average wealth and wealth diversity in Model 3 of Table B3 is statistically significant ($p < .05$), but in the opposite direction to the one hypothesized (i.e., positive); thus, the hypothesis does not receive support.

Hypothesis 4b suggested that TMT wealth diversity negatively moderates the relationship between average TMT wealth and unrelated diversification, such that the relationship is weaker when TMT wealth diversity is high, and stronger when TMT

wealth diversity is low. The coefficient of the interaction between average wealth and within-team wealth diversity in Model 3 of Table B4 is not statistically significant ($p > .10$), thereby providing no support for the hypothesis.

Hypothesis 4c suggested that TMT wealth diversity negatively moderates the relationship between average TMT wealth and firm risk, such that the relationship is weaker when TMT wealth diversity is high, and stronger when TMT wealth diversity is low. The coefficient of the interaction between average wealth and wealth diversity in Model 3 of Table B5 is not statistically significant, providing no support for this hypothesis.

Hypothesis 5a stated that TMT pay dispersion negatively moderates the relationship between average TMT wealth and R&D intensity, such that the relationship is weaker when TMT pay dispersion is high, and stronger when TMT pay dispersion is low. The coefficient of the interaction between average wealth and within-team pay dispersion in Model 3 of Table B3 is not statistically significant ($p > .10$), providing no support for hypothesis 5a.

Hypothesis 5b stated that TMT pay dispersion negatively moderates the relationship between average TMT wealth and unrelated diversification, such that the relationship is weaker when TMT pay dispersion is high, and stronger when TMT pay dispersion is low. The coefficient of the interaction between average wealth and within-team pay dispersion in Model 3 of Table B4 is positive and statistically significant ($p < .05$), providing support for hypothesis 5b.

Hypothesis 5c stated that TMT pay dispersion negatively moderates the

relationship between average TMT wealth and firm risk, such that the relationship is weaker when TMT pay dispersion is high, and stronger when TMT pay dispersion is low. The coefficient of the interaction between average wealth and within-team pay dispersion Model 3 of Table B5 is not statistically significant, which provides no support for hypothesis 5c.

Robustness Checks

Alternative model specifications. A potential concern is that the variance in unrelated diversification and R&D intensity is driven to a substantial degree by industry membership. I take a number of steps to ameliorate this concern. First, although a firm effect accounts for the firm's industry membership, the results of the first two hypotheses were replicated using industry rather than firm effects.²⁵ Second, the analysis was performed using industry-adjusted dependent variables; the adjustment was made based on 3-digit SIC industry in a given year (industry-year) and data from the entire Compustat universe (as opposed to my specific sample). In this case, a firm *fixed effect* analysis was used,²⁶ because the industry-adjustment transformed the dependent variable from a censored, limited variable to a true interval measure. The results of these analyses were substantively unchanged from those reported above (i.e., the sign and significance levels of coefficients on the hypothesized variables did not change), confirming that TMT average wealth is negatively related to unrelated diversification and positively related to R&D investments.

²⁵ Two-digit SIC industry membership was used, as there was insufficient number of observations in each group to permit the use of three-digit SIC codes.

²⁶ The conclusions remain unchanged if an industry fixed effect is used.

Alternative measures of average TMT wealth. All of the analyses were also performed using a measure of wealth based on a risk-free investment rate of return in lieu of the rate of return on the S&P500 portfolio. The results for all three dependent variables—unrelated diversification, R&D intensity and firm risk—were substantively unchanged. Second, the analyses were performed using a measure of wealth based on cash only compensation (both using the risk-free and the S&P500 rate of return); the results were substantively unchanged, suggesting that they are not driven by option-specific factors. Third, I used a measure of external (personal) wealth scaled by the amount of internal wealth (i.e., wealth that is tied to the firm through stock ownership - total value of all stock owned and total value of unexercised options). This variable is calculated as the dollar amount of average TMT *external* personal wealth divided by the dollar amount of average TMT *firm* wealth based on the current value²⁷ of their unexercised options and holdings of firm stock. The TMT average ownership in dollars is thus omitted from the list of control variables in these models, as it is now present in the denominator of *Avg. TMT wealth (R)*. Because these analyses are a much more substantial departure from the current measurement of wealth, the results of these analyses are presented in Table B6 (for unrelated diversification and R&D intensity) and Table B7 (for firm risk).²⁸ The results using the ratio measure of wealth are similar to those reported above and the conclusions remain unchanged.

Alternative measures of TMT wealth diversity. The primary results presented in Tables B3–B5 results use a measure of wealth diversity based on the Gini coefficient. I

²⁷ Using end of the fiscal year prices to correspond with the ownership reporting time period.

²⁸ Detailed results of other robustness checks are also available upon request.

investigated several alternatives; however, no other measure proved suitable. Some alternatives were unsuitable due to severe multicollinearity concerns. TMT wealth diversity operationalized as the within-unit standard deviation (S.D.) of average TMT wealth (Harrison & Klein, 2007), the most basic measure of within-group diversity, exhibited a 0.90 pairwise correlation with the main independent variable (i.e., average TMT wealth). Even a log-transformed version of the TMT standard deviation of wealth was correlated at >0.70 , resulting in a VIF >10 for the interaction of TMT wealth and TMT wealth diversity. A measure of diversity as a coefficient of variation (Allison, 1978; Fredrickson et al., 2010; Pfeffer & Langton, 1993) was suboptimal for multiple reasons, both theoretical and empirical,²⁹ and its use resulted in extreme VIF values (variable VIFs above 200).

DeRue, Hollenbeck, Ilgen, and Feltz (2010), theoretically examined different forms of dispersion in teams, and recommended the use of other moments of the distribution, such as skewness and kurtosis, to assess the degree of dispersion within a group on a given characteristic. However, they also note that for small groups (5 members or less, as in this study), these sample statistics may be unstable and thus unsuitable; as such, they advocate a novel use of the r_{wg} statistic, normally used to evaluate within-group “agreement.” The r_{wg} assesses the variable distribution relative to the variance that would be expected based on a specific null distribution; however, it is impossible to calculate it in this study, as it relies on a scale-type measure (such as a 7-point Likert scale) in order to calculate an expected distribution.

²⁹ Multiplying a coefficient of variation of team wealth [which is calculated as (S.D./mean)] with the average (mean) team wealth to yield the interaction would simplify to a standard deviation.

I also investigated the possibility that wealth diversity is best represented as the difference between the wealth of the CEO and the rest of the top management team (*CEO to rest-of-TMT personal wealth*). This may account for decision conflict or a difference in power between the CEO and the remainder of the team, and may be theoretically similar to a “minority belief”-type of distribution (DeRue, Hollenbeck, Ilgen, & Feltz, 2010), in which one member differs significantly from the rest of the group. I created two versions of this measure: one as a ratio, and another as the simple difference between the CEO and rest-of-TMT average wealth. Neither of these variables was a statistically significant moderator of the average TMT wealth.

Alternative measures of pay dispersion. As an alternative to the Gini coefficient based on total team pay, I constructed a Gini index measure using only cash pay. The results of the analyses with this measure were similar; the p-values were somewhat lower, but this did not affect the overall significance levels and ultimate conclusions. I also developed models using the coefficient of variation (Allison, 1978; Fredrickson et al., 2010; Pfeffer & Langton, 1993) as an alternative to the Gini coefficient:

$$CV(Pay)_k = \frac{\sqrt{[\sum_{i=1}^n (Pay_i - Pay_{mean})^2 / n]}}{Pay_{mean}}$$

where Pay_i is the pay of i^{th} individual on team k , n is the number of team members, and Pay_{mean} is the mean team pay. Following prior studies, I completed analyses with two alternative versions of this variable – one based on total pay, and one using only base cash pay (salary and bonus). The results were substantively unchanged from those reported above.

Other tests of robustness. I conducted several other robustness checks by including a number of additional control variables. Available slack has been found to influence the amount of funds available for R&D, and was thus included as an additional control, calculated as the firm's ratio of assets to liabilities (Baysinger and Hoskisson, 1989). A firm's leverage may also influence its ability to fund long-term projects (Baysinger and Hoskisson, 1989); therefore the firm's debt-to-equity ratio (Kochhar & David, 1996) was also included as a control variable. Neither was statistically significant in the regressions and the results were unchanged with their inclusion; thus they were omitted from primary analyses.

Research also suggests that gender may influence risk-taking – meta-analytic evidence points to the fact that males generally exhibit greater risk-taking behavior compared to females, although the gender gap appears to be decreasing over time (Byrnes, Miller, & Schafer, 1999). Thus, I calculated the proportion of females on each top management team and re-estimated the models controlling for the effect of female executive proportion. The results were unchanged and the variable was not statistically significant, possibly due to demonstrable lack of gender diversity among top executives of S&P1500 companies (the median team had no females present, and the average female proportion was only 5%).

Moreover, Malmendier, Tate and Yan (2011) document that “formative early-life experiences,” such as growing up in the Great Depression, may influence managerial willingness to undertake risk and subsequently influence firm leverage ratios. It is conceivable that such experience may also influence other risk-related firm outcomes,

such as R&D investments. In order to account for this possibility, I create a “Depression baby” dummy variable, similar to Malmendier et al. (2011). I then code all firms with at least one “Depression baby” executive present. Due to the more recent time period of my sample, there are very few executives with this type of formative experience in my sample, amounting to only about 1% of firm observations. The dummy variable was not statistically significant and had no effect on the hypothesized results, and was thus omitted.

Finally, there are several examples of prominent CEOs receiving a symbolic \$1 salary; thus, I tested for the possibility that these observations may be somehow influencing my results. I coded for all such individuals in my dataset and completed analyses excluding the 7 firms where they were employed; given the low number of those observations, the results were nearly identical to those reported above.

Additional Analyses

Previous research has shown that both age and tenure tend to negatively influence executive risk-taking. The coefficients on average TMT age and tenure in some models do indeed point to this relationship; however, it is also possible that these factors have a moderating effect on the impact of wealth on firm risk-taking. I examined this possibility but the interactions of average TMT wealth with average TMT age and average TMT tenure were not statistically significant. I also examined the possibility that variance in tenure, or tenure diversity, rather than average tenure moderates the effect of wealth on risk taking; the two-way interactions between average TMT wealth and TMT tenure variation were not significant for either of the outcomes, and neither was a three-

way interaction including TMT wealth, TMT pay diversity, and TMT tenure diversity.

I also examined whether another type of diversity – TMT heterogeneity – appears to influence the effect of average team wealth, especially because recent research suggests that TMT heterogeneity may not only affect TMT behavioral integration, but influence TMT pay dispersion (Fredrickson, Davis-Blake, & Sanders, 2010). However, the interactions involving TMT heterogeneity (which simultaneously accounts for diversity in age, tenure, and gender) were not statistically significant.

Additionally, I investigated whether wealth appears to have a nonlinear effect on the hypothesized outcomes. The squared term was not statistically significant, but this does not exclude the possibility that the effect of wealth levels off at some point; in fact the log transformation may be already capturing this effect to some degree.

Executive external wealth and firm ownership. Next, I investigated the role of firm ownership as a moderator of average TMT external wealth. As evidenced in Tables 3 and 4, the TMT average percentage of firm ownership is positively related to unrelated diversification and negatively related to R&D intensity. This supports the idea that executives indeed may view unrelated diversification as a way to diversify their personal portfolios to reduce their exposure to firm-specific risk (in line with the arguments in hypothesis 1), and are risk-averse with respect to R&D investments as a result of strong financial ties with the firm (in line with hypothesis 2 arguments). As shown in Table B8, for unrelated diversification, it appears that external wealth reduces the positive impact of firm ownership on the motive to engage in unrelated diversification – TMT personal wealth negatively moderates the effect of TMT firm ownership. In the case of R&D,

however, it seems that the executive financial link with the firm through stock ownership has a relatively stronger effect, and negatively moderates the positive effect of external wealth on the willingness to invest in R&D. Further theory is needed to explain why a certain effect predominates in each case, but this appears to be a fruitful area for future inquiry.

Overall, I find a strong, robust, and consistent support for the main effect of TMT wealth on unrelated diversification, R&D intensity, and firm risk. Support for the moderating effects of within-group diversity, represented by wealth diversity and pay dispersion, is weak and mixed. In the next section, I discuss the theoretical and practical implications of these results.

CHAPTER VI

SUMMARY AND DISCUSSION

In my dissertation, I integrate agency and upper echelons theories to develop a novel construct – executive external wealth – and examine its implications for managerial risk preferences as manifested in firm-level risk taking. Agency theory (Jensen & Meckling, 1976; Eisenhardt, 1989) highlights the misalignment of interests between owners and managers, which can lead executives to pursue their own private interests at the owners' expense. One type of misalignment is the divergent preferences of executives and shareholders regarding risk. Specifically, agency theory proposes that because managers' financial capital is tied to the focal firm, they will be risk averse with respect to firm investments, leading to suboptimal project choices from the shareholders' perspective, who desire managers to invest in all beneficial prospects regardless of the level of risk involved. For example, managers might forgo investment in particular innovation projects, even if such investment would be financially desirable and preferred by shareholders, because they seek to limit their personal risk bearing.

However, I develop theory to predict that executive external wealth (i.e., the portion of executive individual accumulated net worth that is not tied to or dependent on the firm) is an important contingency, and constitutes a critical predictor of managerial risk-taking, potentially reducing the divergence in risk preferences between executives and shareholders. This logic is in line with the basic premise of upper echelons theory (Hambrick, 2007; Hambrick & Mason, 1984), which proposes that executives act based

on personalized interpretations of the strategic situations they face, and as a result, organizations become reflections of their top management teams and their personal characteristics. Herein, I argue that executive external wealth changes how managers view firm risk and decisions involving risky projects (i.e., wealth alters their risk preferences by mitigating risk aversion), which will affect their strategic choices and ultimately manifest in firm outcomes related to risk.

My results strongly support the underlying premise of the theoretical model, that the external wealth of the upper echelon influences their strategic choices, specifically the riskiness of the strategic alternatives that they select to implement. In particular, I predict and find that average TMT wealth is negatively related to unrelated business diversification, and positively related to R&D investments and firm risk. As such, the first major theoretical contribution of this study is developing the construct of executive external wealth and demonstrating its relevance for agency theory's key assumption of universal risk aversion. Specifically, I show that external wealth mitigates managerial risk aversion, adding an important contingency to this key theoretical assumption.

A large stream of work in agency theory examines factors behind managerial risk-taking, with a majority of the empirical studies concentrating on the structure of managerial compensation (e.g., Devers, McNamara, Wiseman, & Arrfelt, 2008; Larraza-Kintana, Wiseman, Gomez-Mejia, & Welbourne, 2007; Wright, Kroll, Krug, & Pettus, 2007). Herein, I examine a complementary yet novel construct – TMT external wealth. My research theoretically and empirically demonstrates the importance of TMT external wealth for managerial risk taking, which manifests in firm outcomes. This extends the

normative principal–agent literature, which addresses the issue of mitigating executives’ risk aversion in an agency context (Beatty & Zajac, 1994). By considering the personal wealth of executives, we are able to arrive at a more nuanced picture of how managers view firm risk through the prism of their personal financial well-being.

The second major contribution of this study is fully developing a concept mentioned by Hambrick and Mason (1984), which has not been investigated by management researchers. I thus extend upper echelons theory by developing a definition of the construct, discussing its boundary conditions, and developing theory on how executive external wealth influences managerial perceptions of firm-specific risk and alters the importance of other factors in managerial decision-making, such as achieving and maintaining a favorable reputation. I also empirically demonstrate its importance for top management team decisions related to risk, thereby showing its theoretical relevance and empirical promise for the stream of work on the upper echelons of organizations. Moreover, by theoretically examining two unique types of diversity—TMT wealth and TMT pay dispersion—this study also adds richness to the theoretical treatment of within-group diversity, and allows a more comprehensive empirical investigation of the construct. Thus, this research makes a contribution to upper echelons theory by developing the construct of executive external wealth and introducing wealth diversity. While the majority of diversity-related hypotheses do not receive support in my study, future research may be able to overcome the empirical challenges associated with measuring within-TMT diversity and the resulting upper echelon dynamics to re-examine the relationships proposed herein.

Third, this work contributes important insights to the literatures on product diversification and innovation by showing the significance of personal wealth for these streams of research. Finally, the method demonstrated herein will allow other researchers, in management and related social science disciplines, to calculate estimates of executive accumulated wealth using publicly accessible data. The robustness of my empirical results suggests that researchers should at a minimum control for the effect of managerial external wealth in their future empirical models in which firm risk-taking—both in a specific area, like R&D investments, and on a more general level—is the outcome of interest.

In the section that follows, I discuss each hypothesis and related implications individually. I then discuss the implications of the study as a whole, outline its limitations, and offer suggestions for future research. The final section concludes.

Specific Hypotheses and Implications

The first major empirical contribution of this study is showing that TMT external wealth has an important effect on the firm's innovation strategy, as exemplified by its research-and-development intensity, supporting Hypothesis 1. Average personal wealth of the firm's TMT members is positively related to the firm's R&D investments, further supporting the premise that managerial wealth acts to mitigate managerial risk-aversion with respect to the firm, influences TMT strategic choices and ultimately firm outcomes.

This finding has significant implications for the long stream of work on organizational innovation, which is believed to be one of the key forces in driving the competitive advantage of firms (Franko, 1989) and nations (Porter, 1990). Several

papers have focused on understanding the factors that support innovation within firms (e.g., Ahuja, 2000; Barker & Mueller, 2002; Dalziel, Gentry, & Bowerman, 2011; Hitt et al., 1990; 1991; 1997; Hoskisson et al., 2002; Kor, 2006); however, this study is the first to address TMT personal wealth in the study of innovation. And indeed, the results demonstrate its importance for the firm's level of R&D investments, which are critically important for (e.g., as an input to) innovation (Greve, 2003; Ahuja et al., 2008). Shareholders favor higher R&D investments due to the possibility of high returns created by a successful innovation (Hill & Snell, 1988). As such, the positive relationship between personal wealth and R&D investments suggest that external wealth helps to align managerial preferences with shareholder interests. My findings thus provide new insights to our understanding of the agency conflict.

This study also provides evidence that TMT external wealth negatively influences unrelated business diversification, as predicted by Hypothesis 2, which speaks to a classic argument within the stream of work on agency theory. Amihud and Lev (1981), in their influential paper, provided evidence that managers, absent powerful monitoring (i.e., blockholders), will attempt to diversify away firm-specific risk through diversification. Their findings support the argument that managers view themselves as bearing too much firm-specific risk, and thus take strategic actions to reduce their own risk bearing, even if such actions are not in the best interest of shareholders. This general tendency of managers to favor diversification and avoid risk is further supported by³⁰

³⁰ In contrast, Lane, Cannella and Lubatkin (1998) fail to find evidence that ownership and monitoring significantly affected firm acquisitions strategies in the 1980s. However, Boyd, Gove, and Hitt (2005) find that after correcting for measurement error in Lane et al.'s study, strong governance indeed limits unrelated diversification, confirming the original conclusion of Amihud and Lev.

Hill and Snell (1988) and Hill and Snell (1989). However, no study until now has examined both managerial firm ownership, which can be viewed as the portion of manager's wealth that is tied to the firm, and managerial external wealth simultaneously. I find that TMT equity ownership in the firm has a positive effect on unrelated diversification, in line with the agency theory logic. But more importantly, I also find that TMT external wealth has a negative effect on unrelated diversification. This shows that personal wealth not only has a significant effect on a key firm strategy, product diversification, but—in this context—acts to align managerial interests with shareholder interests. Moreover, additional analysis shows that external wealth appears to reduce (i.e., negatively moderate) the effect of focal firm ownership, which reflects managerial risk bearing, on the motive to diversify the firm. This suggests that external wealth provides a better means of diversifying the manager's personal portfolio, which provides an important contingency to one of agency theory's key predictions.

The third finding of this study is that TMT external wealth has an important effect on firm risk, supporting Hypothesis 3. This result directly contributes to the normative principal-agent literature, which addresses the optimal design of compensation contracts and other structures with the goal of mitigating the risk aversion of executives (Beatty & Zajac, 1994). The results support the contention that as managerial personal wealth increases, executives become “increasingly less risk averse” (Eisenhardt, 1989: 62), demonstrating that external wealth helps to overcome managerial risk aversion regarding firm strategies, thus creating greater alignment between owners and managers. This is important because it suggests that without considering executive

external wealth, compensation contracts designed around agency theory predictions may be not only inefficient (Core, Guay, & Larcker, 2003), but could be *overly* effective in encouraging risk-taking. Specifically, if wealthy managers are given option-heavy compensation contracts (with high pay–firm risk sensitivity), they may be inclined to take on a more than optimal amount of risk, because external wealth limits risk aversion while pay incentives are generally designed to encourage greater risk-taking. Thus, if boards of directors were legally able to consider executives’ external wealth, they may want to give wealthier managers lower pay incentives to take risk. Moreover, because of lower risk aversion and lower relative risk bearing (as a result of personal diversification), wealthier managers will also discount incentive/long-term compensation less, leading them to require lower total pay.³¹ This would make it is relatively less expensive to issue option compensation to wealthy managers. These two issues – adjusting pay–risk sensitivity and accounting for the lower relative cost of option compensation – merit consideration by compensation committees.

Hypotheses 4a-c, concerning the predicted negative moderating effect of TMT wealth diversity on the relationship between average TMT wealth and (a) R&D intensity, (b) unrelated diversification, and (c) firm risk received no empirical support. First, I fail to find supporting evidence that TMT wealth diversity decreases the influence of average TMT wealth on the firm’s unrelated diversification strategy (Hypothesis 4b) or on firm risk (Hypothesis 4c). There are several potential

³¹ Assuming that two managers who differ only on external wealth are paid solely in options, the relatively less wealthy manager, who is less diversified, will require a greater total amount of pay compared to the wealthier manager. This is because the less wealthy manager will need to be compensated for the greater degree of firm risk bearing.

reasons/explanations for the insignificant results, both empirical and theoretical. On the empirical front, there is no precise measure of wealth diversity available that would suit the purposes of this study. Because I predict the moderating effects of within-group differences in wealth based on assumed decision disagreement, or task conflict (Jehn, 1997), the measure used should serve as an effective proxy for task-related disagreement brought about by wealth differences. Available measures, such as the standard deviation of wealth or the Gini coefficient of wealth within the team, are not precise enough to determine the exact level of disagreement likely to occur. These represent coarse-grained proxies at best. For example, disagreement resulting from one person having *very* different wealth from the rest of the team is likely to have a divergent effect from the level of disagreement as a result of two or three people having *somewhat* different wealth; however, the measures of diversity available in extant literature may classify the aforementioned examples as having (numerically) the same level of diversity. Specifically, one person having much greater wealth may be very vocal about their objections, but they may be easily overruled; when a few people have different wealth from the rest of the group, they may be able to sway the final decision. These measurement challenges have not yet been overcome in the stream of research on group diversity (please see DeRue et al., 2010).

On a theoretical level, it may be that wealth diversity needs to reach a certain level before it affects task conflict thereby altering the effect of average TMT wealth. If that is the case, wealth diversity is best conceptualized (and should be statistically modeled) as a threshold variable – it has the ability to alter the main relationship only

once a certain threshold is met. Such threshold effects are not uncommon and have been modeled in a host of other disciplines, including economics (e.g., Bick, 2010; Jude, 2010; Papageorgiou, 2002), finance (e.g., Marcucci & Quagliariello, 2009; Narayan & Sharma, 2011), and epidemiology (e.g., Samia, Chan, & Stenseth 2007; Samia et al., 2011), among others.³²

Another potential reason behind the insignificant moderation results may be that once individuals reach a certain level of wealth, differences in wealth between individuals do not matter much – once each member of the TMT reaches a reasonable standard of financial security and is able to diversify his/her holdings, the effect of average wealth does not change and is resistant to variation in wealth between TMT members. For example, current estimates suggest that the difference in wealth between Bill Gates and Warren Buffet is substantially large in dollar terms; however, this difference is unlikely to cause a conflict in their joint decision making, because they have both achieved financial security (and are, in fact, attempting to give away their wealth rather than acquire it). These possibilities present opportunities for future research.

Surprisingly, the empirical evidence is opposite to the prediction of Hypothesis 4a – wealth diversity positively—instead of negatively—moderates the relationship between average TMT wealth and the firm’s R&D intensity. This unexpected finding may be driven by the fact that decisions about R&D investments—compared to the

³² A block-diagonal regression indicates that average wealth may indeed affect unrelated diversification and firm risk differently at higher levels of wealth diversity. When diversity is high, the wealth coefficients get smaller (closer to zero), suggesting negative moderation in line with the predictions, but the differences are not statistically significant in my sample. The application of more nuanced statistical techniques may be necessary to provide a better test of these relationships.

firm's diversification posture or other major corporate decisions that affect the firm's overall risk profile—are more likely to be influenced by a small number of individuals or even a single individual (e.g., the firm's Chief Technology Officer or the Vice President of Product Development).³³ If these individuals have very high wealth vis-à-vis the rest of the team (which could potentially result in both higher average wealth and higher wealth diversity) and select a high R&D investment strategy, the resulting outcome might suggest a positive and significant interaction. However, in this case, the two are mechanically related. In other words, it is likely that decisions about R&D are more easily swayed by a smaller group than decisions about unrelated diversification (which is a more general strategic move) and, especially, firm risk (which is influenced by a collection of many individual decisions).³⁴ While not anticipated, this finding suggests that wealth diversity may matter differently for different firm outcomes, but further theory and empirical examination is needed to explore this perspective.

Hypotheses 5a-c, predicting a negative moderating effect of TMT pay dispersion on the relationship between average TMT wealth and (a) R&D intensity, (b) unrelated diversification, and (c) firm risk, received mixed support. Hypothesis 5b was supported; thus, another contribution of this study is showing that pay dispersion reduces the effect of a novel team characteristic (i.e., average TMT wealth) on the firm's unrelated diversification posture. The finding that the degree to which individual wealth matters to a major strategic decision (i.e., business diversification) is to some extent contingent on

³³ Execucomp provides information on the five highest paid officers of the firm, regardless of their title.

³⁴ There is no single "firm risk decision," as it is influenced by a large number of factors and individual decisions.

the distribution of pay within the team is in line with previous research, which unambiguously suggests that pay dispersion tends to reduce cooperation and promote personal conflict within the group in major strategic decisions. The results of this study imply that this greater conflict attenuates the effect of average TMT wealth on the firm's unrelated diversification posture.

Hypotheses 5a and 5c however, which predicted a similar attenuating effect of pay dispersion on the TMT wealth–R&D intensity and TMT wealth–firm risk relationship respectively, did not receive support. A potential explanation is that while diversification decisions are more likely to involve several team members, R&D investments decisions are more easily controlled by a smaller group of people (as discussed above) or even made at a lower management level. In that situation, relationship conflict would not necessarily be as detrimental to team dynamics. Firm risk, on the other hand, reflects an aggregate of many individual decisions over the course of the year, other than just decisions with clear risk implications, such as R&D investments or diversification. Thus, relationship conflict may not manifest itself empirically, because while diversification decisions likely involve multiple top managers (i.e., relationship conflict is likely to be important), firm risk reflects a collection of individual decisions, some of which may have been made by a single individual, and others as a group. In other words, it would be difficult to predict how relationship conflict impacts each decision that may influence firm risk. There is no “firm risk decision,” which might help to explain why within-team variance in pay does little to attenuate the effect of average TMT wealth.

General Implications

On a more general level, this study offers several theoretical and practical implications. First, it introduces a novel construct and documents its influence on executive risk aversion with respect to the firm, directly contributing to the normative stream of agency theory, which seeks to understand what influences executive willingness to bear firm-specific risk. Greater willingness to bear risk is central to helping mitigate the agency problem, as it brings managers in greater alignment with shareholders; as such, this study shows how executive wealth helps generate greater alignment. This study also highlights the differential effects of wealth that is tied to the firm, through stock ownership and current year compensation, and personal wealth that is independent of the firm. Extant agency theory and governance research tend to refer to and treat wealth as a very broad construct, meaning executive financial well-being, and mostly in the context of current and future compensation. However, I show that the consideration of executive accumulated wealth as a result of *past* compensation has a significant effect on their decisions above and beyond that of current compensation.

Second, this study introduces the construct of personal wealth to the study of upper echelons, which—as both the theory and the results suggest—has an important influence on executive preferences. The addition of this construct to the well-established ones within this stream of research, such as executive gender, tenure, or functional background, can help generate new insights into what personal characteristics matter for different firm outcomes. For example, the accumulation of personal wealth might have divergent effects on executives depending on their gender or socioeconomic background.

It is also possible that past studies regarding the effects of executive tenure on firm performance provide an incomplete picture, because they do not include estimates of executive wealth, and the two are likely to be positively related.

While the two aforementioned theories form the core of this research, the findings also have implications for other prominent theories where risk plays a key role. For example, prospect theory (Kahneman & Tversky, 1979) proposes that individuals weigh outcomes differently depending on whether they are facing (or believe they are facing) sure gains or sure losses. When faced with a choice between a sure loss or a larger but uncertain loss, most people will accept the risk of a larger loss in the hope of avoiding a loss altogether. On the other hand, when faced with a sure gain or a larger but uncertain gain, most people choose a “bird in the hand.” People are thus risk seeking when facing the prospect of losses, but loss averse when facing the prospect of gains. The stream of empirical research in prospect theory, and the related behavioral agency theory (Wiseman & Gomez-Mejia, 1998), confirms these general tendencies; however, extant research does not explicitly include the individual’s accumulated wealth into consideration, which may alter some decision choices.

Prospect theory is similar to expected utility theory in that it assumes diminishing marginal sensitivity, or lower subjective value, of gains and losses as individuals get farther away from their reference point (Kahneman, 2012). Moreover, Kahneman (2012) notes that in mixed outcome “gambles,” where both gains and losses are possible, individuals are strongly risk averse. As Holmes and colleagues (2011: 1093) highlight, “many decisions in organizations constitute mixed gambles,” as “most risky business

choices (e.g., acquisitions or new product introductions) can have positive or negative outcomes.” Indeed, it is difficult to conceptualize any business decision involving risk where a loss is not even a possibility. Thus, prospect theory predicts that executives will be risk averse and avoid taking risk in many organizational decisions (instead of taking the chance of a better but uncertain outcome). However, if we assume that the minimum wealth needed for financial security constitutes a reference point for many executives, as they move farther away from that point, they will be less subject to loss aversion and more willing to take greater risk. Specifically, having a substantial amount of accumulated wealth may change how an individual views future losses – if individuals are high above the point of financial security, losses will not seem as detrimental to their future wealth; conversely, however, gains may also be perceived differently because of the diminishing marginal utility of wealth. In fact, scholars recently suggested that “research should consider the possibility that the value function varies across individuals,” as past experimental studies that attempted to better define the form and shape of the value function for different individuals nearly exclusively relied on small monetary gambles in lab settings with university students (Holmes, Bromiley, Devers, Holcomb, & McGuire, 2011: 1093). Wealth may be one salient characteristic that impacts the value function for individuals, and the inclusion of this characteristic in future prospect theory studies provides an opportunity to extend this line of research.

This study also offers important practical implications. First, it shows that TMT wealth has a significant effect on the decision to invest in R&D, the key input to the firm’s innovation process (Ahuja et al., 2008). Given increasing technological intensity

in many industries and the blurring of industry boundaries (Hitt, Ireland, & Hoskisson, 2010), both of which require top managers to continuously invest in R&D and develop their firms' technological capabilities, this finding is important to consider by boards of directors. Prevailing practice is to issue managers contingent compensation, especially stock options, in an attempt to encourage risk-taking, including the risk inherent in R&D projects. My findings suggest that financial security in the form of private (non-firm) wealth can help to achieve that objective; thus, boards should weigh the pros and cons of "at risk" pay, especially because stock options have been found to produce several unintended deleterious outcomes, including excessive risk-taking (e.g., O'Connor Jr. et al., 2006; Sanders & Hambrick, 2007; Zhang et al., 2008). While investments in R&D are crucial to firm competitive advantage and long-term survival, especially in high technology settings (Ahuja et al., 2008; Sundaram, John, & John, 1996), research shows that extreme risk-taking is more likely to produce big losses rather than big gains (Sanders & Hambrick, 2007). At a minimum then, boards should try to take the executive's personal wealth into consideration when determining the structure of his/her compensation package, especially the sensitivity of their pay to firm risk. Moreover, while a multitude of factors come into consideration when hiring a new top executive, to the extent that the law would allow considering executive wealth in the selection process, this study suggests that wealthier executives—all else equal—will be relatively less risk averse compared to their less wealthy counterparts.

Limitations and Future Research

This study has certain limitations, perhaps the most important of which is the

inability to directly assess the exact personal wealth of each executive. This information is not publicly available, and I must rely on public reports of past compensation received by each executive. Nevertheless, my measure is a conservative, lower-bound estimate of the magnitude of each executive's true personal wealth, which means that the findings may only underestimate the wealth effect. Moreover, as discussed above, my measures of wealth diversity present several empirical challenges, some of which could be overcome in future research, either as a result of future methodological developments or through the use of survey-based measures.

The setting of the study—large, publicly-traded firms—while appropriate to test agency theory arguments, also somewhat limits the generalizability of the results. It is not certain that the results would hold in small enterprises, where the pursuit of financial wealth may sometimes be secondary to other considerations, such as maintaining and cultivating strong social relationships. Moreover, my sample is comprised solely of U.S.-based firms, which raises the question of whether these relationships hold or are somewhat altered in other country contexts. For example, it is possible that in countries with strong collectivist cultures (such as Colombia, Taiwan or China), personal wealth and associated financial security is perceived differently, as individuals are expected to share their resources with their extended families and even communities; in those cultures, financial security (or lack thereof) may be evaluated in a much broader setting.

The construct of executive wealth offers many opportunities for future research. One area where the importance of managerial preferences and values is very salient is corporate social performance – “a business organization's configuration of principles of

social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships” (Wood, 1991: 693). The majority of research on corporate social performance is grounded in stakeholder theory (Freeman, 1984; Freeman & Reed, 1983), which proposes that corporate managers need to devote attention to multiple groups of the firm’s stakeholders, including but not limited to its shareholders. Highlighting this focus on stakeholders, scholars recommend evaluating corporate social performance based on the firm’s management of its relationship with its stakeholders (c.f. Clarkson, 1995). There are reasons to expect that executive wealth may influence corporate social performance. First, stakeholder-focused initiatives are more likely to pay off in the long run, and stock-based financial incentives may encourage managers to pursue short-term stock price increases at the expense of social performance (McGuire, Dow, & Argheyd, 2003). Second, studies suggest that taking multiple stakeholder interests into consideration may jeopardize the managers’ future income streams, as reflected in lower salaries and pay increases (Coombs & Gilley, 2005). However, higher personal wealth is expected to reduce the importance of current financial incentives (Gerhart et al., 2009), making the pursuit of financial rewards relatively less important, and conversely, the pursuit of stakeholder interests more appealing. It is also likely that as personal wealth increases, other concerns—such as a favorable reputation and managing a firm known for socially responsible initiatives—become more prominent.

In a related vein, future research could examine the moderating effect of wealth on executive financial incentives. Somewhat surprisingly, “almost no literature examines

executive characteristics and compensation in tandem, or their interactive effects in shaping company outcomes” (Hambrick, 2007: 339-340). As noted by Gerhart et al. (2009), individual differences between executives and the resulting motivational effects of incentive compensation are yet to receive research attention. Importantly, Gerhart and colleagues (2009: 290; emphasis added) highlight that “depending on such variables as time to retirement, previously accumulated equity in the firm, and *other personal wealth*, executives may theoretically value the marginal stock and option compensation they receive differently.” In particular, as executives’ personal wealth increases, the incentive effect of their firm-specific option holdings decreases, because they represent a smaller part of their total wealth portfolio (which includes current and future firm compensation, as well as the personal wealth portion). As such, average TMT personal wealth should decrease the well-documented positive effect of stock option incentives on firm risk taking (e.g., Devers, McNamara, Wiseman, & Arrfelt, 2008; Wright, Kroll, Krug, & Pettus, 2007), as well as other related outcomes, including financial restatements (e.g., Burns & Kedia, 2006; Harris & Bromiley, 2007; Kedia & Philippon, 2009) and corporate fraud (Denis, Hanouna, & Sarin, 2006).

The results for within-group diversity in this study, both wealth diversity and pay disparity, were weak. However, in addition to the possibilities discussed above, such as non-linear and threshold effects, it may be fruitful to examine wealth differences as part of a broader range of characteristics. For example, future studies could examine whether personal wealth helps create stronger team faultlines, which are “hypothetical dividing lines that split a team into relatively homogeneous subgroups based on the team

members' demographic alignment along multiple attributes" (Thatcher & Patel, 2011: 1119). A recent meta-analysis shows that faultline strength is positively related to both task conflict and relationship conflict, and negatively related to team cohesion; thus it appears that demographic faultlines are important to the key upper echelons construct of behavioral integration (Hambrick, 1994; 1995), and it is possible that wealth differences affect TMT dynamics through their influence on faultline formation and strength, as opposed to in a direct manner.

Another potentially fruitful avenue for future research would be to examine the effects of personal wealth in a family firm context. The key difference between family and nonfamily firms is the role of noneconomic factors in the management of the firm (Gomez-Mejia, Cruz, Berrone, & De Castro, 2011). Gomez-Mejia and colleagues labeled all the noneconomic utilities (or "affective endowments") received by family principals—including organizational identity, pride in managing a family firm, maintaining a good family name, the ability to exercise authority and control over business processes, the preservation of family dynasty, and others—as an all-encompassing construct of socioemotional wealth or SEW (Gomez-Mejia, Takacs Haynes, Nunez-Nickel, Jacobson, & Moyano-Fuentes, 2007). Many managerial choices in family firms are driven, or at least influenced by, a socioemotional wealth preservation motive (Gomez-Mejia et al., 2011). In the case of managers who are also family members, personal financial wealth and family wealth may often be intertwined; moreover, SEW also plays an important role in managerial decision-making. This raises the question, how do personal financial wealth and SEW together affect firm strategic

choices? Extant research suggests that SEW preservation leads family firms to be more risk-averse compared to their nonfamily counterparts (Gomez-Mejia et al., 2007; 2010; 2011), but findings reported in this study indicate that external wealth helps to mitigate managerial risk aversion; thus, examining the competing influences of SEW and personal wealth in a single study presents an excellent opportunity for future research.

The results of this study indirectly suggest that, in addition to shareholders, managerial external wealth may have important implications for firm bondholders. The two groups of stakeholders are similar in that they are both key suppliers of the firm's external capital. Despite these similarities, multiple scholars highlight the shareholder-bondholder conflict in agency theory (e.g., Black & Cox, 1976; DeFusco, Johnson, & Zorn, 1990; Jensen & Meckling, 1976; Modigliani & Miller, 1958; Myers, 1977; Subramaniam, 1998). Shareholders are assumed to be risk neutral with respect to firm-specific risk because of their ability to diversify their holdings among a portfolio of firms; as such, they prefer managers to take all beneficial risks (i.e., positive NPV projects, even risky ones). Bondholders, on the other hand, only have a fixed claim – they thus bear the costs of increases in firm risk (such as greater possibility of firm liquidation in bankruptcy), but do not enjoy any of the benefits (such as the higher possible returns available to shareholders). Because of this, the value of the bondholders' claims generally declines with increases in firm risk. It may then be that higher external wealth produces greater alignment between managers' and shareholders' interests, while simultaneously reducing the degree of alignment between managers' and bondholders' interests. While much of the agency literature focuses on the two-way

shareholder–manager (and sometimes bondholder–manager) agency conflict, recent studies highlight the importance of considering the interaction among shareholders, bondholders, and managers (e.g., Chava, Kumar, & Warga, 2010). In fact, recent research suggests that although shareholders’ and bondholders’ desires usually conflict, in some circumstances the interests of shareholders and bondholders are aligned (Campbell, Campbell, Sirmon, Bierman, & Tuggle, 2012). Although a full investigation of the impact of TMT external wealth on bondholder value is beyond the scope of this study, it presents an excellent opportunity for future research.

The construct of personal wealth can also be easily extended to non-executive employees in the organization and find application in the ‘micro’ area of management. One area of research where the consideration of personal wealth may significantly influence prior findings is research in the area of justice, and especially distributive justice. The majority of research on distributive justice is grounded in equity theory (Adams, 1965), which proposes that individuals compare their own inputs (e.g., seniority, effort) and outcomes (e.g., pay, other work benefits) to the inputs and outcomes of a “referent other” - a different person who is similar to the individual on one or more attributes (e.g., coworkers), a past self, or future self. If these ratios are perceived as roughly equal, then equity exists and the individual is satisfied. Unequal ratios, however, create inequity, tension, and dissatisfaction. While equity theory was at first generally described and applied as a type of motivational theory, research in the 1990s expanded in its application of equity theory to a broader range of employee attitudes and behaviors (Ambrose & Kulik, 1999). Extensive literature suggests that

employees form fairness perceptions associated with their own outcomes and that these perceptions influence their attitudes and behaviors (please see Colquitt, Conlon, Wesson, Porter, & Ng, 2001, and Folger & Cropanzano, 1998, for reviews).

The individual's current wealth may either influence his/her justice perceptions directly (for example, by influencing how much weight individuals assign to their own outcomes versus the outcomes of others), or may moderate the relationship between justice perceptions and related attitudes/actions (such as job satisfaction, withdrawal, job effort, organizational citizenship behaviors, and stealing). Understanding the effect of wealth on justice perceptions within top management teams may be important, as those individuals tend to be achievement-oriented and concerned with how their own pay compares with the pay of their team members (Fredrickson et al., 2010). In other words, executives are likely to view other top managers on their team as their comparison others (Fredrickson et al., 2010). However, studying the effects of wealth on justice outside of the top executive context also seems promising, especially given the fact that the 'comparison other' can be a version of the self – either a “past self” (based on the individual's past) or “future self” (based on what the individual aspires to). Factoring in the effect of *current wealth* and either *past or future* (aspiration-level) *wealth* can lead to interesting new insights. If wealth has a direct effect on individual justice perceptions, then we would expect wealth to decrease perceived inequity in the presence of the same input/output ratios; put differently, personal wealth may “equalize” the comparison equation. If wealth has a more indirect effect, it is possible that wealthier individuals do not respond to perceived inequity as strongly, while relatively ‘poor’ individuals—for

whom attaining greater financial security could be particularly salient—may be very sensitive to inequity and distributive justice perceptions. Of course it is also possible that both the direct and indirect effect of wealth is found in this context.

Another area of research in which the consideration of external financial wealth may play an important role is the specific outcome of individual motivation, especially in the context of lower-level employees. Work motivation can be defined as “internal and external forces that initiate work-related behavior, and determine its form, direction, intensity, and duration” (Ambrose & Kulik, 1999: 231). This definition underscores the fact that both internal (i.e., intrinsic motivation) and external (i.e., extrinsic motivation) factors contribute to work-related effort. At higher levels of wealth, the marginal utility of an additional dollar decreases; thus, other motivators are likely to become more important. Once a person attains relative financial security, he or she is more likely to emphasize other objectives and be driven by different forces. For example, wealthier individuals in the workforce may be driven by intrinsic motivation, or the “motivation to perform an activity for itself, in order to experience the pleasure and satisfaction inherent in the activity” (Van Yperen & Hageoorn, 2003: 340), more than external motivation as a result of financial incentives. Current wealth may thus also impact the incidence of (new) job search by currently employed individuals, as they seek to find employment that brings them fulfillment rather than employment as a source of income. Surprisingly, “although job factors (e.g., compensation, job demands) and perceptions of such factors (e.g., equity, job satisfaction) are commonly examined” in the literature on employed job seekers (Boswell, Zimmerman, & Swider, 2011: 150), the

role of financial need has only been applied to the context of unemployed job seekers and in job loss contexts. As such, future research can examine the impact of personal wealth on both voluntary job turnover and subsequent job selection.

Additionally, personal wealth has the potential to influence a host of other outcomes. For instance, wealth or lack thereof can have a profound impact on the individual's stress levels and job burnout (for reviews, please see Cordes & Dougherty, 1993; Lee & Ashforth, 1996; Maslach, Schaufeli, & Leiter, 2001), depression (Lorant, Delière, Eaton, Robert, Philippot, & Ansseau, 2003), and overall health (Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003), all of which can influence work outcomes.

Conclusion

This research builds on and extends agency and upper echelons theories by developing the construct of executive external (personal) wealth. I investigate the effect of average external wealth of the top management team (TMT) on firm strategic choices with respect to risk, and find strong evidence that wealthier TMTs are less risk averse with respect to firm strategic decisions. However, I fail to find support for the majority of the predicted moderating effects of wealth and pay diversity. Overall, the effect of wealth appears very robust and consistent across the different outcomes under consideration, which has significant implications for both agency and upper echelons theories as well as the streams of research on innovation and business diversification. The novelty of this construct as well as its relevance for many theories and areas in management presents multiple opportunities for future research.

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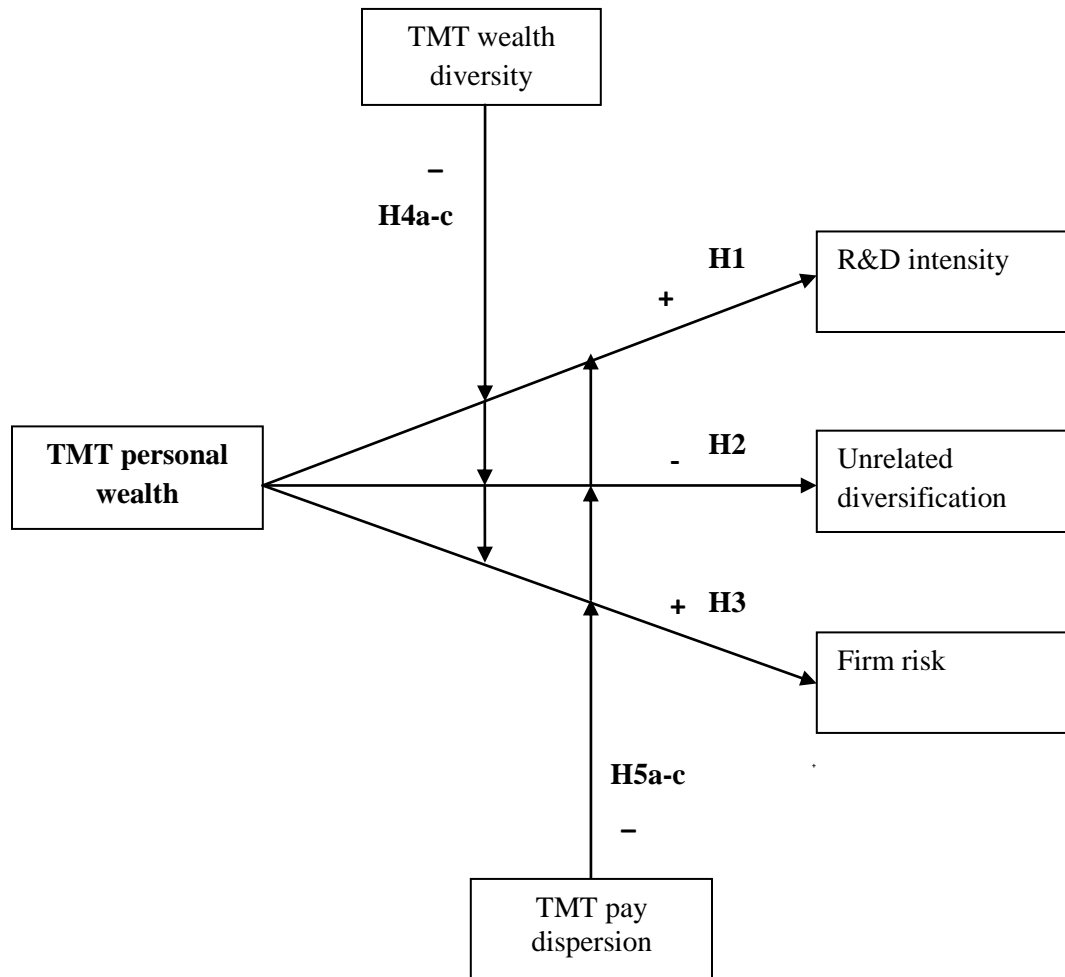
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APPENDIX A

FIGURE A1
The Effects of Average TMT Personal Wealth and Within-TMT Diversity on Firm-Level Risk-Taking



APPENDIX B

TABLE B1
Marginal Individual Tax Rates and Rates of Return Used to Estimate CEO Wealth

Year	Marginal Tax Rate (%)	Market Rate of Return	Risk-free Rate of Return
1992	31.0	0.0446	0.0643
1993	39.6	0.0706	0.0553
1994	39.6	-0.0154	0.0784
1995	39.6	0.3411	0.0549
1996	39.6	0.2026	0.0634
1997	39.6	0.3101	0.0577
1998	39.6	0.2667	0.0473
1999	39.6	0.1953	0.0655
2000	39.6	-0.1014	0.0516
2001	39.1	-0.1304	0.0484
2002	38.6	-0.2337	0.0336
2003	35.0	0.2638	0.0377
2004	35.0	0.0899	0.0394
2005	35.0	0.0300	0.0436
2006	35.0	0.1362	0.0470
2007	35.0	0.0353	0.0370
2008	35.0	-0.3849	0.0187

TABLE B2
Descriptive Statistics and Correlations

	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Unrelated diversif.	0.212	0.338									
2. R&D intensity	0.062	0.897	-0.03								
3. Firm risk	0.001	0.001	-0.13	0.10							
4. Avg. TMT wealth^a	2.83	4.27	0.09	-0.03	-0.01						
5. Wealth diversity	0	0.059	0.10	-0.01	0.01	0.29					
6. Pay dispersion	0	0.057	0.07	0.01	-0.06	0.24	0.24				
7. Firm size	21.74	1.71	0.20	-0.10	-0.33	0.51	0.08	0.18			
8. Stock return	0.153	0.667	0.00	-0.01	-0.08	-0.04	-0.01	-0.03	-0.06		
9. Free cash flow	582.2	1671.5	0.17	-0.02	-0.16	0.30	0.06	0.09	0.53	-0.01	
10. Duality	0.65	0.48	0.14	-0.04	-0.10	0.09	0.09	0.07	0.16	-0.02	0.05
11. Board size	9.67	2.76	0.17	-0.16	-0.26	0.18	-0.01	0.04	0.61	0.00	0.36
12. Outside director %	0.79	0.11	0.13	-0.06	-0.13	0.02	0.19	0.13	0.27	0.00	0.10
13. Outsider ownership	0.01	0.03	0.02	-0.01	0.02	-0.11	-0.02	-0.06	-0.11	0.00	-0.07
14. Institution ownership	0.67	0.21	-0.02	-0.07	0.02	0.24	0.09	0.09	-0.01	-0.05	-0.06
15. TMT heterogeneity	1.24	0.30	-0.04	0.00	-0.05	0.04	-0.02	0.05	0.03	-0.02	0.03
16. TMT avg. tenure	9.64	5.26	-0.06	-0.01	0.12	0.25	-0.07	-0.16	-0.06	0.00	0.06
17. TMT avg. age	55.76	6.03	0.14	-0.04	-0.10	0.18	0.04	-0.02	0.11	0.00	0.11
18. TMT avg. % owned	0.01	0.03	0.04	-0.02	0.07	-0.10	-0.07	-0.14	-0.20	0.01	-0.06
19. TMT avg. \$ owned	132.3	3702.3	0.14	0.00	0.00	-0.02	0.02	0.02	0.08	0.00	0.18
20. Avg. total pay(log)	0.61	1.0	0.11	-0.02	-0.09	0.53	0.14	0.33	0.47	-0.01	0.37

TABLE B2 - Continued
Descriptive Statistics and Correlations

	10	11	12	13	14	15	16	17	18	19
11. Board size	0.05									
12. Outside director %	0.14	0.26								
13. Outsider ownership	-0.05	0.05	0.06							
14. Institution ownership	0.00	-0.20	0.05	-0.03						
15. TMT heterogeneity	-0.04	0.01	-0.09	0.02	-0.01					
16. TMT avg. tenure	-0.06	-0.07	-0.27	-0.05	0.06	0.09				
17. TMT avg. age	0.10	0.06	0.00	-0.01	-0.06	-0.02	0.19			
18. TMT avg. % owned	-0.01	-0.19	-0.33	0.11	-0.21	0.01	0.24	0.13		
19. TMT avg. \$ owned	0.02	0.03	-0.05	0.08	-0.05	-0.01	0.07	0.08	0.04	
20. Avg. total pay(log)	0.08	0.20	0.09	-0.08	0.09	-0.01	0.01	0.03	-0.10	-0.01

All values equal to or greater than the absolute value of .02 are statistically significant at $\alpha=.05$ level

^a In millions; mean and standard deviation based on raw data; correlations based on the log-transformed version used in regressions.

TABLE B3
Panel Tobit Regressions for R&D Intensity_{t+1}

	Model 1: Control	Model 2: Main effect	Model 3: Full model
Firm size	-0.042 ***	-0.055***	-0.054***
Stock return	-0.015 *	-0.014*	-0.014*
Free cash flow	0.000	0.000	0.000
Duality	0.006	0.005	0.004
Board size	-0.007*	-0.006*	-0.007*
% outsider directors	0.034	0.054	0.068
Outsider ownership	0.055	0.035	0.033
Institutional ownership	-0.034	-0.053	-0.055
TMT heterogeneity	-0.006	-0.008	-0.009
Average tenure	-0.002	-0.004*	-0.004*
Average age	-0.001	-0.001	-0.001
Average % ownership	-0.959**	-0.854*	-0.888**
Average \$ owned	0.000	0.000	0.000
Avg. total compensation	0.000	0.000	0.000
Wealth diversity	0.239 **	0.153+	0.052
Pay dispersion	0.044	0.025	0.031
Average TMT wealth		0.039***	0.040***
TMT wealth X TMT wealth diversity			0.186*
TMT wealth X TMT pay dispersion			-0.011
Constant	0.917 **	1.235 ***	1.219 ***
Log-likelihood	285.88	293.01	296.19
Wald χ^2	90.52 ***	106.70 ***	113.25 ***
χ^2 DF	21	22	24

<i>N</i>	2199	2199	2199
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Year dummies are included in all specifications.

+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE B4
Panel Tobit Regressions for Unrelated Diversification_{t+1}

	Model 1: Control	Model 2: Main effect	Model 3: Full model
Firm size	0.093 ***	0.119***	0.126***
Stock return	-0.006	-0.009	-0.009
Free cash flow	-0.000	0.000	0.000
Duality	0.025+	0.022	0.024+
Board size	0.005	0.005	0.004
% outsider directors	0.056	0.021	0.013
Outsider ownership	-0.284	-0.252	-0.231
Institutional ownership	-0.029	0.003	0.013
TMT heterogeneity	-0.042	-0.033	-0.040
Average tenure	-0.006 **	-0.000	0.001
Average age	0.001	0.002	0.002
Average % ownership	1.615 ***	1.370**	1.276**
Average \$ owned	-0.000	-0.000	-0.000
Avg. total compensation	0.000	0.000	0.000
Wealth diversity	0.136	0.295 *	0.204
Pay dispersion	-0.242 *	-0.189	-0.245 *
Average TMT wealth		-0.086 ***	-0.095 ***
TMT wealth X TMT wealth diversity			0.147
TMT wealth X TMT pay dispersion			0.293*
Constant	-2.316 ***	-3.025 ***	-3.160 ***
Log-likelihood	-351.44	-343.99	-340.16
Wald χ^2	136.33 ***	168.61 ***	177.05 ***
χ^2 DF	21	22	24

<i>N</i>	2193	2193	2193
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Year dummies are included in all specifications.

+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE B5
Fixed Effect Regressions for Firm Risk_{t+1}

	Model 1: Control	Model 2: Main effect	Model 3: Full model
Firm size	0.024 ***	0.020***	0.020***
Stock return	-0.008 **	-0.007**	-0.007**
Free cash flow	-0.000*	-0.000*	-0.000*
Duality	0.003	0.003	0.003
Board size	0.000	0.000	0.000
% outsider directors	0.002	0.005	0.004
Outsider ownership	-0.025	-0.028	-0.027
Institutional ownership	-0.002	-0.003	-0.003
TMT heterogeneity	0.000	-0.001	-0.001
Average tenure	0.004 ***	0.003***	0.003***
Average age	0.000	-0.000	-0.000
Average % ownership	-0.139+	-0.124	-0.122
Average \$ owned	0.000	0.000	0.000
Avg. total compensation	0.000	0.000	0.000
Wealth diversity	0.008	-0.004	-0.010
Pay dispersion	0.013	0.011	0.009
Average TMT wealth		0.008***	0.008***
TMT wealth X TMT wealth diversity			-0.021
TMT wealth X TMT pay dispersion			0.003
Constant	-0.487 **	-0.404 ***	-0.403 ***
<i>F</i>	42.97 ***	40.93 ***	37.54 ***
<i>DF</i>	21	22	24
Adj. R^2 (w. firm effects)	0.71	0.72	0.72

<i>N</i>	2256	2256	2256
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Firm (gvkey) and year dummies are included in all specifications.

+p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

TABLE B6
Panel Tobit Regressions for R&D Intensity_{t+1} and Unrelated Diversification_{t+1}
using Ratio Measure of Wealth

	R&D: Main effect	R&D: Full model	Unrelated div.: Main effect	Unrelated div.: Full model
Firm size	-0.027 ***	-0.026 ***	0.106 ***	0.112 ***
Stock return	-0.007 *	-0.007 *	-0.010	-0.009
Free cash flow	0.000	0.000	-0.000	-0.000
Duality	0.005	0.004	0.021	0.024 +
Board size	-0.003 *	-0.003 *	0.004	0.004
% outsider directors	0.048 +	0.048 +	0.042	0.036
Outsider ownership	0.008	0.007	-0.265	-0.249
Institutional ownership	-0.002	-0.003	-0.010	0.000
TMT heterogeneity	-0.000	-0.000	-0.036	-0.044
Average tenure	-0.002 **	-0.002 **	-0.003	-0.002
Average age	-0.001	-0.001	0.002	0.002
Average % ownership	-0.267 +	-0.263+	1.204 **	1.177 **
Avg. total comp.	-0.000	-0.000	0.000	0.000
Wealth diversity	0.102 *	0.089 *	0.238 +	0.221
Pay dispersion	0.026	0.038	-0.196 +	-0.261 *
Avg. TMT wealth (R)	0.201 ***	0.189***	-0.476 ***	-0.569 ***
TMT wealth X TMT wealth diversity		0.007 ⁺		0.010
TMT wealth X TMT pay dispersion		-0.378		2.420*
Constant	0.550 ***	0.545 ***	-2.672 ***	-2.790 ***
Log-likelihood	904.97	906.32	-348.02	-345.14
Wald χ^2	116.80 ***	120.42 ***	-145.91 ***	-152.33 ***
χ^2 DF	22	24	22	24

<i>N</i>	2199	2199	2193	2193
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Year dummies are included in all specifications.

+p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

TABLE B7
Fixed Effect Regressions for Firm Risk_{t+1} using Ratio Measure of Wealth

	Model 1: Control	Model 2: Main effect	Model 3: Full model
Firm size	0.024 ***	0.019 ***	0.019 ***
Stock return	-0.008 **	-0.007**	-0.007**
Free cash flow	-0.000*	-0.000*	-0.000*
Duality	0.003	0.003	0.003
Board size	0.000	0.000	0.000
% outsider directors	0.002	0.005	0.005
Outsider ownership	-0.025	-0.028	-0.029
Institutional ownership	-0.002	-0.003	-0.003
TMT heterogeneity	0.000	-0.001	-0.001
Average tenure	0.004 ***	0.003***	0.003***
Average age	0.000	-0.000	-0.000
Average % ownership	-0.111+	-0.095	-0.092
Avg. total compensation	0.000	0.000	0.000
Wealth diversity	0.007	-0.008	-0.014
Pay dispersion	0.014	0.008	0.010
Avg. TMT wealth (R)		0.094***	0.088**
TMT wealth X TMT wealth diversity			0.002
TMT wealth X TMT pay dispersion			-0.054
Constant	-0.490 **	-0.383 ***	-0.376 ***
<i>F</i>	44.96 ***	42.88 ***	39.98 ***
<i>DF</i>	20	21	24
Adj. R^2 (w. firm effects)	0.71	0.72	0.72
<i>N</i>	2256	2256	2256

Firm (gvkey) and year dummies are included in all specifications.

TABLE B8
Panel Tobit Regressions for Unrelated Diversification_{t+1} and R&D Intensity_{t+1} –
the Interactions of Average External Wealth and Firm Ownership

	Unrelated div.: Model 1	Unrelated div.: Model 2	R&D: Model 1	R&D : Model 2
Firm size	0.122 ***	0.120***	-0.055 ***	-0.056 ***
Stock return	-0.010	-0.010	-0.014 *	-0.013+
Free cash flow	0.000	0.000	0.000	0.000
Duality	0.025 +	0.023	0.004	0.005
Board size	0.005	0.006	-0.007 *	-0.007*
% outsider directors	0.012	0.044	0.070	0.075
Outsider ownership	-0.236	-0.256	0.018	0.002
Institutional owner'p	0.007	0.021	-0.058 +	-0.055
TMT heterogeneity	-0.036	-0.033	-0.008	-0.009
Average tenure	0.001	0.001	-0.004 *	-0.003*
Average age	0.002	0.002	-0.002	-0.001
Average % ownership	1.165 **	0.919*	-0.844 *	-1.406**
Average \$ owned	-0.000	-0.000	0.000	0.000
Avg. total comp.	0.000	0.000	0.000	0.000
Wealth diversity	0.187	0.205	0.047	0.052
Pay dispersion	-0.191	-0.201+	0.024	0.020
Average TMT wealth	-0.090 ***	-0.092***	0.041 ***	0.041 ***
TMT wealth X TMT wealth diversity	0.152	0.127	0.197 **	0.167+
TMT wealth X TMT pay dispersion	0.343 **	0.338**	-0.155	-0.182+
TMT wealth X TMT avg. % ownership		-0.884*		-0.731*
Constant	-3.069 ***	-3.085 ***	1.225 ***	1.239 ***
Log-likelihood	-339.66	-337.03	297.48	299.93

Wald χ^2	-173.66 ***	-177.65 ***	116.03 ***	121.23 ***
χ^2 DF	24	25	21	23
<i>N</i>	2193	2193	2199	2199

Year dummies are included in all specifications.

+p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

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