

THE EFFECT OF CORPORATE GOVERNANCE ON THE CHANGE
IN MARKET VALUATION OF CORPORATE SPIN-OFFS:
AN EMPIRICAL INVESTIGATION OF
SPUN-OFF SUBSIDIARIES

by

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DEDICATION

*To my mother, (Annem) Sabiha Ozbek,
with the biggest love and deepest gratitude.*

ABSTRACT

THE EFFECT OF CORPORATE GOVERNANCE ON THE CHANGE IN MARKET VALUATION OF CORPORATE SPIN-OFFS: AN EMPIRICAL INVESTIGATION OF SPUN-OFF SUBSIDIARIES

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The University of Texas at Arlington, 2017

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This dissertation focuses on the change in market valuation of spun-off subsidiaries two years after the corporate spin-off. A review of the literature indicates that the research pertaining to determinants of the market valuation following corporate spin-offs from the perspective of spun-off subsidiaries has been limited. While the extensive corporate governance literature indicates that different governance structures of the firm have diverse implications on the choice of firm strategies and associated performance, our knowledge of how these governance elements might impact the change in market valuation of spun-off subsidiaries is virtually nonexistent. Grounded in agency, resource dependence, and upper echelons theories, this research examines how board characteristics, CEO characteristics, and ownership structures impact the change in market valuation of the spun-off subsidiary (child firm), which is assessed by the change in market value of equity within two years following the corporate separation of the child from its divesting (parent) firm.

The study is based on 138 completed corporate spin-offs undertaken in the U.S. between 2000 and 2014, identified using the SDC Platinum database. My results indicate that the board size and CEO duality have significant positive effects on the change in market valuation of the child firm whereas the CEO age and managerial ownership have significant negative effects on this relationship. On the other side, the board average age, CEO origin, board independence, institutional ownership, and board members' and CEOs' external directorships do not show any significant effects on the change in market valuation of the child firm.

Regarding research contributions, this study is grounded in three established theories — agency, resource dependence, and upper echelons — to explain an important phenomenon of the change in market valuation of the child firm following the spin-off. Secondly, the study demonstrates critical effects of the corporate governance structure, including board and CEO characteristics as well as ownership structures on the change in post-spin-off market valuation from the perspective of the child firm. Thirdly, the study uses the market value of equity to assess the market valuation, which provides important cues regarding investor perceptions of the child firm's business prospects.

Concerning managerial implications, this study indicates that larger boards, younger CEOs, and the CEO and chairman of the board being the same person all help to improve the child firm's market valuation. On the opposite side, a large number of shares owned by managers will negatively affect the market valuation of the child firm. These results can be considered critical key points for establishing an effective governance structure at the child firm.

Keywords: corporate spin-offs, market valuation, spun-off subsidiaries, corporate governance, board characteristics, CEO characteristics, ownership structures

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CHAPTER 1. INTRODUCTION

Corporate spin-offs represent a unique form of corporate restructuring (Makhija, 2004). There has been a significant increase in the number of corporate spin-offs over the past decade (Kotzen, Stellmaszek, Gell, Friedman, and Valluru, 2016). For example, in 2015 the total number of completed spin-offs in the U.S. was 28, with the goal of creating better shareholder value for both the divesting firm and its spun-off subsidiary (De Aenlle, 2014; Kotzen et al., 2016). From the perspective of corporate governance, as Huyett and Koller (2011) argue, if the board of directors and executives clearly understand how this restructuring process works and what it needs to accomplish, these firms may begin to experience better performance outcomes in the market after the corporate separation.

Corporate spin-offs are designed to create value for both the divesting firm (parent firm) and the spun-off subsidiary (child firm). Bowman and Singh (1993) argue that corporate restructuring might entail “selling lines of business or making significant acquisitions, changing capital structure through infusion of high levels of debt, and changing the internal organization of the firm” (p. 6). Consequently, these corporate transactions typically involve significant implications from the standpoint of the corporate parent, its spun-off subsidiary, and shareholders of the parent firm (Maxwell and Rao, 2003). After completion of the spin-off, the child firm becomes an independent, stand-alone public entity that no longer executes its operations under the control of its parent (Miles and Rosenfeld, 1983). In other words, the child firm is fully responsible for managing all aspects of its operations, independent from its corporate parent. Then the question becomes: Why do some spun-off subsidiaries perform better than others?

There have been myriad studies involving the performance of the parent firm following the spin-off (Hite and Owers, 1983; Krishnaswami and Subramaniam, 1999; McKendrick, Wade, and Jaffee, 2009) as well as some research on the value creation by the child firm (Semadeni and Cannella, 2011; Veld and Veld-Merkoulova, 2004; Wruck and Wruck, 2002). However, studies about how different governance structures might impact the change in post-spin-off market valuation of the child firm have remained unexplored. This dissertation will fill this important gap in the field of strategy by examining a critical question: What aspects of corporate governance might influence the change in market valuation of the spun-off subsidiary after being separated from its parent? Three main research questions will be addressed:

- a) Do board characteristics (directors' age, board size, board independence, board members' external directorships) of the child firm affect the change in market valuation of the child firm after the corporate separation from its parent?
- b) Do CEO characteristics of the child firm (CEO origin, CEO duality, CEO external directorships, CEO age) affect the change in market valuation of the child firm after its corporate separation?
- c) Do ownership structures (institutional and managerial ownerships) affect the change in market valuation of the child firm after its corporate separation?

Answering these questions in the context of how to better govern corporate spin-offs from the perspective of spun-off subsidiaries proves critical, as both theoretical and empirical researching helps us better understand key influential factors on the change in the child firm's market valuation as the stand-alone entity independent of its former corporate parent. In other words, this study adds value to the corporate spin-off literature by examining whether the

corporate governance structure matters in the context of improving market performance of spun-off subsidiaries.

As widely argued in the governance literature (Aguilera, Filatotchev, Gospel, and Jackson, 2008; Baysinger and Hoskisson, 1990; Daily, Dalton, and Cannella, 2003; Forbes and Milliken, 1999; Gillan, 2006; Strange, Filatotchev, Buck, and Wright, 2009), the corporate governance helps firms determine their strategic objectives and direction toward maximizing shareholders' long-term returns. Daily et al. (2003) define governance as “the determination of broad uses of which organizational resources will be deployed and the resolution of conflicts among the myriad participants in organizations” (p. 371). The effectiveness of corporate governance relies on utilizing “mechanisms to ensure that executives respect rights and interests of company stakeholders, and that those stakeholders are held accountable for acting responsibly regarding the protection, generation, and distribution of wealth invested in the firm” (Aguilera et al., 2008: 475). These definitions indicate that corporate governance has critical implications on the wealth of the firm, which is also affected by stakeholders.

In addressing these questions, I draw on agency, resource dependence, and upper echelons theories to build a theoretical model and develop arguments underlying hypotheses examined in this research. In particular, from the perspective of agency theory, since the risk of misalignment in the interest of principals (shareholders) and agents (managers) may increase post spin-off due to uncertainties and ambiguities, the board will need to closely monitor the agency cost and take effective actions in a timely manner (Woo, Willard, and Daellenbach, 1992). From the perspective of resource dependence theory, maintaining sustained growth of the child firm requires access to valuable external resources (Bruneel, Van de Velde, and Clarysse, 2012), which can also help the spun-off subsidiary establish its legitimacy in the industry. From

the perspective of upper echelons theory, top managers' knowledge base and managerial perspectives may have significant impact on child firm performance (Semadeni and Cannella, 2011). These three well-established theories help explain critical impacts of governance elements on the change in market valuation of the child firm in the context of corporate spin-offs. In doing so, this dissertation contributes to the strategy literature by examining:

- a) how board characteristics of the child firm may affect its market valuation after being spun off from its corporate parent
- b) how CEO characteristics of the child firm may affect its market valuation after being spun off from its corporate parent
- c) how ownership structures of the child firm may affect its market valuation after being spun off from its corporate parent

The research model proposed in this study endeavors to fill the gap in the field of strategy by examining governance factors that may affect the change in market valuation of spun-off subsidiaries within two years of separation from their corporate parent. Results indicate that some governance elements, including board size, CEO duality, CEO age, and managerial ownership, significantly affect the change in the child firm's market valuation.

1.1 Corporate Spin-offs

The decision behind corporate spin-offs has two distinct aspects. The first is to restructure the parent firm in terms of its core focus; the second is to improve operational efficiency of both the parent and its subsidiary (Veld and Veld-Merkoulova, 2008). Desai and Jain (1999) define this spin-off process as “a pro rata distribution of the shares of the subsidiary to the parent's shareholders to create a new entity that trades independently of its former parent”

(p. 78). The Internal Revenue Code (IRC), Section 335 f, requires three criteria of the spin-off event: “(1) The distribution must constitute at least 80% of the outstanding shares of the subsidiary, and the shares retained by the parent should not constitute a ‘practical control’ of the subsidiary; (2) both the parent and the subsidiary must be engaged in an active trade or business for at least five years prior to the ex-date; (3) the transaction is done for sound business reasons and not as a means of avoiding taxes” (Desai and Jain, 1999: 78-79).

Corporate spin-offs offer a unique context because they provide investors with an opportunity to better understand and evaluate value-creating potential of the restructuring firm (Bergh, Johnson, and Dewitt, 2008). In other words, these restructurings aim to bring the “hidden” potential of the firm to the surface after separation of the parent and its child. From the perspective of the market valuation of spin-offs, Chemmanur and Yan (2003) argue that “after the spin-off, equity values of securities traded provide a much cleaner signal of the managerial productivity” (p. 261). This means that the valuation of the firm may increase due to better managerial practices, which stem from executives having a clearer understanding of corporate goals after the separation. Besides, following arguments of conglomerate discounts, the parent firm may be undervalued by the market due to its non-transparent organizational structure and inability to allocate resources effectively, thereby creating several concerns for shareholders (Hoechle, Schmid, Walter, and Yermack, 2011). By focusing on core aspects of its business only and creating a transparent system, the spin-off event is also expected to help both the parent firm and its subsidiary in order to fix this market undervaluation. By following the same principle, both the parent firm and its child can improve the quality of products and services via utilizing their resources more efficiently only in their core businesses (Bergh et al., 2008). Thus, spin-offs are expected to create a substantial value for shareholders and make investors better understand

the strategic direction of the firm (Feldman, Gilson, and Villalonga, 2014). Spin-offs can be considered strategic “value boosters” in the corporate world. Both the parent firm and its child are expected to benefit.

On the opposite side, spin-offs might embody several ambiguities due to unknowns in both business operations and managerial practices after the separation. First, according to Corley and Gioia (2004), during and after the spin-off event, an organization’s members might not be sure about their collective state as an independent entity, including their status in the future, which is called “identity ambiguity.” This ambiguous situation might create discomfort or anxiety within the organization since members of the firm may keep asking themselves, “We are not sure who we are right now and we need to figure it out soon” (Corley and Gioia, 2004: 193). Secondly, although enhancing the shareholder value is the main goal of spin-offs, restructuring also carries a big risk of underperforming the market due to earning independent status instantly and losing parental resources permanently (Hambrick and Strucker, 1999). Thirdly, spun-off subsidiaries need to establish their legitimacy and credibility within the industry on their own so that they can run their business deals and achieve success in the market independently (Hambrick and Strucker, 1999). All of these challenges stemming from uncertainties in the internal and external environment of the child firm might not result in the “enhanced” value that shareholders expect to see.

1.2 Corporate Governance of Spun-off Subsidiaries

Aguilera and Jackson (2003) define corporate governance as “the outcome of interactions among multiple stakeholders” (p. 449). Specifically, these mechanisms (both internal and

external) aim to “ensure that executives respect the rights and interests of company stakeholders, and that those stakeholders are held accountable for acting responsibly regarding the protection, generation, and distribution of wealth invested in the firm” (Aguilera et al., 2008: 475). In the literature, it has been argued that the governance structure of the firm may play a significant role on its stock market performance (Moore, Bell, Filatotchev, and Rasheed, 2012) and that this critical system is expected to affect firm performance via harmonizing conflicts of interest between the agents and principals and improving the wealth of shareholders (Baysinger and Hoskisson, 1990).

In the management literature, while explaining different governance structures and their effects on firm performance, two main domains come to the surface — internal and external control mechanisms (Connelly, Hoskisson, Tihanyi, and Certo, 2010). Internal control mechanisms refer to the board of directors, ownership concentrations (individual shareholders and institutional investors), and executive compensation (long term vs. short term). External control mechanisms refer to members of the environment (financial institutions, regulators, government) surrounding the firm (Cyert, Kang, and Kumar, 2002; Daily et al., 2003). Following these definitions, it makes sense to argue that corporate governance offers an “internally and externally protected” mechanism for shareholders of the firm to further their wealth via achieving better performance outcomes. Although the literature offers important empirical evidence showing the impact of corporate governance on the firm performance and value, to date there is little evidence of defining an “optimal” governance structure that works perfectly for all organizations (Core, Holthausen, and Larcker, 1999). Therefore, it is very important to look into how the governance structure may have different effects on firm performance in various contexts such as spin-offs.

Bell, Filatotchev, and Aguilera (2014) argue that governance mechanisms have an important impact on managing perceptions of investors. They also argue that improving stock market valuation of the firm as well as gaining organizational legitimacy can be considered important outcomes of effective governance practices (Bell et al., 2014). Although corporate governance practices might vary significantly around the globe (Chizema and Shinozawa, 2012), enhancing value creation via the most effective practices is at the core of this phenomenon (Carney, 2005). From the perspective of ownership structures, for instance, Connelly et al. (2010) argue that “a firm represents a nexus of contracts between principals and agents” (p. 1562); therefore, it is important to align interests of shareholders with those of managers so that owners will achieve their financial goals as well as managers will earn proper incentives (e.g. managerial ownership) to help the firm achieve its performance goals. From the perspective of directors, the board composition might make significant impacts on firm performance due to being connected to external resources and information, possessing industry-specific knowledge, and counseling to the top management team in order to help the firm better establish its legitimacy and become an “accepted” member of its community (Daily and Dalton, 1994). From the perspective of executives, the CEO, as the highest-level decision-maker, has the full responsibility of making quality decisions that help the firm achieve better performance outcomes as well as serving as the top “mediator” between the board of directors and top management team members through establishing and utilizing effective information channels (Core et al., 1999).

Since corporate spin-offs intend to enhance overall value (both the parent and its child) from the shareholders’ perspective, it is important to explore which governance factors may become more beneficial for the child firms as stand-alone, independent entities during this

process. Focusing on three internal dimensions of corporate governance — board characteristics, ownership structures, and CEO characteristics — will help to better identify how these spun-off subsidiaries can be considered more valuable by the market.

1.3 Market Valuation of Spun-off Subsidiaries

Krishnaswami and Subramaniam (1999) argue that “the spin-off improves the firm’s market value because investors are able to perceive value more clearly after the spin-off” (p. 74). They emphasize that investors can better understand the strategy of both the parent and the child after the corporate separation since the strategy of these combined firms may not be clear to investors (Krishnaswami and Subramaniam, 1999). Through creating this sort of a better understanding for investors, more efficient operations of individual firms, and more effective information sharing regarding business operations, the market valuation of spin-offs is expected to significantly improve (Krishnaswami and Subramaniam, 1999).

In the literature, there have been studies that look at the market valuation in different contexts. For instance, Chatterjee (1986) argues that financial synergies created between the acquiring and target firms might result in gaining a higher market value for the acquiring firm. This argument shows that corporate restructuring activities have important influences on the market valuation of involved firms. Furthermore, Holbrook (2013) argues that the market value of the firm can be considered a critical indicator of how it will be doing financially in the future. In the context of spin-offs, by considering that the main goal of restructuring is to create better value for shareholders and that there may be several uncertainties due to the “instantly independent” status of the child firm, it is critical to identify factors that may influence market valuation. In other words, examining why some spun-off subsidiaries can possess a better market

valuation over time should be considered a critical research question, since it will also provide us with strategic cues in terms of understanding success parameters. While answering this question, governance-related factors affecting the change in market valuation of the child firm will become the critical focus of this research.

1.4 Purpose of the Study

This research has three main purposes. The first purpose is to examine the effect of board characteristics on the change in market valuation of spun-off subsidiaries within two years following the spin-off event. The second purpose is to understand the role of CEO characteristics that helps to place these subsidiaries in a better position in terms of their market valuation. And finally, the third purpose is to understand how different ownership structures make the subsidiary more valuable in the market.

From the perspective of agency theory, the governance structure of the spun-off subsidiary is critical for two main reasons. First, the board of directors (BoD) has the responsibility of promoting the wealth maximization of shareholders (Joseph, Ocasio, and McDonnell, 2014). Therefore, having a BoD that can effectively monitor executives' behaviors and in turn prevent managerial opportunism (Pathak, Hoskisson, and Johnson, 2014; Dalton, Daily, Ellstrand, and Johnson, 1998) should be considered a key success factor in the context of spun-off subsidiaries. From the perspective of resource dependence theory, since external connections of BoD members are expected to help the firm acquire external resources (Phan, Lee, and Lau, 2003; Pfeffer, 1972), this will help the spun-off subsidiary deal with uncertain and complex situations in the environment (Shropshire, 2010), which will also enable it to gain

legitimacy and sustained growth (Kor and Sundaramurthy, 2009). Therefore, effects of board characteristics on the change in market valuation of the child firm will be examined.

Secondly, the ownership structure of these spun-off subsidiaries warrants examination. Once again, looking at the agency theory, managers (agents) might more carefully act in terms of protecting interests of shareholders (principals) as long as they own shares of the firm (Mahoney, Sundaramurthy, and Mahoney, 1997). In addition, due to their responsibility in corporate monitoring, institutional investors might play a dynamic role to ensure the continuous growth of the firm that they are invested in (Hadani, 2012). Therefore, effects of both managerial and institutional ownerships on the change in market valuation of the child firm will be examined.

Thirdly, according to arguments of upper echelons theory, top executives' cognitive styles and skills might have significant impacts on their decisions and in turn affect firm performance (Hambrick and Mason, 1984). After being spun off from its corporate parent, the child firm will be managed by a top management team that will be solely responsible for taking effective managerial actions and making appropriate strategic decisions in order to improve both operational efficiency and managerial effectiveness. Particularly, the CEO, as a top decision-maker in the organization, might matter significantly in "determining important organizational outcomes" (Barker and Mueller, 2002: 783). Therefore, effects of CEO characteristics on the change in market valuation of the child firm will be examined.

In addition to these governance-related elements, characteristics of the spun-off subsidiary (firm size, capital intensity, sales growth, leverage, year of spin-off event) and characteristics of the industry (advertising intensity, R&D intensity, dynamism, type of sector) might affect its market valuation. Therefore, these firm-level and industry-level characteristics

will be also included as control variables in the model while examining the change in market valuation of the child firm.

1.5 Contribution of the Study

This empirically tested model makes three main contributions to the strategic management literature. First, by focusing on both ownership structures, this research addresses how managers' and institutional investors' ownership within the child firm might influence the market valuation of the child firm after being spun off from the corporate parent. These arguments extend the work conducted by Semadeni and Cannella (2011), who look at the influence of parental ownership, which can be only less than 20% and includes 8% of the total sample size, on the shareholder return after the spin-off is completed. Secondly, by looking at board characteristics, this study provides important theoretical and empirical insight regarding the influence of board structures on the market valuation of the child firm following the spin-off event. These arguments also extend the previous work conducted by Semadeni and Cannella (2011), who only considered how having directors from the parent firm on the child firm's board can influence market performance. Thirdly, this study examines which sort of CEOs may be necessary for improving the market valuation of the child firm. These arguments extend the work conducted by Wruck and Wruck (2002), who look at other demographics of top executives at the child firm by focusing on the experience factor and examining the impact on the value creation by the child firm. Hence, this research explores the impact of different governance elements on the change in market valuation of the child firm by controlling for firm and industry characteristics to better understand factors that influence the market performance of these recently independent, stand-alone entities.

1.6 Research Questions

By being grounded in the agency, resource dependence, and upper echelons theories, this study answers the question of why some spun-off subsidiaries achieve a better market performance than others. The research will answer three other big questions:

- a) Which characteristics of the board (average age, independence, size, directors' external board memberships) will affect the change in market valuation of the child firm?
- b) Will the ownership structure (managerial and institutional) of the child firm matter in the context of the change in its market valuation?
- c) Which characteristics of the CEO (age, duality, origin, external directorships) will affect the change in market valuation of the child firm?

1.7 Dissertation Structure

Chapter 2 explains the phenomenon of corporate spin-offs, discusses relevant theories in the context of spun-off subsidiaries' market performance, and develops theoretical arguments for identifying determinants of successful spun-off subsidiaries. Chapter 3 describes the methodology used to test the hypotheses. Chapter 4 presents results of the empirical analysis. Chapter 5 discusses the results explained in the previous chapter and presents the conclusion as well as research contributions, managerial implications, and limitations of this study, including future research directions. Supplemental analyses including the descriptive information of the sample, different variations of regression, and conceptual diagrams are provided at the end.

CHAPTER 2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This chapter provides a review of the relevant literature that helps better explain how the market valuation of the child firm might be affected due to its governance structure after being separated from the corporate parent. This study is grounded in three widely used and well-established theories in the management and finance literature: agency theory (Abor, Graham, and Yawson, 2011; Bergh and Sharp, 2015; Eisenhardt, 1988; Eisenhardt, 1989; Feng, Nandy, and Tian, 2015; Hill and Jones, 1992; Miles and Rosenfeld, 1983; Semadeni and Cannella, 2011; Seward and Walsh, 1996; Woo et al., 1992); resource dependence theory (Bruneel, Van de Velde, and Clarysse, 2012; Hillman and Dalziel, 2003; Hillman, Shropshire, and Cannella, 2007; Hillman, Withers, and Collins, 2009; Parhankangas and Arenius, 2003); and upper echelons theory (Ahn and Walker, 2007; Carpenter, Geletkanycz, and Sanders, 2004; Hambrick and Mason, 1984; Hambrick, 2007; Hambrick, Humphrey, and Gupta, 2015; Mueller and Barker, 1997; Wruck and Wruck, 2002).

2.1 Motivations for Corporate Spin-offs

Miles and Rosenfeld (1983) state that “a spin-off occurs when a company distributes all of the common shares it owns in a controlled subsidiary to its existing shareholders, thereby creating a separate public company” (p. 1597). In both management and finance literatures, scholars have argued that there are several reasons why corporate parents might want to achieve better value creation via spinning off their subsidiaries. Three common reasons surface after examining statements of company executives who have chosen this restructuring technique.

First, the spin-off activity enables both the parent and child firm to enhance their value within the market and better meet its demands (Miles and Rosenfeld, 1983). The goal of this reasoning is to increase the shareholder wealth with the announcement of the spin-off event, which is expected to be followed by positive abnormal returns (Miles and Rosenfeld, 1983). In other words, by separating the subsidiary from its parent, the expectation is to place both firms (parent and child) in a better position within financial markets. For instance, in 2012, SunCoke Energy, Inc. was spun off from Sunoco, Inc. The chairman and CEO of SunCoke Energy said that “as an independent, publicly owned company, we believe SunCoke has increased flexibility to pursue domestic and international growth strategies, meet the needs of our steelmaking customers, and create opportunities for our employees and shareholders” (Henderson, 2012). This company statement demonstrates that the expectation from the child firm is to create better value for its stakeholders via improving its business strategies and successfully meeting the market demands.

Secondly, it helps to increase the corporate focus as well as provides top managers with the opportunity for focusing on core business operations (Daley, Mehrotra, and Sivakumar, 1997). Here the goal is to remove the unrelated businesses from the portfolio of the parent firm so that managers can more effectively handle core operations (Daley et al., 1997). This means that the spin-off event is expected to enhance the operational environment within the firm via giving responsibilities to managers only in core aspects of the business without worrying about non-core operations. For example, in 2013, CST Brands, Inc. was spun off from Valero Energy Corp. The president and CEO of CST Brands said: “At our core, we are a retail company focused on serving customers. This move will allow us to benefit all the stakeholders. We will continue to grow our footprint, expand our signature food offerings, provide more opportunities

for our CST Team Members and maximize profitability for shareholders.” (Bowers, 2013). This statement indicates that the child firm’s expectation from the spin-off event is to provide its team members with a clearer path while focusing on the core aspect of their business.

Thirdly, it provides investors with a clearer understanding of corporate structure of the firm, including the transparency factor (Bergh, Johnson, and Dewitt, 2008). In other words, via the separation of these two firms, investors are expected to better understand the operational activities and related resource allocations within the firm (Bergh et al., 2008). Investors’ expectations from the firm will also become more transparent, which in turn can help the management team organize its actions accordingly. For instance, in 2010, the Howard Hughes Corp. was spun off from General Growth Properties. The chairman of Howard Hughes stated: “Today marks a promising beginning of a new era of creating inspiring developments and driving sustainable, long-term value for all of our stakeholders. In the spirit of Howard Hughes, an icon of American business, we will build upon our world-class portfolio of real estate assets and establish a successful and entrepreneurial company that is the preeminent developer and operator of master planned communities and long-term mixed-used properties nationwide. I am excited for the future of our company, and I look forward to working together with my fellow board members and management to fully realize the inherent value of our company’s assets.” (Ackman, 2010). This statement shows that via efficient allocation of resources and better utilizing the child firm’s assets, the spin-off event is expected to establish a clearer corporate structure in the market.

Feldman et al. (2014) also define spin-offs as “extraordinarily complex transactions, necessitating the separation of formal and informal linkages between the divesting parent companies and their spun-off subsidiaries, including common resources” (p. 1449). These

complex transactions require a careful analysis of all elements within external and internal environments of the firm. Because the child firm does not have any history in stock price after becoming independent, which can be considered quite risky by potential investors (Feldman et al., 2014), new managerial and organizational boundaries between the parent and the child need to be clearly identified before the separation and strictly applied after the separation. Thus, each firm will have a much better understanding of the strategic direction they need to go after the spin-off event. Unless these boundaries are clearly identified and market conditions are carefully analyzed, spinning off the subsidiary might result in a big failure for both companies.

After the child firm has been separated from its corporate parent, shareholders of the parent firm will receive equity claims on a pro rata basis for each spun-off subsidiary rather than receiving any cash or financial securities (Seward and Walsh, 1996). Krishnaswami and Subramaniam (1999) argue that the main factor in which spin-offs differ from other divestiture modes is that there are no cash inflows between the parent firm and its child. Cusatis, Miles and Woolridge (1993) provide important information regarding strategic motives of corporate spin-offs. The first one is the lack of fit, which refers to the situation in which operations of the parent firm and its subsidiary do not fit well with one another. The second one is governmental regulations, which refers to the situation where the regulatory environment creates negative impact on firm performance outcomes. The third is undervalued assets, where the parent firm's management team believes the market is going to better value its assets after spinning off the subsidiary. And the fourth one is the risk created by the subsidiary, which refers to the condition where the subsidiary operates in a riskier industry than that of its parent and thus creates a high risk for the parent's market performance.

This restructuring event also comes with some risks. For instance, Iturriaga and Cruz (2008) argue that spin-off events enable managers to implement new ideas and innovations via an accumulation of knowledge because of the firm's new corporate restructure. However, there might be some difficulties in adapting to new processes, business operations, governance structures, and management systems due to the child firm's newly independent status (Semadeni and Cannella, 2011). The new board of directors and top management team of the child firm will need to address all of these challenges via applying both effective managerial and efficient operational practices in order to keep the value creation process going as planned (Wruck and Wruck, 2002). As a result, all these corporate efforts will help the child firm become an accepted member of its business community and establish its legitimacy in the market.

The empirical research in the context of spin-offs (mostly from the perspective of the parent firm) has provided the literature with some interesting findings. For instance, according to Ahn and Walker (2007), the board structure does matter in the decision to spin off a unit from the parent firm. In particular, they have found that more heterogeneous boards will be more inclined toward choosing the spin-off (Ahn and Walker, 2007). Chemmanur, Krishnan, and Nandy (2014) looked at productivity as a result of the spin-offs and found that total productivity usually starts to increase immediately following the spin-off event (Chemmanur et al., 2014). Iturriaga and Cruz (2008) have examined antecedents of corporate spin-offs and found that spin-offs will become a preferred restructuring technique for parent firms in which social networks and new knowledge are able to be effectively utilized.

Klepper and Sleeper (2005) have looked at some other antecedents of spin-offs and found that the firm age and employees' industry-related knowledge may become influential in the

choice of spin-off decisions. Semadeni and Cannella (2011) have examined post-spin-off relationships between the parent firm and child firm and found that the continued parental ownership within the child firm will negatively affect the market performance of the child firm. Veld and Veld-Merkoulova (2004) have looked at the long-run superior performance in the context of European spin-offs and concluded that an increased industrial focus will positively affect the abnormal returns following the spin-off event. Wruck and Wruck (2002) examined this phenomenon from the perspective of human capital and found that the top management composition of the child firm (governance expertise and top management experience) will be related to the value created by the spin-off event. Table 1 provides a comprehensive overview of studies focusing on the value creation via spin-offs in the literature.

Table 1 Summary of the literature review of spin-offs

STUDY	RESEARCH QUESTIONS	THEORETICAL PERSPECTIVES USED	DVs & IVs	BRIEF SUMMARY OF FINDINGS (quoted from cited studies)
Abarbanell, Bushee, & Raedy, 2003	Do investment strategy and fiduciary restrictions affect institutional investor demand for stocks after spin-offs?	Institutional theory.	DV: Size-adjusted cumulative abnormal return. IVs: Firm characteristics.	*Spin-off parents experience abnormal trading volume on the effective date of the spin-off, and the change in total institutional holdings is significantly positively associated with the abnormal volume. *There is a strong negative relation between changes in institutional holdings and abnormal volume over all accumulation horizons. *Purchases of small post-spin-off parents by small-growth institutions with low prior ownership leads to economically meaningful positive abnormal returns on the effective date of the spin-off. *While significant changes in institutional holdings around spin-offs are associated with abnormal trading volume levels immediately after the spin-off, the large volume of institutional investor rebalancing generally does not lead to price increases (declines) in the parent (subsidiary).
Ahn & Walker, 2007	Is there any relation between corporate governance and the spin-off decision as an alternate way to examine the diversification discount controversy?	Agency theory, diversification.	DV: Change in market-to-book and excess value. IVs: Financial performance, diversification, governance characteristics.	*Firms are more likely to engage in a spin-off if they have higher percentage of ownership by outside board members. *The size of a conglomerate's board and the average age of the board's members are both inversely related to the probability of the firm engaging in a spin-off. *More heterogeneous boards are more likely to spin off a division. *Spin-off firms exhibit significantly greater improvements in their market-to-book ratios and in their excess values as compared to their matched firm peers.
Bergh & Sharp, 2015	How do outside blockholding owners affect divestitures, specifically how these owners might shape the ways in which their firms divest?	Agency theory.	DV: Divestiture type (spin-off vs. sell-off). IVs: Outside blockholder ownership, divestiture size, managerial ownership, CEO duality.	*When outside blockholders can more exercise their self-interests over managers, such as when their stockholding concentrations are higher, then divesting firms tend to adopt divestiture through spin-off but only when the divested units are large. *When outside blockholder stock concentrations are lower, allowing managers more latitude to act on their own self-interests, they tend to use divestiture through sell-off, particularly when the businesses involved are small.

				*The incentive alignment scheme of managerial ownership has no moderating influence on the outside blockholder concentration and spin-off adoption decision, nor does CEO duality.
Bergh, Johnson, & Dewitt, 2008	How do managers select between corporate restructuring implementation alternatives (spin-offs vs. sell-offs)? How do those decisions influence the profitability of the restructuring event?	Information asymmetries, diversification.	DV: Stock market reaction to restructuring event. IVs: Relatedness of restructured assets, diversification of business lines.	*Sell-offs best protect the restructuring firm's management from a potentially disadvantageous information asymmetry with well-informed buyers and lead to the highest financial result. *Spin-offs might be viewed positively by the stock market, as they would also reduce diversification, but these actions would not be optimal for the highly diversified restructuring firm. *Spin-offs also tend to have a lower valuation than sell-offs for the more diversified firms. *When firms that have high specialization and low levels of diversification (single businesses, dominant businesses, related constrained businesses) adopt spin-offs, the implementation method that mitigates their sources of asymmetries, they tend to realize higher financial performance than when such firms use sell-offs. *When firms that have low specialization and high levels of diversification (related-linked, unrelated businesses) use sell-offs, they tend to have higher financial performance than their peers that adopt spin-offs.
Chemmanur, Krishnan, & Nandy, 2014	What are the effects of corporate spin-offs on productivity?	Organizational efficiency, agency theory.	DV: Total Factor Productivity (TFP) at the plant level. IVs: Total employment, total wage, material costs, sales, new capital expenditure, rental and administrative expenses, turnover, market share, industry growth, sales volatility, Herfindahl index.	*While productivity improvements occur immediately after the spin-off in non-acquired plants, they start only after being taken over by another firm in acquired plants. *Unrelated spun-off entities show greater improvements in productivity compared to related spun-off entities. *The total factor productivity (TFP) of plants belonging to spin-off firms (parent or spun-off subsidiary) increase, on average, following the spin-off. This increase in overall productivity begins immediately, starting with the first year following the spin-off, and is long lived. *Plants that are spun off do not underperform parent plants prior to the spin-off; in fact, spun-off plants perform better than the parent plants prior to the spin-off. *Acquired plants experience improvements in productivity only after post-spin-off acquisitions (rather than immediately after the spin-off).

				<p>*Productivity improvements following spin-offs arise primarily in plants continuing with the parent firm (and not in those belonging to the spun-off entity).</p> <p>*Post-spin-off productivity improves in both related and unrelated spin-offs, with unrelated spun-off entities showing greater improvements in productivity compared to related spun-off entities.</p>
Chemmanur & Yan, 2003	What are the performance and value improvements following spin-offs, based on corporate control consideration?	Information theory.	Theory paper.	<p>*A spin-off increases the incumbent's chance of losing control to a rival. This motivates the incumbent either to work harder at managing the firm (in order to avoid any loss of control), or to relinquish control of one of the firms resulting from the spin-off (either immediately following the spin-off or subsequently in a control contest).</p> <p>*Spin-offs will be associated with positive announcement effects and increases in long-term operating performance.</p>
Clarysse, Wright, & Van de Velde, 2011	How do different characteristics in the technological knowledge base at start-up influence spin-off performance?	Exploration and exploitation of knowledge.	<p>DV: Venture growth by type of spin-off (university vs. corporate).</p> <p>IVs: Scope, newness, tacitness, relatedness of technology.</p>	<p>*Corporate spin-offs grow the most if they start with a specific narrow-focused technology sufficiently distinct from the technical knowledge base of the parent company and that is tacit.</p> <p>*University spin-offs benefit from a broad technology that is transferred to the spin-off.</p> <p>*Novelty of the technical knowledge does not play a role in corporate spin-offs but has a negative impact in university spin-offs unless universities have an experienced technology transfer office to support the spin-off.</p>
Cusatis, Miles, & Woolridge, 1993	Do spin-offs create value by providing a relatively low-cost method of transferring control of corporate assets to acquiring firms?	Value creation.	<p>DV: Stock returns of both spin-offs and parent firms (matched-firm adjusted returns).</p> <p>IVs: Takeover variable, the market value of the parent or child, the degree of restructuring as measured by the size of the spin-off in relation to the parent.</p>	<p>*Spin-offs provide a low-cost method of transferring control of corporate assets to bidders who will create greater value.</p> <p>*One-third of the spin-off-parent combinations are involved in takeover activity within three years of the spin-off.</p> <p>* For spin-offs, most of the takeover activity occurs in years 2 and 3, the years of strongest stock performance. For parent firms, in contrast, the majority of takeovers occur within the first two years, which is when parent-firm stock returns are highest.</p> <p>*Value created by spin-offs is attributable to the returns associated with the spin-offs and/or parents involved in takeover activity.</p>

Desai & Jain, 1999	Are stock market gains associated with spin-offs in the long run?	Operational efficiency.	DV: Abnormal stock market performance. IVs: Market value, size, book-to-market value.	*Announcement-period abnormal returns are positively associated with the change in focus and the change in operating performance. *The change in operating performance is positively associated with the change in focus.
Dittmar, 2004	How do spin-off firms determine their initial capital structure?	Trade-off theory.	DV: Capital structure levels. IVs: Leverage ratios, debt ratios, other firm characteristics.	*The average debt to value of the subsidiaries is significantly lower than that of pre- and post-spin-off parents. *The subsidiary's and the pre- and post-spin-off parent's leverage ratios are higher than those of their industry; however, subsidiaries' industry-adjusted leverage ratio is significantly lower than the parents' industry-adjusted ratio. *The subsidiaries have lower leverage ratios if they are small with high growth opportunities. However, when the subsidiaries are large and have higher collateral value, they have higher leverage ratios than do their parents.
Hite & Owers, 1983	Does security price react due to the announcement of spin-offs?	Transaction cost economics.	DV: Market-adjusted excess returns. IVs: Timing, size, reason given for the spin-off.	*Gains to stockholders seem quite large in comparison to the fraction of the firm spun off. *Excess return patterns differ qualitatively across the groups over broad intervals.
Huson & MacKinnon, 2003	What is the effect of corporate spin-offs on the trading environment of the stock of firms that spin off units?	Information asymmetry, transaction cost economics.	DV: Change in the relative effective spread for the parent firm. IVs: Change in average price, focus, log of relative size of subsidiary.	*The size of the subsidiary does not affect the impact of the focus variable on the change in trading costs. *Separating unlike business units increases trading costs. *Transaction costs increase following spin-offs.
Ito, 1995	Can spin-offs be used to achieve corporate growth objectives?	Transaction cost economics.	Theory paper.	*Spin-offs are suitable under certain conditions, such as homogeneous society, informal contracts, stable shareholders, and the lack of an external labor market. *Spin-offs appear to be more likely created (1) when the separation of organizations produces the scope economies, higher profit, and growth opportunity, and (2) when the parent firm with low technology creates a higher technology business.

Iturriaga & Cruz, 2008	What are the antecedents of corporate spin-offs?	Resource-based view.	<p>DV: Possibility to launch a corporate spin-off.</p> <p>IVs: Social networking, investment on knowledge, level of diversification.</p>	<p>*Spin-offs increase managers' incentives to exploit new ideas created within the firm's network.</p> <p>*Spin-offs enable managers to exploit accumulated knowledge through the rapid implementation of innovations.</p> <p>*Spin-offs create value by allowing managers to focus on the parent firm's core business and competences.</p>
Klepper & Sleeper, 2005	Why are spin-offs more prevalent in some industries than others?	Organizational knowledge perspective.	<p>DV: Probability that over its lifetime a firm has made one or more spin-offs.</p> <p>IVs: The total number of years the firm produced lasers, firms that were acquired by laser and non-laser firms respectively, pre-existing entrants that had at least 10 patents in the five years prior to entry in lasers.</p>	<p>*More successful firms, which are presumed to have acquired greater knowledge, have higher spin-off rates.</p> <p>*Spin-offs fall off over time in types of lasers in which knowledge became more embodied in physical capital, making it less accessible to employees.</p> <p>*Spin-offs were more likely in environments in which employees had more knowledge to draw on.</p> <p>*Spin-offs were most likely when firms reached middle age.</p>
Krishnaswami & Subramaniam, 1999	Does the separation of a firm's divisions into independently traded units through a spin-off enhance value due to mitigating information asymmetry about the firm?	Information asymmetry, transfer of wealth.	<p>DV: Cumulative abnormal returns.</p> <p>IVs: Total assets, cash flow from operations, operating income, market-to-book ratio, debt ratio, unrelated entropy, information asymmetry.</p>	<p>*Firms that engage in spin-offs have higher levels of information asymmetry compared to their industry and size-matched counterparts, and the information problems decrease significantly after the spin-off.</p> <p>*The gains around spin-offs are positively related to the degree of information asymmetry.</p> <p>*Firms with higher growth opportunities and firms in need of external capital show a higher propensity to engage in spin-offs.</p>
Maxwell & Rao, 2003	Do spin-offs expropriate wealth from bondholders?	Information asymmetry, managerial efficiency.	<p>DV: Abnormal stock returns.</p> <p>IVs: Firm size, market-to-book ratio, debt-to-</p>	<p>*Larger spin-offs, as measured by assets, are related to larger gains to stockholders.</p> <p>*Cross-industry spin-offs bring significantly greater stock returns.</p>

			book equity, debt-to-market value of equity.	
McKendrick, Wade, & Jaffee, 2009	How do spin-offs affect the technological performance of their parents?	Organizational change theory, structural inertia theory.	DV: Rates of innovation for hard disk drive producers. IVs: spin-off dummy, spin-off clock, average technology of the spin-off.	*The spin-off frontier ratio (average technology of a firm's spin-offs) has a negative effect on the innovation rate. *When the technology of the spin-off is more sophisticated, the parent firm's technological performance initially slows because of the disruptive effect of key technical personnel leaving the firm. As time passes, however, the negative effect begins to reverse itself because of the positive reputational effects of having a higher-quality spin-off.
Michaely & Shaw, 1995	How do firms choose between a spin-off and an equity carve-out as a way to divest assets?	Transaction cost economics, efficiency perspective.	DV: Short-term and long-term performance (excess returns). IVs: total assets, change in assets, ROA, debt/assets, dividend yield, cash flow/asset, current ratio.	*Both groups' (spin-off vs. carve-out parent) return on assets decreases and their stock price does not keep up with market performance. *Both the financial and stock performance of the carve-out parents are significantly stronger than that of spin-off parents. *Relatively stronger firms use a carve-out instead of a spin-off.
Miles & Rosenfeld, 1983	What is the effect of a voluntary spin-off announcement on shareholder wealth?	Shareholder wealth perspective.	DV: Mean adjusted return (MAR), cumulative average adjusted return (CAAR). IVs: Spin-off size, interval period.	*Spin-off announcements have a beneficial effect on shareholder wealth. *The spin-off news is fully impounded in stock prices within a relatively short time. *The effect of minor spin-offs on shareholder wealth appears small relative to the major spin-offs.
Parhankangas & Arenius, 2003	What is the complementarity of the resource base of the parent firm relative to its spin-off, the intensity of collaboration between the parent and the spin-off, and the dependence of the spin-off firm on	Resource-based view, resource dependence theory.	DV: Post-spin-off growth. IVs: Interview questions on technological, production, and marketing plus distribution complementaries.	*Related spin-off ventures (spin-offs serving new markets and restructuring spin-offs) are more often able to launch a product prototype, produce products at a commercially viable scale, and build well-functioning customer relationships by the time of the spin-off than are totally unrelated spin-offs (the new technology group). *Being able to get access to complementary resources of the parent firm is highly beneficial for the new venture. *Synergy effects between the spin-off venture and the parent firm are susceptible to constant change. While initiating a technology-

	the resources provided by the parent firm?			based new venture, parent firms are often ignorant of all the possible commercial applications of the technology being developed.
Sapienza, Parhankangas, & Autio, 2004	What are the effects of knowledge relatedness on the post-spin-off growth of firms spun off from industrial parent firms?	Knowledge-based view, learning perspective.	DV: Post-spin-off growth. IV: Knowledge relatedness.	*Production and technological knowledge relatedness are linked to growth in the curvilinear manner, as predicted. Marketing knowledge relatedness also exhibits this pattern; however, the relationship is not significant.
Semadeni & Cannella, 2011	Does parent involvement in the spin-off benefit the performance of the child?	Transaction cost economics, Agency theory.	DV: Market performance (shareholder returns) for the child firm. IVs: Monitoring, ownership, prior parent-child relationship.	*Continued ownership by the parent firm has a negative effect on child firm market performance. *Modest oversight by the parent firm is positively related to child firm market performance. *There is no statistical difference between having either a board member or a chairman of the board from the parent firm; however, when both a board member and chairman of the board are from the parent, spin-off market performance is negative.
Seward & Walsh, 1996	What is the role of voluntary spin-offs in the design of efficient internal corporate control mechanisms?	Agency theory, shareholder wealth effects perspective.	DV: Abnormal returns. IVs: CEO identity, CEO compensation, board structure.	*Selection of new CEOs, the design of their compensation contracts, the staffing of BoDs, and compensation committees in spun-off firms can be seen as ex ante efficient; however, these control mechanisms are not strongly related to the observed positive market reactions to the spin-off announcements.
Slovin, Suska, & Ferraro, 1995	What are the valuation effects on firms in the same industry as entities that are the subject of carve-outs (initial public offerings of subsidiary equity), spin-offs, and asset sell-offs?	Asymmetric information theory.	DV: Average excess returns. IVs: firm size (parent, parent rival, unit, unit rival), offer size.	*Spin-off announcements are favorable signals about industry value. *There are positive returns for rivals of spun-off units and normal returns for rivals of sold-off units. *Rivals of parent firms are not affected by announcements of carve-outs, spin-offs, or sell-offs.
Veld & Veld-Merkoulova, 2004	Are the European spin-offs associated with long-run superior performance?	Information asymmetry theory, market efficiency perspective.	DV: Long-run excess returns (CAR). IVs: Industrial focus, information asymmetry, shareholder rights, geographical focus, relative size.	*The announcement of a subsequently completed spin-off is associated with a positive abnormal return of 2.66% over a three-day window. *Abnormal returns are positively related to an increase in the industrial focus. *There does not seem to be a relationship between abnormal returns and the level of information asymmetry at the time of the spin-off.

Walter, Auer, & Ritter, 2006	What are the impact of network capabilities and entrepreneurial orientation on the university spin-off performance?	Networks theory.	<p>DV: Spin-off performance via a one-item survey.</p> <p>IVs: Network capabilities, entrepreneurial orientation.</p>	<p>*A spin-off's organizational propensities and processes that enhance innovation, constructive risk taking, and proactiveness in dealing with competitors do not enhance growth and secure long-term survival.</p> <p>*Network capabilities moderate the relationship between entrepreneurial orientation and organizational performance.</p>
Woo, Willard, & Daellenbach, 1992	Can significant positive cumulative abnormal returns via spin-offs vs. sell-offs be expected to accrue to the divesting firm, the divested unit, or both?	Agency theory.	<p>DVs: Return on assets, market-to-book ratio, inflation-adjusted sales growth.</p> <p>IVs: Related vs. unrelated businesses.</p>	<p>*No change in pre- and post-spin-off performances is observed except for the decline in profitability return on assets.</p> <p>* Divested units that are unrelated to their parents prior to spin-off report deterioration in their performance.</p>
Wruck & Wruck, 2002	Do firm-specific human capital and human capital, in the form of governance expertise and top management experience, affect the composition of spin-off firms' top management?	Economics theory.	<p>DV: Announcement period abnormal return.</p> <p>IVs: Insider and outsider ratio, CEO duality, TMT tenure at the parent firm, industry homogeneity index, cross-industry spin-off, difference in industry profitability.</p>	<p>*Firm-specific human capital and human capital, in the form of governance expertise and top management experience, affect the composition of spin-off firms' top management.</p> <p>*Spin-off top management structure is related to the value created by a spin-off.</p> <p>*Spin-off firms managed only by division heads and other lower-level managers might lack critical governance expertise and top management experience, while the combination of a division head and a top insider might effectively combine firm-specific human capital with governance expertise.</p>

2.2 Agency Theory Arguments

The agency theory examines “the relationship between one party (principals) and who delegates work to another (agents)” (Eisenhardt, 1988: 489). According to this well-established theory in the field, by optimally governing relationships between these two parties (Eisenhardt, 1988), agents will be prevented from promoting their own interest through promoting the idea of maximizing shareholders’ wealth (Fama and Jensen, 1983; Jensen and Meckling, 1976; Joseph et al., 2014). Basically, the agency theory explains why “owners and managers have contradictory risk preferences which might lead to managerial decisions that depart from shareholder preferences” (Connelly et al., 2010: 1562).

According to Abor et al. (2011), agency problems mainly occur due to “the separation of ownership from the control” (p. 62). In the context of spin-offs, this might become a critical issue that affects the firm’s market valuation. After completion of this corporate restructuring process, it is extremely important to ensure that managers’ decisions align with the interests of corporate shareholders (Abor et al., 2011). Unless proper alignment exists, managerial opportunism may take place, which will most likely ruin the main idea of shareholder value creation. Bergh and Sharp (2015) echo these arguments by stating that the agency theory provides an important basis for explaining “attributes of the divestiture transaction, alignment incentives, and the structure of the divesting firm’s governance systems” (p. 7). In other words, they argue that this theory gives a meaning to the divestiture transaction as long as its rules are properly applied within the firm. For instance, from the perspective of the directors, they have an important responsibility for “harmonizing manager-shareholder conflicts of interest” (Daboub, Rasheed, Priem, and Gray, 1995: 149) by applying principles of agency theory.

Eisenhardt (1989) argues that agency problems occur in two particular conditions: “when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing” (p. 58). The main question to be answered here is how to better handle conflicting interests between principals and agents via utilizing effective governance practices (Eisenhardt, 1989), which might include “the structure of law governing corporate behavior and its attendant legal apparatus, monitoring mechanisms (such as the board of directors), and enforcement mechanisms (such as the market for corporate control and the managerial labor market)” (Hill and Jones, 1992: 132). Dawar (2014) and Gomez-Mejia and Balkin (1992) also assert that since the main assumption in agency problems is that both parties (principals and agents) act in their own interest, principals need to implement effective monitoring mechanisms to align interests of agents with those of owners of the firm. If this is to be implemented successfully, the risk of experiencing agency issues may be significantly reduced, and therefore, the firm can achieve positive performance outcomes.

The agency theory proves to be particularly important for corporate spin-offs. Ahn and Walker (2007) argue that when results of diversification are not satisfying in terms of value creation due to agency-related conflicts, spinning off that division will be preferred by the corporate parent (Ahn and Walker, 2007). In this case, the agency theory helps better understand determinants of value creation for both the corporate parent and its child with having a clear goal of maximizing shareholder value and increasing the overall valuation of the firm after the spin-off. Additionally, Semadeni and Cannella (2011) argue that after being spun off from its corporate parent, the child firm becomes an independent entity and will require careful corporate oversight. They also state that “spin-off events alter ownership and monitoring for child firms” (Semadeni and Cannella, 2011: 1085). This statement provides clear evidence regarding the

importance of agency theory in the context of spin-offs. Therefore, while assessing the change in market valuation of the child firm, factors related to corporate monitoring and ownership structures will be conceptualized by utilizing arguments of the agency theory in this research.

2.3 Resource Dependence Theory Arguments

As originators of this theory, Pfeffer and Salancik (1978) argue that understanding firm behavior depends on understanding the context in which that behavior occurs. For instance, from the perspective of the board of directors, this theory helps explain how to establish information channels between the firm and its external environment as well as the legitimacy via board members' ties to critical external resources valuable to the firm (Pfeffer and Salancik, 1978). Arthurs, Busenitz, Hoskisson, and Johnson (2009) emphasize the importance of resource dependence theory by describing it "as a means to manage the organization's dependence and reduce environmental uncertainty" (p. 850). They further argue that through external channels that board members possess, firms might be able to have better resource accessibility (Arthurs et al., 2009). Hillman et al. (2007) contend that the resource dependence theory helps to explain why and how different types of board members and executives benefit more than others. Since this is a critical piece of corporate governance, this strategic logic needs to be considered essential while examining antecedents of organizational performance that help to create sustained competitive advantage for the firm (Pugliese, Minichilli, and Zattoni, 2014).

According to Hallen, Katila, and Rosenberger (2013), "firms depend on their environments for resources; but environments are not always dependable" (p. 1078); as a consequence of this situation, firms are expected to come up with strategic ways to have control over critical resources that they may need via reducing their dependency on other sources. In the

literature, scholars have particularly focused on both human and relational capital in the context of the board of directors while explaining how board members can utilize their ties in order to provide the firm with valuable resources to function better (Dalziel, Gentry, and Bowerman, 2011). In addition, Provan, Beyer, and Kruthbosch (1980) clearly state that the resource dependence of the firm has important implications on the organizational power. Therefore, this theory provides the firm with important cues regarding how to acquire valuable resources effectively and manage their dependencies efficiently (Campling and Michelson, 1998).

In the context of corporate spin-offs, the arguments of this theory are expected to play a significant role in the market performance of the child firm. In particular, having access to valuable resources via connections of board members and executives may help spun-off subsidiaries establish their legitimacy in a shorter time frame and therefore take stronger steps toward becoming more competitive (Bruneel et al., 2012). After being spun off from its corporate parent, the child firm will need to proactively search for external resources and utilize them as efficiently as possible to create sustained growth. In other words, due to their stand-alone status, spun-off subsidiaries will be responsible for gaining all resources necessary to prove that they can indeed succeed independent of their parents. Therefore, the resource dependence theory holds a great deal of importance for spin-offs while examining effects of strategic resources to the firm on the improvement of its market valuation. Via understanding and applying principles of this theory correctly, the firm can “gain access to scarce resources and information” (Boyd, 1990: 419).

2.4 Upper Echelons Theory Arguments

The upper echelons theory argues that “organizational outcomes are viewed as reflections of the values and cognitive bases of powerful actors in the organization” (Hambrick and Mason, 1984: 165). The arguments of this theory indicate that cognitive bases of top decision-makers (such as CEOs) influence their choices, which is also expected to affect firm performance through creating better value (Quick, Gavin, Cooper, and Quick, 2000). In his update of the upper echelons theory, Hambrick (2007) suggests that examining top executives’ behavior in the team setting will help better understand how they process complex information and make their strategic decisions.

Waldman, Javidan, and Varella (2005) argue that executives’ choices on organizational issues, which tend to be complex and ambiguous, are influenced by their perceptions and cognitive capabilities. Buyl, Boone, and Matthyssens (2011) echo this argument by stating that in the context of strategic renewal and adaptability, the role of executive cognition tends to increase, which is expected to affect decision-making processes. Geletkanycz and Sanders (2012) further say that “executives will filter information about the firm, its environment, and competitors through the lens of their experience and values” (p. 519). These arguments clearly indicate that the demographics of executives affect their strategic choices and therefore firm performance (Certo, Lester, Dalton, and Dalton, 2006).

The upper echelons theory relies on the main argument that “past experiences and interpersonal networks of executives affect their current actions” (Lester, Hillman, Zardkoohi, and Cannella, 2008: 1000). In particular, top management team members’ both observable and unobservable characteristics are expected to influence both the firm behavior and performance

outcomes (Ling, Simsek, Lubatkin, and Veiga, 2008). In the context of spin-offs, Wruck and Wruck (2002) argue that restructuring TMTs might become necessary after the corporate separation due to the recently independent structure of the firm. By relying on their experiences (industry level and/or firm level), knowledge, skills, and abilities, top executives of the child firm are expected to become a critical part of this value creation process by effectively and efficiently running all business operations as a stand-alone company (Wruck and Wruck, 2002).

According to Hambrick and Stucker (1999), members of the TMT become particularly important for the child firm. Because of its newly independent status, the child firm may start to face external uncertainties. Under these unclear conditions, top executives will need to monitor the environment in order to establish a fit between the firm and norms of the external environment as well as consumers' expectations. Top managers will serve as "strategic mediators" between the firm and its external environment. Besides, top executives of the child firm will play a vital role while establishing the firm's self-identity via utilizing their skill-set and knowledge base (Hambrick and Stucker, 1999). This also means that executives' understandings and interpretations on organizational issues will become very critical while trying to find the "path for success"; therefore, via looking into their characteristics, it will be possible to examine how these top management team members can contribute the value creation process and influence organizational outcomes.

2.5 Hypotheses Development

Agency theory proposes that to maximize shareholder wealth, agency cost needs to be minimized. This can be achieved through establishing effective governance practices within the

child firm after the separation from its corporate parent so that interests of both principals and agents will be aligned. Per resource dependence theory, after the separation from its parent, the child firm will need to establish information channels with its external environment and therefore have accessibility to resources necessary for growth. This will also enable the child firm to better establish its reputation and legitimacy in the industry as well as better deal with uncertainties in the environment. The upper echelons theory proposes that top decision-makers' strategic choices, which stem from their cognitive bases, will become important determinants of the value creation process. These choices will enable the child firm to meet demands coming from its external environment and in turn create better wealth for the firm. Therefore, this integrative approach including three well-established theories has been used in this empirical research to develop hypotheses examining governance-related determinants of the change in market valuation of the child firm.

2.5.1 Board characteristics of spun-off subsidiaries

The board of directors can critically influence the success of the company, and how boards are structured can affect corporate outcomes (Daily and Schwenk, 1996). Dalton and Kesner (1987) argue that the board is composed of “directors who have the fundamental charter at law to counsel, evaluate, and control company management” (p. 34). The board also provides the firm with resources that help it operate more efficiently (Hillman and Dalziel, 2003). In this research, the board independence and size as well as board members' age and external directorships are all examined to understand how board characteristics might affect the change in market valuation of the spun-off subsidiary.

2.5.1.1 Board independence

According to Joseph et al. (2014), board independence has become a rising governance tool with the notion of “monitoring the CEO to assure that his or her decisions are aligned with shareholders’ interests” (pp. 1836-1837). This governance mechanism is rooted in the agency theory, arguing that without a proper alignment of interests between principals and agents in organizations, wealth maximization of shareholders cannot be achieved (Fama and Jensen, 1983; Jensen and Meckling, 1976). In addition, from the perspective of decision-making, Pathak et al. (2014) argue that an independent board is expected to better increase the likelihood of making good strategic decisions via aggressively considering interests of shareholders.

In the management literature, board composition has generally been examined under three main categories: inside directors, outside directors, and affiliated directors (Dalton, Daily, Johnson, and Ellstrand, 1999). Joseph et al. (2014) argue that having inside directors on the board will provide outside directors with more direct information regarding internal operations of the firm. Without this information flow, outside directors will have to be solely dependent on the information and explanation provided by the CEO regarding firm strategies and performance goals (Joseph et al., 2014), which may result in organizational inefficiencies. Therefore, the existence of inside directors on the board should play an important role on the achievement of positive performance outcomes.

On the other side, as Majjohocki and Strange (2012) argue, outside directors are also essential on the board for two main reasons: “to effectively oversee managers during the strategy implementation process and ensure that the firm pursues strategies that are in the best interests of all shareholders” (p. 885). In other words, outside directors’ critical role includes promoting organizational efficiency by keeping the agency cost as low as possible, especially in growing

firms (Kor, 2006; Majjohocki and Strange, 2012; Sun, Lan, and Ma, 2014). Furthermore, Westphal (1998) believes that a greater representation of outside directors on the board will be considered a strong signal for effective governance mechanisms since outsider evaluations of strategic decisions made by the top management team are expected to be more objective. Therefore, the representation of outsiders on the board should be considered very important. Independent boards basically help to mitigate problems between principals and agents within organizations and therefore improve operations (Liu, Miletkov, Mei, and Yang, 2015).

Independent directors are also expected to “perform a better monitoring role than affiliated or inside directors in increasing shareholder welfare” (Bradley and Chen, 2015: 15). Both of these arguments clearly indicate that board independence is an important element for shareholder value creation and organizational effectiveness. In the context of spin-offs, after the separation from its corporate parent, the child firm’s executive team will have to handle all operations on its own and be expected to make the best possible strategic choices. While doing that, these executives might have confusion in terms of choosing the “best” strategic options that will help the child firm grow since this top team is also new at managing a recently independent entity. Having concerns in these regards may even lead to opportunism, with managers keeping the risk factor as low as possible to protect their own wealth. At this point, independent directors will come into play by providing these executives with an effective monitoring and counseling mechanism so that they have a well-defined understanding of how to best act in the interest of shareholders. This strategic outcome can be achieved through having a board that consists of a majority of independent directors. Therefore, I contend that independent boards will have a positive impact on change in market valuation of the child firm.

Hypothesis 1: Having an independent board of directors positively influences the change in market valuation of the child firm.

2.5.1.2 Board members' external directorships

Board interlocking refers to external ties that board members possess (Moore et al., 2012), which basically defines the number of board memberships that directors hold outside of the organization. As Moore et al. (2012) argue, board interlocking may come with several benefits to the organization, including “obtaining financial resources needed for growth, restructuring expertise, and the establishment of relationships with a variety of stakeholders” (p. 925). Connelly, Johnson, Tihanyi, and Ellstrand (2011) also argue that directors who hold directorship positions at other corporations are expected to better “observe the behavior of other firms and reduce uncertainty associated with strategic initiatives” (p. 689). Therefore, these external directorships should be considered critical resources for the firm.

Especially in changing environments, where new rules and regulations might be in effect, board members' external corporate ties will help them better access valuable information and better deal with ambiguities during decision-making processes (Johansen and Pettersson, 2013). In addition, Shropshire (2010) argues that the board's external ties will also help the firm better establish its legitimacy via utilizing those corporate connections at the board level. By connecting these arguments with the resource dependence theory, it makes sense to suggest that external corporate ties of board members will provide the firm with “interorganizational exchange of resources including capital, market access, and information” (Phan et al., 2003: 339), which helps to reduce impacts of uncertainty and achieve superior performance.

In the definition provided by Useem (1980), the interlocking directorate is described as “networks of people serving on the boards of directors of two or more corporations” (p. 51); however, in this research, the definition provided by Moore et al. (2012) is being used by only focusing on the number of external corporate ties (or board memberships) of directors. In the context of spin-offs, separation from the parent firm might bring several challenges to the child firm, including uncertainty in business operations and managerial practices as well as establishing legitimacy for becoming an “accepted” member of the industry. If board members of the child firm hold directorships at other corporations, this will help them “identify emerging strategies, discover new possibilities, and learn new ways of approaching problems” (Connelly et al., 2011: 689). In other words, external corporate ties of board members will serve as strategic aids while solving problems and formulating strategies. In addition, since these newly independent entities are in urgent need of valuable information about the industry, including about their rivals and organizational resources, external corporate ties of directors will truly help to identify and access those resources and information. Having all of these will enable the child firm to take strong steps toward establishing its credibility in the market and improving its performance. Basically, these corporate ties will serve as strategic communication channels for gaining information and resources from the external environment of the child firm. Besides, by following signaling theory, it can be argued that these external ties of directors can signal the board effectiveness to the market (Boyer and Molina, 2008), which may expedite the process of legitimacy. Therefore, board members’ external directorships will have a positive impact on the change in market valuation of the child firm.

Hypothesis 2: External directorships of board members positively influence the change in market valuation of the child firm.

2.5.1.3 Board size

Goodstein, Gautam, and Boeker (1994) argue that having a larger board will provide the firm a variety of perspectives that help to better shape the corporate strategy. They also argue that once the board size is getting larger, there is going to be a more diverse and increased number of expertise and resources available to the organization (Goodstein et al., 1994). Furthermore, according to Certo (2003), as this size increases, there will be more possibilities for placing a larger number of prestigious directors on the board. All these factors demonstrate the importance of board size as a critical governance element in terms of providing the firm with the accessibility of valuable resources stemming from directors' knowledge and expertise in the field (de Villiers, Naiker, and van Staden, 2011).

Larger boards tend to put emphasis on understanding and assessing conditions of the external environment (Beekun, Stedham, and Young, 1998). This external focus of directors usually stems from their ability to "connect the dots" via utilizing their corporate ties between the organization and its environment (Beekun et al., 1998). Goodstein et al. (1994) echo this argument by stating that larger boards "can significantly inhibit the board's ability to initiate strategic actions" (p. 242). They also argue that "the incorporation of diverse constituencies and stakeholders into the board facilitates the acquisition of critical resources for the organization" (Goodstein et al., 1994: 243). These arguments clearly indicate that the number of directors on the board can make a difference on a firm's actions and, in turn, performance.

In the context of spin-offs, after becoming independent, one of the biggest responsibilities of the child firm's top management team is to carefully monitor the external environment and

take strategic actions necessary in order to timely meet its demands. While doing that, their main guidance is going to be provided by the board of directors since each director uses a unique “lens” in analyzing different situations and offering strategic advice to the top team. Once the number and variety of these informational items increase, the top management of the child firm will have different options to choose from. Basically, since larger boards usually include experts on different areas (de Villiers et al., 2011), the child firm will have the advantage of being offered a variety of strategic advice by directors. By considering a very strategic role of the board members, which is to be involved with “defining the firm's business concept, developing a company's mission, and selecting and implementing a company strategy” (Pearce and Zahra, 1992: 412), having a larger number of viewpoints can become more beneficial for the child firm during the process of deciding what strategies may work the best for maximizing the shareholder value.

Therefore, a larger board of the child firm can analyze complicated organizational issues more effectively, find appropriate solutions more promptly, and counsel the top management team by making connections between the firm and its external environment better. Furthermore, the diversity of perspectives and knowledge that can exist in larger boards may help the child firm establish its self-identity and increase its credibility among its competitors. In other words, a larger board is expected to serve as a strategic supporting power for making the child firm a legitimate member of its business community after becoming a stand-alone entity. Therefore, I argue that larger boards will have a positive impact on the change in market valuation of the child firm.

Hypothesis 3: Larger boards positively influence the change in market valuation of the child firm.

2.5.1.4 Directors' age

Upper echelons theory holds that age can be considered a good proxy for the level of risk taking and willingness to initiate changes of executives (Johnson, Schnatterly, and Hill, 2013). They also state that the board age is a “double-edged sword” (Johnson et al., 2013: 238). For instance, Ahn and Walker (2007) argue that younger directors will be more willing to initiate changes, which can be good for organizational performance; however, Platt and Platt (2012) argue that older directors will possess more valuable knowledge due to their experience, which can also be beneficial for organizational performance. In addition, the age factor has been related to information-processing abilities in the literature. According to Child (1974), younger executives might be much better at processing complex information and analyzing it than older executives due to their age-related cognitive abilities. All of these arguments demonstrate that benefits of the age factor may vary depending on the context.

As Kang, Cheng, and Gray (2007) argue, older directors can better provide the firm with “experience, wisdom, and usually economic resources” (p. 196). Their level of experience in the industry as well as strategic guidelines that they can bring to the table at the board meetings are critical success factors for the firm. In addition, older directors can better help the firm improve its reputational capital among its rivals (Ferris, Jagannathan, and Pritchard, 2003). In the context of spin-offs, board members of the child firm will have a responsibility for providing executives with detailed guidance and offering strategic counseling in order to achieve sustained growth and create better shareholder value. Especially after the corporate separation, the top management team of the child firm will need to access all external resources necessary; during this process, utilizing connections of board members with the industry will become vital for both establishing the legitimacy and increasing the performance. This sort of a corporate guidance mechanism can

be particularly provided by older board members due to the level of their expertise and ties in the sector. Therefore, I argue that older boards will have a positive impact on the change in market valuation of the child firm.

Hypothesis 4: Older directors positively influence the change in market valuation of the child firm.

2.5.2 CEO characteristics of spun-off subsidiaries

The CEO is considered “the central strategic decision-maker” (Barker and Mueller, 2002: 783) in the organization. While making critical corporate decisions, these top-level executives utilize their unique decision-making styles, which are related to their cognitive and demographic characteristics (Beber and Fabbri, 2012). In particular, Lewis, Walls, and Dowell (2014) argue that “CEOs have the power and ability to make decisions that might ultimately influence organizational outcomes” (p. 713). Basically, these powerful actors in organizations are expected to have an important influence on firm value (Nelson, 2005). Therefore, it is very important to examine how the CEO of the child firm may influence the change in market valuation of the company.

2.5.2.1 CEO origin

The selection of a new CEO is a strategic choice of the firm depending on whether an internal or external candidate can better meet demands of competitive market conditions (Zhang and Rajagopalan, 2003). As Karaevli and Zajac (2013) argue, if a firm has an outsider CEO, which refers to a CEO being hired externally, he or she can be “more cognitively open-minded, less committed to the status quo, and able to see new courses of action” (p. 1269) as well as more

willing to take bold steps. According to resource dependence and upper echelons theories, fresh perspectives of an outsider CEO can be considered his or her “pre-ability to manage change effectively” (Karaevli, 2007: 682). On the other side, CEOs who are hired internally will be considered an excellent source for the firm-specific human capital. In particular, their knowledge and skill-set tend to “buffer the firm from the disruptive effects of high levels of strategic change” (Zhang and Rajagopalan, 2010: 344). Thus, due to their rich knowledge about the firm, an insider CEO can better communicate issues with top management team members and possibly receive their support more strongly (Shen and Cannella, 2002).

In the context of spin-offs, as a newly independent entity, the child firm may need a CEO who has deep knowledge about the history of the firm performance at the first place. In other words, if the child firm is looking for taking strong steps toward value creation, its CEO will need to be a person who can identify both strengths and weaknesses of the firm compared to its industry rivals due to his or her prior knowledge. In addition to that, an internal CEO who has worked under the parent firm will have the advantage of possessing internal social networks, which can become a critical factor while influencing top team dynamics via receiving the consistent support of the top management team (Karaevli, 2007). For the child firm, this managerial mindset will become very important since creating a strong stand-alone company is going to be a function of a top management team that provides the CEO with strong support and avoids big conflicts. This can be achieved by choosing an insider CEO for the child firm who comes from the parent firm. Therefore, I argue that having an insider CEO will have a positive impact on the change in market valuation of the child firm.

Hypothesis 5: An insider CEO who held a managerial position within the parent firm before the separation positively influences the change in market valuation of the child firm.

2.5.2.2 CEO duality

In the management literature, there have been controversial views regarding effects of CEO duality on firm performance. For instance, Joseph et al. (2014) argue that if both the CEO and chairman of a firm are the same person, this duality at the top level will provide the CEO with a broader authority over the board, including what specific information the board might need to better guide the top management team. On the opposite side, Krause, Semadeni, and Cannella (2014) argue that CEO duality will result in lowering the effectiveness of board monitoring, which is expected to create a negative impact on performance (Jensen, 1993).

From the duality perspective, keeping the CEO and chairman together in one individual may provide the firm with more effective leadership toward formulating strategies and implementing them as well as avoiding potential rivalry and conflicts at the top managerial level (Baliga, Moyer, and Rao, 1996). In other words, since only one person is going to keep all the power in his or her hands (Davidson, Worrell, and Nemec, 1998), this duality will help to “establish a unity of command at the top of the firm, with unambiguous leadership clarifying decision-making authority and sending reassuring signals to stakeholders” (Finkelstein and D’Aveni, 1994: 1081). From the opposite side of the coin, however, if separate persons hold these top positions, this may enable the board to more effectively function while monitoring both the CEO and the top team (Harris and Helfat, 1998), which is also expected to reduce the risk of experiencing agency issues. In other words, splitting up these two high-rank positions will remove possible constraints on the board independence (Baliga et al., 1996). Therefore, depending on the context, the CEO duality vs. non-duality may create opposite effects on the firm’s performance.

In the context of spin-offs, after the separation from its corporate parent, it is going to become critical to have a “higher board oversight” (Krause et al., 2014: 257) so that the board will be able to prevent any agency issues in advance. Unless the board members execute this task effectively, the agency cost may become a big risk while trying to create better value for shareholders. In other words, via having a strong board oversight, opportunistic behaviors of executives might be significantly reduced. From another viewpoint, these spun-off subsidiaries’ future financial performance cannot be clearly estimated due to having no prior records in this regard. Thus, the board of the child firm will become “the primary internal control mechanism for aligning the different interests of shareholder and top management” (Boyd, 1995: 303). This also means that splitting up the CEO and chairman positions will serve as a strategic tool for keeping shareholders’ interests at the top level. Therefore, I argue that CEO duality will have a negative impact on market valuation of the child firm, which means that separating the CEO and chairman positions (non-duality) will positively influence market valuation.

Hypothesis 6: CEO duality (non-duality) negatively (positively) influences the change in market valuation of the child firm.

2.5.2.3 CEO external board memberships

External ties of executives might become critical to firm performance while implementing firm strategies (Geletkanycz and Hambrick, 1997). CEOs as the top decision-makers in organizations usually “make strategic choices under conditions of information overload and ambiguity” (Geletkanycz and Hambrick, 1997: 655). While making those critical choices affecting organizational performance, these top decision-makers might utilize their external ties to acquire a different set of information as well as gain an insight for other

acceptable strategic alternatives (Cyert and March, 1963). Therefore, their external connections will come critical information sources.

Geletkanycz and Boyd (2011) argue that as long as the CEO's external board memberships are aligned with the strategic and environmental challenges his or her firm faces, these ties will become advantageous in terms of offering alternative solutions to those challenges. Especially, via his or her external directorships, the CEO might attain strategic knowledge critical for the industry so that he or she can utilize that information for the sake of the firm (Geletkanycz and Boyd, 2011). Geletkanycz, Boyd, and Finkelstein (2001) further argue that this can be considered an "organizational resource" (p. 890) and might provide the firm with "important legitimacy and status benefits" (p. 890).

In the context of spin-offs, the CEO of the child firm will have to resolve several challenges due to the recently independent status of his or her firm. These challenges, for instance, might stem from the necessity of resources, the uncertainty and ambiguity within the environment, demands of the external environment, rivals' competitive advantages, and managerial practices. Since the CEO is the ultimate responsible executive for the overall success of the firm, his or her external board memberships can significantly help to better understand how to deal with different circumstances and formulate appropriate strategies that other firms have already utilized. In other words, as long as the CEO of the child firm sits on other boards, these external directorships will provide him or her with an additional insight on how other organizations handle their unique challenges and whether their strategies can be applicable within the child firm in order to better support the value creation process. Therefore, I argue that the CEO's external board memberships will have a positive impact on market valuation of the child firm.

Hypothesis 7: The CEO's external board memberships positively influence the change in market valuation of the child firm.

2.5.2.4 CEO age

Some research has found that younger executives are bigger advocates of strategic change (Johnson et al., 2013). In particular, younger executive team members usually support the change (Golden and Zajac, 2001) and new product introductions (Barker and Mueller, 2002) as a part of growth strategies of the firm. In their arguments for upper echelons theory, Hambrick and Mason (1984) state that younger executives are more willing to take risks toward novel practices whereas older executives might prefer being risk averse by embracing conservative approaches. In addition, from the perspective of information-processing abilities, younger executives tend to be better able to integrate and process critical information so that they make critical decisions with more confidence compared to older executives.

In the context of spin-offs, as a consequence of becoming independent, all managerial and operational activities will be run by the new executive team of the child firm. These executives, especially CEOs, are expected to take bold actions without fear and make changes in organizational procedures if necessary. Instead of being completely committed to all those previous business practices before the spin-off event, a younger CEO will be more inclined to adapt new practices within the child firm by making quicker decisions due to his or her mental stamina (Child, 1974). In other words, a younger CEO will not be afraid to try something new and can further push his or her child firm toward innovation. Unless the CEO possesses a perspective that embraces new practices, the child firm may not be successful in surviving as a stand-alone entity in the long run. Therefore, I argue that the CEO age will have a negative

impact on market valuation of the child firm, which means that younger CEOs will positively influence market valuation.

Hypothesis 8: CEO age negatively influences the change in market valuation of the child firm.

2.5.3 Ownership structures of spun-off subsidiaries

Ownership structures might also influence value maximization of the firm (Demsetz and Lehn, 1985). In order to create and achieve an effective monitoring system within the firm, it will be critical to examine what sort of ownership is going to become more beneficial while trying to maximize the firm value (Demsetz and Lehn, 1985). As Demsetz and Villalonga (2001) argue, in general terms, “a firm’s ownership structure reflects decisions made by those who own or who would own shares” (p. 210), and this is to “be influenced by profit-maximizing interests of shareholders” (p. 210). Their argument clearly indicates the importance of different ownership structures on a firm’s value-maximization efforts.

2.5.3.1 Managerial ownership

Dimmock, Gerken, and Marietta-Westberg (2015) argue that higher levels of managerial ownership in organizations might reduce the need for external monitoring. Their argument basically suggests if top managers own a larger share of their company, this will motivate them to better act in the interests of shareholders (Jensen and Meckling, 1976). In other words, if top managers are provided with the share of their firms, they will lean toward choosing strategic actions “that increase the shareholder value” (Alessandri and Seth, 2014: 2066) and pursue “investments that yield benefits to shareholders” (Alessandri and Seth, 2014: 2065).

According to Coles, Lemmon, and Meschke (2012), one important strategy to maximize firm value can be accomplished via having managers own a substantial amount of the firm's stock. By increasing the incentive alignment of managers via offering them long-term incentives, owners of the firm will be able to lower the monitoring cost and provide managers with a better motivation to act in the best interest of shareholders (Chen and Yu, 2012; Florackis, Kostakis, and Ozcan, 2009). A strategic consequence of this kind of ownership structure is to offer "a potential solution to the manager-shareholder agency conflict" (Florackis et al., 2009: 1350). In addition, Boyer and Molina (2008) argue that a high level of managerial ownership serves as a signal of managers' superior abilities, which suggests that the larger managerial ownership will be considered a strong signal for the possession of better managerial talent that can take the company to the next level. On the opposite side, however, Sanders (2001) argue that "stock ownership can result in executives suffering real and immediate reductions in their current wealth" (p. 479). Since any drops in the stock price of the firm are directly linked to immediate reductions in managers' current wealth, managers might prefer choosing less risky options (Alessandri and Seth, 2014). As behavioral decision theorists also argue, if top managers have concerns about losing, they may prefer choosing risk-averse approaches (Sanders, 2001), which may result in the firm not exhibiting a competitive posture.

In the context of spin-offs, primarily following behavioral decision theory, this type of ownership might create serious issues in terms of how to increase shareholder wealth since these spun-off subsidiaries try to operate in the middle of uncertainties and ambiguities due to their recently independent status. Not knowing or being able to predict the prospective wealth of the company may make managers choose from non-risky options in order to protect their own wealth, which also means not providing the firm with opportunities to expand and create further

value. Alternatively, following the arguments of traditional agency theory, managerial ownership might help executives to consider the wealth of owners at the first place, which means to make the best possible decisions that help to improve firm performance. Therefore, I present two competing hypotheses regarding impacts of managerial ownership on the change in market valuation of the child firm.

Hypothesis 9a: Managerial ownership negatively influences the change in market valuation of the child firm.

Hypothesis 9b: Managerial ownership positively influences the change in market valuation of the child firm.

2.5.3.2 Institutional ownership

According to Pathak et al. (2014), managerial opportunism can be reduced by powerful investors as a critical part of effective corporate governance. In particular, institutional investors are expected to play an important “monitoring role with respect to the level of compensation paid to executives” (Victoravich, Xu, and Gan, 2012: 29). Furthermore, Shin and Shin (2012) argue that institutional investors can impact top managers’ decisions regarding their strategic actions such as the corporate restructuring via their “strong information-processing capacity and voting power” (p. 2279). These arguments demonstrate that institutional investors can serve as strategic balancing mechanisms in the governance structure of the firm.

According to agency theory, when institutional investors own a large portion of firm shares, they can more effectively monitor both actions and decisions of the top management team, which will result in reducing “the likelihood that insiders will make sub-optimal decisions”

(Navissi and Naiker, 2006: 249). They also argue that this effective monitoring will help to increase the value of the firm (Navissi and Naiker, 2006). In addition, the “active monitoring” hypothesis in the literature argues that institutions tend to “actively manage their investment portfolio due to the magnitude of wealth invested” (Velury and Jenkins, 2006: 1043). These investors may benefit the firm efficiency in two ways (Duggal and Millar, 1999). The first one is that through their quality research in investing their funds, they can better direct their capital toward a more efficient use; the second one is that their large stake will further motivate these investors to more effectively monitor the top management team via being more involved in strategic decision-making processes. In other words, these institutional investors are expected to help reduce “corporate executives’ opportunism” in organizations (Hoskisson, Hitt, Johnson, and Grossman, 2002: 698).

From the risk-taking perspective, however, Chaganti and Damanpour (1991) argue that if institutional investors own a large number of shares, top managers may attempt to take actions depending on the performance orientation of those investors by keeping the risk factor as minimized as possible in their decisions. In other words, those top managers might just prefer focusing on expectations of those institutions without trying to understand what decisions may be best for their firm’s interests, which might result in losing the big picture of enhancing shareholder value. For instance, from the perspective of institutional activism, due to pension fund managers lacking “expertise to advise corporate management” (Gillan and Starks, 2000: 280), their focus on success parameters of the firm performance might be very different than those of other shareholders. This different understanding might also result in top managers being prevented from using their managerial discretion (Hadani, 2012) while taking critical actions necessary for growth of the firm.

In the context of spin-offs, primarily following the risk-taking perspective, institutional investors might create inefficiencies for the top management team's decision-making processes. More specifically, if institutional investors do not have a good understanding of what the child firm is trying to accomplish by keeping their short-term financial goals at the top, this situation may put significant pressure on top managers, and therefore, they may make major decisions by only considering how to satisfy expectations of those investors. Alternatively, following agency theory, institutional investors can play a vital role in keeping top managers of the child firm on track via effectively monitoring their decisions. This condition will be beneficial for the child firm in terms of proposing a compensation structure for executives that is aligned with the interests of other shareholders as well as helping the firm increase its operating performance by not imposing restrictions on managers' actions. Therefore, I also present two competing hypotheses regarding the impact of institutional ownership on the change in market valuation of the child firm.

Hypothesis 10a: Institutional ownership negatively influences the change in market valuation of the child firm.

Hypothesis 10b: Institutional ownership positively influences the change in market valuation of the child firm.

2.5.4 Industry characteristics as controls

Industry characteristics might provide the firm with unique opportunities to pursue changes in their business strategies (Wiersema and Bantel, 1992). Depending on the industry

context, firms might make different choices to create and protect their competitive posture so that they can improve their performance and survive in the long-run (Ferrier, 2001).

2.5.4.1 Industry advertising intensity

Industry advertising intensity is assessed by the ratio of advertising expenditures over sales within the same industry (Hambrick and Abrahamson, 1995). Advertising intensity can be used as a proxy for the “differentiability in intangible image and positioning” (Hambrick and Abrahamson, 1995: 1434) of the firm. This industry-level characteristic becomes an important success parameter in diverse markets where many product and service offerings exist and their promotion matters (Kotabe, Srinivasan, and Aulakh, 2002). Here, controlling for advertising intensity helps mitigate effects of the product differentiability within the industry that might affect market valuation of the child firm.

2.5.4.2 Industry R&D intensity

Lee (2003) defines R&D intensity as “the R&D expenditures of firms constituting the industry” (p. 143-144). In R&D-intensive industries, firms are encouraged to invest outside of their core business via transferring technological capabilities toward both exploitation and creation of innovation (Blonigen and Taylor, 2000; Gomes-Casseres, 1989). Lee (2002) also argues that the R&D intensity within industries is a clear representation of firms’ technological competence, which is “a measure of the firm R&D productivity” (p. 308). Especially in high-R&D-intensive industries, operational changes via utilizing R&D progress has been considered a primary determinant of the value creation of the firm (Kelm, Narayanan, and Pinches, 1995). In

addition, from the future-looking perspective, the industry R&D intensity can be considered “an indicator of the technological opportunity in an environment” (Kelm et al., 1995: 773). Here, controlling for R&D intensity illuminates technological opportunities within the industry that might affect market valuation of the child firm.

2.5.4.3 Industry dynamism

Industry dynamism refers to the level of instability or turbulence within an environment (Dess and Beard, 1984). In these environments it is very difficult to predict change, which leads to increased uncertainty (Dess and Beard, 1984). Lepak, Takeuchi, and Snell (2003) also argue that when environmental conditions become less stable, it will be complicated for top managers to predict how to efficiently utilize firm resources. In addition, in dynamic industries, “the probability of firm failure and mortality” (Zhang and Rajagopalan, 2004: 489) might increase due to instabilities within the environment. Therefore, controlling for environmental dynamism helps lessen unstable conditions within the industry that might affect market valuation of the child firm.

2.5.4.4 Industry dummy

This dummy variable determines the firm’s industry (Benveniste, Ljungqvist, Wilhelm, and Yu, 2003; Gilley, Greer, and Rasheed, 2004; Howorth and Westhead, 2003; Mohnen and Hoareau, 2003). Here a dummy variable is used to partial out effects of different industry types (manufacturing vs. service) on market valuation of the child firm.

2.5.5 Firm characteristics as controls

Firm characteristics influence “the awareness, motivation, and capabilities of firms” (Haleblian, McNamara, Kolev, and Dykes, 2012: 1049) on the level of their responsiveness to environmental changes. These firm-level characteristics also provide important cues regarding the competitive posture of the firm (Haleblian et al., 2012).

2.5.5.1 Firm size

Firm size can have either positive or negative impacts (Gordon, Steward, Sweo, and Luker, 2000). On the positive side, larger firms tend to go through strategic change and reorientation processes much quicker than smaller ones due to their resource availability (Boeker, 1997). On the negative side, in larger firms the decision-making process might take much longer than in smaller firms due to the involvement of several executive levels during this process (Fredrickson and Iaquinto, 1989). In addition, as Gordon et al. (2000) argue, as firm size increases, management will tend to resist strategic change by persisting in the existing strategic direction of the firm. Therefore, controlling for firm size helps to partial out effects of the resource availability among different spun-off subsidiaries that might affect market valuation.

2.5.5.2 Firm capital intensity

Firm capital intensity can be considered “an important measure of asset parsimony” (Berman, Andrew, Kotha, and Jones, 1999: 490). Hambrick and Abrahamson (1995) argue that capital intensity “induces strategic rigidity and commits firms to long-term courses of action” (p. 1430). Capital-intensive firms possess plants and equipment, which requires both “long-term

adaptive thinking and strategic planning” (Miller and Cardinal, 1994: 1651). Controlling for firm capital intensity helps to partial out effects of having fixed assets at different levels and the level of difficulty in implementing new strategies accordingly, which might affect market valuation.

2.5.5.3 Firm sales growth

Collins and Clark (2003) note that sales growth is a critical indicator of how much “customers value ideas and products that a firm is pursuing” (p. 745). They also call sales growth an important measure of the firm’s financial performance (Collins and Clark, 2003), particularly firm profitability (Brush, Bromiley, and Hendrickx, 2000). In addition, sales growth “provides a useful and visible benchmark to motivate managers” (Brush et al., 2000: 456). Controlling for firm sales growth helps to partial out effects of value-added activities (Batt, 2002) created by spun-off subsidiaries at different levels that might affect market valuation.

2.5.5.4 Firm leverage

Qian and Li (2003) argue that leverage is positively related to capital raised. Tallman and Li (1996), on the other side, argue that higher leverage might result in lower organizational performance. Controlling for firm leverage here helps to partial out effects of the level of total debt compared to assets among different spun-off subsidiaries that might affect market valuation.

2.5.5.5 Year dummy

A dummy variable (Atanasova and Wilson, 2004; Jimenez, 2013) is created for economic recession years (2001 and 2008) to partial out effects of the time period when the spin-off event has taken place on the change in market valuation of these spun-off subsidiaries.

2.6 Summary

This chapter examines strategic motives underlying corporate spin-offs including challenges, theories that help explain the change in market valuation of spun-off subsidiaries after becoming independent, and theoretical arguments that connect the dots between the governance structure of the child firm and its market valuation from the perspective of board and CEO characteristics as well as ownership structures.

Although strategic motives that lead to the spin-off vary among decisions of the divesting firm, the main reason appears to be enhancing value for both the parent and child. By looking at companies' corporate statements, the list of these motives can be expanded as better meeting demands of the market, increasing the corporate focus, and providing investors with a more transparent corporate structure. Although these motives seem to indicate that the spin-off event may create several benefits, it also comes with unique challenges, including how to adapt to new business operations and managerial practices, allocate resources efficiently, and establish an effective governance system — all critical components of the value creation process. In order to explain the success of the child firm in terms of its market valuation from the perspective of corporate governance, the agency, resource dependence, and upper echelons theories are used.

The spin-off literature demonstrates a lack of research on child firm performance. In particular, what factors may affect the market performance of spun-off subsidiaries is virtually

nonexistent. By following arguments in the governance literature, this research has aimed to explain factors that make the market valuation of the child firm improve as an independent entity. The agency theory arguments are based on how to minimize the agency cost via effectively monitoring the top management team. The resource dependence theory arguments are based on how to gain access to external resources and establish informational channels via ties of executives and directors. The upper echelons arguments are based on how to make strategic decisions depending on demographic characteristics of executives. All of these theoretical arguments have helped to answer the big question of why some spun-off subsidiaries improve their market valuation better than others from the perspectives of board and CEO characteristics as well as ownership structures.

In the management literature, the board is seen as a critical counseling and evaluating mechanism to the top management team; the CEO is seen as a central decision-maker; and the ownership structure is seen as a value-maximizing mechanism. Examining these main pieces within the corporate governance structure of the child firm contributes to the strategy literature via providing a fresh perspective that explains how to successfully perform in the market by offering empirical evidence. In short, this research tells us what sort of effective governance structure is needed in order to increase the market valuation of the child firm after its separation from the parent firm.

CHAPTER 3. METHOD OF STUDY

This chapter provides the description of empirically tested results of proposed hypotheses that explore effects of corporate governance mechanisms on the change in market value of the child firm within the two years following the spin-off event. This chapter begins with a description of the sample, continues with definitions of measuring all variables, and ends with the statistical method used to analyze the data.

3.1 Sample

The initial sample consists of 205 completed corporate U.S. spin-offs in which 100% of outstanding shares of the subsidiary were distributed on a pro rata basis to shareholders of the divesting firm. These spin-offs took place between January 2000 and December 2014; the data were extracted from the SDC Platinum database. After this identification, all these spin-off events were double-checked with other online resources such as *The Wall Street Journal* and *Lexis/Nexis* to make sure about the accuracy of the spin-off event itself as well as its completion date. Missing data on spun-off subsidiaries that went out of business, were merged into or acquired by other companies, or went private within the first two years after their corporate separation resulted in a sample of 149 spin-offs. At the very end, after removing outliers identified in Stata, my final sample resulted in 138 completed spin-offs over 14 years.

Choosing a 14-year time span provides this empirical research with three primary advantages. First, this long period enables one to better examine underlying success factors for spun-off subsidiaries in terms of the change in their market valuation after being separated from their corporate parents. Secondly, since these child firms are all publicly traded, the data are

available in secondary resources, such as company proxy statements, 10-K reports, and the Compustat database. Thirdly, this time period covers both the 2001 and 2008 economic crises, which increased the level of generalizability in this study. The data on corporate governance (board and CEO characteristics as well as ownership structures) are all extracted from company proxy statements listed in the U.S. Securities and Exchange Commission (SEC) website. The data on both industry and firm characteristics are extracted from the Compustat database.

Following the literature, I use the market value of equity to measure the market valuation of the child firm (Parrino, Kidwell, and Bates, 2015). A one-year lag is necessary in this research since the financial information on the child firm's performance will be more accurately reflected in the first full year following the spin-off event. For instance, if the completion date of a spin-off event was September 2011, the financial data for the first year were extracted from 2012. This methodological approach has provided an important data consistency across all firms.

3.2 Measures

Four predictors for board characteristics, four predictors for CEO characteristics, two predictors for ownership structures, and one outcome variable were used by controlling for industry- and firm-related characteristics. Basically, this research includes three subsets of independent variables to examine the change in market valuation of the child firm. Table 2 summarizes all variables, including their computation and data sources.

3.2.1 Dependent variable

Following the literature, the market value of equity (MVE) was calculated as the number of common shares outstanding times the closing annual share price. The dependent variable (logged) reflects the percent change in the market valuation (Ashbaugh and Pincus, 2001) of the spun-off subsidiary within two years following the spin-off event. In addition, this variable was adjusted in order to not lose any cases due to negative values of the change in market valuation before taking its log. These data were extracted from the Compustat database.

Matolcsy and Wyatt (2008) argue that the MVE provides investors with critical insight and information regarding the estimation of a firm's future earnings. Core, Guan, and Van Buskirk (2003) also argue that the MVE can be used as a proxy for the growth in expected earnings of the firm. Since the child firm has recently become independent and has a primary corporate goal of creating further value for shareholders, it is crucial to examine how this change in valuation occurs from the perspective of the market, which is a critical indicator for estimating "future expected aggregate earnings" (Ohlson, 1995: 665).

According to Tang and Tikoo (1999), from the perspective of investors it is very important to invest in "firms with high earnings growth momentum" (p. 750) since those firms are considered "valuable." Investors' expectations of future earning power (Nissim and Penman, 2001) are reflected in the current market valuation of the firm. After the corporate separation between the divesting firm and its subsidiary, investors will particularly be worrying about the future earnings of these spun-off subsidiaries and interested in seeing positive changes in their market valuation since there is no previous financial information available that directly reflected these subsidiaries' performance prior to the spin-off event. In other words, in the eyes of investors, seeing an improvement in the market valuation of the child firm will serve as evidence

for establishing financial growth and long-term stability. Therefore, it is very important to examine the change in the market value of equity as a key success parameter for spun-off subsidiaries and analyze whether any particular ways of governing (Dittmar and Mahrt-Smith, 2007) these newly independent entities will make a difference in their market performance.

3.2.2 Independent variables (board characteristics)

3.2.2.1 Board independence

This variable is measured as the ratio of independent outside (non-management) directors, which excludes affiliated outside directors, to board size (Pathak et al., 2014). In the literature, the independence of boards is considered a useful measure for assessing board effectiveness in regard to providing an objective insight to the top management team toward further value creation and better firm performance (Bradley and Chen, 2015). Joseph et al. (2014) also explain this board-level characteristic “as a mechanism to align the interests and actions of management and shareholders” (p. 1835). These data were obtained from the proxy statements reported on the SEC website.

3.2.2.2 Board members’ external directorships

This variable is measured via the sum of directorships of board members at other firms (Moore et al., 2012). External ties of directors are considered an important indicator for the effectiveness of corporate decision-making processes as well as the ability to reach valuable resources via networks of directors (Connelly et al., 2011). Kor and Sundaramurthy (2009) further argue that these external ties help board members expand their knowledge on various

strategic and governance challenges. These data were obtained from the proxy statements reported on the SEC website.

3.2.2.3 Board size

This variable is measured by the total number of directors on the board (Carpenter, Pollock, and Leary, 2003). In the literature, the size of the board is considered a good indicator for the quality of governance and institutional functions of the board (Goodstein et al., 1994). Ruigrok, Peck, and Keller (2006) state that board size is also related to “the pool of expertise and advice that executives can capitalize on” (p. 1250). These data were obtained from the proxy statements reported on the SEC website.

3.2.2.4 Directors’ age

This variable is measured by the directors’ average age on the board. The age of board members is considered a critical indicator for assessing directors’ willingness to take risk (Westphal and Zajac, 1995). From another perspective, Kang et al. (2007) argue that older directors possess more experience and wisdom as well as have access to economic resources compared to younger directors. These data were obtained from the proxy statements reported on the SEC website.

3.2.3 Independent variables (CEO characteristics)

3.2.3.1 CEO origin

This variable is measured by creating a binary variable indicating whether the CEO worked under the parent firm before the spin-off (Wruck and Wruck, 2002). In the literature, an insider CEO is considered an important power factor in governing the firm in terms of being

familiar with firm-specific resources (Zhang and Rajagopalan, 2010). Zhang and Rajagopalan (2003) further argue that firms tend to prefer inside candidates to “ensure continuity and stability” (p. 328). These data were obtained from proxy statements reported on the SEC website.

3.2.3.2 CEO duality

This variable is measured by creating another binary variable indicating whether the CEO and the chairman of the board are the same person (Joseph et al., 2014). As argued in the literature, CEO duality “enhances the unity of command” (Finkelstein and D’Aveni, 1994: 1080), which helps improve a firm’s functionality (Finkelstein and D’Aveni, 1994). In addition, Tuggle, Sirmon, Reutzel, and Bierman (2010) argue that CEO duality might “influence board members’ allocation of attention to monitoring” (p. 947) the top team. These data were obtained from the proxy statements reported on the U.S. Securities and Exchange Commission website.

3.2.3.3 CEO external directorships

This variable is measured by the number of directorships the CEO holds at other firms. These external ties help the CEO acquire more information about the industry and make better decisions via using a diverse managerial “lens” (Geletkanycz and Hambrick, 1997). External ties are also expected to influence shaping the firm’s strategy (Geletkanycz et al., 2001). These data were obtained from the proxy statements reported on the SEC website.

3.2.3.4 CEO age

This variable is measured by the age of the CEO. In the literature, it has been argued that an executive’s age might “influence strategic decision-making perspectives and choices”

(Wiersema and Bantel, 1992: 97). In particular, younger executives are considered more open to changes, more flexible, and more willing to take risks (Wiersema and Bantel, 1992).

These data were obtained from the proxy statements reported on the SEC website.

3.2.4 Independent variables (ownership structures)

3.2.4.1 Managerial ownership

This variable is measured by the percentage of equity owned by top managers (Alessandri and Seth, 2014). The higher levels of equity ownership might help top managers better act in the interest of shareholders by preventing opportunistic managerial behaviors (Mahoney et al., 1997); however, this might also cause managers to downsize the risk factor in their decisions since this sort of an ownership “represent(s) endowed wealth to managers” (Alessandri and Seth, 2014: 2065). These data were obtained from the proxy statements reported on the SEC website.

3.2.4.2 Institutional ownership

This variable is measured by the percentage of equity owned by institutional investors (Pathak et al., 2014). The ownership held by institutions might create a strong monitoring mechanism on firm governance as well as make managers pursue efficient strategies by reducing the possibility of managerial opportunism (Hoskinson et al., 2002). However, these investors might “pursue short-term gains” (Johnson and Greening, 1999: 566) due to the structure of their own rewarding mechanisms. These data were obtained from the proxy statements reported on the SEC website.

3.2.5 Control variables (industry level)

3.2.5.1 Industry R&D intensity

This variable is measured by the average ratios of R&D expenditures to total sales for all firms belonging to the company's three-digit SIC industry (Nadkarni and Herrmann, 2010). The R&D intensity is considered a proxy for innovation (O'Brien, 2003) as well as technological capabilities (Kelm et al., 1995). In R&D-intensive industries, firms have better access to technology resources in which there is a primary focus on spending for "technology investments over marketing" (King, Slotegraaf, and Kesner., 2008: 330). These data were extracted from the Compustat database.

3.2.5.2 Industry advertising intensity

This variable is measured by the average ratios of advertising expenditures to total sales for all firms belonging to the firm's three-digit SIC industry (Diestre and Rajagopalan, 2011; Nadkarni and Herrmann, 2010). The advertising intensity is considered a proxy for product differentiation in the literature (Levy, 1985). In advertising-intensive industries, a firm can better reduce "the information gap between itself and its customers," which in turn creates a better "information environment" (Servaes and Tamighto, 2013: 1047), as well as enables the firm to create a "brand capital" (Servaes and Tamighto, 2013: 1051). These data were extracted from the Compustat database.

3.2.5.3 Industry dynamism

This variable is measured by "dividing the standard error of the regression slope coefficient (sales over time) by the mean value for the five-year period" (Brauer and Wiersema, 2012: 1480) until the year of the spin-off event. The volatility and uncertainties in dynamic

environments result in non-steady industry growth (Keats and Hitt, 1988). In addition, unpredictable changes can be seen in the external environment of the firm when the dynamism exists (Goll and Rasheed, 2004), which is also defined as the “absence of pattern” (Dess and Beard, 1984: 56). This environmental dimension might help to better understand the level of industry risk (Dess and Beard, 1984). These data were extracted from the Compustat database.

3.2.5.4 Sector dummy

This variable is measured by creating a dummy variable for manufacturing versus service firms to partial out effects of two main industry types (Guthrie, 2001). These data were extracted from the Compustat database.

3.2.6 Control variables (firm level)

3.2.6.1 Firm size

This variable (logged) is measured by the number of employees of the firm (Cabral and Mata, 2003; Verwaal and Donkers, 2002). Firm size is considered a proxy for growth opportunities in the literature (Eisenberg, Sundgren, and Wells, 1998). Boeker (1997) also argues that the size might affect the firm’s willingness to change, including initiating and sustaining the change besides its impacts on possessing “extensive resources” (p. 161). These data were extracted from the Compustat database.

3.2.6.2 Firm capital intensity

This variable is measured by capital expenses over total sales for each firm (Diestre and Rajagopalan, 2011; Nadkarni and Herrmann, 2010). The capital intensity is considered an indicator for a firm’s long-term commitments as well as a proxy for the level of a firm’s strategic

rigidity in the literature (Hambrick and Abrahamson, 1995). In addition, capital-intensive firms require “long-term adaptive thinking” due to their need of “steady, surprise-free, and coordinated operations” (Miller and Cardinal, 1994: 1651). These data were extracted from the Compustat database.

3.2.6.3 Firm sales growth

This variable (logged) is measured by the change in sales in a two-year period following the spin-off event (Collins and Smith, 2006). The growth in sales indicates the level of value-added products as well as the diversity in the range of products demanded by consumers (Batt, 2002). Zheng, Singh, and Mitchell (2015) also argue that sales growth is a good indication for “current resources and capabilities required for success” (p. 1625). These data were extracted from the Compustat database.

3.2.6.4 Firm leverage

This variable is measured by the ratio of total debt over total assets (Opler, Pinkowitz, Stulz, and Williamson, 1999). The total leverage of the firm indicates the firm’s future potential in raising more capital (Qian and Li, 2003). These data were extracted from the Compustat database.

3.2.6.5 Year dummy

A dummy variable is created for the 2001-2002 and 2008-2009 financial crises since during those years the world’s overall economy was significantly influenced by these negative economic conditions (Atanasova and Wilson, 2004; Jimenez, 2013).

3.3 Statistical Method

Quantile regression was used to test effects of the governance structure on the change in market valuation of the child firm. Foster (2008) and Koenker (2004) argue that this estimation method provides a more flexible and robust approach compared to least squared estimators. As an important advantage of this approach, Cade and Noon (2003) argue that “quantile regression estimates can be used to construct prediction and tolerance intervals without assuming any parametric error distribution and without specifying how variance heterogeneity is linked to changes in means” (p. 419). Coad and Rao (2006) also argue that this estimation is robust to outliers and much more informative compared to conventional regressions. Ramdani and Witteloostuijn (2010) echo this by stating that “quantile regression is more powerful than classical linear regression since quantile regression can produce estimates for all conditional quantiles of the distribution of a response variable” (p. 607). Therefore, the data analysis has been done by using the quantile regression in this study.

In this empirical research, there are four predictors on board characteristics — board independence, size, average age, and directors’ external board memberships; four predictors on CEO characteristics — CEO origin, duality, age, and external board memberships; and two predictors on ownership structures — managerial and institutional ownerships. Four control variables on industry characteristics are the industry advertising intensity, R&D intensity, dynamism, and sector dummy. Four control variables on firm characteristics are the firm size, capital intensity, sales growth, and leverage. Recession years were also controlled for. Therefore, this research regresses 10 predictors (independent variables) on an outcome (dependent) variable controlled by nine variables at the both firm and industry level.

Table 2 Summary of all variables, including their data sources

VARIABLE	OPERATIONALIZATION	DATA SOURCE
<i>Dependent variable</i>		
Change in the market value of equity (ln)	Share price times number of common shares outstanding (change: the difference in two years)	Compustat
<i>Independent variables</i>		
Board independence	Ratio of independent outside directors, which excludes affiliated outside directors, to board size	Proxy statements (DEF 14A)
Director external board memberships	Sum of directorships of all board members in other firms	Proxy statements (DEF 14A)
Director age	Average director age	Proxy statements (DEF 14A)
Board size	Total number of directors on the board	Proxy statements (DEF 14A)
CEO origin	A binary variable indicating whether the CEO has worked under the parent firm	Proxy statements (DEF 14A)
CEO duality	A binary variable indicating whether the CEO and the chairman of the board are the same person	Proxy statements (DEF 14A)
CEO age	Age of the CEO	Proxy statements (DEF 14A)
CEO external board memberships	Sum of directorships of the CEO in other firms	Proxy statements (DEF 14A)
Managerial ownership	Percentage of equity owned by top management	Proxy statements (DEF 14A)
Institutional ownership	Percentage of equity owned by institutional investors	Proxy statements (DEF 14A)
<i>Control variables</i>		
Industry R&D intensity	Average ratios of R&D expenditures to total sales for all firms belonging to the firm's three-digit SIC industry	Compustat
Industry advertising intensity	Average ratios of advertising expenditures to total sales for all firms belonging to the firm's three-digit SIC industry	Compustat
Industry dynamism	Standard error of regression slope coefficient divided by mean sales	Compustat
Sector dummy	A dummy variable for the manufacturing versus service firms	Compustat
Firm size (ln)	Number of employees	Compustat
Firm capital intensity	Capital expenses over total sales	Compustat
Firm sales growth (ln)	Change in sales in two years	Compustat
Firm leverage	Ratio of total debt over total assets	Compustat
Year dummy	A dummy variable for recession years	Compustat

CHAPTER 4. RESULTS

This chapter first discusses results of descriptive statistics, including means, standard deviations, and correlations of variables used in this empirical research. Then it explains the main effects of corporate governance-related antecedents on the change in market value of the spun-off subsidiary. At the end, supplementary analyses provide additional results.

4.1 Descriptive Statistics

Table 3 presents the descriptive statistics and correlations for variables in this study. Regarding board characteristics, on average the board age is 58; the board size is eight; the number of board members' external directorships is 15; and 76% of boards have an independent structure. Regarding CEO characteristics, on average the CEO age is 53; 39% of firms have CEO duality; 81% of firms have insider CEOs; and the number of CEO external directorships is one. Regarding ownership structure, on average 55% of shares are owned by institutional investors and 4% are owned by managers of the firm. The distribution (as percentages) of all independent variables is shown between Figures 2 and 12.

The correlation matrix in Table 3 indicates that all correlation coefficients are way below 0.4 (except correlations between board size and firm size, CEO age and board average age, board members' external directorships and board size, CEO external directorships and board members' external directorships). According to variance inflation factors (VIFs), the highest value is 2.34 (for board size); the second highest value is 2.04 (for the firm size and board members' external directorships); all other values appear to be way below 2.00. The mean VIF is 1.50, which indicates that results of this model have no multi-collinearity issues (Barako and Brown, 2008;

Carpenter, 2002; Schlosser, White, and Lloyd, 2006). This statistical examination provides further validation for the accuracy of the empirical results in this study.

VARIABLES (N = 138)	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Change in market value (ln)	0.048	0.558	1.000																			
2. Leverage	0.245	0.233	-0.041	1.000																		
3. Firm size (ln)	0.649	2.103	-0.202**	0.248**	1.000																	
4. Capital int.	0.627	1.762	0.014	-0.022	-0.279***	1.000																
5. Sales growth (ln)	9.390	0.073	0.201**	-0.003	-0.068	-0.021	1.000															
6. Ind. R&D int.	0.036	0.050	-0.019	-0.157**	-0.286***	0.094	-0.083	1.000														
7. Ind. adv. Int.	0.011	0.016	-0.092	0.148	0.040	-0.063	0.132	0.001	1.000													
8. Year dummy	0.092	0.290	-0.204**	0.246***	0.198**	-0.058	0.111	-0.232***	0.341***	1.000												
9. Ind. Dummy	0.473	0.500	0.021	-0.115**	-0.077	0.104	-0.061	0.346***	-0.182**	-0.173	1.000											
10. Dynamism	0.031	0.032	-0.125	0.007	-0.001	0.016	0.029	-0.299***	0.070	0.146**	-0.033	1.000										
11. Board ave. age	58.15	4.587	0.079	0.036	0.042	0.006	0.058	-0.041	-0.101*	0.020	0.189***	0.014	1.000									
12. CEO age	53.11	7.891	0.016	0.156	0.139	-0.019	0.068	0.055	-0.057	-0.059	0.177***	-0.070	0.589***	1.000								
13. CEO origin	0.809	0.393	-0.129*	0.147	0.287***	-0.035	0.068	-0.085	0.022	0.098	-0.063	0.017	-0.048	-0.042	1.000							
14. Board size	7.521	1.941	0.068	0.130	0.474***	-0.121	-0.024	-0.218***	0.102**	0.266**	-0.175***	-0.025	0.172**	0.151	-0.017*	1.000						
15. Board indpt.	0.757	0.111	0.029	-0.029	0.106	0.017	-0.082	0.221***	0.081	-0.192	0.138**	-0.231*	-0.002	0.035	-0.028	-0.010*	1.000					
16. CEO duality	0.390	0.488	0.038	-0.014	0.079	-0.096	0.137	-0.049	-0.108	-0.046	-0.008	0.036	0.052	0.201***	0.061	-0.161**	0.021	1.000				
17. Institutional ownership	0.548	0.296	-0.057	0.155*	0.366***	-0.017	0.092	-0.127	0.070	0.015	-0.108	-0.019	0.074	-0.009	0.196b	0.242***	0.074**	0.002	1.000			
18. Managerial ownership	0.042	0.098	-0.084	-0.066	-0.184**	-0.019	0.088	-0.053	0.073	0.113	-0.007	0.140**	0.167	0.007	0.054	-0.034	-0.177**	-0.022	-0.285***	1.000		
19. Board ext. directorships	15.02	9.160	0.052	0.086	0.278***	-0.045	0.032*	-0.133	-0.070	0.125*	0.062	-0.026	0.145***	0.103	0.098**	0.571***	-0.061**	-0.055	0.097	-0.022	1.000	
20. CEO ext. directorships	1.141	1.604	0.138	0.138	0.133*	-0.064	0.138*	0.000	-0.038	-0.040	0.163	0.007	0.210***	0.302***	-0.017	0.138	-0.033	0.241***	0.038	0.035	0.426***	1.000

***p < 0.01; **p < 0.05; *p < 0.1

Table 3 Descriptive statistics and correlation matrix

4.2 Main Effects of Corporate Governance on the Change in Market Valuation

Table 4 presents the results for quantile regression regarding main effects of corporate governance on the change in market value of the child firm. Model 1 only includes control variables, and the value of pseudo-R-squared in this first model is 0.093. Model 2 includes both control and independent variables, and the value of pseudo-R-squared in this second model is 0.183. Therefore, this indicates that Model 2 better predicts the outcome variable.

In Model 1, in which only control variables are included, the industry R&D intensity and year dummy are negatively and significantly correlated with the change in market value. In particular, the year dummy is significant at the .01 level ($p < 0.01$), and the industry R&D intensity is significant at the .05 level ($p < 0.05$). In Model 2, the full model, among the control variables the firm size and year dummy are negatively and significantly correlated with the change in market value. In particular, the year dummy is significant at the .01 level ($p < 0.01$), and the firm size is significant at the .05 level ($p < 0.05$). Among the independent variables, the board size and CEO duality are positively and significantly correlated with the change in market value; the CEO age and managerial ownership are negatively and significantly correlated with the change in market value. In particular, the board size is significant at the .01 level ($p < 0.01$); all other variables (CEO age, CEO duality, and managerial ownership) are significant at the .1 level ($p < 0.1$).

The first four hypotheses test the main effects of board characteristics on the change in market valuation of the child firm. Hypothesis 1 predicts a positive relationship between board independence and the change in market valuation of the child firm. The coefficient on the board independence is negative ($\beta = -.382$) and not statistically significant. Thus, Hypothesis 1 is not supported. Hypothesis 2 predicts a positive relationship between the number of board members'

external directorships and the change in market valuation of the child firm. The coefficient on board members' external directorships is negative ($\beta = -.001$) and not statistically significant. Thus, Hypothesis 2 is not supported. Hypothesis 3 predicts a positive relationship between board size and the change in market valuation of the child firm. The coefficient on board size is positive and significant ($\beta = .105, p < 0.01$), supporting Hypothesis 3. Hypothesis 4 predicts a positive relationship between board average age and the change in market valuation of the child firm. The coefficient on the board average age is positive ($\beta = .010$) and not statistically significant. Thus, Hypothesis 4 is not supported.

The second four hypotheses test main effects of CEO characteristics on the change in market valuation of the child firm. Hypothesis 5 predicts a positive relationship between the CEO "insiderness" and the change in market valuation of the child firm. The coefficient on the CEO origin is positive ($\beta = .029$) and not statistically significant. Thus, Hypothesis 5 is not supported. Hypothesis 6 predicts a negative relationship between CEO duality and the change in market valuation of the child firm. Interestingly, the coefficient on CEO duality is positive and significant ($\beta = .197, p < 0.1$). Thus, Hypothesis 6 is not supported. Hypothesis 7 predicts a positive relationship between the number of CEO external board memberships and the change in market valuation of the child firm. The coefficient on CEO external directorships is positive ($\beta = .063$) and not statistically significant. Thus, Hypothesis 7 is not supported. Hypothesis 8 predicts a negative relationship between CEO age and the change in market valuation of the child firm. The coefficient on CEO age is negative and significant ($\beta = -.015, p < 0.1$), supporting Hypothesis 8.

The last two hypotheses test main effects of ownership structures on the change in market valuation of the child firm. Hypothesis 9a and 9b predicts a negative/positive relationship between the managerial ownership and the change in market valuation of the child firm. The coefficient on the managerial ownership is negative and significant ($\beta = -.969$, $p < 0.1$), supporting Hypothesis 9a. And finally, Hypothesis 10a and 10b predicts a negative/positive relationship between institutional ownership and the change in market valuation of the child firm. The coefficient on the institutional ownership is negative ($\beta = -.060$) and not statistically significant. Thus, Hypothesis 10 is not supported.

DV: Change in market value (ln)	MODEL 1	MODEL 2
<i>Control variables</i>		
Leverage	-0.119 (0.224)	0.107 (0.248)
Firm size (ln)	-0.040 (0.025)	-0.081** (0.034)
Capital intensity	0.000 (0.026)	0.004 (0.028)
Sales growth (ln)	0.915 (0.614)	0.969 (0.682)
Industry R&D intensity	-2.184** (1.044)	-0.524 (1.137)
Industry advertising intensity	-2.428 (2.887)	-2.622 (3.215)
Year dummy	-0.429*** (0.164)	-0.549*** (0.186)
Industry dummy	-0.086 (0.099)	-0.077 (0.113)
Dynamism	-2.711 (1.686)	-1.517 (1.842)
<i>Explanatory variables</i>		
Board average age		0.010 (0.014)
CEO age		-0.015* (0.008)
CEO origin		0.029 (0.142)
Board size		0.105*** (0.039)
Board independence		-0.382 (0.499)
CEO duality		0.197* (0.110)
Institutional ownership		-0.060 (0.193)
Managerial ownership		-0.969* (0.503)
Board external directorships		-0.001 (0.007)
CEO external directorships		0.063 (0.039)
<i>Pseudo R-squared</i>	0.093	0.183
<i>Number of observations (n)</i>	138	138

***p < 0.01; **p < 0.05; *p < 0.1

Table 4 Quantile regression results
(standard errors in parentheses)

4.3 Supplemental Analysis

Table 8 reports two interaction effects, and the results of these moderations are reported as graphs in Figures 17 and 18. Model 3 includes the first interaction effect and Model 4 both interaction effects. Before examining these interaction effects, all variables were mean-centered. Both interactions are significant, indicating that board size will have a stronger positive effect on the change in market valuation of the child firm when the CEO is an insider and that CEO external directorships will have a significant, negative effect on this change in market valuation when dynamic conditions exist in the industry.

Table 9 reports regression results by splitting the sample into two parts. In Model 5 the sample includes firms with positive change in their market valuation; in Model 6 the sample includes firms with negative change in their market valuation. The results indicate that when the dependent variable is this positive change, CEO external directorships become significant, which has previously appeared to be “very close to be significant” in the full model.

Table 10 reports nonlinear relationships by adding the quadratic version of continuous variables that have previously appeared not significant in the full model. These variables are the board average age, board independence, institutional ownership, board members’ external directorships, and CEO external directorships. In Models 7-11, each nonlinear relationship is tested separately, and in Model 12, all nonlinear relationships are included. According to the results, nonlinear relationships do not exist between any independent variables and dependent variable in the model.

CHAPTER 5. DISCUSSION

This empirical research examined effects of corporate governance on the change in market valuation of spun-off subsidiaries. The big question being answered here was why some spun-off subsidiaries performed better than others in the market. After the separation from its corporate parent, the child firm becomes a publicly traded, stand-alone entity and needs to run its operations without relying on any parental resources.

This important corporate-level change might require the child firm to consider some revisions in its governance structure, which is defined by its board characteristics, CEO characteristics, and ownership structure. By doing so, the child firm may enhance its overall performance and meet expectations of the market. In particular, how the market assesses the child firm is going to become an important indicator for the child firm performance. As a former dependent entity under the parent firm, there has been no clear financial information regarding how well the child firm can do in the market after the separation. From the perspective of investors (both current and prospective), it is important to track the financial welfare of the child firm so that they know whether they want to further invest in this subsidiary. In other words, the market valuation of the child firm will provide investors with critical evidence regarding future success.

In the literature, one of the critical roles of corporate governance has been described as improving the firm's market performance via improving stakeholders' perceptions (Moore et al., 2012). Furthermore, in order to keep stakeholders committed to the firm, it is vital that firms both generate positive financial outcomes and survive in the long run, which can be achieved via using effective governance mechanisms (Strange et al., 2009). This research highlights what sort of governance practices may help the subsidiary improve its market

valuation after the spin-off event. Results of this empirical analysis examining the effects of board and CEO characteristics as well as ownership structures on the change in market valuation of the child firm are discussed below.

Hypothesis 1 investigated the relationship between the board independence and change in market valuation of the child firm. It appears that board independence is negatively correlated with the change in market value. This negative correlation points out the importance of insider directors at the child firm. According to agency theory, board independence is considered a critical governance factor for promoting the organizational efficiency by reducing the agency cost. In other words, independent boards are expected to serve as a “value-enhancing” factor for the firm. The results here show that, however, in the context of spun-off subsidiaries, it might be more important to have a majority of insider directors on the board who have worked at the parent company prior to the corporate separation. Since these insiders have an in-depth knowledge about business operations of the child firm, they might also better advise the CEO of the child firm regarding appropriate strategies to pursue. Although outsiders may provide several advantages for the child firm, including a more objective assessment of the top management team and familiarity with strategies of other businesses in the industry, the negative correlation here reflects that having directors with a clear knowledge of internal operations of the child firm might matter more while trying to establish its organizational identity as an independent entity in the market. This relationship appears to be not significant, which might warrant further investigation.

Hypothesis 2 investigated the relationship between directors’ external board memberships and change in market valuation of the child firm. It appears that the board members’ external directorships are negatively correlated with the change in market value.

According to resource dependence theory, the external directorships of board members should be beneficial for the firm with regards to making better external connections as well as gaining external resources. The negative correlation here, however, suggests that when board members' responsibilities on other boards increases, this may create a big time-related challenge for these directors. In other words, becoming directors on many boards might make them not spend enough time on the board of the child firm at a time when it needs significant counseling and strategic advice. In addition, the big amount of information available to board members due to many external directorships cause that information either to be ignored or get lost, which might also become a big disadvantage for the child firm via missing out on important strategies. This relationship appears to be not significant, which might also warrant further investigation.

Hypothesis 3 investigated the relationship between the board size and change in market valuation of the child firm. As hypothesized, the board size is positively and significantly correlated with the change in market value. According to resource dependence theory, larger boards will better provide the top management team with unique counseling and advising via using diverse lenses depending on the level of their experience and expertise in the industry. In addition, due to its corporate ties, the larger the board, the more critical resources will be available to the child firm. In the context of spin-offs, these child firms are in serious need of a diverse set of expertise that is going to carry them to the next stage in their organizational life, which is to be recognized as a legitimate member of their business community. As long as the board consists of many directors, the child firm will better benefit from the board size since a larger board can also provide shareholders with signaling the credibility of the governance structure of the firm. In particular, knowing that the child firm has no prior financial information available before the spin-off event, having a larger board is going to help to stimulate positive

opinions of its shareholders toward achieving better market performance as well as sustained growth. Besides, the interaction effect between the board size and CEO “insiderness” further suggests that having an insider CEO coming from the parent firm will positively moderate the effect of the board size on the change of the child firm’s market valuation. This finding is very important because it indicates that having a top decision-maker who has in-depth information about the former operations of the child firm combined with a larger number of directors who can provide this CEO with their strategic advice via utilizing their unique expertise and corporate connections will matter more in the context of improving the market valuation of the child firm.

Hypothesis 4 investigated the relationship between the board average age and change in market valuation of the child firm. It appears that the directors’ age is positively correlated with the change in market value. According to upper echelons theory, older executives hold a great amount of experience, wisdom, and strategic connections that benefit firm performance. In addition to that, older directors possess the ability to offer various strategic options to the top management team of the firm in order to gain sustained growth. This result demonstrates that boards consisting of older directors may become more helpful to the child firm via providing the top management with both tangible and intangible resources needed while trying to perform well as an independent entity in the market. Furthermore, having older directors who have significant experience in governing organizations may help the child firm establish its reputation faster. In other words, older directors may be seen as a guarantee for better governance by the stakeholders of the child firm. This relationship appears to be not significant, and if the sample size increases, the issue might be resolved.

Hypothesis 5 investigated the relationship between the CEO “insiderness” and change in market valuation of the child firm. It appears that CEO origin is positively correlated with the

change in market value. As both the resource dependence and upper echelon theories argue, an insider CEO should be considered an excellent source of firm-specific human capital due to his or her knowledge and skill-set on the firm operations. Especially when there are big changes for the firm such as corporate restructuring, an insider CEO is expected to handle related challenges much better since he/she is familiar with how the firm may react to those changes. Besides, getting to know other members of the top management team as well as receiving their close support in difficult times is expected to make an insider CEO much more beneficial for the firm compared to an outsider CEO. In addition, being known closely by both the top management team members and board of directors is expected to prevent power-related issues at the top level and receive their support while going through challenging situations as a stand-alone entity. Thus, appointing an insider as the top decision-maker may become a very good choice at the child firm. This relationship appears to be not significant, and by increasing the sample size, the issue might also be resolved.

Hypothesis 6 investigated the relationship between CEO duality and the change in market valuation of the child firm. Interestingly, this negatively proposed relationship appears to be positive and significant. Although agency theory argues that CEO duality might affect the firm performance negatively due to ineffectiveness in board oversight, this finding clearly indicates that CEO duality, which means that only one person holds both the CEO and chairman positions, will help to improve the market valuation of the child firm. Based on the very independent status of the spun-off subsidiary, as long as the CEO and chairman are the same person, this will provide the child firm with more effective leadership, including formulation and implementation of critical strategies. In addition, having one person holding the managerial power at the top level of the child firm will prevent ambiguity in business operations and strategic decisions that need

to be made timely. Besides, the CEO duality can help to send positive signals to the stakeholders who may have concerns about the future success of the child firm, which is also expected to increase the market valuation. Therefore, this finding clearly demonstrates the very strategic importance of CEO duality in the context of spin-offs since the decision-making authority will be held by one person at the top level of the child firm.

Hypothesis 7 investigated the relationship between a CEO's external board memberships and change in market valuation of the child firm. My results here are very close to becoming significant. As upper echelons theory argues, CEOs as top decision-makers have to make very critical decisions under ambiguity and information overload. As the head of the top management team, the CEO is solely responsible for making the best possible decision that is going to carry his/her firm to a higher level among its rivals by critically analyzing complicated information timely and effectively. This can be better achieved if the CEO is aware of alternative strategies that he or she can utilize in decision-making processes via sitting on some other boards. For the CEO of the child firm, this becomes extremely critical since the CEO needs to collect all the input from both internal and external environment and assess them before choosing the best possible option. This is not an easy task for the CEO since the child firm no longer has parental support. Through external directorships of the CEO, he/she can become better aware of external environmental conditions that other companies have had to deal with so that he/she can take preventive actions in advance. In addition, since the child firm seeks legitimacy in the industry after becoming an independent firm, via having its CEO sit on other boards, the child firm's efforts in gaining an "accepted member of the community" status may become easier; in other words, the CEO can be considered an "external representative" of the child firm while sitting on other boards, which may significantly help the firm earn "status benefits" in its community.

Regarding the interaction effect between the CEO external directorships and environmental dynamism on the change in market value, the results indicate that this relationship becomes negative and significant. This change in the sign of the correlation coefficient clearly suggests that environmental conditions do matter. In particular, when the environmental conditions are not stable and constant changes exist, the external directorships of the child firm's CEO will start to have detrimental effects on the change in market valuation. This finding suggests that under unstable environmental conditions, the child firm's CEO having external appointments will not benefit the market performance of his or her firm since these ambiguous environmental conditions do require the child firm's CEO only focus on the operations of his/her firm without spending time for other external firms' board appointments, which may actually be extremely time-consuming.

Hypothesis 8 investigated the relationship between CEO age and change in market valuation of the child firm. The results indicate that CEO age is negatively and significantly correlated with the change in market value. According to upper echelons theory, younger executives will support the strategic change in their organizations and be more willing to take risky actions towards newness and innovation. Especially, younger CEOs are expected to make critical decisions without being committed to the status quo by having the ability to process and integrate complicated information. As my results demonstrate, the younger CEO of the child firm will become very beneficial in terms of enhancing his/her firm's market valuation due to being open to changes and bold to take strategic actions. After becoming an independent firm, the child firm's life is going to be all about changes and what is needed for the firm will be having a CEO who can initiate these changes and act without fear. A younger CEO will possess this courage to take bold actions towards carrying his/her firm toward future success via being

confident and understanding the importance of change. Basically, a younger CEO will provide the child firm with a push effect for sustained growth.

Hypothesis 9 investigated the relationship between managerial ownership and change in market valuation of the child firm. According to the results, managerial ownership is negatively and significantly correlated with the change in market value. Agency theory argues that managerial ownership is expected to prevent managerial opportunism and have managers better act in the interest of shareholders; however, in some cases, this approach may be context-dependent, according to behavioral decision theory (Sanders, 2001). In the context of spin-offs, it is usual to expect that managerial ownership should have a positive impact on the performance of the child firm since the arguments of agency theory fit well within this context; however, the results here clearly indicate that spin-offs possess a unique context in which top decision-makers may avoid risky actions. In particular, the negative and significant relationship here indicates that since there are lots of questions regarding the future success (survival) of the child firm, providing top managers with long-term incentives will make them not pursue bold actions, which is going to prevent the child firm from growing and enhancing its operations in the sector. In other words, top managers will not feel comfortable to make risky decisions and prefer to take “easy” steps instead. This approach will unfortunately not help the child firm increase its market valuation either since top managers’ risk-averse mentality is going to create further questions in the minds of other shareholders. Therefore, this finding is very interesting due to the fact that the context does matter in decision-making, which will also directly affect firm performance.

Hypothesis 10 investigated the relationship between institutional ownership and change in market valuation of the child firm. It appears that the institutional ownership is negatively correlated with the change in market value. According to agency theory, institutional investors

can serve as an important part of effective governance mechanisms since their ownership may prevent managerial opportunism of top managers. In other words, by having a large number of shares in the firm, these investors are expected to make important impacts on strategic decision-making processes and hold top managers accountable strictly. As argued in the earlier hypothesis, it seems that the institutional ownership may also be context-dependent. More specifically, in the context of spin-offs, a large number of shares owned by institutional investors might make top managers uncomfortable in their actions and therefore, instead of taking risk for further growth, they may primarily focus on short-term improvements by missing the big picture of the spin-off, which has a main purpose of enhancing the shareholder value. Basically, since it is very important for institutional investors to show positive results about their investment in their short-term (quarterly) financial reports, the pressure that top managers feel in this regard might result in the top management team to execute inefficient practices that have no or little long-term focus via limiting the managerial discretion of executives. Therefore, institutional investors' short-term orientation may become a hurdle for top managers who try to carry the child firm to the next level in its industry. This relationship appears to be not significant, and by increasing the sample size, this issue might also be resolved.

5.1 Research Contributions

First and foremost, this study is grounded in three widely used and well-established theories — agency, resource dependence, and upper echelons. By utilizing both diverse and rich arguments of these theories, this research contributes to the literature with some critical findings regarding key governance elements required for market success of spun-off subsidiaries. More specifically, this empirical study examines the change in market valuation within two years

following the spin-off event with the consideration of the corporate oversight and monitoring (agency theory), external connections and ties to valuable resources (resource dependence theory), and executives' experience and knowledge (upper echelons theory).

Secondly, empirical findings in this study prove that some board of directors and CEO characteristics as well as ownership structures significantly matter in the context of market valuation of the child firm. According to these findings, board size and CEO duality will positively and significantly affect the change in market valuation of the child firm whereas the CEO age and managerial ownership will negatively and significantly affect this change. A CEO's external board appointments appear very close to being significant and show a positive effect on this change. Regarding the moderating effects, the CEO "insiderness" positively moderates the relationship between board size and the change in market valuation of the child firm, whereas industry dynamism negatively moderates the relationship between CEO external directorships and the change in market valuation of the spun-off subsidiary. Both interaction effects show significant results.

Thirdly, this study uses the market value of equity (MVE) as the dependent variable while measuring the market valuation of the child firm. Examining the change in MVE particularly helps to provide both current and potential investors with a better understanding regarding the prospective growth potential of the child firm. In other words, empirical results of this study provide the strategy literature with a deeper understanding regarding key success factors of market performance of spun-off subsidiaries as independent entities.

5.2 Managerial Implications

First, the findings on board characteristics suggest that larger boards will help improve the market valuation of the child firm. This means that having many directors who can bring diverse perspectives as well as governance knowledge and industry experience to the table at the child firm's board will be very beneficial in terms of increasing its market valuation, which can also help to establish the prestige of the child firm. Therefore, when deciding board structure, considering a larger board of directors will become a critical success factor for the market performance of the child firm.

Secondly, the findings on CEO characteristics suggest that younger CEOs as well as CEO duality will also help to increase the market valuation of child firm. This means that appointing a younger CEO who is willing to take risk and initiate and support change will become very beneficial for the child firm's market performance. In addition, the duality structure that prevents power issues at the top level and enables top executives more focus on effective decision-making instead will positively influence the change in market valuation of the child firm. Therefore, these findings suggest that the criteria showing how to appoint both the CEO and chairman of the child firm require serious attention.

Thirdly, the findings on ownership structures suggest that larger ownership of top managers will result in a decrease in the market valuation of the child firm. This means that as the level of ownership (long-term incentive) of top managers increases within the child firm, they may be more inclining toward choosing less risky options in order to protect their immediate wealth, which may significantly hurt the child firm's market performance. Therefore, instead of offering long-term incentives to the top managers right after the spin-off event, it may

be a better idea to primarily provide them with short-term incentives so that they can choose the most appropriate actions without hesitation.

5.3 Limitations and Future Research Directions

Although this study has contributed to the strategic management literature in several ways, there are still some opportunities to improve it. First, this study primarily looked at the governance structure of the child firm. Since key decision-makers in organizations are top managers, it will be important to look at the demographics of top management teams in future studies. Besides, behavioral and cognitive characteristics of these top decision-makers might also make some significant impacts on the child firm performance as well as value creation. Therefore, the primary data collection on executives' unobservable characteristics may lead to interesting findings.

Secondly, as a firm-level construct, the role of entrepreneurial orientation can be examined. Three main dimensions of this construct (risk taking, proactiveness, and innovativeness) can make some significant impacts on the child firm performance, and these effects may be contingent on particular industry conditions. Therefore, it will be worthwhile to look at what dimensions of entrepreneurial orientation can help better improve the child firm performance by considering the moderating effects of environmental dimensions (dynamism, complexity, and munificence).

Thirdly, it will be interesting to examine whether the parent firm's post-spin-off performance might still have an impact on the child firm's performance. Although the child firm becomes an independent entity after this corporate separation, there may still be some indirect effects of the parent firm on its subsidiary's performance. For instance, considering the corporate

reputation of the parent firm or performance changes after spinning off its subsidiary might be used as some moderating variables while understanding the parent-child connections after the separation.

Fourth, it may be interesting to look at performance differences among spun-off subsidiaries within various time frames. For instance, examining success factors of the child firm that has survived more than five years versus 10 years might result in interesting findings. From the opposite perspective, it may be fruitful to examine factors that affect the failure of the child firm. For example, exploring reasons that underlie the “death” of the child firm might provide the literature with important cues regarding what does not work well while managing these independent entities. Thus, looking at different time frames from the perspectives of successful versus unsuccessful spin-offs should certainly contribute to the literature more.

By addressing all these dimensions and examining them in future research using both primary and secondary data, strategy scholars will be able to highlight more important aspects of this corporate restructuring phenomenon.

5.4. Conclusions

Corporate spin-offs represent an interesting research area in the field of strategy due to their unique context. In particular, under what conditions can spun-off subsidiaries be more successful as independent, stand-alone entities has been a very important question in the field. By considering both theoretical and empirical needs, this study has contributed to the strategic management literature by answering the big question of why some spin-offs have better market valuation than others. To answer this question, effects of corporate governance (board and CEO

characteristics as well as ownership structures) on the change in market valuation of the child firm are examined with 10 hypotheses grounded in three widely used theories.

Empirically tested theoretical arguments in this study have provided four significant results. The first set of results on board characteristics indicates that the board size has a positive and significant impact on the change in market valuation of the child firm. The second set of results on CEO characteristics indicates that CEO age has a negative and significant impact on the change in market valuation, whereas CEO duality has a positive and significant impact on this change. And finally, the third set of results on ownership structures indicates that managerial ownership has a negative and significant impact on the change in market valuation of the child firm. Overall, the theoretical arguments and supportive empirical findings in this research suggest that the corporate governance does matter in the context of the child firm's market valuation.

All of these significant findings provide both current and prospective shareholders of the child firm important cues regarding market performance. This research also generates several avenues for future research in order to better understand this phenomenon of corporate spin-offs.

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APPENDICES

Figure 1 The conceptual framework including hypothesized directions

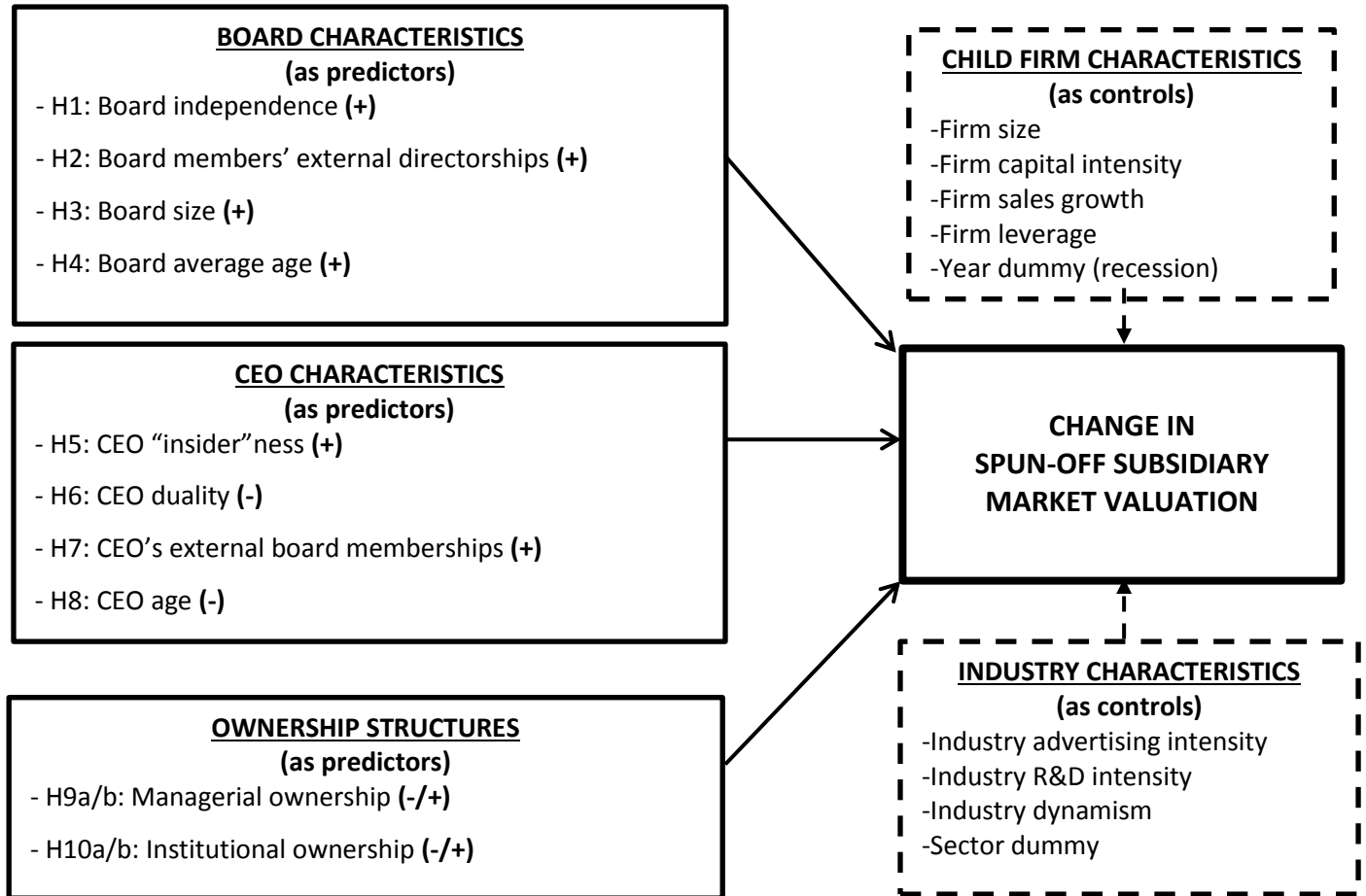


Figure 2 The distribution of SIC codes across the sample

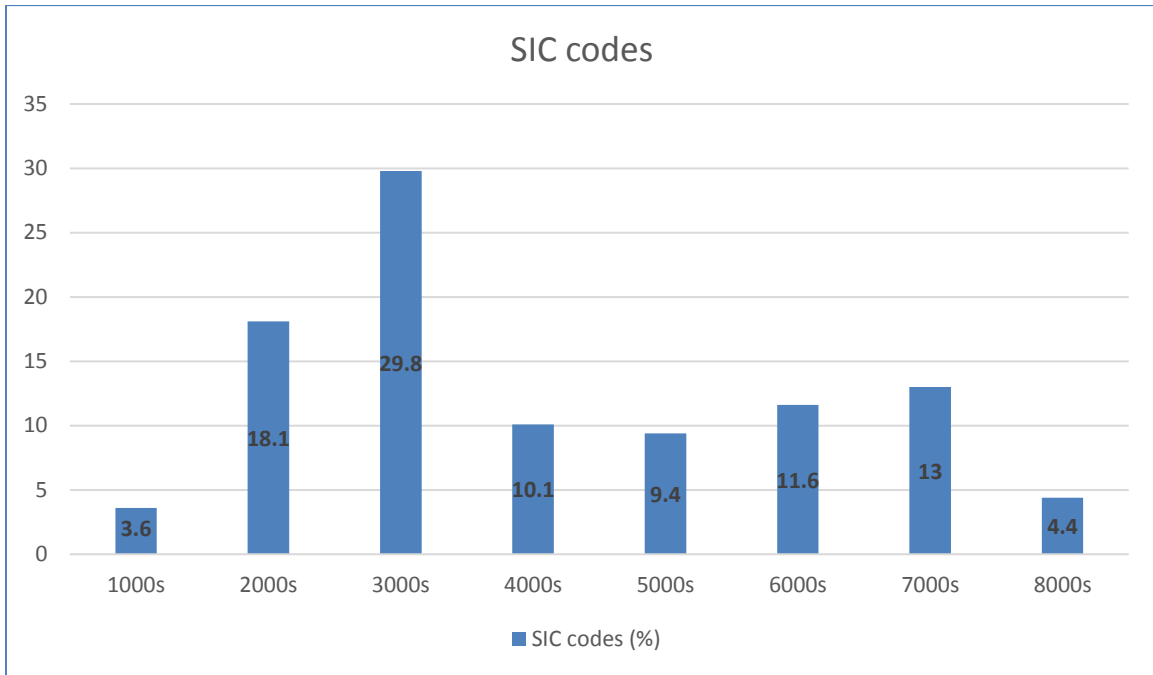


Figure 3 The distribution of employee numbers across the sample

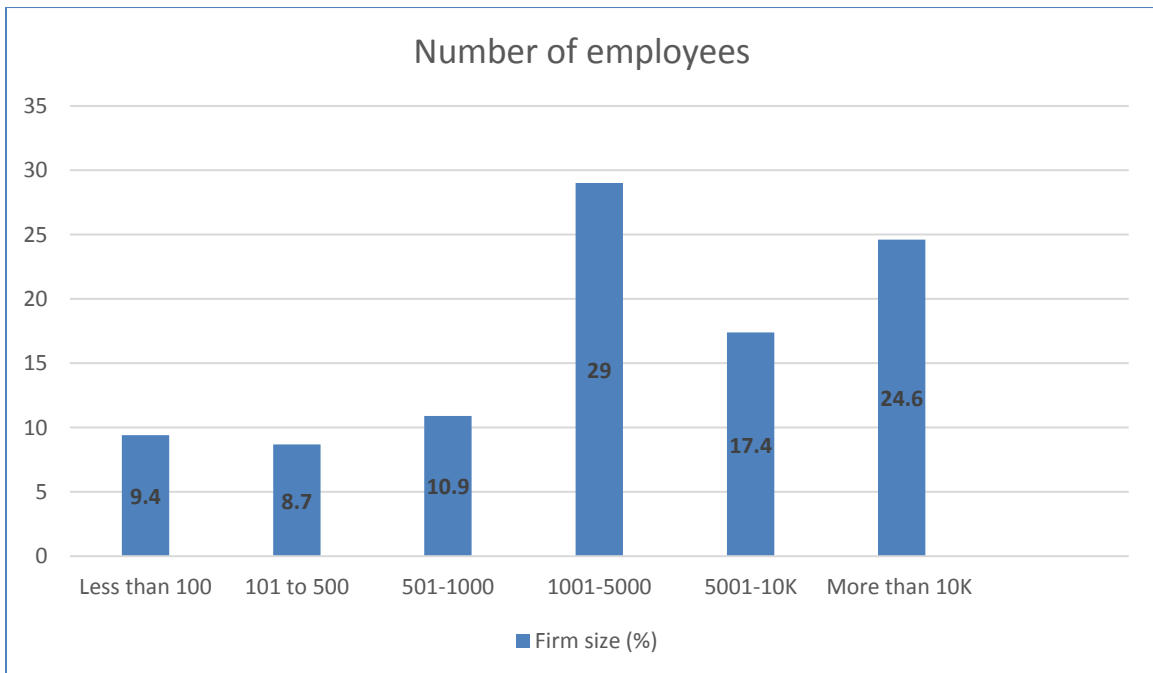


Figure 4 The distribution of sales growth across the sample

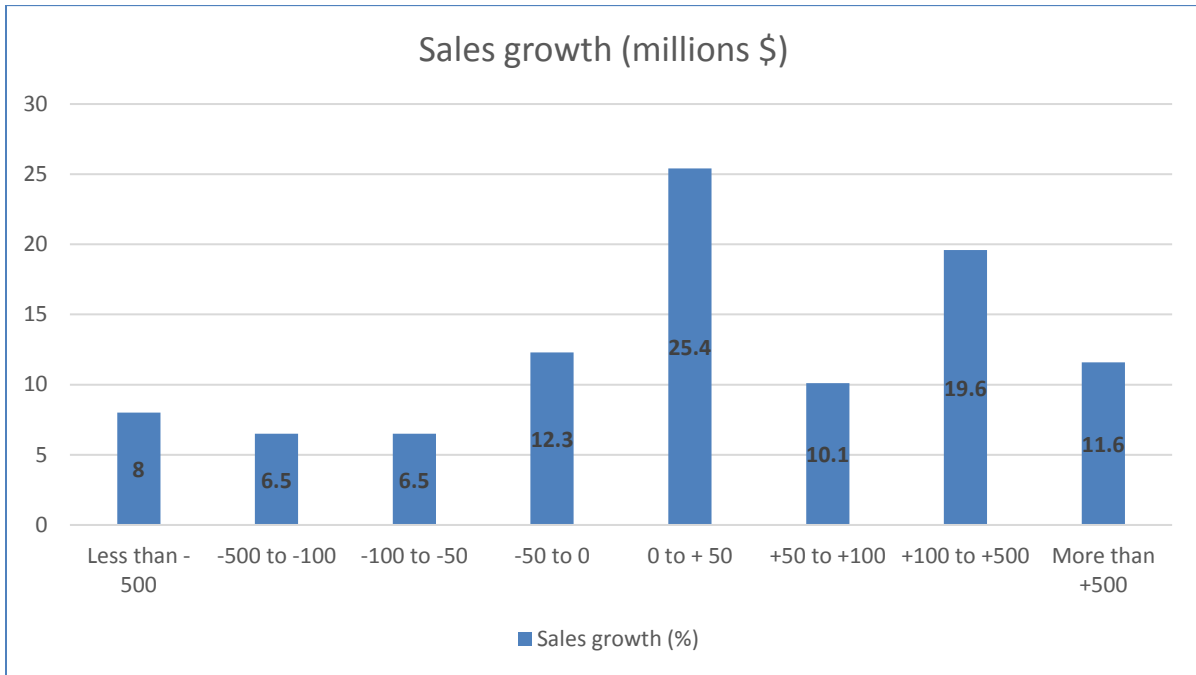


Figure 5 The distribution of change in market valuation across the sample

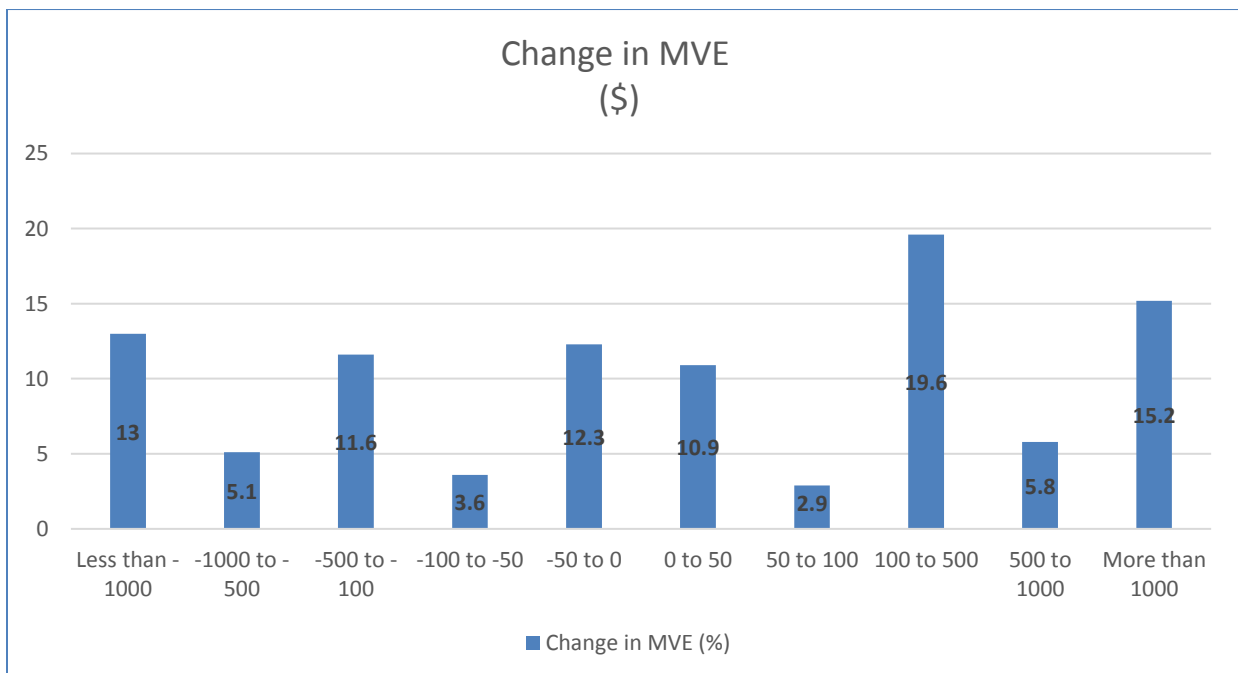


Figure 6 The distribution of board independence across the sample

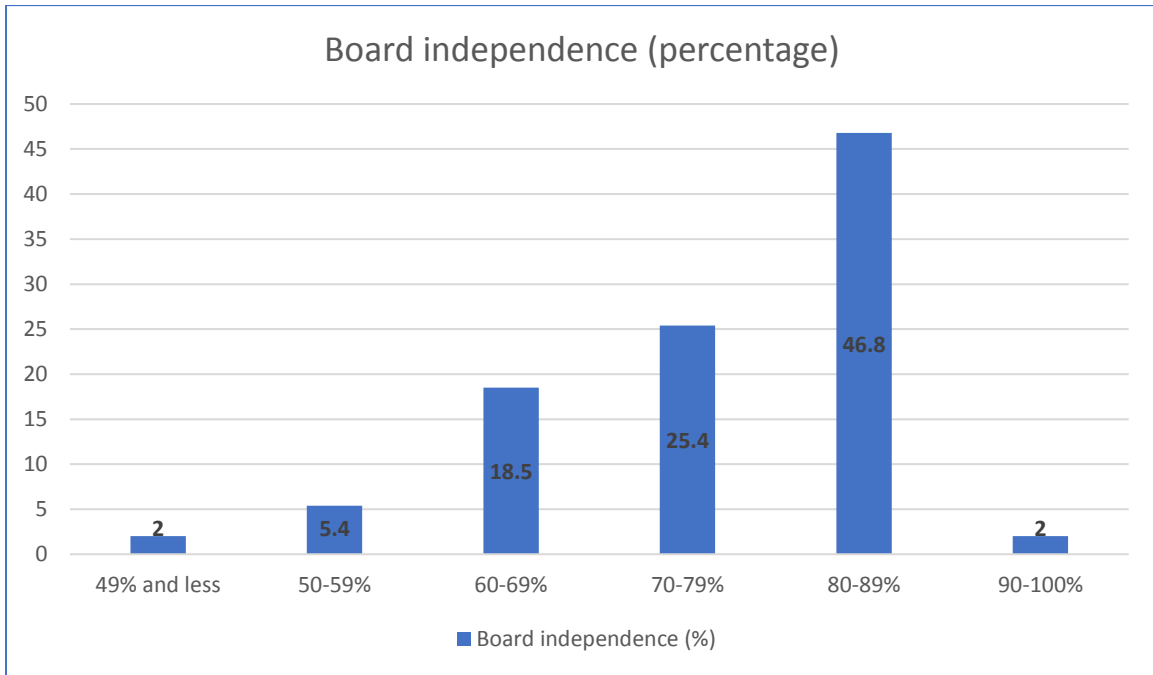


Figure 7 The distribution of board members' external directorships across the sample

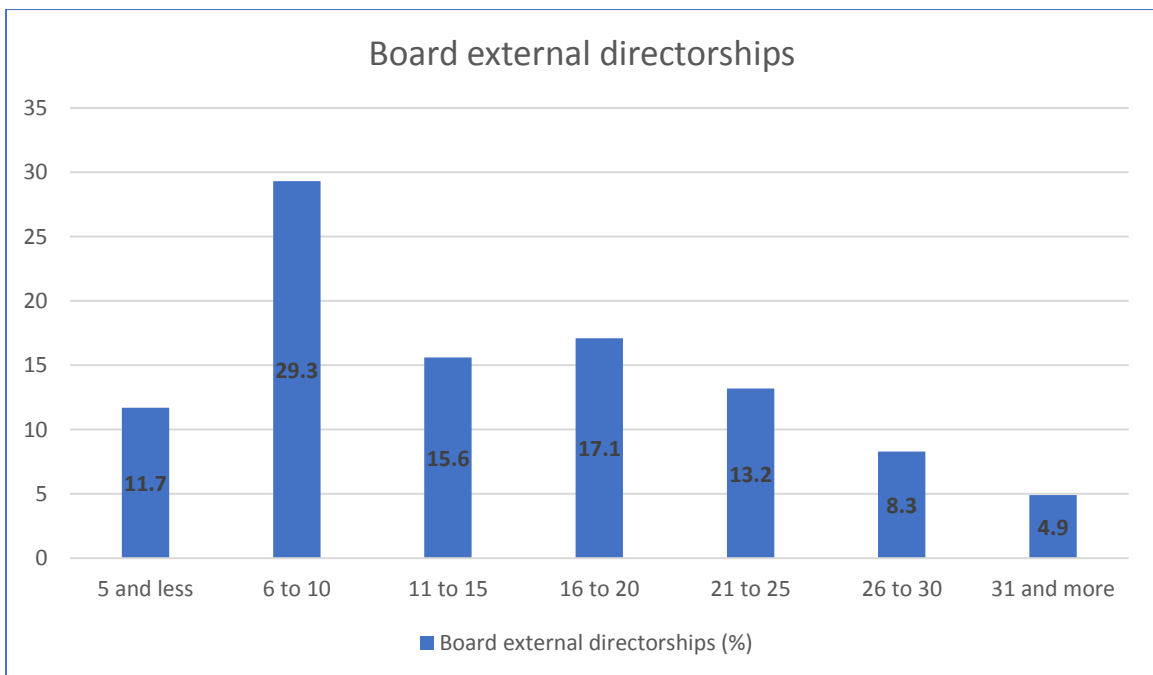


Figure 8 The distribution of board size across the sample

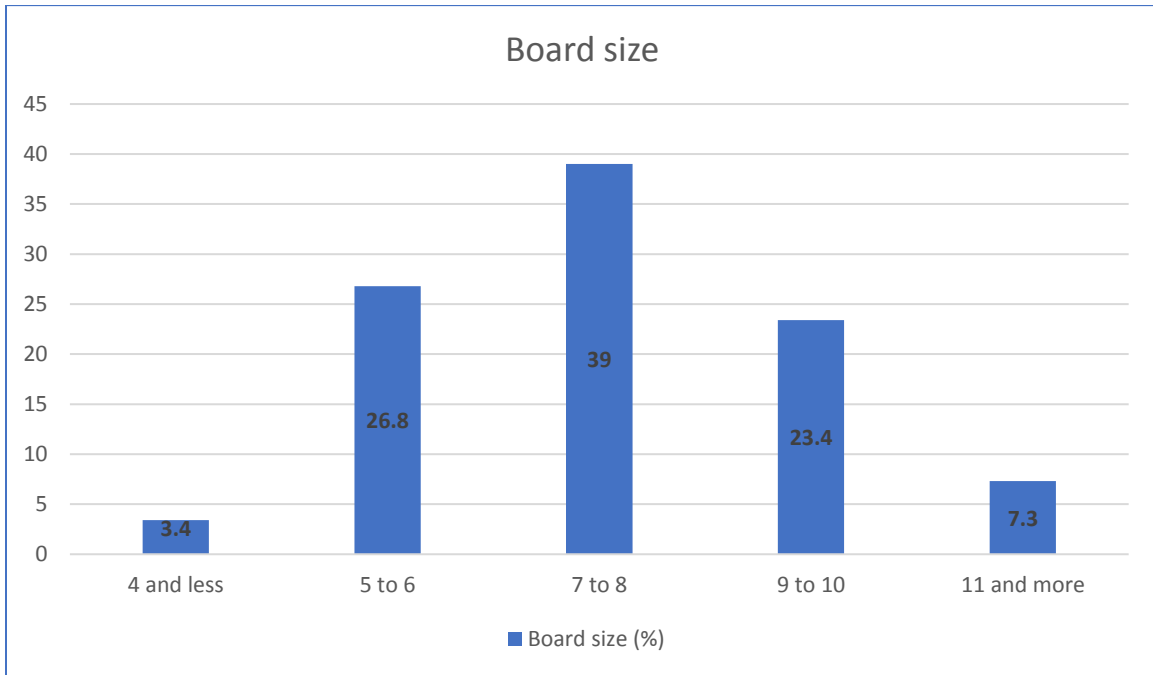


Figure 9 The distribution of board average age across the sample

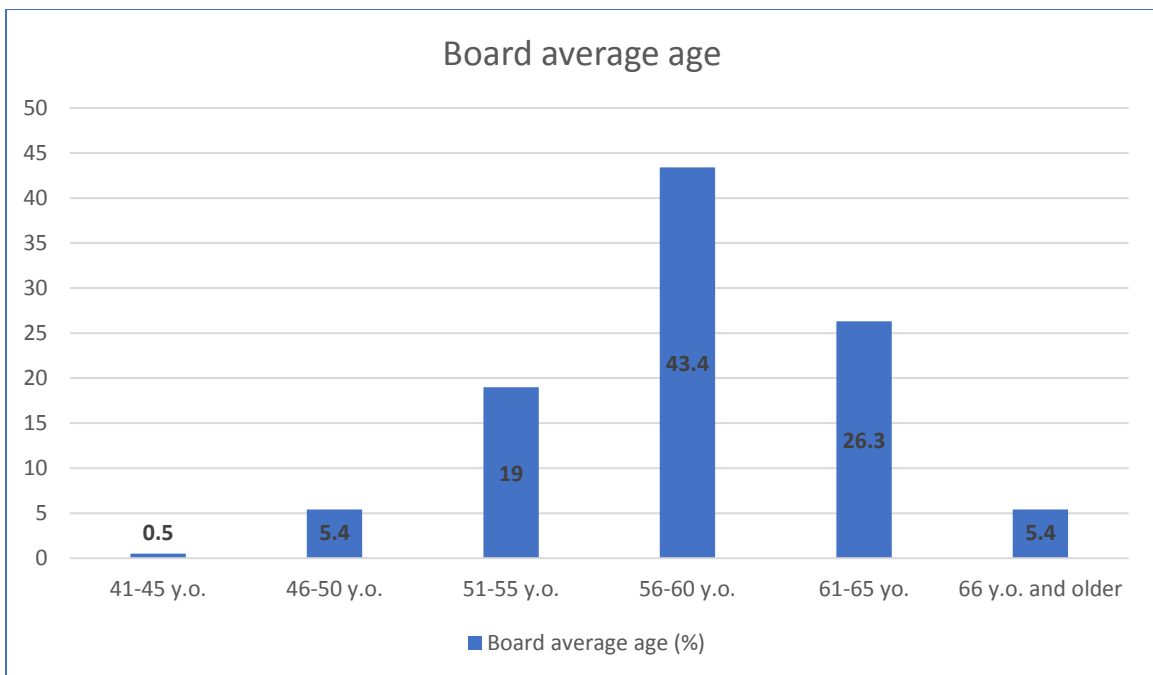


Figure 10 The distribution of CEO origin across the sample

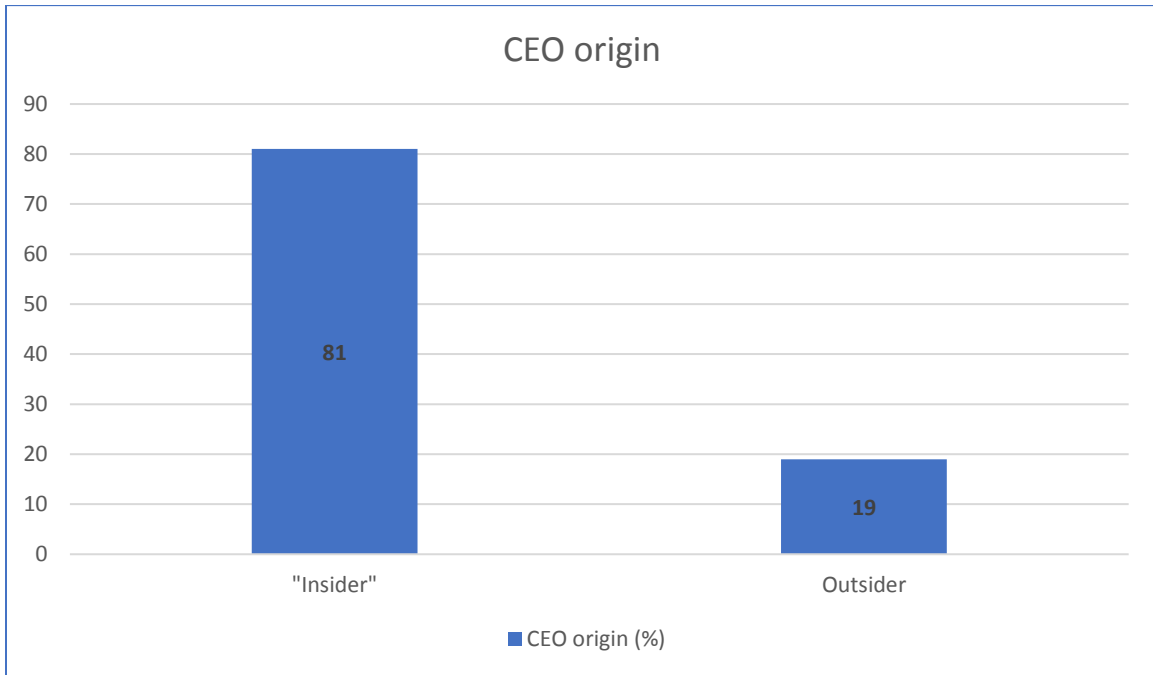


Figure 11 The distribution of CEO duality across the sample



Figure 12 The distribution of CEO's external directorships across the sample

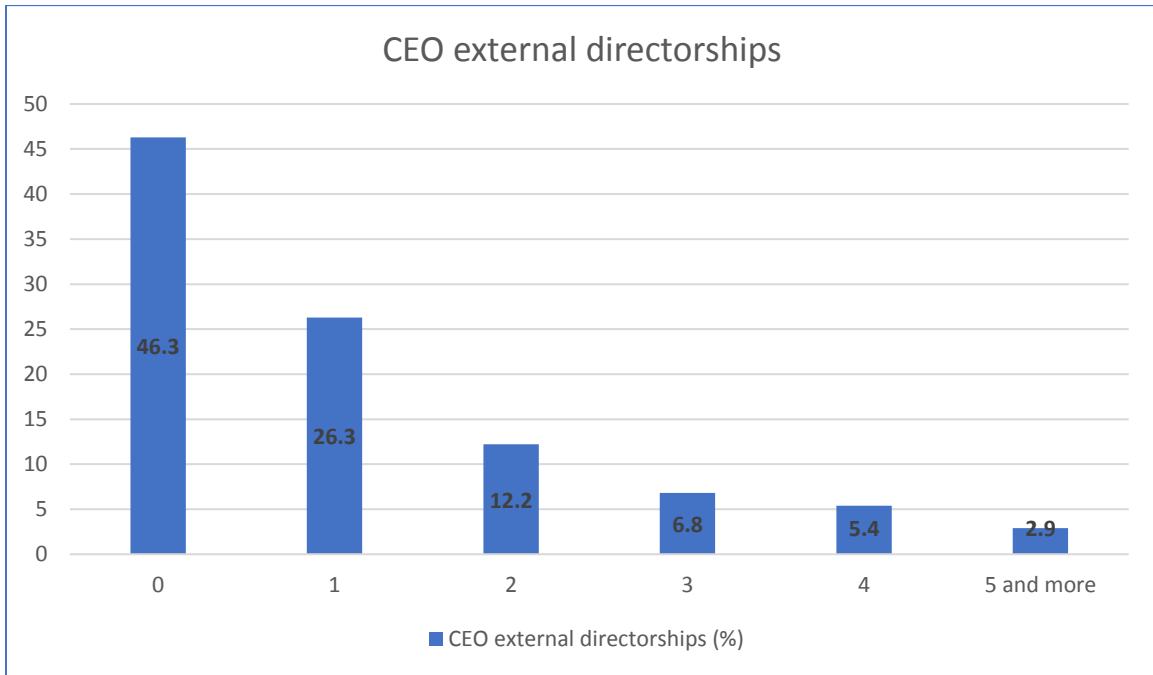


Figure 13 The distribution of CEO age across the sample

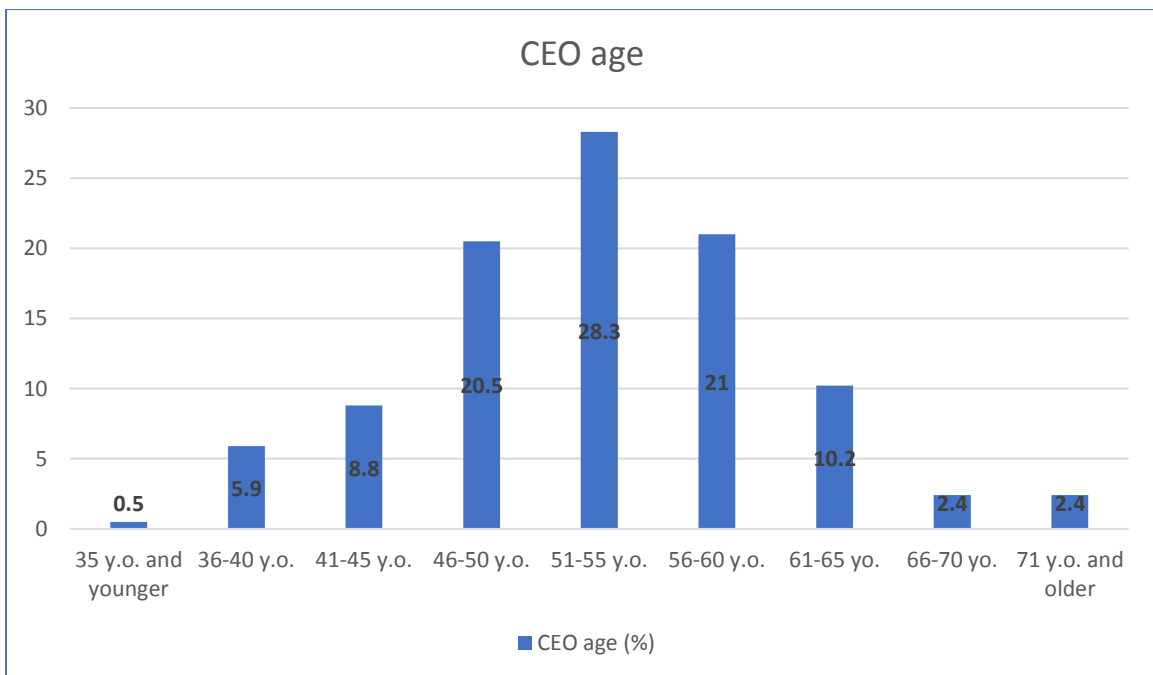


Figure 14 The distribution of managerial ownership across the sample

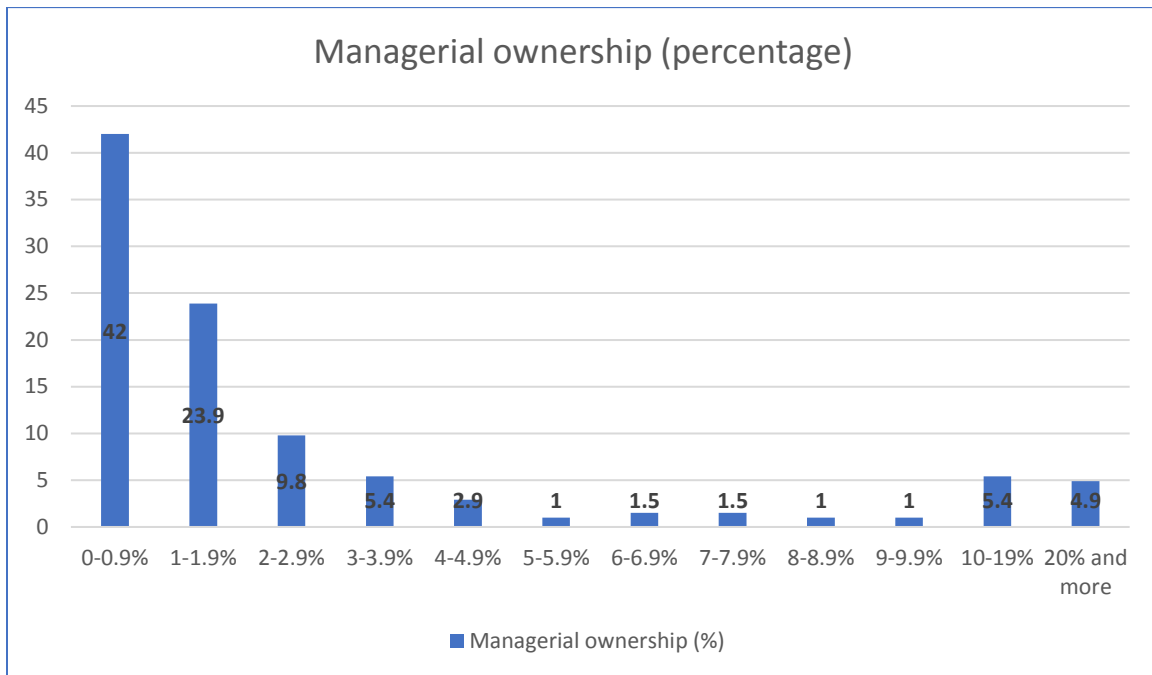


Figure 15 The distribution of institutional ownership across the sample

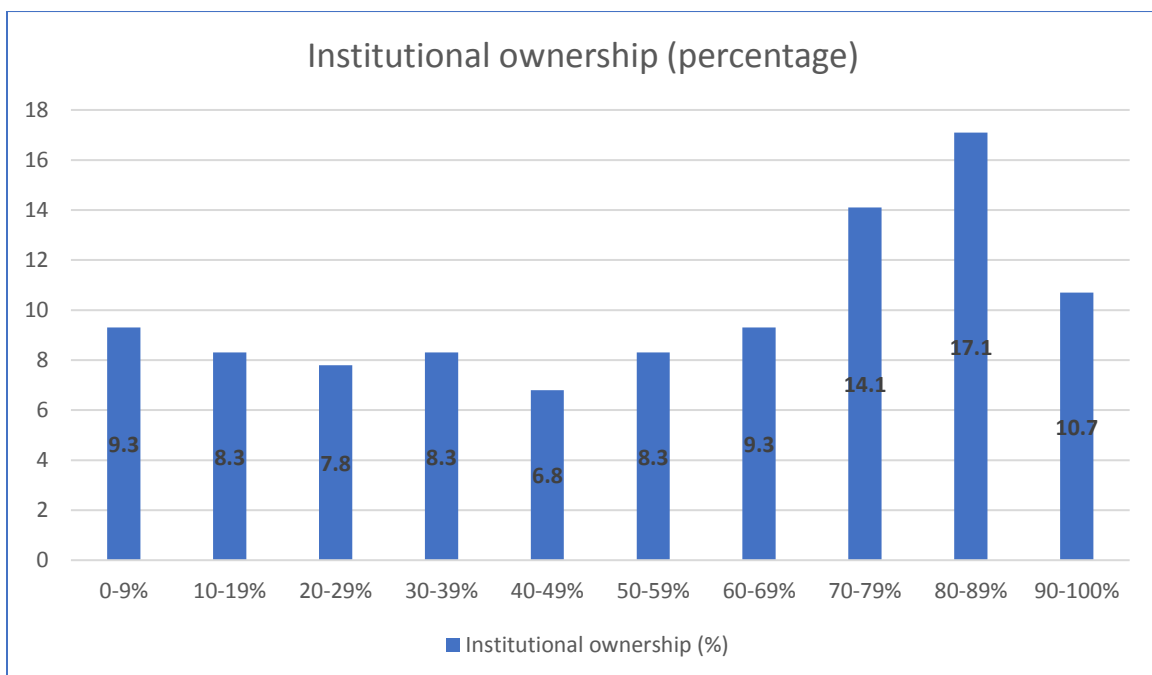


Figure 16 The conceptual framework including empirically-tested results
 (S: significant; NS: non-significant)

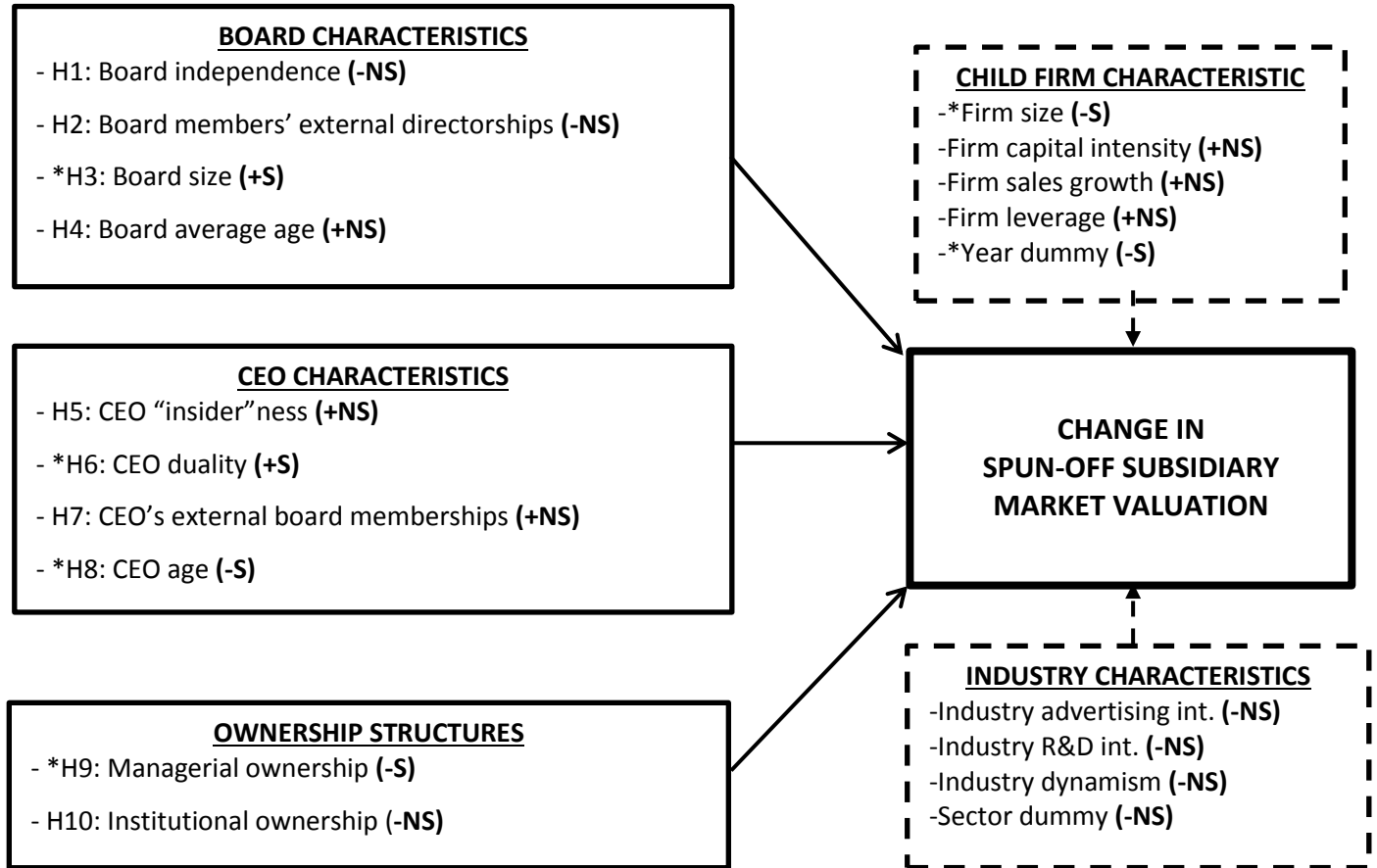


Table 5 List of spun-off subsidiaries in the sample (n=138)

FISCAL YEAR	GVKEY	TICKER	CHILD FIRM
2014	20232	KEYS	KEYSIGHT TECHNOLOGIES INC
2014	20692	KE	KIMBALL ELECTRONICS INC
2014	21761	CDK	CDK GLOBAL INC
2013	12976	SHOS	SEARS HOMETOWN & OUTLET STR
2013	13540	WWAV	WHITEWAVE FOODS CO
2013	17285	CWGL	CRIMSON WINE GROUP LTD
2013	17699	CST	CST BRANDS INC
2013	18086	MNK	MALLINCKRODT PLC
2013	18498	MUSA	MURPHY USA INC
2013	18792	GLPI	GAMING & LEISURE PPTYS
2013	162386	FTD	FTD COMPANIES INC
2013	187766	ERA	ERA GROUP INC
2012	12413	EGL	ENGILITY HOLDINGS INC
2012	160681	HY	HYSTER-YALE MATERIALS HNDLNG
2012	170527	POST	POST HOLDINGS INC
2012	171187	RXII	RXI PHARMACEUTICALS CORP
2012	186773	SXC	SUNCOKE ENERGY INC
2012	187128	WPX	WPX ENERGY INC
2012	187833	FRGI	FIESTA RESTAURANT GROUP INC
2011	185181	ANFC	BLACK RIDGE OIL & GAS INC
2011	186310	HII	HUNTINGTON INGALLS IND INC
2011	187406	AMCX	AMC NETWORKS INC
2011	188255	FBHS	FORTUNE BRANDS HOME & SECUR
2011	189490	XLS	EXELIS INC
2011	189491	XYL	XYLEM INC
2011	190959	LMOS	LUMOS NETWORKS CORP
2011	191255	VAC	MARRIOTT VACATIONS WORLDWIDE
2011	199356	TRIP	TRIPADVISOR INC
2010	154357	QEP	QEP RESOURCES INC
2010	184961	FURX	FURIEX PHARMACEUTICALS INC
2010	185138	VPG	VISHAY PRECISION GROUP INC
2010	185797	HHC	HOWARD HUGHES CORP
2009	183101	MYRX	MYREXIS INC

2009	183257	CFN	CAREFUSION CORP
2009	183312	ASPS	ALTISOURCE PORTFOLIO SOLTNS
2009	183920	AOL	AOL INC
2008	127234	CRA	CELERA CORP
2008	179288	AHC	A. H. BELO CORP
2008	179417	RGSE	REAL GOODS SOLAR INC
2008	179657	HI	HILLENBRAND INC
2008	179700	DPS	DR PEPPER SNAPPLE GROUP INC
2008	179819	NX	QUANEX BUILDING PRODUCTS
2008	180167	SNI	SCRIPPS NETWORKS INTERACTIVE
2008	180231	CPEX	CPEX PHARMACEUTICALS INC
2008	180272	BKFS	BLACK KNIGHT FINANCIAL SVCS
2008	180395	ILG	ILG INC
2008	180402	HSNI	HSN INC
2008	180466	JBT	JOHN BEAN TECHNOLOGIES
2008	180683	IBIO	IBIO INC
2008	180822	MHH	MASTECH DIGITAL INC
2007	151928	CBMX	COMBIMATRIX CORP
2007	176282	SE	SPECTRA ENERGY CORP
2007	176928	BR	BROADRIDGE FINANCIAL SolutNS
2007	177267	TEL	TE CONNECTIVITY LTD
2007	177376	DFS	DISCOVER FINANCIAL SVCS INC
2007	178089	PTSX	POINT.360
2007	178310	TDC	TERADATA CORP
2007	178538	ZEP	ZEP INC
2007	178608	PATAQ	PATRIOT COAL CORP
2007	178855	ABII	ABRAXIS BIOSCIENCE INC
2007	179077	FOR	FORESTAR GROUP INC
2006	119474	DLIAQ	DELIAS INC
2006	165675	VIAB	VIACOM INC
2006	166482	MWA	MUELLER WATER PRODUCTS INC
2006	174130	EQ	EMBARQ CORP
2006	174729	WYN	WYNDHAM WORLDWIDE CORP
2006	175263	WU	WESTERN UNION CO
2006	175319	HBI	HANESBRANDS INC
2006	175900	SBH	SALLY BEAUTY HOLDINGS INC
2005	8240	PHH	PHH CORP
2005	126296	EXPE	EXPEDIA INC

2005	145049	GME	GAMESTOP CORP
2005	162701	HND1	NOVELIS INC
2005	164116	OFLX	OMEGA FLEX INC
2005	164296	DISCA	DISCOVERY COMMUNICATIONS INC
2005	164708	AMP	AMERIPRISE FINANCIAL INC
2005	165746	LYV	LIVE NATION ENTERTAINMENT
2005	264387	ANGO	ANGIODYNAMICS INC
2004	2820	CVCO	CAVCO INDUSTRIES INC
2004	5342	MGI	MONEYGRAM INTERNATIONAL INC
2004	25146	KAR.1	ADESA INC
2004	157057	AIZ	ASSURANT INC
2004	160237	PCOP	PHARMACOEPIA INC
2004	160255	HSP	HOSPIRA INC
2004	162264	NP	NEENAH PAPER INC
2003	7186	MHS	MEDCO HEALTH SOLUTIONS INC
2003	8605	PJC	PIPER JAFFRAY COS INC
2003	64410	KMX	CARMAX INC
2003	152809	MPAC	MOD-PAC CORP
2003	153128	HSN	HUDSON GLOBAL INC
2003	154434	MSPD	MINDSPEED TECHNOLOGIES INC
2003	155280	ATSG	AIR TRANSPORT SERVICES GROUP
2003	157354	KRO	KRONOS WORLDWIDE INC
2003	157355	GHCI	GENESIS HEALTHCARE CORP
2002	135788	CEVA	CEVA INC
2002	137292	STLW	STRATOS INTERNATIONAL INC
2002	140977	RRI	RRI ENERGY INC
2002	141845	AGR.3	AGERE SYSTEMS INC
2002	141913	GPN	GLOBAL PAYMENTS INC
2002	147307	EPAX	AMBASSADORS GROUP INC
2002	147657	DDE	DOVER DOWNS GAMING & ENTMT
2002	148870	EYE	ADVANCED MEDICAL OPTICS INC
2002	148950	NPO	ENPRO INDUSTRIES INC
2002	149010	PKDY	PACKAGING DYNAMICS CORP
2002	149082	WHG	WESTWOOD HOLDINGS GROUP INC
2002	150699	XEC	CIMAREX ENERGY CO
2001	23978	X	UNITED STATES STEEL CORP
2001	126718	PFSW	PFSWEB INC
2001	132502	PALM	PALM INC

2001	138607	MCDTA	MCDATA CORP -CL A
2001	140033	GEN.3	GENON ENERGY INC
2001	142546	MPX	MARINE PRODUCTS CORP
2001	142811	FTI	FMC TECHNOLOGIES INC
2001	144066	COL	ROCKWELL COLLINS INC
2001	144119	CEY.3	CERTEGY INC
2001	144559	ZBH	ZIMMER BIOMET HOLDINGS INC
2001	144889	3VLTA	VIALTA INC
2001	145416	SRLS	SERACARE LIFE SCIENCES INC
2001	145854	VAS	VIASYS HEALTHCARE INC
2001	146017	AYI	ACUITY BRANDS INC
2001	146036	IGI.2	IMAGISTICS INTERNATIONAL INC
2001	148476	KNOL	KNOLOGY INC
2000	126554	A	AGILENT TECHNOLOGIES INC
2000	126599	RETK	RETEK INC
2000	129840	MATR	MATTERSIGHT CORP
2000	130200	GTIV	GENTIVA HEALTH SERVICES INC
2000	133170	GRP.	GRANT PRIDECO INC
2000	133366	EW	EDWARDS LIFESCIENCES CORP
2000	133726	CCMP	CABOT MICROELECTRONICS CORP
2000	134144	EFD.1	EFUNDS CORP
2000	136648	VC	VISTEON CORP
2000	137232	JNS	JANUS CAPITAL GROUP INC
2000	137432	DLA	DELTA APPAREL INC
2000	137602	ACLS	AXCELIS TECHNOLOGIES INC
2000	139662	5933B	AVAYA INC
2000	140916	3HRBGF	HARBOR GLOBAL CO LTD
2000	141241	CESI	CATALYTICA ENERGY SYS INC
2000	141321	SYD.1	SYBRON DENTAL SPECIALTIES

Table 6 Summary of results of empirically tested hypotheses

	Hypothesis	Result
H1	<i>Having an independent board of directors positively influences the change in market valuation of the child firm.</i>	Negative & non-significant
H2	<i>External directorships of board members positively influence the change in market valuation of the child firm.</i>	Negative & non-significant
H3	<i>Larger boards positively influence the change in market valuation of the child firm.</i>	Positive & significant
H4	<i>Older boards positively influence the change in market valuation of the child firm.</i>	Positive & non-significant
H5	<i>An insider CEO who has held a position within the parent firm before the corporate separation positively influences the change in market valuation of the child firm.</i>	Positive & non-significant
H6	<i>The CEO duality negatively influences the change in market valuation of the child firm.</i>	Positive & significant
H7	<i>The CEO's external board memberships positively influence the change in market valuation of the child firm.</i>	Positive & non-significant
H8	<i>The CEO age negatively influence the change in market valuation of the child firm.</i>	Negative & significant
H9a/b	<i>The managerial ownership negatively/ positively influences the change in market valuation of the child firm.</i>	Negative & significant
H10a/b	<i>The institutional ownership negatively/ positively influences the change in market valuation of the child firm.</i>	Negative & non-significant

Table 7 Regression results of interaction effects

DV: Change in market value (ln)	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Control variables				
Leverage	-0.119 (0.224)	0.107 (0.248)	0.111 (0.225)	0.054 (0.212)
Firm size (ln)	-0.040 (0.025)	-0.081** (0.034)	-0.073** (0.031)	-0.074** (0.029)
Capital intensity	0.000 (0.026)	0.004 (0.028)	0.017 (0.025)	0.011 (0.024)
Sales growth (ln)	0.915 (0.614)	0.969 (0.682)	0.613 (0.618)	0.654 (0.588)
Industry R&D intensity	-2.184** (1.044)	-0.524 (1.137)	-1.949* (1.033)	-1.385 (0.977)
Industry advertising intensity	-2.428 (2.887)	-2.622 (3.215)	-2.521 (2.912)	-1.999 (2.746)
Year dummy	-0.429*** (0.164)	-0.549*** (0.186)	-0.572*** (0.168)	-0.574*** (0.159)
Industry dummy	-0.086 (0.099)	-0.077 (0.113)	-0.053 (0.103)	-0.075 (0.098)
Dynamism	-2.711 (1.686)	-1.517 (1.842)	-1.481 (1.672)	-2.221 (1.577)
Explanatory variables				
Board average age		0.010 (0.014)	0.017 (0.013)	0.015 (0.012)
CEO age		-0.015* (0.008)	-0.019** (0.007)	-0.018** (0.007)
CEO origin		0.029 (0.142)	-0.060 (0.129)	-0.013 (0.122)
Board size		0.105*** (0.039)	-0.018 (0.058)	0.004 (0.054)
Board independence		-0.382 (0.499)	-0.158 (0.452)	-0.125 (0.428)
CEO duality		0.197* (0.110)	0.216** (0.100)	0.216** (0.094)
Institutional ownership		-0.060 (0.193)	-0.013 (0.175)	-0.036 (0.166)
Managerial ownership		-0.969* (0.503)	-0.798* (0.456)	-0.936** (0.436)
Board external directorships		-0.001 (0.007)	-0.002 (0.007)	-0.001 (0.006)
CEO external directorships		0.063 (0.039)	0.061* (0.036)	0.110** (0.045)
Interaction terms				
Board size X CEO origin			0.133** (0.058)	0.104* (0.055)
CEO ext. directorships X Dynamism				-1.930* (1.004)
Pseudo R-squared	0.093	0.183	0.2046	0.2106
Number of observations	138	138	138	138

*** p<0.01; ** p<0.05; * p<0.1 (Standard errors are shown in parentheses.)

Figure 17 The interaction effect of board size and CEO origin

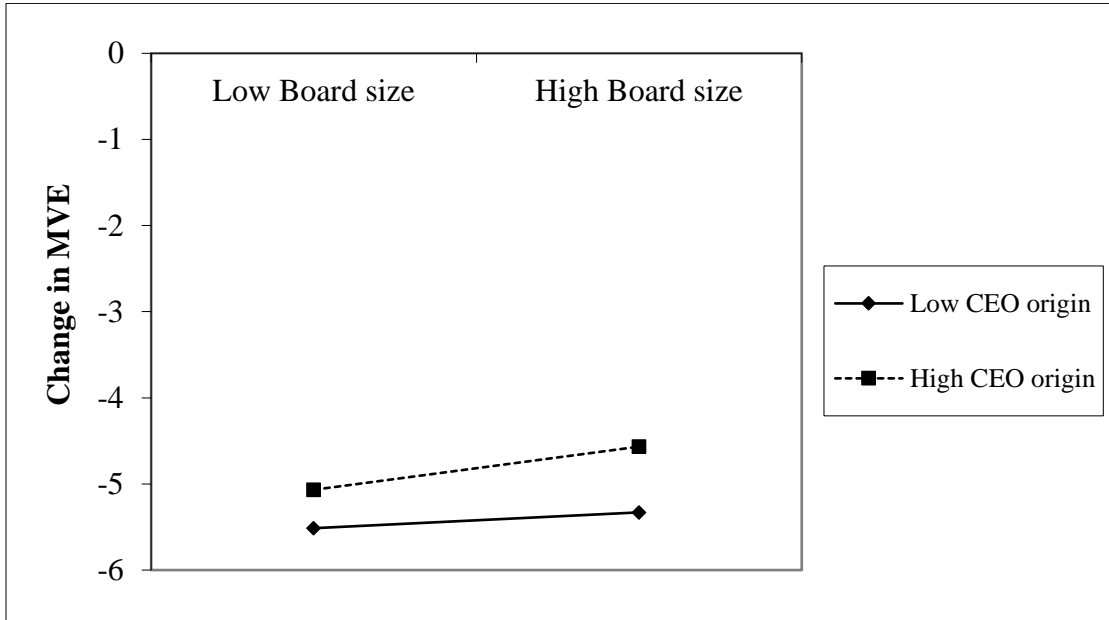


Figure 18 The interaction effect of CEO external directorships and dynamism

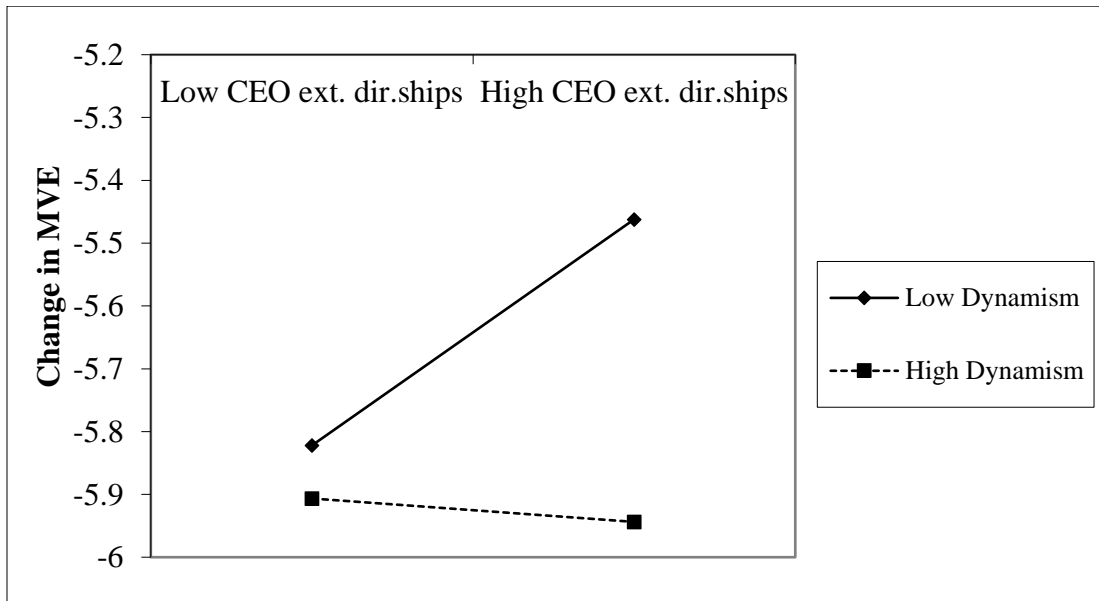


Table 8 Regression results of (+/-) change in market valuation

DV: Change in market value (ln)	MODEL 5 (+) change in MVE	MODEL 6 (-) change in MVE
<i>Control variables</i>		
Leverage	-0.401* (0.214)	0.186 (0.223)
Firm size (ln)	-0.027 (0.033)	-0.116*** (0.037)
Capital intensity	0.023 (0.034)	-0.011 (0.021)
Sales growth (ln)	2.031* (1.218)	-0.504 (0.501)
Industry R&D intensity	1.695 (1.188)	0.536 (1.091)
Industry advertising intensity	-3.365 (3.641)	0.389 (2.283)
Year dummy	0.041 (0.217)	-0.041 (0.141)
Industry dummy	-0.061 (0.108)	-0.108 (0.094)
Dynamism	1.074 (1.764)	-3.681** (1.524)
<i>Explanatory variables</i>		
Board average age	0.002 (0.015)	0.018 (0.012)
CEO age	-0.006 (0.009)	-0.005 (0.007)
CEO origin	-0.141 (0.121)	0.197 (0.146)
Board size	0.038 (0.037)	0.021 (0.035)
Board independence	0.227 (0.459)	-0.065 (0.393)
CEO duality	-0.087 (0.095)	0.055 (0.097)
Institutional ownership	-0.164 (0.191)	-0.102 (0.161)
Managerial ownership	0.135 (0.566)	-0.596 (0.388)
Board external directorships	-0.011 (0.007)	-0.008 (0.006)
CEO external directorships	0.085** (0.032)	-0.068 (0.043)
<i>Pseudo R-squared</i>	0.2545	0.2428
<i>Number of observations</i>	74	64

*** p<0.01; ** p<0.05; * p<0.1 (Standard errors are shown in parentheses.)

Table 9 Regression results of non-linear relationships

DV: Change in market value (ln)	MODEL 7	MODEL 8	MODEL 9	MODEL 10	MODEL 11	MODEL 12
Control variables						
Leverage	0.112 (0.247)	0.082 (0.219)	0.113 (0.237)	0.053 (0.248)	0.114 (0.247)	0.066 (0.253)
Firm size (ln)	-0.081** (0.034)	-0.080*** (0.031)	-0.082** (0.033)	-0.078** (0.034)	-0.082** (0.034)	-0.079** (0.035)
Capital intensity	0.004 (0.028)	0.004 (0.025)	0.004 (0.024)	0.003 (0.028)	0.004 (0.028)	0.004 (0.028)
Sales growth (ln)	1.022 (0.679)	1.021* (0.603)	1.024 (0.651)	1.066 (0.682)	0.990 (0.686)	1.120 (0.698)
Industry R&D intensity	-0.440 (1.122)	-0.596 (1.017)	-0.700 (1.089)	-0.349 (1.138)	-0.616 (1.134)	-0.696 (1.168)
Industry advertising intensity	-2.598 (3.189)	-2.286 (2.866)	-2.551 (3.085)	-2.807 (3.211)	-2.373 (3.205)	-1.501 (3.304)
Year dummy	-0.561*** (0.183)	-0.557*** (0.165)	-0.557*** (0.179)	-0.525*** (0.185)	-0.557*** (0.186)	-0.574*** (0.189)
Industry dummy	-0.086 (0.112)	-0.087 (0.101)	-0.056 (0.108)	-0.103 (0.113)	-0.068 (0.113)	-0.092 (0.115)
Dynamism	-1.500 (1.831)	-1.685 (1.665)	-1.764 (1.757)	-1.614 (1.862)	-1.759 (1.837)	-1.809 (1.945)
Explanatory variables						
Board average age	0.032 (0.258)	0.011 (0.013)	0.011 (0.014)	0.014 (0.014)	0.011 (0.015)	0.072 (0.268)
CEO age	-0.016* (0.008)	-0.016** (0.007)	-0.016* (0.008)	-0.016* (0.008)	-0.016* (0.008)	-0.016* (0.009)
CEO origin	0.022 (0.141)	0.008 (0.126)	0.024 (0.136)	0.015 (0.142)	0.037 (0.142)	0.003 (0.144)
Board size	0.109*** (0.039)	0.103*** (0.035)	0.105*** (0.037)	0.102** (0.039)	0.108*** (0.039)	0.102** (0.041)
Board independence	-0.387 (0.500)	1.395 (4.167)	-0.367 (0.476)	-0.373 (0.499)	-0.317 (0.498)	0.975 (4.787)
CEO duality	0.200* (0.108)	0.195** (0.097)	0.180* (0.105)	0.203* (0.110)	0.180 (0.109)	0.205* (0.111)
Institutional o.ship	-0.054 (0.192)	-0.032 (0.171)	-0.195 (0.703)	-0.013 (0.193)	-0.045 (0.193)	-0.142 (0.750)
Managerial o.ship	-0.969* (0.497)	-0.950** (0.445)	-0.993** (0.480)	-0.919* (0.502)	-0.998** (0.502)	-0.946* (0.507)
Board ext. dir.ships	-0.002 (0.007)	-0.002 (0.007)	-0.001 (0.007)	0.006 (0.021)	-0.001 (0.006)	0.001 (0.022)
CEO ext. dir.ships	0.062 (0.038)	0.062* (0.034)	0.055 (0.037)	0.063 (0.040)	-0.110 (0.007)	0.065 (0.078)
Board average age (sq.)	-0.0002 (0.002)					-0.0004 (0.002)
Board independence (sq.)		-1.209 (2.923)				-0.940 (3.364)
Institutional o.ship (sq.)			0.166 (0.682)			0.160 (0.725)
Board ext. dir.ships (sq.)				-0.0002 (0.0005)		-0.0001 (0.0005)
CEO ext. dir.ships (sq.)					0.098 (0.076)	-0.010 (0.012)
Pseudo R-squared	0.1834	0.1846	0.1836	0.1838	0.1843	0.1853
Number of observations	138	138	138	138	138	138

*** p<0.01; ** p<0.05; * p<0.1 (Standard errors are shown in parentheses.)

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PUBLICATIONS

- Navis, C., & Ozbek, O. V. 2017. Why context matters: Overconfidence, narcissism, and the role of objective uncertainty in entrepreneurship. *Academy of Management Review*, 42(1):148-153.
- Navis, C., & Ozbek, O. V. 2016. The right people in the wrong places: The paradox of entrepreneurial entry and successful opportunity realization. *Academy of Management Review*, 41(1):109-129.