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The Market Success of Corporate Spin-offs: Do CEO External Directorships, Age, and Their Interactions Matter?

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ABSTRACT

Corporate spin-offs have been a major "preferred" restructuring technique in the previous couple decades in the U.S. This corporate transaction aims to create value for both divesting firm and its subsidiary. This study examines an understudied interaction of CEO external directorships and age (as well as their direct effects) in the strategy literature on the change in market valuation of spun-off subsidiaries. By drawing our cases from the SDC Platinum database, we identified 138 completed corporate U.S. spin-offs that took place between 2000 and 2014. Our empirical analysis indicates that the number of CEO external directorships as well as having a younger CEO positively and significantly affect the change in market valuation. In addition, our interaction effect shows significant results. Grounded in the upper echelons and resource dependence theories, this study contributes to the corporate governance literature in terms of understanding whether two particular CEO characteristics and their interactions hold a great deal of importance for spun-off subsidiaries' market performance. From the perspective of managerial implications, this study suggests that having a younger CEO along with holding many external directorships will help these spun-off subsidiaries much better perform in the market.

KEYWORDS

Corporate spin-offs, Market value, CEO age, CEO external directorships

INTRODUCTION

Corporate spin-offs, as a unique form of corporate restructuring mechanism (Makhija, 2004), aim to create better value for both the divesting firm (parent firm) and its spun-off subsidiary (child firm). The ultimate goal of this mechanism is to create better shareholder value for both the divesting firm and its subsidiary in addition to creating an increase in their market performance (Maxwell and Rao, 2003). In the spin-off literature, there has been a number of studies that examine both antecedents and consequences of corporate spin-offs including their performance (Ahn and Walker, 2007; Feldman, 2016(a); Feldman, 2016(b); Feldman, 2016(c); Iturriaga and Cruz, 2008; Klepper and Sleeper, 2005; Semadeni and Cannella, 2011; Veld and Veld-Merkoulova, 2004; Woolley, 2017); however, in our knowledge, there has been no research exploring the change in market valuation of these subsidiaries caused by CEO-based antecedents after becoming independent companies. Thus, it is critical to answer this following question: Do some particular CEO characteristics (e.g. age and external directorships) indeed matter in the context of spun-off subsidiaries' market performance?

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Previous spin-off research has looked at various aspects of these subsidiaries' successes in the market as stand-alone entities following the corporate separation. For instance, Feldman (2016c) finds that the presence of dual directors, which refers to parent firm's board members being simultaneously appointed on the child firm's board, has a positive effect on the average stock market returns of the subsidiary. Wruck and Wruck (2002) argue that firm-specific human capital including their expertise in governance and upper echelons will have significant impacts on the value creation process by the subsidiary. Sapienza, Parhankangas, and Autio (2004)'s research also shows that production and technological knowledge relatedness between the parent and child firm will have some significant effects on the post-spin-off sales growth of the subsidiary. Although previous research provides important cues about the success parameters for corporate spin-offs, there still seems to be a strong need of examining effects of CEO-related antecedents in this context.

CEOs are a very critical part in the corporate governance structure of the firm. According to Aguilera et al. (2008), corporate governance is directly related to the level of effectiveness or the degree of goal attainment within an organization. More specifically, effective governance structures create a positive impact on "the accountability of corporate decision-makers and the legitimacy of decisions about their different economic and noneconomic goals and values" (Aguilera et al., 2008: 476). Therefore, it is extremely critical to establish these mechanisms in the most effective manner so that top executives' decisions will lead to maximizing firm value, which is the ultimate goal for corporate spin-offs.

According to the upper echelons theory, the CEO, as "the central strategic decision-maker" (Barker and Mueller, 2002: 783), possesses the "ultimate power" to influence organizational outcomes (Lewis, Walls, and Dowell, 2014). As indicated in a study by Beber and Fabbri (2012), top-level executives make critical strategic decisions, which are correlated with their demographic and cognitive characteristics. In particular, the *"age"* factor has been identified as an important indicator of top executives' characteristics in the literature (Hambrick and Mason, 1984). For example, Peni (2014) has found that the CEO age has a positive and significant impact on the firm performance measured by return on assets. In another study, Barker and Mueller (2002) have found that CEO age is negatively and significantly related to firm R&D spending, which means that younger CEOs put more emphasis (and interest) on their firms' R&D efforts. According to the resource dependence theory, external board memberships is a "vital" aspect of the organizational life since through these outside ties, directors can gain valuable knowledge, access to critical information, establish trust, and learn more about how to successfully implement strategies (Geletkanycz and Boyd, 2011). Thus, these directors can better maintain and enhance their firms' competitive posture in the industry. For instance, Geletkanycz and Boyd (2011) have argued that CEO external directorships have a significant and positive effect on firm's long-term organizational performance measured by return on assets and return on sales. In addition, Holbrook (2013) argues that these external board appointments will become a "convincing" factor for current and future investors. Therefore, it is clear that CEO age and outside board memberships are two very important antecedents to firm performance, which are further examined in the context of corporate spin-offs here.

In this empirical study, our first research question investigates whether CEO age has an impact on the change in market valuation of the spun-off subsidiary. Our second research question looks at whether CEO external board memberships affect this change. And finally, our third research question examines the interaction effect of CEO age and external directorships in this model. Previous research in the governance literature strongly suggests that CEO individual characteristics will have very important influence on firm performance (Hambrick and Mason, 1984). CEOs, as key decision-makers, are the most critical executives in organizations due to their significant role on the firm's survival and future prospects. As argued by many scholars, CEO age is a good proxy for understanding the level of risk taking (Barker and Mueller, 2002; Serfling, 2014) and CEO external board memberships is another

good proxy for understanding the level of resource availability and existence of critical industry connections (Hillman and Dalziel, 2003; Zona, Gomez-Mejia, and Withers, 2018). In the context of spin-offs, we believe that both antecedents (as well as their interaction) are critical to the market performance of these recently-independent entities. Therefore, we aim to fill a big gap in the literature by empirically examining both CEO characteristics so that we will understand how spun-off subsidiaries can better perform in the market.

Our empirical evidence reveals that both CEO age (negatively) and external directorships (positively) significantly affect the change in market value of spun-off subsidiaries. In addition, we find that their interaction also creates a significant effect on this change. All these significant findings are very well-aligned with our theoretical arguments. This paper makes a couple important contributions to the strategy literature. First and foremost, our findings prove that CEO demographic characteristics indeed matter in the context of corporate spin-offs. Second, we find significant evidence for the importance of *resource availability and risk taking* in the context of spun-off subsidiaries. Third, we are able to establish a better understanding on how both direct and interactions effects will be significantly important to the market success of spun-off subsidiaries. Thus, by testing a sample of 138 U.S.-based spin-offs between 2000 and 2014, we offer a unique framework that explains how CEO age and external board memberships will matter in this specific corporate restructuring context.

This paper is organized as follows. After briefly explaining what corporate spin-offs are, we present three hypotheses. This is followed by our methodology and results sections. Then, we discuss our results including limitations, future research directions, and managerial implications, which is followed by the conclusion.

THE DEFINITION OF CORPORATE SPIN-OFFS

Corporate spin-offs are designed to create value for both the divesting firm and its spun-off subsidiary (Veld and Veld-Merkoulova, 2008). 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). In this restructuring technique, shares of the subsidiary are distributed to the parent firm's shareholders on a pro rata basis (Desai and Jain, 1999). As a result of this corporate transaction, the spun-off subsidiary becomes a publicly-traded, stand-alone entity (Miles and Rosenfeld, 1983).

According to the literature, there are three common reasons why spin-off events occur. First and foremost, the spin-off activity enables both the divesting firm and its subsidiary to enhance their market valuation and better meet demands of their shareholders (Miles and Rosenfeld, 1983). The main goal here is to increase the shareholder wealth by announcing the spin-off event, which is expected to produce positive abnormal returns (Miles and Rosenfeld, 1983). In other words, by separating the subsidiary from its parent, the expectation is to place both firms in a better position within the market. Secondly, the spin-off event enables top management team members better focus on core business operations (Daley, Mehrotra, and Sivakumar, 1997). Here, the main goal is to remove all unrelated businesses from the portfolio of the parent firm (Daley et al., 1997). Thirdly, spinning off a subsidiary (or division) provides investors with a much clearer understanding of the firm's corporate structure including future strategies (Bergh, Johnson, and Dewitt, 2008). In other words, both current and potential investors can better understand core operational activities along with related resource allocations as a result of this corporate separation (Bergh et al., 2008). Thus, corporate spin-offs can be considered an "exciting" approach for both parties that have strategic goals to increase their market share and profitability.

Despite all these positive expectations of the spin-off event, there are important risks associated with it. For instance, Iturriaga and Cruz (2008) argue that spin-off events further enable top managers

to implement fresh ideas and innovations via an accumulation of new knowledge; however, adapting to new processes, business operations, governance structures, and management systems might create critical complexities and substantial inefficiencies due to the subsidiary's newly independent status (Semadeni and Cannella, 2011). In addition, this situation may create an "identity crisis" for the subsidiary since members of the organization might not be sure about their collective state after becoming an independent entity (Corley and Gioia, 2004). Furthermore, it is quite possible that the subsidiary may face issues regarding the establishment of its legitimacy and credibility within the market (Hambrick and Strucker, 1999) since they do not hold any previous proof of "independent success" yet. Therefore, it is critical to examine and understand both pros and cons of this phenomenon and identify key factors that help to achieve the most positive organizational outcomes.

HYPOTHESES DEVELOPMENT

Aguilera and Jackson (2003) define corporate governance as "the outcome of interactions among multiple stakeholders" (p. 449). These mechanisms aim 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). In the strategy literature, it has been commonly argued that the governance structure may play a significant role on the firm's stock market performance (Moore et al., 2012) via both harmonizing conflicts of interest between agents and principals and improving the wealth of shareholders (Baysinger and Hoskisson, 1990). In particular, as argued in the upper echelons theory, the age variable is considered an important proxy for experience and risk taking (Hambrick, 2007; Hambrick and Mason, 1984). Furthermore, according to the resource dependence theory (Hillman, Withers, and Collins, 2009), external directorships are considered critical sources for the possession of industry knowledge and connections in addition to gaining familiarity to diverse strategy implementation practices. Thus, we establish our arguments around both governance elements in the context of CEOs, who are the "top" decision-makers in organizations, in order to examine the change in market valuation of spun-off subsidiaries.

CEO AGE

The upper echelons theory holds that the age factor is considered a good proxy for the level of risk taking and willingness to initiate changes in the context of top executives (Johnson, Schnatterly, and Hill, 2013). Some strategy research has indicated that younger executives are bigger advocates of strategic change (Ahn and Walker, 2007; Johnson et al., 2013). In particular, younger executives tend to heavily support change (Golden and Zajac, 2001) as well as innovative processes (Barker and Mueller, 2002) as a part of their firm's growth strategies.

According to the upper echelons theory, younger executives are more willing to take risks toward novel practices whereas older executives might prefer being risk averse by embracing conservative managerial approaches (Hambrick and Mason, 1984). From another supportive perspective, which is the information-processing theory (Howard and Morgenroth, 1968), younger executives can better integrate and process critical information so that they make more effective decisions with confidence compared to those of older executives. Thus, we can suggest that the CEO age has important implications on the overall firm performance.

In the context of spin-offs, as a consequence of becoming recently independent, all managerial and operational activities will be run by a "brand new" executive team in these subsidiaries. These executives, especially the CEO, may have to take bold actions without fear and make prompt changes as necessary. Instead of being "committed" to pre-spin-off business practices, a younger CEO is

expected to be more inclined to adapt new practices within the new firm by also making "healthier" choices due to his/ her mental stamina (Child, 1974). In other words, younger CEOs will not be afraid of trying something new and can further push his/ her agenda toward accomplishing a steady and stronger growth in the market. Thus, unless the CEO possesses a "fresh" mindset embracing new practices and ideas, unfortunately the subsidiary may not survive long without even establishing a competitive posture. Therefore, we argue that younger CEOs will have a positive effect on the change in market performance of the subsidiary.

Hypothesis 1: The CEO age negatively influences the change in market value of the subsidiary.

CEO EXTERNAL BOARD MEMBERSHIPS

External ties of executives become very important while implementing corporate strategies (Geletkanycz and Hambrick, 1997). The CEO has a critical responsibility for constantly making "strategic choices under conditions of information overload and ambiguity" (Geletkanycz and Hambrick, 1997: 655). While making these choices, they may need to utilize their external ties in order to acquire a different set of information as well as gain some diverse insight for other strategic alternatives (Cyert and March, 1963). Parallel to arguments of the resource dependence theory (Pfeffer and Salancik, 1978), these external ties will become a "strategic bridge" between their firms and other valuable resources and information available in the industry.

As argued by Geletkanycz and Boyd (2011), as long as the CEO's external board memberships are "well-aligned" with firm's current strategic goals and related environmental challenges, these ties will become very advantageous while trying to come up with alternative solutions to complex organizational problems. Through these external directorships, the CEO can also attain in-depth strategic knowledge regarding the industry (Geletkanycz and Boyd, 2011). Oh (2018) found that CEO's external directorships are positively associated with the industry-adjusted R&D intensity of focal firms. Geletkanycz, Boyd, and Finkelstein (2001) also argue that these sorts of external top-level connections can provide the firm with "important legitimacy and status benefits" (p. 890), which are all "vital" for spun-off subsidiaries due to their recently-independent status.

In the context of spin-offs, the CEO of the subsidiary may have to deal with many more ambiguities compared to those of "already established" companies. These issues might stem from the necessity of resources, ineffective managerial practices, or the lack of knowledge about the external environment including industry rivals' competencies. Since the CEO is the ultimate responsible top executive for the firm's overall success, these external board memberships can help him/ her better understand how to effectively deal with complexity and appropriately formulate strategies by considering those of other companies "proven" previously. In addition, if the CEO of a subsidiary sits on other boards, he/ she can gain an additional insight on how other organizations handle their unique challenges and whether their strategies can be applicable within his/ her firm in order to create better market value. Thus, CEO's external connections will serve as a critical strategic tool for the market success of spun-off subsidiaries. Therefore, we argue that the CEO's external board memberships will have a positive effect on the change in market performance of the subsidiary.

Hypothesis 2: The CEO's external board memberships positively influence the change in market value of the subsidiary.

THE INTERACTION EFFECT OF CEO AGE AND EXTERNAL BOARD MEMBERSHIPS

CEO age, as an upper echelons characteristic, is considered a strong proxy for determining these top executives' behaviors and strategic choices (Carpenter, Geletkanycz, and Sanders, 2004). As argued earlier in our hypothesis 1, younger CEOs of spun-off subsidiaries are expected to help their companies obtain a better market valuation due to their mental stamina and risk taking-oriented mindset. In addition to that, according to our hypothesis 2, CEO external board memberships are expected to become extremely beneficial for these subsidiaries due to the fact that these top executives can gain immense knowledge by sitting on those external boards (Geletkanycz et al., 2001) in addition to helping their "brand new" firms establish their reputation and legitimacy. By combining both arguments, we predict that a younger CEO sitting on some external boards will help the spun-off subsidiary better improve its market valuation.

> ***Hypothesis 3:*** If a younger CEO of the firm sits on some external boards, the change in market value of the subsidiary will be higher.

METHODOLOGY

SAMPLE

SDC Platinum database was used to identify all completed corporate U.S. spin-offs that took place between 2000 and 2014. To ensure consistency in our sample, only those spun-off subsidiaries in which 100% of outstanding shares were distributed on a pro rata basis to shareholders of the divesting firm were included. To further confirm the accuracy of our sample, we used some online resources such as *The Wall Street Journal* and *Lexis/Nexis* as well. As a result of that, our initial sample size included 205 completed spin-offs. Since some spun-off subsidiaries were merged into or acquired by other bigger companies or went out of business, our sample size went down to 149. And finally, to ensure more robustness in our results (Wilcox and Keselman, 2012), we identified and removed outliers, which basically included cases with "extreme" values. Thus, we had 138 spun-off subsidiaries in our very final sample.

We used the U.S. Securities and Exchange Commission (SEC) website to collect the data on corporate governance. The CompuStat database was also used to collect the data related to the firm and industry. In our data analysis, we used a one-year lag so that we would hold consistency with the financial information across all subsidiaries. For example, in the case of a spin-off event completed in August of 2005, we used the financial data for this case from the beginning of 2006 as the "initial" year. Using this approach helped us avoid time-related inconsistencies.

ANALYSIS

There were two independent variables in our analyses: CEO age and external board memberships. We also controlled for several other variables. We estimated the change in market value of spun-off subsidiaries two years after the corporate separation from their corporate parents. Figure 1 shows our conceptual model including all variables with their empirically-tested results.

Weighted least square (WLS) regression was used to test all our models. In the literature, the WLS regression is defined as "the best linear unbiased estimator" (Stanley and Doucouliagos, 2017: 19). As Romano and Wolf (2017) further argue, since the WLS "correctly weights" the data, it enables researchers to gain more efficient results compared to those of other regular linear estimations. Furthermore, we were also able to obtain heteroscedasticity-consistent robust standard errors

(Hoechle, 2007; Long and Ervin, 2000) in the results. Our full regression and interaction models are expressed below:

$$The\ change\ in\ market\ valuation\ of\ spun-off\ subsidiaries\ (full\ model) = \beta_0 + \beta_1\ CEO\ age + \beta_2\ CEO\ external\ directorships + \epsilon_1$$

$$The\ change\ in\ market\ valuation\ of\ spun-off\ subsidiaries\ (moderation) = \beta'_0 + \beta'_1\ CEO\ age + \beta'_2\ CEO\ external\ directorships + \beta'_3 CEO\ age\ x\ CEO\ external\ directorships + \epsilon'_1$$

MEASUREMENT

DEPENDENT VARIABLE

Our dependent variable in this study is the percentage change in the market value of equity (MVE) of the spun-off subsidiary within two years following the spin-off event. The MVE was measured by the number of common shares outstanding times the closing annual share price. By using this percentage change, we aimed to identify the incline (or decline) in these spun-off subsidiaries' market success after becoming independent entities. Since the market value of equity is proved to be a good indicator for future earning of companies in the previous research (Abeysekera, 2011), our dependent variable has also allowed us to better identify potential investors' perceptions on these subsidiaries. Following arguments in the literature (Mira, Goergen, and O'Sullivan, 2018), we adjusted our dependent variable so that cases with negative change in market valuation would not be lost prior to taking its log.

INDEPENDENT VARIABLES

CEO age was measured by the age of CEO (Filatotchev, Chahine, and Bruton, 2016). *CEO external directorships* was measured by the number of directorships the CEO holds at other firms (Geletkanycz et al., 2001). Here, we summed the number of external directorships that a CEO had held.

CONTROL VARIABLES

We included a variety of control variables that could potentially influence our outcome variable. CEO origin indicated whether the CEO had worked under the parent firm prior to the spin-off event (Wruck and Wruck, 2002). This variable was coded as 0 for "outsiders" and 1 for "insiders". CEO duality indicated whether the CEO and the chairman of the board were same individuals (Joseph, Ocasio, and McDonnell, 2014). We coded 1 for duality structure and 0 for non-duality structure. Board size was measured as the total number of directors on the board (Carpenter, Pollock, and Leary, 2003). Firm size was measured as the logged number of employees of the child firm (Cabral and Mata, 2003; Verwaal and Donkers, 2002). Firm capital intensity was measured as capital expenses over total sales for each spun-off subsidiary (Diestre and Rajagopalan, 2011; Nadkarni and Herrmann, 2010). Firm sales growth reflected the change (logged) in sales in two years after the corporate separation (Collins and Smith, 2006). Firm leverage was measured as the ratio of total debt over total assets (Opler et al., 1999). Year dummy indicated financial crises years including 2001-2002 and 2008-2009 (Thams, Chacar, and Wiersema, 2017). We coded 1 for crises years and 0 for other years. Industry R&D intensity was measured as the average ratio of R&D expenditures to total sales for all companies belonging to the same three-digit SIC industry (Nadkarni and Herrmann, 2010). Industry advertising intensity was measured as the average ratios of advertising expenditures to total sales for all companies belonging

to the same three-digit SIC industry (Diestre and Rajagopalan, 2011). Sector dummy reflected two main industry types, which as manufacturing and service (Guthrie, 2001). We coded 1 for manufacturing firms and 0 for service firms. And finally, the CEO ownership was measured as the percentage of equity owned by the CEO (Eisenmann, 2002).

RESULTS

In Table 1, we present the results for descriptive statistics and correlations as well as levels of significance for all variables. The average age of CEOs is 53. The average number of external directorships hold by the CEO is 1.14. This shows that CEOs, on average, sit on one other board. According to the correlation matrix, almost all correlation coefficients are lower than 0.4. In addition, all variance inflation factors (VIFs) are below 2.00. Since the mean VIF appears to be 1.32, we can conclude that there is no multicollinearity issue in this study (Barako and Brown, 2008; Carpenter, 2002). By also mean-centering values of all independent variables, possible multicollinearity issues were further minimized (Aiken and West, 1991).

In Table 2, we present our regression results. Model 1 only includes control variables. In Models 2 and 3, we add our predictors in the order of CEO age and external directorships. Model 4 shows the results for our interaction effect. According to these results, the coefficient for CEO age in predicting the change in market valuation of the spun-off subsidiary was negative and statistically significant (b = -0.009; $p < 0.1$), providing support for Hypothesis 1; and the coefficient for CEO external directorships in predicting this change was positive and statistically significant (b = 0.087; $p < 0.1$), providing support for Hypothesis 2. Regarding our moderation, the interaction effect of CEO age and external directorships on this change was negative and statistically significant (b = -0.0003; $p < 0.05$), providing support for Hypothesis 3. We show this moderating relationship in Figure 2. Thus, all our hypotheses in this study are supported.

Table 1. Means, Standard Deviations, and Intercorrelations Among Study's Variables

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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. CEO origin	0.809	0.393	-0.129 *	0.147	0.287 ***	-0.035	0.068	-0.085	0.022	0.098	-0.063	1.000					
11. Board size	7.521	1.941	0.068	0.130	0.474 ***	-1.121	-0.024	-0.218 ***	0.102 **	0.266 **	-0.175 ***	-0.017 *	1.000				
12. CEO duality	0.390	0.488	0.038	-0.014	0.079	-0.096	0.137	-0.049	-0.108	-0.046	-0.008	0.061	-0.161 **	1.000			
13. CEO ownership	0.023	0.059	-0.083	-0.065	-0.321 ***	0.051	0.034	0.117	0.028	-0.055	0.039	0.069	-0.245 **	0.213 ***	1.000		
14. CEO age	53.11	7.891	0.016	0.156	0.139	-0.019	0.055	-0.057	-0.059	0.177 **	-0.042	0.151	0.201 ***	0.077 *	1.000		
15. CEO external directorships	1.141	1.604	0.138	0.138	0.133 *	-0.064	0.138 *	-0.001	-0.038 *	-0.040	0.163	-0.017	0.138	0.241 ***	0.194 **	0.306 ***	1.000

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

Table 2. Independent Models of CEO Age and External Board Memberships (Robust Standard Errors in Parentheses)

DV: Change in market value (ln)	Model 1	Model 2	Model 3	Model 4
Control Variables				
Leverage	*0.486* *(0.306)*	*0.747**** *(0.245)*	*0.577** *(0.347)*	*1.136**** *(0.391)*
Firm size (ln)	*-0.105**** *(0.027)*	*-0.095**** *(0.024)*	*-0.095**** *(0.024)*	*-0.102**** *(0.025)*
Capital intensity	*0.012* *(0.018)*	*0.009* *(0.014)*	*0.005* *(0.017)*	*0.008* *(0.018)*
Sales growth (ln)	*2.074*** *(0.831)*	*2.504**** *(0.822)*	*2.289*** *(0.892)*	*2.619**** *(0.855)*
Industry R&D intensity	*-0.765* *(1.267)*	*-0.910* *(1.152)*	*-0.684* *(1.213)*	*-1.215* *(1.152)*
Industry advertising intensity	*-1.802* *(2.017)*	*-2.753* *(1.701)*	*-2.284* *(1.924)*	*-4.113*** *(1.914)*
Year dummy	*-0.470**** *(0.112)*	*-0.555**** *(0.119)*	*-0.548**** *(0.119)*	*-0.561**** *(0.121)*
Industry dummy	*-0.001* *(0.094)*	*0.050* *(0.085)*	*0.025* *(0.094)*	*0.018* *(0.096)*
CEO origin	*-0.032* *(0.120)*	*-0.040* *(0.127)*	*-0.051* *(0.130)*	*-0.027* *(0.125)*
Board Size	*0.075**** *(0.027)*	*0.096**** *(0.027)*	*0.085**** *(0.032)*	*-0.097**** *(0.030)*
CEO duality	*0.165* *(0.113)*	*0.239*** *(0.109)*	*0.199** *(0.121)*	*0.272*** *(0.122)*
CEO ownership	*-1.188* *(1.098)*	*-0.683* *(0.873)*	*-1.200* *(1.316)*	*0.062* *(1.238)*
Explanatory variables				
CEO age	---	*0.013*** *(0.005)*	*-0.013*** *(0.005)*	*-0.009** *(0.005)*
CEO external directorships	---	---	*0.023* *(0.035)*	*0.087** *(0.051)*
Interaction variables				
CEO age x CEO external directorships	---	---	---	*-0.0003*** *(0.0001)*
Sample size	*138*	*138*	*138*	*138*
R-squared	*0.294*	*0.330*	*0.3332*	*0.346*

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

DISCUSSIONS

This empirical study examines whether CEO age and external board memberships including their interaction effect influence the change in market valuation of spun-off subsidiaries following the separation from their corporate parents. We established our arguments based on two well-established theories, namely upper echelons and resource dependence. Our results proved that the CEO age had a negative, significant impact on this change whereas CEO external board memberships had a positive, significant impact. Regarding the moderation, we found that the interaction effect of CEO age and external board membership on this change was negative and significant. We discuss theoretical contributions and managerial implications of these findings including limitations and future research directions in the following sections.

THEORECTICAL CONTRIBUTIONS

Our results add to the corporate governance literature by proving that CEO age and external directorships as well as their interaction indeed matter in the context of improving spun-off subsidiaries' market performance. Specifically, we find that younger CEOs along with their external board memberships will help better improve market valuation of these subsidiaries. As Strange et al. (2009) argue, in order to keep all 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 utilizing effective governance practices. Our research results here clearly indicate that demographic characteristics of "key" decision-makers in organizations will become significant influencers for improving subsidiaries' post-spin-off market success.

Our results for first hypothesis revealed that CEO age had a significant and negative effect on the change in market valuation. According to the upper echelons theory, younger executives tend to strongly support strategic change in their organizations and are more willing to take risky actions by implementing new and innovative strategies. In particular, younger CEOs are able (and more open) to make decisions without being committed to the status quo since they have the ability to better process and integrate complicated information. As our results demonstrate, younger CEOs of the subsidiary will become very beneficial in terms of improving their firm's market valuation. Tian, Haleblian, and Rajagopalan (2010) have also found that the CEO age has a negative and significant impact on the abnormal stock returns, which is parallel with our current findings. After becoming an independent firm, the subsidiary's survival process is going to be mainly all about change and newness. If the CEO is able to initiate these changes and act without fear, their firms can gain their "accepted" status among industry rivals much faster. This will also help these recently-independent companies convince their investors about their long-term organizational survival. Therefore, a younger CEO will provide the subsidiary with a "stronger push" toward an improved market performance.

Our results for second hypothesis showed that CEO external board memberships significantly and positively influenced the change in market valuation of subsidiaries. As upper echelons and decision-making theorists argue, CEOs have to make very critical decisions under ambiguity and information overload in his/her regular routine. This situation requires the CEO critically analyze all this complicated information constantly. Previous research has found positive connections between CEO external directorships and firm's long-term performance (Geletkanycz and Boyd, 2011). Thus, we can argue that if the CEO becomes aware of alternative strategies and gains more experience in how to govern better via sitting on some external boards, he/ she can handle these complex situations more effectively, which is also expected to send positive signals to the market. In the context of spun-off subsidiaries, this outcome will become extremely critical since these CEOs need to collect all the input from both internal and external environment of the firm in order to take timely preventive and competitive

actions in their recently-independent companies. In addition, since these subsidiaries are seeking legitimacy in the industry after being separated from their corporate parents, having a CEO sitting on other boards will assist them with better establishing themselves as stand-alone entities. Therefore, this finding tells us that CEO external directorships should be considered a critical factor for an improved market success of the subsidiary.

And finally, our moderation results provided significant results for the interaction effect of CEO age and external board memberships. According to Figure 2, we can interpret this finding as follows: If a CEO is young and sits on some other companies' boards, this will help these subsidiaries further improve its market valuation. In other words, CEO external board memberships makes the effect of CEO age on the change in market valuation of corporate spin-offs much stronger. Thus, we can conclude that younger CEOs who also sit on external boards will significantly benefit to the subsidiary's market performance.

Overall, this paper contributes to the governance literature in a couple unique ways. First of all, it provides a unique insight about the effect of critical governance mechanisms on the change in market valuation of spun-off subsidiaries. Second, it proves the importance and applicability of both upper echelons and resource dependence theories in the context of corporate spin-offs. Third, our regression results identify two characteristics of CEO (age and external board memberships) to be significantly correlated with our dependent variable. And finally, our moderated regression results show that the interaction of both CEO characteristics will significantly influence our outcome variable as well.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Although this study has made important contributions to the literature, we also recognize its limitations. First of all, this study uses the change in market valuation as the outcome variable. Future studies can consider looking at different performance variables. Second, our study only includes corporate spin-offs in the U.S. It would be interesting to see whether we might still find similar results in the international context. Third, our study is solely based on the secondary data. Future research can improve our findings by collecting primary data on executives' cognitive and behavioral characteristics and examining their impacts on the firm performance. And finally, it might be fruitful to add more explanatory variables related to the composition of top management teams and board of directors.

MANAGERIAL CONTRIBUTIONS

In order to successfully govern spun-off subsidiaries, according to our results, we offer critical empirically-grounded insights for choosing the "best" CEOs. Our results suggest that CEO characteristics significantly matter in explaining the market success of the child firm. In particular, we find that younger CEOs and the number of their external directorships will help the child firm better improve its market performance. In addition, our results reveal that if a CEO is young and sits on external boards at the same time, we should expect to see a much better market performance of the spun-off subsidiary. Therefore, these "qualities" of CEOs should be taken into serious consideration during their selection process.

CONCLUSION

In conclusion, spin-offs has been considered a "popular" corporate restructuring technique in the U.S. in the recent decades. Although this technique has been executed by many companies to create a better value for themselves and their subsidiaries, how these spun-off units can truly "stand alone" as independent companies is still a big question in the eyes of investors and the industry itself. This empirical study has revealed an important fact that particular CEO characteristics will matter to help these companies improve their market valuation. We hope that our study grounded in the upper echelons and resource dependence theories will reiterate the importance of governance mechanisms in this "unique" context of corporate spin-offs.

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APPENDICES

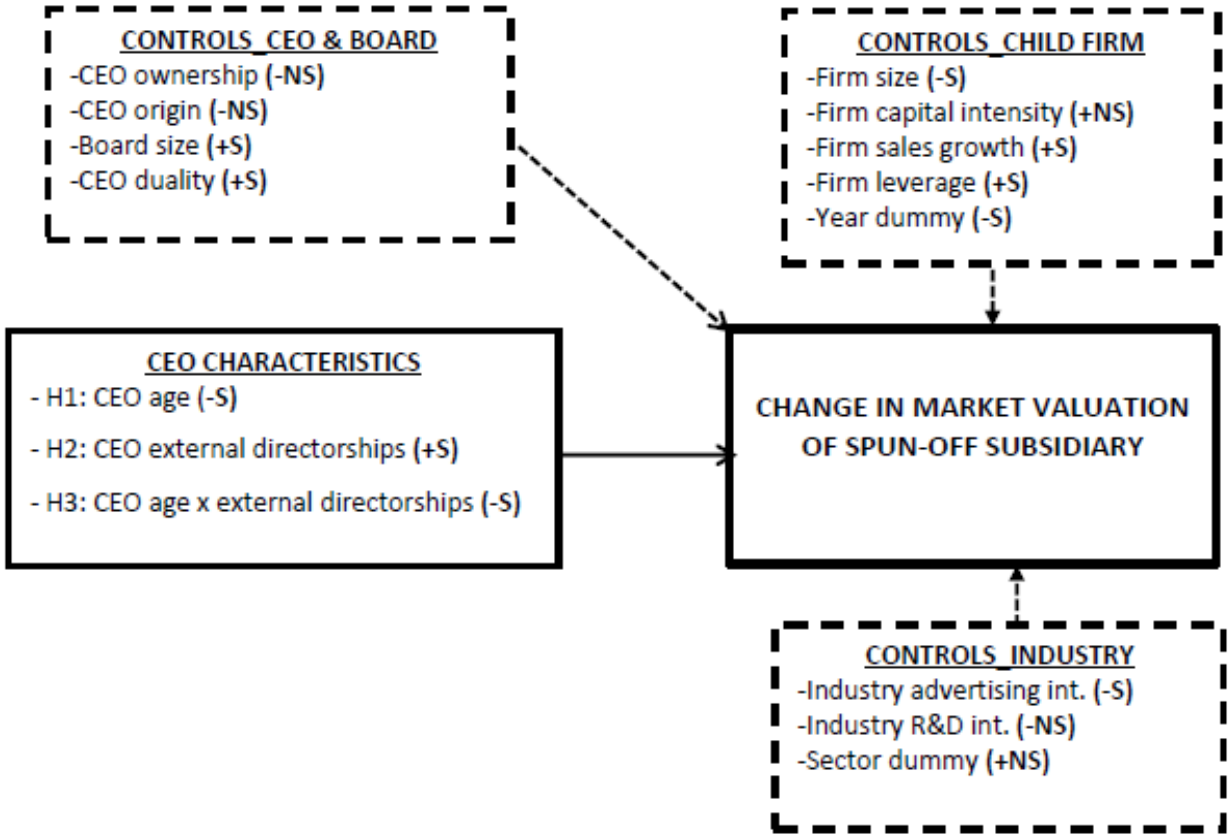

Figure 1. Theoretical Model including Empirically-Tested Results
(**S:** significant; **NS:** non-significant)

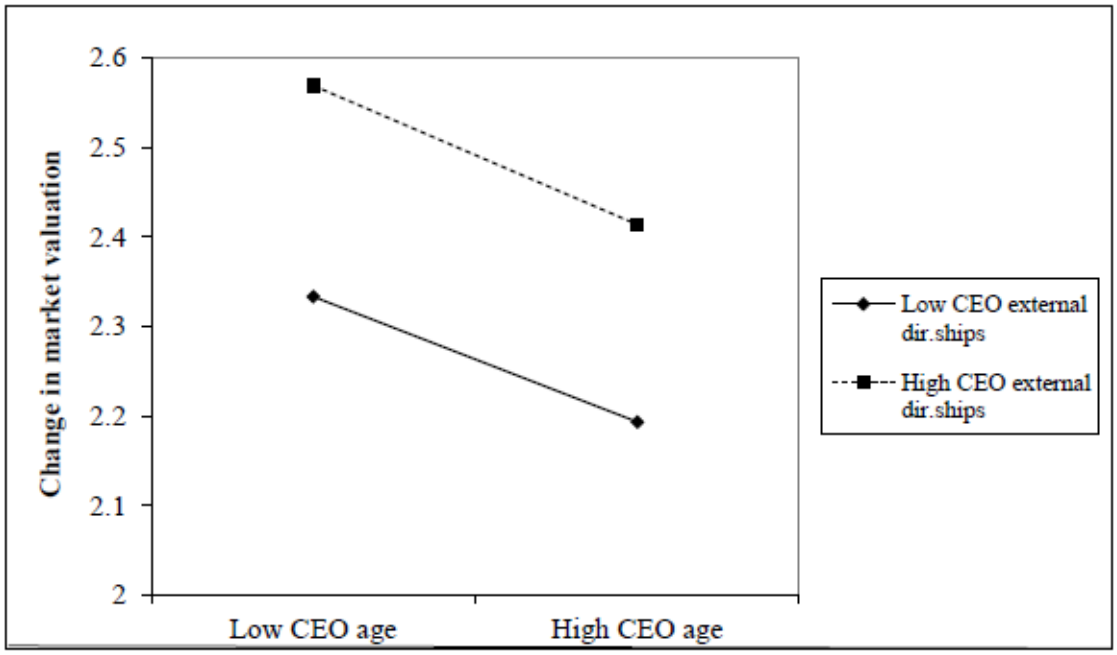

Figure 2. The Interaction Effect of CEO Age and External Directorships on the Change in Market Valuation of Spun-off Subsidiaries