

Outside and Family Governance Power for Firm Performance: Why Organizational Capabilities Matter?

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Abstract

Faced with a turbulent environment and international competition, innovation has been seen as a major source of competitive advantage. In many cases, firms do not possess all the required resources for innovation. According to RDT, the firm is an open system and dependent on the external environment to accumulate the necessary resources. A lack of necessary resources yields uncertainty and risks to firms' innovation activities. In other words, it is difficult for firms to develop new technologies and products effectively without sufficient resources. Corporate governance studies have indicated that outside and family governance power are critical accesses for firms to acquire the resources that they need for innovation activities. This study investigates the effects of outside and family governance power on firm performance under the contingent contexts of organizational capabilities. Hierarchical regression is used to test the hypotheses in a panel data of 1202 cases. On the basis of the agency theory and stewardship theory, the results indicate an inverse U-shaped relationship between outside governance power and firm performance. In addition, the proportion of family directors is negatively associated with firm performance, while the proportion of the family ownership is positively associated with firm performance. Organizational capabilities, in terms of R&D capability and marketing capability, play as moderators. R&D capability strengthens the relationship between the proportion of outside directors and firm performance, while marketing capability attenuates the relationship between the proportion of outside directors and firm performance. Managerial implications and future research directions are discussed.

Keywords: Corporate governance; Firm performance; Organizational capability

Introduction

One of the most widely discussed topics in both the academic literature and the business press concerns how to design board composition and ownership structure that lead to the effective decision-making [25; 61; 62]. Corporate governance is the process and structure used to direct and manage the business affairs of the company towards enhancing business prosperity and corporate accountability with the ultimate objective of realizing long-term shareholder value, whilst taking into account the interest of other stake holders [1,2]. It can be also seen as the means to reduce the agency costs produced by aligning managerial and shareholders' interests, which should lead to a higher firm valuation [3,4]. Jensen and Meckling [5] showed formally how the allocations of composition and ownership among insiders and outsiders can influence the value of the firm. Owing to its increasing importance and difficulties, a number of studies have paid attentions to investigating the relationship between ownership and firm performance [6-8]. Theoretical and empirical literature usually considers concentration of ownership and insider ownership as the main corporate mechanisms that affect firm value [9-11], but the performance effects of ownership structure are confusing and mixed [12]. Therefore, this study is interested in reviewing and re-examining the effects of corporate governance mechanisms on the firm performance.

Prior studies have explored the impacts of different board attributes on the corporate performance but the results are mixed and inconsistent. Some studies argue that firms with larger proportion of outside director can have better firm performance [6,8,13,14] while others find that the deployment of outside director may do harm to corporate performance [15,16] or have no relationship with the firm performance [6,7,12,17]. In addition, some studies suggest that concentrated ownership may be helpful for corporate performance [10,11,16,18,19] while some argue that concentrated ownership may

decrease firm performance [6,20,21]. These arguments imply that two forces, positive and negative, may exist to govern the relationship between ownership and firm performance.

On the other hand, some scholars have explored the possible impacts of family ownership on the firm performance but the results are mixed and inconsistent. Previous studies [22-24] showed that family ownership provides special kind of corporate governance that offers lower agency costs and better performance. Other studies [25,26] however indicated that family ownership is more likely to engage in managerial entrenchment to the detriment of the firm, resulting in weaker performance. Some studies [27,28] also revealed inconclusive results.

Despite the substantial empirical research undertaken in the board composition and ownership determinants of firm performance, the findings reported are characterized by fragmentation and diversity, thus limiting theory development in this field. The main purposes of this study is to examine the effect of ownership structure on firm performance, and to investigate whether differences in the relationship between ownership structure and firm performance due to moderating effects such as R&D capability and marketing capability. Figure 1 presents the research model of this study. Examination of such a link is crucial in order to know how to design corporate governance

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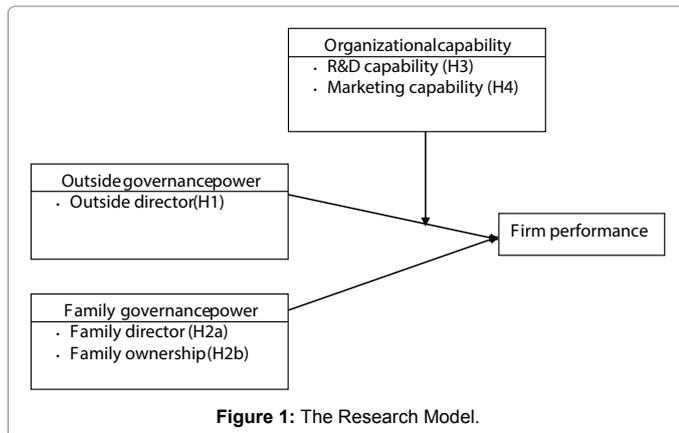


Figure 1: The Research Model.

mechanisms that will motivate managers to make choices for the firm that may improve performance.

The remainder of the paper proceeds as follows. The next section sets out the research background and research hypotheses. The subsequent section describes the methodology for the study. Then, the paper presents the results of the empirical study and the last section provides a discussion of managerial implications and suggestions for further research.

Background and Hypotheses

Corporate governance means the relationships among stakeholders, including shareholders, the board, employees, customers, suppliers, and the managers [29,30]. The objective of the corporate governance is to maximize firm value and to pursue the interests of the firm and its stakeholders. Corporate governance plays an important role in dealing with the ways in which suppliers of finance to corporate can assure themselves of getting returns on their investments [31]. This also means that corporate governance mechanism induces the self-interested controllers of a company to make decisions that maximize the firm value for its owner [32]. Thus, the agency problem can be mitigated to maximize the firm value if a firm has well-defined mechanisms on corporate governance.

Previous studies have offered insights into corporate governance that influences the firm's ability to generate the better performance. Some studies directly examine the relationship between corporate performance and various board attributes such as board size [33], insider-outsider ratio [6,9,34], and director equity ownership [26]. Ownership concentration is also the issue that has been frequently discussed [6,10,11,21,35]. However, many conflicting results can be found in the previous studies. Some argue that firms with larger proportion of outside director can have positive effects on firm performance [6,13,34,36] while others find that the deployment of outside director may do harm to corporate performance [15,16] or have no relationship with the firm performance [6,7,12,17]. On the other hand, some studies point out that concentrated ownership may mitigate the agency problem and enhance the corporate performance [10,11,16,18,19] while some argue that concentrated ownership may sacrifice the interest of the minority investors and the agency problem still exists [6,20,21] or few systematic relationship between ownership and corporate governance exist [6,35]. Moreover, because each firm has its unique organizational context which might influence and constrain firm behaviors, the internal environment on which internal governance performs should be highlighted to ensure the efficacy of

any governance arrangement [37]. Therefore, this study also argues that the firm performance-determining effects of outside director depend on R&D capability and marketing capability detail below some hypotheses that outline conditions that outside governance power and family governance power would influence the firm performance.

Outside governance power and firm performance

The presence of outside directors may reduce conflicts of interest inherent in the executive contracts involving principals and agents. They are expected to be more vigilant to protect the interests of shareholders because of their concern for their professional reputations or obligations [38]. On the other hand, outside directors neither are employed in occupations of firms, nor have affiliations with firms' management, so they can be more effective in aligning the interests of shareholders and managers [39]. Furthermore, the outside directors as effective board of directors can protect the interests of shareholders by effectively controlling the opportunistic behaviors of managers and ensuring the firm to formulate effective strategies [40,39]. From agency theory perspective, it suggests that a greater proportion of outside directors will be able to monitor any self-interested actions by managers [5,38,41]. Because of the monitoring mechanism, there will be less opportunity for managers to pursue self-interest at the expense of owners.

In addition, outside directors can also affect specific events [42,43]. These outside directors either have valuable experiences in internal operation and strategic decision making or possess expertise and connections in various areas. Thus, they can be very helpful to evaluate corporate operational activities. If the investment is a costly executive decision or risky action, it can be confronted [44]. In other words, the outside directors can help a firm identify the valuable investments or activities to have the greatest probability of success [45]. On the other hand, after deciding to implement the investment project, the outside directors will also actively monitor the firm's operations of this project toward effective resource allocation [46]. Moreover, they can also apply their board corporate experience or expertise to offer valuable advice and counsel to enhance the firm performance [47].

In contrast to agency theory, stewardship theory predicts that the managers are essentially trustworthy individuals and are good stewards of the resources commissioned to them [18]. Thus, stewardship theorists believe that a high proportion of inside directors would lead to greater access to information, superior decision-making and therefore higher firm performance [48,49]. Thus, from stewardship theory, it contends that outside directors will lack the knowledge, time and resources to monitor management effectively [50,49] which means that outside directors may not be necessary for firms, and they can even be viewed unhelpful to firms' development.

These arguments imply that two forces, positive and negative, may exist to govern the relationship between outside governance power and firm performance. The researcher can reasonably expect that too small proportion of outside directors may not exert the monitoring capability effectively, while too large amount of outside directors without the guidance from insiders may lead the firm to a wrong direction and poor operating performance. As the two related forces, positive and negative, govern the relationship, an optimal level of outside governance power for the firm performance would exist. Before the optimal level, the increase of outside governance power would enhance firm performance. On the other hand, firm performance would be down as outside governance power increases after the optimal level. Accordingly, the researcher can expect that outside governance power

would have a curvilinear effect on firm performance, which will first increase and then decrease when outside governance power increases. In light of the above reasoning, following hypothesis is developed.

Hypothesis 1: Outside governance power has a curvilinear (inverted U-shaped) relationship with firm performance, with the slope positive at low levels of outside governance power and negative at high levels of outside governance power.

Family governance power and firm performance

Wealth distribution, fund raising and talents leaving are the three obstacles the businesses with more family directors might face from the previous studies. Family directors may expropriate wealth from the firm through excessive compensation, related party transaction, or special dividends [51], which may draw the criticism from other shareholders or claimants and lead to poor operating and stock price performance. Next, family directors who are afraid of losing their impacts on decision-making tend to be cautious when they have to raise loans or admit new investors to make new investments [52,53]. This situation may lead to the limitations on the introduction of new technology, which can corrode a firm's long-term profitability. In addition, it may take a long period for middle managers, or even no hopes for them, to achieve top management positions in the businesses with more family directors. Limited executive management positions in the firm controlled by more family directors may function as disincentive to those middle managers by reducing their efforts in the end [45]. Therefore, this study expects that firms with more family directors would exhibit lower firm performance. These considerations lead to the formulation of the following hypothesis.

Hypothesis 2a: The proportion of family directors to the total directors is negatively related with firm performance.

From previous studies [10,11,16,18,19] the positive relationship between concentrated family ownership and corporate performance mainly arises from agency problem mitigating, flexibility promoting and efficiency enhancing. It's reasonable to expect the agency problem can be mitigated in an owner-managed family business. To be more specific, because the family's wealth is closely linked to the prosperity of the firm, family members may have strong incentives to monitor the decision made by the managers. Besides, family business has a longer investment horizon, which leads to greater investment efficiency and mitigates the incentives for myopic investment decisions made by managers [8,22]. And while the relations within a family are largely characterized by altruism, loyalty, and trust, Pollack [54] and Coleman [55] have emphasized that in a family business, these qualities may promote flexibility in operations, which can be good for increasing the productivity within the firm. In fact, there are also findings showing that family-controlled firms are more efficient and valuable than firms without family control [51,56]. In light of the above reasoning, the following hypothesis is developed.

Hypothesis 2b: The proportion of family ownership is positively related with firm performance.

The moderating role of R&D capability

From the view of resource dependence theory, the board plays a crucial role in linking the organization to necessary resources. Thus, it is expected that boards with significant links to fundamentally important constituencies or resources will contribute significantly to firm performance [57,58]. Basically, outside director appointment can be viewed as a way to expand a firm's boundary and should be

beneficial to the firm by extending external resources [57,59,60]. R&D capability is a technological push approach that firms adopt by willing to invest heavily in R&D to introduce excellent technological-related new products for the customers [61-63]. It would be the key to maintain a firm's sustainable competitive advantage. Outside directors with high R&D capabilities will be easy to facilitate knowledge absorption, enhancing learning and thereby can generate new ideas and develop new products [64]. In addition, outside directors with high R&D capabilities are also likely to harness new knowledge from other firms to help corporate operational activities. Without such capabilities, they cannot absorb new knowledge from other firms, integrate new knowledge into their existing knowledge and then let to poor firm performance [65].

The interaction effect of outside governance power and R&D capability is critical to firm performance. Therefore, I argue that R&D capability likely moderates the effect of outside governance power on firm performance. The firm can enhance its corporate performance if the firm has enough capacity to absorb new knowledge which provides more resource and a wider room for outside directors to monitor the management team and give them new idea on product development. Thus, R&D capability can strengthen the benefits brought by outside directors [66]. Without a simultaneous consideration of firm's board structure and R&D capability, the firm is unlikely to ensure the efficiency of any governance arrangement. Therefore, according to above arguments, the researcher proposes that R&D capability may interact with the level of outside governance power to determine firm performance.

Hypothesis 3: R&D capability positively moderates the relationship between the outside governance power and firm performance. In such a way that a high level of R&D capability increases firm performance gains attributable to the proportion of outside directors in the board

The moderating role of marketing capability

Marketing capability also likely moderates the effect of outside governance power on firm performance. Marketing capability is defined as the approach to develop competitive advantages through listening to customers and conveying the value and solutions to them [67-71]. A firm's marketing capability could help firms increase their boundary spanning activity beyond the status quo, which can enable firms to scan the market for new technological options and provide them a base of technologies to draw from the interaction with customers or even the competitors [72]. Marketing capability per se is conducive to a firm's understanding the need of customers because they have a better sense of the customer taste on the existing technologies or any other technological breakthroughs. That is, while firms have greater marketing capabilities, they can effectively use their resources and capabilities to generate greater operational outcomes [64]. In other words, higher marketing capability reflects greater resource allocation and capability development of a firm. Under this circumstance, the firms with greater marketing capabilities may reduce the influences of outside governance power on firm performance. The rationale is that the responsibility of outside directors is to monitor firms' operations effectively and participate in long-term or important strategy development to improve various firms' outcomes, such as innovation performance and financial performance [39,47]. However, firms with greater marketing capabilities can achieve optimal resource allocation and capability development which can lead to better firm performance, thus it may mitigate the importance of outside directors. On the contrary, firms with lower marketing capabilities reflect that they need more valuable suggestions and advices, thus the outside

directors may significantly contribute to the firm's operations and performance. In other words, the contribution and importance of outside directors are salient in the firm with low marketing capability. Moreover, Hermalin and Weisbach [73] also indicate firms tend to add more outside directors to their boards when they have poor outcomes. Accordingly, marketing capability would negatively moderate the relationship between outside governance power and firm performance. In light of the above reasoning, the following hypothesis is developed.

Hypothesis 4: Marketing capability negatively moderates the relationship between the outside governance power and firm performance. In such a way that a high level of marketing capability decreases firm performance gains attributable to the proportion of outside directors in the board.

Methodology

Research setting and sample

The researcher examined the effects of outside and family governance power, R&D and marketing capabilities on firm performance. All the electronic companies, totally 308, listed in the Taiwan Stock Exchange were selected as the targeted sample. The researcher chose Taiwan's electronic industry as it plays an important role in the global supply chain, has superior resources and capabilities than other industries, and accounts for the largest market value among industries in Taiwan. In addition, sampling from these publicly traded firms ensures that all observed firms meet the same reporting standards required by the authorities and are periodically audited by independent third parties [74].

To compile the sample, the researcher collects corporate information over the five-year period, 2010-2014. The unit of analysis is the firm in a given year. This research collected data for all the variables from the Financial Database of the Taiwan Economic Journal (TEJ). Following prior studies [75-77] the researcher facilitate causal inference by lagging the measures of the independent and control variables to dependent variable by one year, that is, the time period for the independent and control variables is 2009-2013 while for dependent variable is 2010-2014. The total sample consists of 308 corporate entities and 1232 firm-year observations. The final panel is 1202 cases as there are some missing data in the TEJ database.

Measures

Dependent variable: Firm performance, was operationalized as the operating gross profit rate for firm i in a given year t . The operating gross profit rate has been used as an important proxy for firm performance [78]. The researcher obtained the data for the computation of firm performance during the period of 2010-2014 from TEJ Financial database.

Independent variables: Outside and family governance power. Outside governance power is considered independent of management and thereby are in a better position to influence managers' decisions [79] and able to represent shareholder interests more effectively [80]. Family governance power is defined as shares owned by family members who have the capacity to exercise greater influence over the decision making process [81-83]. Three variables are used as the indicator of the governance power from outside directors and wealthy family directors in this study: the ratio of outside directors in the board, the ratio of family directors in the board, and the ratio of the stock ownership controlled by the wealthy family. This study collected the board information including the board size for each

listed company in Taiwan, the number of outside and wealthy family directors in the board, and stock ownership distribution from the TEJ Financial database during the period of 2009-2013. Then the researcher calculated the proportion of outside and family directors in the board for each firm.

Moderating variables: R&D capability refers to the abilities of firms in the creation processes of new products, new technologies, and new processes, or the extension and improvement process of existing products [14,84-86]. Prior studies usually used the annual expenditure on R&D divided by sales to measure R&D capability [84,65]. Accordingly, in this study the R&D capability was operationalized as the percentage of R&D investment of net sales. In addition, marketing capability refers to the abilities of firms in understanding the markets and creating relationships with customers through channel distribution, product recognition, logistics supports, international marketing, and the responsiveness to customers' needs. In this study, the researcher followed the measurement of prior studies [87-90] to operationalize marketing capability as the annual advertising expenditure divided by sales. Data for both variables, R&D and marketing capabilities, were collected from the TEJ Financial database during the period of 2009-2013.

Control variables: To empirically test the effects of outside and family governance power, R&D and marketing capabilities on firm performance, the researcher included several firm-level variables as control variables to ensure valid results. Firm size may influence firm performance because different size may exhibit different organizational characteristics and resource deployment [10,91]. The researcher used the total number of employees in thousand as a control variable for the firm size effect. In addition, previous studies indicated that different team size may influence firm performance due to different compositional and structural context [92,93]. Thus, Board size was controlled and measured as the number of members in the board. Finally, since firm performance may increase or decrease over time, the researcher included fixed year effects to control the time effect.

Model and Estimation

Hierarchical regression modeling was used to test proposed hypotheses in the study as it has been successfully applied in many fields of social science [94]. In hierarchical models, the data set is organized in a tree-like structure and the control variables, main effects, and interaction effects to be entered in a stepwise fashion. The hierarchical models are attractive because they have an intuitive representation, and thus the resulting models are easy to understand and assimilate [95]. Hierarchical regression models also allow for a comparison between alternative models with and without interaction terms [72,96].

Results

This study attempts to understand the roles of outside and family governance power, R&D and marketing capabilities in determining firm performance. Table 1 shows the means, standard deviations, and correlations for all measured variables in this study. Both independent and moderating variables were mean-centered to reduce the potential problem of multicollinearity [97]. The values of variance inflation factors (VIFs) associated with each of the predictors are within a range from 1.022 to 2.748, with a mean of 1.544. The effects of multicollinearity are within acceptable limits, suggesting no need for concern with respect to multicollinearity [98].

Table 2 displays the results for all regression models. Model 1 presents the baseline mode with five control variables. Model 2 is the model that includes only the linear term of outside director and Model

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	VIF
1. Y2009	0.244	0.43	1											1.501
2. Y2010	0.25	0.433	-0.327	1										1.502
3. Y2011	0.252	0.434	-0.33	-0.335	1									1.492
4. Employees ^b	1.149	2.407	-0.022	-0.012	0	1								1.301
5. Board size	9.41	2.05	-0.015	-0.005	0.007	0.357	1							1.23
6. Outside director ^a (%)	0.422	0.199	-0.062	-0.038	0.016	-0.259	0.048	1						2.488
7. Family director (%)	0.43	0.209	0.042	0.029	-0.007	0.249	-0.137	-0.765	1					2.748
8. Family ownership (%)	0.251	0.167	0.046	0.043	-0.021	-0.005	-0.029	-0.165	0.255	1				1.087
9. R&D capability	0.04	0.048	0	0.016	-0.017	-0.044	0.01	0.086	-0.188	-0.094	1			1.067
10. Marketing capability	0.003	0.006	0.037	-0.024	-0.001	0.02	-0.031	-0.017	0.036	0.02	0.119	1		1.022
11. Firm performance	19.57	15.64	0.024	0.013	-0.046	0.003	-0.013	0.107	-0.123	0.11	0.358	0.253	1	

Table 1: Means, Standard Deviations, and Correlation^a.

^a N = 1202 (two-tailed test). Correlations with absolute value greater than 0.062 are significant at p<0.05, those greater than 0.086 are significant at p<0.01, those greater than 0.107 are significant at p<0.001

^b in thousands

Variable	Dependent variable (Firm Performance)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Y2009	0.011	0.026	0.025	0.015	0.012	0.008
Y2010	-0.001	0.012	0.011	0.002	0.002	0.005
Y2011	-0.042	-0.035	-0.039	-0.042	-0.037	-0.038
Employees	0.028	0.070*	0.081*	0.097**	0.082**	0.070*
Board size	-0.008	-0.029	-0.042	-0.057	-0.053	-0.042
Outside director ^a (%)		0.129***	0.508***	0.359**	0.309**	0.327**
Outside director (%) square			-0.393***	-0.309**	-0.324***	-0.324***
Family director (%)				-0.126**	-0.06	-0.07
Family ownership (%)				0.146***	0.172***	0.169***
R&D capability					0.112	0.086
Outsider director (%) *R&D capability					0.290***	0.289***
Marketing capability						0.303***
Outside director (%) *Marketing capability						-0.111*
R ²	0.003	0.018	0.032	0.053	0.187	0.233
F	0.694	3.722**	5.698***	7.566***	25.070***	27.724***

^aN= 1202 (two-tailed test)
*p<0.05, **p<0.01, ***p<0.001

Table 2: Regression for Firm Performance.

3 introduces the linear term and quadratic terms of the outside director to test Hypothesis 1. Model 4 includes two additional independent variables, family director and family ownership, to test Hypothesis 2a and 2b. Model 5 incorporates the interaction effect between outside director and R&D capability to test Hypothesis 3. Finally, Model 6 incorporates the moderating effect between outside director and marketing capability to test Hypothesis 4.

Hypothesis 1 posits an inverse U-shaped relationship between outside governance power and firm performance. The results in Models 2 and 3 indicate that the coefficient for the linear term of outside director is positive and significant (p<0.001) while its squared term is negative and significant (p<0.001). Accordingly, Hypothesis 1 is supported, indicating that the relationship between outside governance power and firm performance is nonlinear. These findings indicate that outside governance power exhibits a curvilinear relationship with firm performance. A middle level of outside governance power results in a better firm performance than a lower or a higher level of outside governance power does.

Hypothesis 2a posits a negative relationship between family director and firm performance. The results in Model 4 indicate that

the coefficient for family director is negative and significant (p<0.01). Accordingly, Hypothesis 2a is supported, indicating that firms would achieve a higher level of firm performance if they have less family directors on the board. Hypothesis 2b predicts that family ownership has a positive effect on firm performance. The coefficient for family ownership in Model 4 is positively signed and significant at p<0.001 level. Accordingly, Hypothesis 2b is supported. The finding indicates that firms would achieve a higher level of firm performance if there is a lower degree of family ownership.

The researcher examined the contingent roles of R&D and marketing capabilities between outside governance power and firm performance. Model 5 adds the R&D capability factor and its interaction term with outside director. The interaction term of outside director with R&D capability is positive and statistically significant (p<0.001), indicating that the effect of outside governance power on firm performance was positively moderated by R&D capability. The finding confirms the prediction of Hypothesis 3. Hypothesis 4 proposes that marketing capability negatively moderates the effect of outside governance power on firm performance. As shown in Model 6, the interaction term of marketing capability with outside director on firm performance is negative and statistically significant (p<0.05). The

result provides evidence in support of Hypothesis 4, indicating that the effect of outside governance power on firm performance was negatively moderated by marketing capability.

Drawing on the moderating effect in Model 5, the researcher constructed a three-dimension diagram, Figure 2, to illustrate the curvilinear relationship between proportion of outside directors and firm performance under different contexts of R&D capability. Figure 2 depicts a curvilinear relationship that firm performance increases initially and then decreases as proportion of outside directors increases. An optimal level of proportion of outside directors would result in the best firm performance under a given level of R&D capability. As R&D capability increases, the optimal level of proportion of outside directors moves toward the right side. Also, as firms possess a higher level of R&D capability, the arc of proportion of outside directors becomes steeper before the peak and becomes flatter after the peak. These results further confirm that R&D capability positively moderates the relationship between proportion of outside directors and firm performance.

Similarly, the researcher constructed a three-dimension diagram, Figure 3, to illustrate the curvilinear relationship in Model 6 between proportion of outside directors and firm performance under different contexts of marketing capability. Figure 3 depicts a curvilinear relationship that firm performance increases initially and then

decreases as proportion of outside directors increases. An optimal level of proportion of outside directors would result in the best firm performance under a given level of marketing capability. As marketing capability increases, the optimal level of proportion of outside directors moves toward the left side. In addition, as firms have more marketing capability, the arc of proportion of outside directors becomes flatter before the peak and becomes steeper after the peak. These results further confirm that marketing capability negatively moderates the relationship between proportion of outside directors and firm performance.

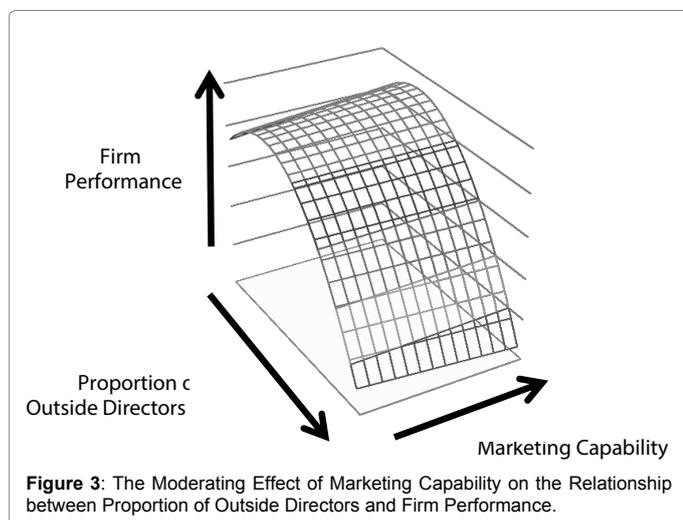
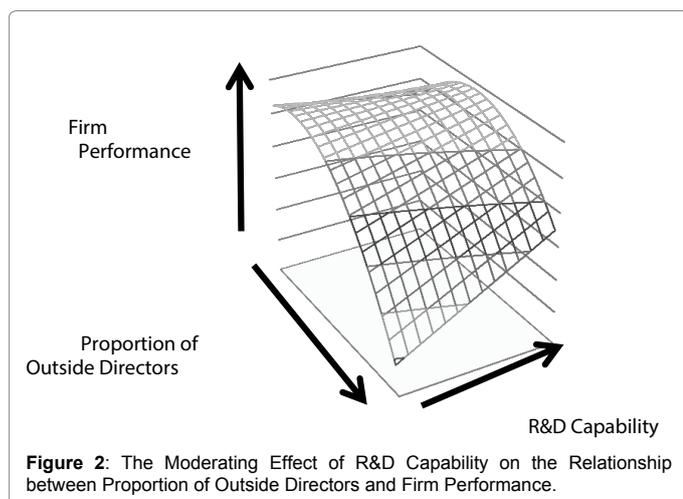
Discussion and Conclusions

The objective of this study is to explore the effects of corporate governance on firm performance under the contingent contexts of R&D and marketing capabilities. A panel data of 1202 cases is collected to test the hypotheses. The empirical findings and implications are discussed as follows:

First, the results demonstrate that there is an inverse U-shaped relationship between the proportion of outside directors and firm performance, which suggests the existence for an optimal level of outside directors for the firm performance. An optimal level of outside directors would exist to achieve better firm performance due to the conciliation between the positive and negative forces governing the relationship. Before the optimal level, the increase of outside directors would enhance firm performance. Higher level of outside directors may benefit sufficiently from wide-range advantages, such as monitoring any self-interested actions by managers and pursuing the growth of R&D capability. On the other hand, firm performance would be down as outside director's increase after optimal level. Higher level of outside directors may not be as knowledgeable as the management team about operational process inside the firm and the industrial outlook outside the firm. And outside directors may lack the time and resources to monitor the management effectively. The present evidences imply that firms should realize that to be lower or higher in outside director situation can neither achieve higher firm performance. Thus, firms should carefully define the insider-outsider ratio of the board to achieve better firm performance.

Secondly, the results indicate that the proportion of family directors is negatively associated with firm performance, while the family ownership is positively associated with firm performance. A possible explanation for this result is that a higher level of family directors may have some obstacles such as wealth distribution, fund raising and talents leaving. In addition, the empirical results support that family ownership poses a positive effect on the firm performance. This outcome may come from that for most family electronic company in Taiwan, the family members who control a large proportion of the firm's equity may be willing to spend their efforts on supervising the decisions made by the management team and overseeing the operation of the firm because the interests of equity owners are closely bounded with the firm performance.

Finally, the researcher also examines how the interaction between outside governance power and R&D capability affects firm performance. This study demonstrates that R&D capability significantly moderates the relationship between the proportion of outside directors in the board and firm performance. R&D capability is more helpful to firm performance when firms have a larger proportion of outside directors. On the other hand, the empirical outcomes show that the marketing capability plays a moderating role in affecting the relationship between the proportion of outside directors and firm performance. The result



suggests that when firm has lower marketing capability, the firm should increase outside directors who often own valuable experience or expertise and connections in various areas. They can offer valuable advice and counsel to enhance the firm performance [47].

This study provides electronic firms in Taiwan with the results implying that the deployment of outside directors, family directors and family ownership may affect the outcome of the corporate performance, while the R&D and marketing capabilities can play moderating roles in the relationship between corporate governance and firm performance. The major contribution of this study may lie in the combination of the variables representing outside and family governance power respectively in the research model, which previous studies [6,7,12,17,27,28] would separate these two constructs into two topics to discuss. On the other hand, when putting other financial variables, such as EPS or ROA, as the indicator of firm performance, the same relationship as the results of this study can be found between the three independent variables in this research and firm performance. Thus, the results of this study are stable and worth for being taken as the reference [99-101].

This study sheds some light on the impact of outside governance power on firm performance under different levels of R&D and marketing capabilities and probes the relationship of the family directors and family ownership with the firm performance, but also leaves some limitations for consideration of further research. First, I derived the empirical results from the electronic industry in Taiwan, which indicates that the findings in this study may not generalize to other industries. Secondly, this study only introduces the R&D and marketing capabilities as moderators on the relationship between the board composition and the firm performance. Other factors such as the backgrounds of board directors and organizational culture may also have impacts on the relationship. Thirdly, the measurement of firm performance in this study includes only the operating gross profit rate. Other indicators of firm performance such as patents output may be used in the future research.

To conclude, the impacts of family members and outside directors on firm performance deserve to be further discussed in the future. And the R&D and marketing capabilities are valuable resources for firms to utilize for superior performance and sustainable advantages. The viewpoints in this study highlight the optimal deployment of outside governance power and crucial importance of moderating roles of R&D and marketing capabilities when examining the relationship between the proportion of outside director and firm performance [102-105].

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