

Exploring Effects of Team Behavioral Integration on Top Management Team International Experience Heterogeneity – Firm Performance Relationship

Chiung-wen Tsao^{1,*}, Shyh-er Chen², I-Chun Lin³, and Hung-chieh Liao²

¹Department of Business and Management, National University of Tainan, Taiwan

²The Institute of Human Resource Management, National Sun Yat-sen University, Kaohsiung, Taiwan

³Department of Information Management, National Sun Yat-sen University, Kaohsiung, Taiwan

Abstract—This study examines the relationship between top management team (TMT) demographic heterogeneity (i.e., team diversity in terms of TMT international experience), firm performance (i.e., ROA, ROE, and perceived performance), and the moderation effect of team members' behavioral integration among the relationships. Results from surveyed and public data of 112 chief executives in Taiwanese publicly listed firms revealed that TMT international experience heterogeneity was positively related to firm performance, and team members' behavioral integration positively and significantly moderated the association between TMT international experience heterogeneity and firm performance, such that the association is stronger when the degree of team behavior integration is higher than when the degree is lower.

Index Term —Firm performance; team behavioral integration; top management team (TMT) ; TMT international experience heterogeneity; upper-echelon theory:

I. INTRODUCTION

The last two decades has seen a dramatic increase in research interest in using upper echelon perspectives as a theoretical framework and a methodology that relies on executive demography as a measurement proxy underlying individual and group cognitions and behaviors, to predict firm level outcomes, such as corporate strategy, innovation, performance, organizational structure and planning formality [2], [20], [34], [44]. Indeed, Hambrick and Mason's [25] study on "upper echelons" (i.e., the firm's outcomes are a "reflection" of the characteristics and actions of a small group of managers at the top of the organization) was the central catalyst for this stream of research.

The core idea of upper echelon theory has two interconnected parts: (1) executives act on the strategic situations they face, and (2) these personalized

understandings are a function of the executives' experiences, values, and personalities [23].

As the volume of organizational research linking top management team (TMT) and firm performance grows, so too does the call for research that goes inside the "black box" of the upper echelon. In an intensive review on recent TMT research building on Hambrick and Mason's [25] 1984 work, Carpenter, Geletkanycz, and Sander [8] noted that one important research gap and recurring limitation about TMT study has been identified: that is the need for improved understanding of the mechanism and processes by which TMT characteristics shape firm performance.

In spite numerous scholars have recognized that a TMT's power plays a key role in shaping major organizational outcomes, but proxies like TMT demographic characteristics have their limits, they can be unreliable, thus, scholars cite a fervent need for inquiry into intervening process [14], [28], [44]. Therefore, built upon Hambrick and Mason's original upper echelon model, Carpenter, Geletkanycz, and Sander [8] recreated a revised UE model, where they introduced new variables omitted from the original upper echelon model (e.g., international assignment experience— which may affect the managerial skills of TMTs), and included moderators/mediators constructs for exploration of the "black box" of TMT interactions and process (e.g., integration, team process, etc.).

Despite the growing research into upper echelons and firm performance linkage, to date, there has been a paucity of research into addressing the question of whether it's financially beneficial for firms to have a highly integrated TMT [43]. Understanding TMT process such as team behavioral integration may reveal the mechanisms of how TMTs operate as a coherent, collaborative information processing and decision-making unit. Hence, this study addresses this literature gap by examining the moderation effect of team behavioral integration on the linkage between TMT international experience diversity and firm performance by using both a questionnaire and a database from Taiwanese publicly listed firms. We aim to understand to what degree does the moderating role of team behavioral integration play among the above-mentioned variables

*Corresponding author: cwtsao@mail.nutn.edu.tw

DOI : 10.6159/IJSE.2013.(3-1).03



and whether the relevant strengths between the relationships would be dependent on the degree of TMT behavioral integration.

Further, contrast to most TMT and strategic management related researches, which have occurred largely within the context of industrialized Western economies, our study focuses on a single market—Taiwan, we draw data from indigenous public Taiwanese firms. Over the last two decades, business analysts in the West have begun to recognize the ascendancy of Asian—particularly Chinese—businesses and started to make predictions about their influential roles in the 21st century. Meanwhile, Taiwan, as one of the biggest emigration home for the overseas Chinese, has experienced rapid economic growth in recent decades and played an active role in the global market. After more than four decades of development, Taiwanese enterprises are relatively matured and could serve as an ideal laboratory to examine the Chinese enterprises in transition, and also could service to test the extent of management theories' universality, for the subject is a combination of both the traditional Confucian value as well as the market-driven, finance-focused Western free enterprise system.

II. CONCEPTUAL BACKGROUND AND HYPOSTHESIS

A. *Top management team heterogeneity and firm performance linkage*

The central premise of upper-echelons theory, as set forth by Hambrick and Mason [25] in 1984, attributes major influence to a firm's leaders, by accounting the fact that executives' experience, values, and personalities greatly influence their interpretations of the situations they face and, in turn, affect their choices, and decision making. Hence, organizational outcomes, such as strategies and performance, are expected to reflect the characteristics of these leaders. The logic of the upper-echelons arguments relies on early work by theorists of the Carnegie School, who argued that complex decisions are largely the result of behavioral factors rather than perfectly rational analysis based on complete information [31], [12]. Therefore, the essential idea of upper echelons theory is built on the premise of bounded rationality, which consists of the idea that complex, and uncertain situations are not objectively "knowable" but, rather, are merely interpretable [35].

The characteristics of TMT are the object of the study in upper echelons theory. TMT has been adopted by organization and strategy theorists to refer to the relatively small group of most influential executives at the apex of an organization [5], [25]. According to Hambrick [23], leadership of a complex organization is shared activities, and the collective cognitions, capabilities, and interactions of the entire TMT enter into strategic behavior. Indeed, at a more practical level, the study of an entire team increases the potential strength of the theory to predict, because the chief executives share tasks and, to some extent, power with other team members. So far, most TMT researches have attempted to

examine the effect of various top management team members' characteristics on different organizational outcomes, on the assumption that the collective dispositions and interactions of top executives affect the major choices they make [25].

Following Hambrick and Mason's [25] work in 1984, recent TMT research could be broadly classified into two streams. First, a rich stream of literature has been developed examining the linkage between TMT characteristics such as personality, skills, abilities, values and perceptions of top management and firm-level outcomes, such as global strategic posture [7], expansive global strategies [41], strategic change [36], [50], commitment to innovation [13], innovation adoption [2], as well as competitive moves [24].

Empirical findings indicated that heterogeneous teams are more likely than homogeneous teams to positively associate with managerial strategic behavior, such as showing greater propensity of strategic actions [24], team innovativeness [49], providing the skills required to address environmental complexities, enhancing productivity in turbulent environments [27], as well as demonstrating a higher degree of internationalization [38]. For example, Carpenter and Fredrickson [7] linked TMT educational diversity and global strategic posture by reasoning that the former provides an indicator of the diversity of cognitive processes embedded in a TMT. Moreover, Hambrick et al. [24] explored the executive origins of firms' competitive moves by focusing on TMT heterogeneity, observed that TMTs that were diverse, in terms of functional backgrounds, education, and company tenure, exhibited a relatively great propensity for action, both their actions and responses were of substantial magnitude; whereas heterogeneous teams, by contrast, were slower in their actions and responses and less likely than homogeneous teams to competitor' initiatives.

In addition, the dominant trend in recent research involves extension of the original upper echelon model to the global arena. For example, Sambharya [40] reported that foreign experience of TMT was positively with their firm's international involvement. Tihanyi, Ellstrand, Daily and Dalton [47] found that TMT average tenure, education, international experience, and tenure heterogeneity were positively associated with global strategic posture. Moreover, Reuber and Fischer [38] indicated that internationally experienced TMT have a greater propensity to develop foreign strategic partners, which was associated with a higher degree of internationalization.

Global competition, technological advancement, product innovation, and volatile market conditions have created greater competitive pressures in almost every industry in the world. Previous research indicated that heterogeneous TMT qualities tend to exhibit greater adaptability in turbulent and complex environmental context for TMT members' experiences and backgrounds influence greatly their values, ways of thinking, etc, which in turn affect their interpretation for the situations and decisions making. Carpenter [6] also noted that



relationships between various indicators of TMT heterogeneity and performance were stronger in firms with high levels of internationalization. Similarly, while Carpenter et al. [7] reported that specific TMT work experiences had strong main effects on the success of multinational firms, they also found this effect to be stronger in firms of greater global presence.

Despite the above fruitful finding of TMT research in the global arena, no research has directly addressed the question of the extent to which TMT international related demographic characteristics associate with firm performance in a Taiwanese setting. This question is imperative because Taiwan has experienced rapid economic growth in recent decades and has played an active role in the global market. Indeed, since the 1960s, foreign companies, mainly from Japan and the United States, have set up subsidiaries in Taiwan. Foreign direct investment thus has increased and a large number of local Taiwanese companies have been involved in international trade.

To manage the increase complexity in international operations, it is critical for a firm to possess the requisite managerial capabilities and resources. The current study argue that TMT heterogeneity in terms of international experience is particularly relevant with the performance of Taiwanese firms, because an international experience heterogeneous TMT is characterized by showing autonomous, flexibility and adaptability in changing environments, and ease at adapting cultural differences, such characteristics are in many ways confirm with organizations adopting differentiation strategy, for example, their competitive actions tend to be more long-term focus, and both of them have major influence on organizational outcome, due to the fact that organizational performance is often a function of either team heterogeneity or adoption of differentiation strategy. Therefore, the above formulation produces the following hypothesis:

Hypothesis 1: TMT international experience heterogeneity is positively related to firm performance.

Although demographic proxies might be reliable predictors of TMTs strategic moves, however, they only provide little insight into the reasons behind TMT decisions. Thus, researchers move beyond demographic proxies by integrating research about behavioral and cognitive factors affecting TMT processes and awareness (e.g. [22], [43]).

B. Behavioral integration as a moderator to foster TMT heterogeneity and performance linkage

As highlighted in a recent comprehensive review of research undertaken on the effects of upper echelons on organizational outcomes [8], while the original upper echelon model argued that team demography characteristics will proxy well for cognitive processes that shape strategic decision making, recently, scholars have unveiled a wealth of evidence indicating that other team processes are likewise affected. In some cases, these alternative processes, including power discretion,

incentives, integration, etc., mediate or moderate the effect of demography on strategic choice; in others, they serve as a separate mechanism ultimately impacting firm performance. Clearly, the discovery of the various mechanisms and processes by which executives impact firms is rather important and necessary.

By recognizing the importance of group interaction and integration in creating “teamness,” Hambrick [22] introduced the concept of “behavioral integration” (i.e., the degree to which the group engages in mutual and collective interaction) into the fundamental nature of top groups, and he restated these groups of most influential executives at the apex of organizations as “top management groups” (TMGs), due to the common tendency for TMGs to cease being “teams.” For the reason that TMGs could be referred as an information processing and decision-making unit, only when TMGs operate as a coherent, collaborative information processing and decision-making unit, they can be called as “TMT.” The concept behavioral integration focuses more narrowly on fine-grained aspects of team process, such as communication quality [36], communication frequency [44], coordination and collaboration [26], interaction effects [17], social integration [44], interdependence [33], consensus [5], [15], [51], and shared leadership (i.e., cohesion and collective vision) [19], etc., within top management groups.

From another point of view, in strategic research, scholars have relied on the resource-based view of the firm to explain the role of TMT in constituting a source of sustainable competitive advantage [11], [18], [21], [37]. The resource-based view argues that the relevant resources under scrutiny must be (1) valuable, (2) unique or rare among competitors, (3) imperfectly imitable and (4) non-substitutable [3]. According to Flood, Smith, and Derfus [21], TMT fulfils these four conditions in the way that firm specific skills which relate to the process of adding value within a particular firm are much more likely to be rare than generic skills. This is particularly true when it exhibits high interpersonal synergy among the members of the TMT, and this notion of interpersonal synergy is again, neatly summarized in the concept of behavioral integration, which underlying three major elements (1) quantity and quality (richness, timeliness, accuracy) of information exchange, (2) collaborative behavior, and (3) joint decision-making [22]. Therefore, the central element in real teamwork at the top is behavioral integration, a behaviorally integrated TMT shares information, resources, and decisions, a truly integrated team engages in several interrelated processes, reflecting an inherent complexity and dynamism of strategic decision-making that cannot be adequately captured by any single process dimension, hence a behaviorally integrated TMT represents the most likely source of inimitability and non-substitutability.

Following Hambrick's [22] concept of TMT behavioral integration, only few empirical works have investigated the effects of managerial behavioral integration on organizational outcomes, and results showed that managerial behavioral integration serve as a



separate mechanism impacting firm performance [29], [30]. Furthermore, although these alternative processes (e.g., power discretion, incentives, team integration, etc.) might mediate or moderate the effect of demography on strategic choice; in very few studies, however, have researchers attempted to confirm whether executive characteristics affect information processing amongst team members. As a result, the psychological and social processes by which executives' profiles are converted into strategic choices still remain largely a mystery –the proverbial black box [23].

Although recent empirical findings related to managerial behavioral integration have only indicated its direct effect on organization performance, nonetheless, the moderation/mediation role of behavioral integration in TMT research remains unexplored. It does not mean that managerial behavioral integration concept has nothing to do with TMT-organizational outcome link; in fact, if top executives do not collectively engage in information processing or decision-making as an entity, then what is the point in trying to use their collective characteristics to predict organizational outcomes?

According to Hambrick [23], the most important implication of “behavioral integration” concept for upper echelon theory, concerns how it affects the basic relevance of the TMT as a meaningful unit of analysis. In a study drawing on many of the same arguments but using demographic characteristics alone and the terminology of behavioral integration [22], [43], Carpenter [6] found that the relationship between TMT heterogeneity and firm performance was strongest among short-tenured TMTs. His study addressed the untested notion that top managers are somehow affected by their differences, but that those differences may change over time due to the extent to which members of the team become behaviorally integrated [8].

In the current study, we attempt to reconcile these alternative views and investigate the moderation role of TMT behavioral integration, as well as examine its interactions with TMT international experience heterogeneity–firm performance linkage. Because there is reason to suspect that a highly behavioral integrated TMT may have a more efficient effect on team coherence, and collaborative decision-making process than a lower behavioral integrated TMT. That is because a TMT with a high level of behavioral integration within a TMT tends to communicate more frequently, has better communication quality, be socially integrated, and highly interdependence, etc., and all these behaviors benefit TMTs to operate as a coherent, collaborative information processing and decision-making unit, which in turn affects a firm's performance. Therefore, we offer one general hypothesis with TMT behavioral integration, which moderate the relationship between TMT international experience heterogeneity and firm performance relationship.

Hypothesis 2: *The relationship between TMT international experience heterogeneity and firm performance is stronger when degrees of team behavioral integration are higher than when degrees of team*

behavioral integration are lower.

III. METHOD

A. Sample and Procedure

The empirical research includes both objective and subjective data. First, the objective data used to test the hypothesis were gathered in 2007 from 1219 publicly listed companies registered in the Taiwanese stock market in 2006. Listed companies have been used for three major reasons: (1) the availability and accessibility of demographic information of directors, and executive officers for listed firms. (2) Compared to small-sized enterprises, the listed companies in the stock market provide complete financial performance data. (3) The sample companies represented a variety of industries, including electronics, chemical, steel, food, textile, banking, transportation, and hotel, etc. We employed this sampling strategy to ensure variation in levels of perceived TMT behavioral integration and firm performance among participant and over and above, to avoid contextual constraints associated with any particular organization [39].

Next, the survey questionnaires were mailed and addressed to the CEO in each company. The questionnaire may be replied by one of the TMT members assigned by the company CEO. The executive was asked to fill out a questionnaire that covered their perceived TMT behavioral integration and their perception towards firm performance. The questionnaire was in Chinese. The original questionnaire was initially developed in English and later translated into Chinese. The Chinese version was back-translated and checked by two senior practitioners for work appropriateness, clarity and conciseness.

Overall, 112 companies replied to the questionnaires, representing a response rate of approximately 9.2 percent. The relative low return rate is mainly attributable to the difficulty of collecting questionnaires from top executives; moreover, low return rates are common when conducting surveys in Asian countries [45].

Two measures (i.e. TMT behavioral integration and perceived firm performance) were collected from TMTs. TMT demographic characteristics and objective firm performance (i.e., ROA, and ROE) were collected from corporate annual reports and calculated separately. All multi-item scales were measured on 5-point Likert Scales (e.g. 1=strongly disagree, 5=strong agree).

The participants in the study were mostly male (67%), were relatively middle-aged (average age around 45 years old), fairly well educated (94.1% had completed university education), and also with relatively long tenure (average tenure around 12.93 years). The sample was made up of mostly top executives (78%), their job titles including, chairman and vice chairman, general managers or CEOs, assistant general managers, deputy assistant general managers, and others (22%).

B. Measures

TMT international experience heterogeneity

The TMT construct and team membership are often



identified using the measurement heuristics of senior hierarchical level, as indicated by title or position, since individuals at higher levels are expected to have greater influence on decisions that are strategic in nature [8]. In this vein, to define TMT, we used directly the list of top-level executives (i.e., CEO, business unit head, and vice presidents), plus chairman information provided in governance report from 2006 Corporate Annual Reports (*Taiwan Market Observation Post System*, issued by *Taiwan Stock Exchange Corporation*).

This study uses one category of information from corporate governance report to capture TMT characteristic, namely: TMT international experience. Recent research findings indicated that foreign experience of TMT was positively with their firm's international involvement [40], global strategic posture [47]. Taiwan, as an export country, studying TMTs' international experience heterogeneity may provide insights on how TMTs' foreign experience heterogeneity may impact firm performance.

Due to data availability, in this study, the measure of TMT international experience consists of previous foreign academic learning experience of the highest education of each executive, categorized by their graduate school's nationality, measured along four categories: (a) Taiwan; (b) U.S.A.; (c) Japan; (d) others. Heterogeneity of TMT international experience was calculated by using the heterogeneity index suggested by Blau [4], it is calculated as:

$$\text{Heterogeneity (H)} = 1 - \sum P_i^2$$

Where P_i is the proportion of the population in category i . If TMT size is five, there are four executives that obtained their degrees from Taiwan, and one executive with a degree from the U.S.A., then $H=1-0.68^2=.32$; if all five executives obtained their degree from Taiwan, then $H=0$.

TMT Behavioral Integration

To assess the team-level measure of behavioral integration, we adopted Simsek, Veiga, Lubatkin, and Dino's [43] nine items scale, which includes three items to measure collaborative behavior [32], three items to measure joint decision-making [16], and three items to measure information exchange [42]. Items are measured by the 5-point Likert scale. Sample questions are: "Over the past two years, when a team member is busy, other team members often volunteer to help manage the workload" (collective behavior), "Team members have a clear understanding of the joint problems and needs of other team members" (joint decision-making), and "Over the past two years, the effectiveness for quality of solutions is very high" (information exchange).

Simsek et al. [43] noted that one could use behavioral integration scale as an integrated indicator of collaborative behavior, joint decision making, and information exchange, to proceed further analysis. In this study, we found highly correlation among collaborative behavior, and joint decision making ($r=0.65$, $p<.001$), and information exchange ($r=0.60$, $p<.001$). We also

correlated joint decision making with information exchange and also found significant relationship in the expected direction ($r=0.66$, $p<0.001$). Thus, for the following analysis, we combine the above three dimensions into one behavioral integration indicator.

Corporate Financial Performance and Perceived Performance

The measurement of perceived firm performance (7 items) is a subjective indicator, measured by Likert-style responses. This scale attempts to assess perceived financial performance and perceptions such as market share, customer satisfaction with services, profitability and employee productivity. We acknowledge that the proxy of subjective and perceived measurement for financial performance was subject to some difficulties, therefore, to accurately capture a firm's actual financial performance, we also include two objective measures from financial data to capture organizational performance: return on equity (ROE) and return on total assets (ROA). Both measures of organizational performance have been widely used by companies to evaluate their profitability [1]. The numbers were obtained from the *Taiwan Economic Journal* data bank. In order to minimize the effect of economic fluctuations, this study averaged ROE and ROA in two consecutive years (2006 to 2007) respectively.

Control variables

The variables used for control purposes include firm age, TMT size, familial ownership, operation expenses, and total assets. TMT size was measured as the overall number of TMT members in each of the sample companies. This was done for several reasons. First, we wanted to make sure that our measure of TMT international experience diversity and TMT behavioral integration were not sensitive to the effect of group size, because there is more potential for dissimilarity in larger groups. Substantively, one could argue that, other things being equal, larger groups would be less integrated than smaller ones [46], and consequently, there would be less cohesive groups. Indeed, communication intensity should be less in larger groups because of the larger number of potential communication channels available [48]. Further, family ownership (familial versus widely held large number of shareholders) was measured by calculating the total shares held by familial executives and their spouses, children of minor age, and other persons holding shares in their name. TMT familial ownership was controlled in this study because we want to make sure that the measurements were not sensitive to the effect of familial control in the current study. Although the sample firms are all publicly listed on the stock market, over 56 percent (63 out of 112 companies) of our sample corporations remain under close family scrutiny and direction. The typical Chinese family business is often headed by either a patriarch or a matriarch -usually the individual who founded the business and his direct descendents, and family members would hold key positions within the business. When going public, the founding family generally ensures that it will continue to control the company's principal operation; therefore, with family



members presented in the TMT, they seem to be more integrated, and cohesive than other none family business.

In addition, the age of the firm is also controlled. If a firm is quite young, there could not be much dispersion among dates of entry (tenure) of those in the TMT. Firm age affects the possibility that there could be tenure dispersion among the top managers, which in turn may affect TMT behavioral integration, thus it is important to control for firm age to ensure that the observed relationships among TMT diversity, behavioral integration, and firm performance are not an artifact of the relationship of these variables to the age of organization.

IV. DATA ANALYSIS

Main effects in the current study represented a straightforward upper-echelons test, they were all tested by regressing each outcome variable on TMT demographic heterogeneity and firm performance while controlling for firm age, TMT size, familial ownership, operation expenses, and total assets. Moderator effect of TMT behavioral integration variable was tested by a series of hierarchical regressions using each analysis a three-step procedure suggested by Cohen, Cohen, Aiken, and West [10].

Table I shows standard deviations and zero-order correlations among the study variables. "TMT international experience heterogeneity" is positively associated with both ROA ($r = .29$, $p < .01$) and ROE ($r = .21$, $p < .05$). "TMT behavioral integration" also has positive relationships with perceived performance ($r = .29$,

$p < .01$). Regarding control variables, Ln 2006 operation expense is positively associated with ROA ($r = .19$, $p < .05$), and Ln 2006 total asset is positively associated with ROE ($r = .22$, $p < .05$).

Results for the moderated hierarchical regression analyses for TMT behavioral integration on TMT international experience heterogeneity to firm performance are presented in Table II. First, hypothesis 1 predicts direct effects of TMT international heterogeneity on firm performance. In accordance with hypothesis 1, TMT international heterogeneity had a significant effect on ROA ($\beta = .25$, $p < .05$) (model 2-1, Table II), but no significant effects on ROE, and perceived performance. Therefore, hypothesis 1 was partially supported. However, the results of regression analyses presented in Model 2-3 indicated strong and positive significant main effects for TMT behavioral integration on perceived performance ($\beta = .29$, $p < .05$). Then, hypothesis 2 states that TMT behavioral integration will moderate the relationships between TMT international experience heterogeneity and firm performance (model 2-1, 2-2, and 2-3, Table II). The results of the regression analyses presented in both model 2-1 and 2-3 (Table II) showed significant interaction between TMT behavioral integration and TMT international experience heterogeneity on performance ($F = 2.48$, $p < .05$; $F = 2.36$, $p < .05$, respectively), explaining the variance in the model beyond that due to main effects. Therefore, hypothesis 2 was also partially supported.

TABLE I
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Firm age	26.39	13.87	-								
2. Family ownership (%)	9.61	12.89	0.08	-							
3. TMT size	11.20	6.61	0.14	-0.04	-						
4. Ln2006operation exp.	13.01	1.35	0.23*	-0.17	0.58***	-					
5. Ln 2006 total asset	15.81	1.70	0.27**	-0.28**	0.53***	0.85***	-				
6. TMT int'l experience	0.27	0.19	-0.06	-0.04	0.05	0.22*	0.18	-			
7. Behavioral integration	3.68	0.57	-0.08	-0.10	-0.15	0.06	0.04	0.13	-		
8. Perceived performance	3.12	0.64	-0.03	-0.02	-0.01	0.09	0.18	0.10	0.29**	-	
9. ROA	6.61	6.85	-0.17	0.01	-0.01	0.19*	0.14	0.29**	0.03	0.38***	-
10. ROE	9.00	12.38	-0.10	0.01	0.04	0.24	0.22*	0.21*	0.02	0.37***	0.87

* $p < .05$; ** $p < .01$; *** $p < .001$



TABLE II
RESULTS OF MODERATED REGRESSION ANALYSES OF TMT INTERNATIONAL EXPERIENCE HETEROGENEITY AND BEHAVIORAL INTEGRATION EFFECTS ON FIRM PERFORMANCE

	ROA		ROE		Perceived Performance	
	M1-1	M2-1	M1-2	M2-2	M1-3	M2-3
Control variables						
Firm age	-0.23*	-0.23*	-0.19	-0.19	-0.10	-0.09
Family ownership (%)	0.09	0.08	0.11	0.11	0.08	0.10
TMT size	-0.18	-0.21	-0.18	-0.19	-0.13	-0.09
Ln 2006 operation exp.	0.33	0.38	0.26	0.29	-0.17	-0.13
Ln 2006 total asset	0.05	-0.04	0.17	0.12	0.44	0.35
Main effect & Interaction effect						
TMT international experience heterogeneity		0.25*		0.14		0.05
Behavioral integration		-0.04		-0.04		0.29*
TMT int'l experience heterogeneity xbehavioral integration		0.24*		0.13		0.27*
F	1.99	2.48*	1.92	1.55	1.07	2.36*
R-square	0.12	0.22	0.11	0.15	0.07	0.21

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

To further illustrate the effect of TMT behavioral Integration on TMT international experience heterogeneity, ROA, and perceived performance, figure 1 plots the moderating effect of TMT behavioral integration on TMT international experience heterogeneity-ROA relationship, showing that this relationship was stronger for the high behavioral integration than for the low behavioral integration in our sample companies. Figure 2 plots the moderating effect of TMT behavioral integration

on TMT international experience heterogeneity-firm performance relationship, showing that this relationship was stronger for the high behavioral integration than for the low behavioral integration in sample companies. Furthermore, the sign of the beta weights for the interaction effects were positive for both ROA and perceived performance measures, which is consistent with our expectations.



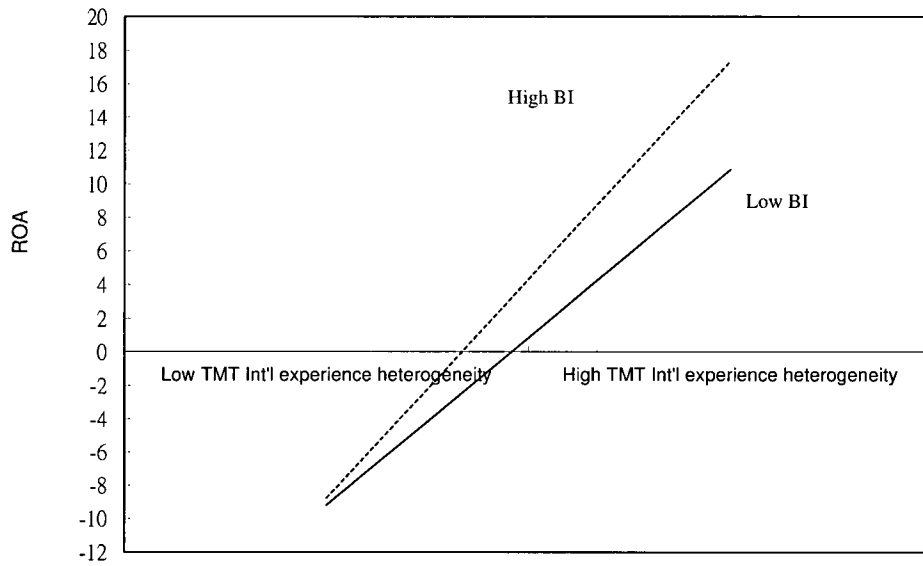


Figure 1 The interaction effect of behavioral integration between TMT international experience heterogeneity and ROA

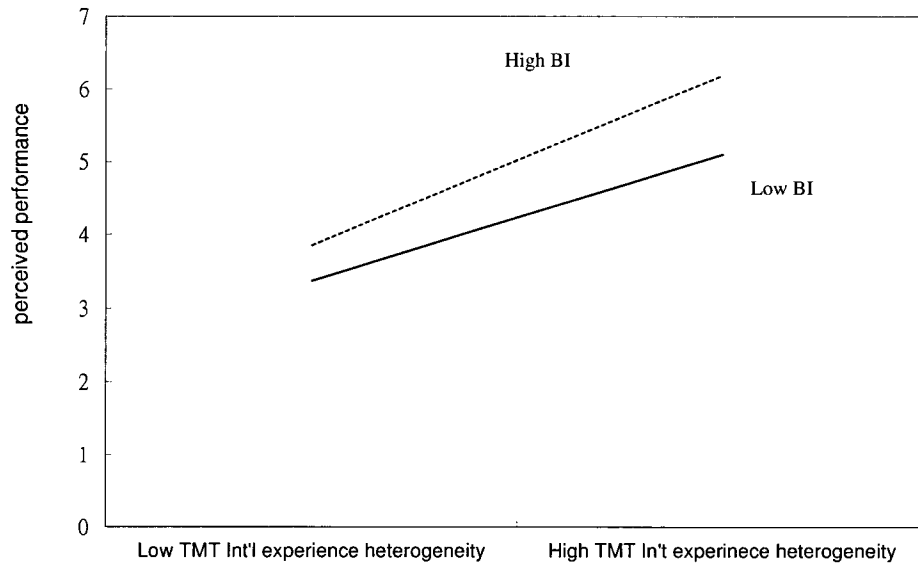


Figure 2 The interaction effect of behavioral integration between TMT international experience heterogeneity and perceived firm performance



V. DISCUSSION AND CONCLUSION

This study contributes to upper echelon theory by examining the moderation effect of TMT behavioral integration, on TMT international experience heterogeneity and performance relationship in the context of Taiwanese listed companies. More specifically, when degrees of TMT behavioral integration are higher, the relationship between TMT international experience heterogeneity and firm performance (i.e. ROA, and perceived firm performance) is significantly positive. The results of this study make an important theory contribution on two ways. First, maybe the most important contribution is the confirmation of the significant moderating effects of TMT behavioral integration between TMT international experience heterogeneity and firm performance. In particular, we believe this study answered the call for more research to discover the “black box” of the upper echelons [8]. Future research could fruitfully explore other managerial and organizational contingencies. Second, when investigating TMT international experience heterogeneity, past research mostly used international work experience (e.g., [7]; [9]; [6]), our findings in this study indicates that international study experience, a previously unexplored TMT background characteristic, also affects firm performance. In practical terms, the present study indicates that firms were most likely to have better performance when they had diverse TMTs –diverse in term of the breath of their international experience. The linear main effect for this characteristic is consistent with the upper echelons view that the diverse perspectives, skills, and networks, etc., that are presumed to accompany international experience may equip firm to address environmental complexities, and enhance productivity in highly competitive environments.

Regarding implications drawn from the interactions, we found high degree of TMT behavioral integration positively moderates the relationship between TMT international experience heterogeneity and firm performance. The concept of behavioral integration fully captures the salient aspects of TMT process, because it includes not only social and affective TMT tendencies, but also task, and behavioral tendencies ([43], p.70). Thus, a behaviorally integrated TMT represents the most likely source of inimitability and non-substitutability for companies pursuing sources of sustainable competitive advantage.

Despite these contributions, our study has limitations that are important to note. Although we used multiple data sources to empirically test the relationships among variables, there are still limitations associated with having only one respondent from each firm. Some may criticize the return rate of this study is too low, and the nature of our sample limits the generalizability of the result. Given the sample size, the research was restricted in the number of independent variables that could be examined simultaneously, thus only limited generalizations about the impact of exogenous contextual variables could be made. Follow-up research is needed to elaborate further

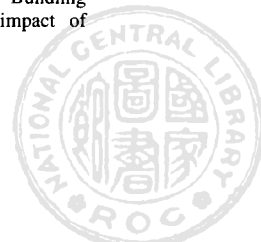
alternative process explanations and sequences on how TMT affects firm performance. It is very important to note that alternative causal sequences must not be dismissed for there may be other constructs, especially process variables, that are worthy of study.

Regarding the generalization of our findings from a study in Taiwan to other regions of the world, it is worth to note that among these 112 public companies, 82 of them involve FDI in China, which represents approximately 73.2% of all sample companies. In 2007, the total investment amount in China for these 82 companies ranged from 19 million USD to 220 million USD. In average, each of the sample companies invested approximately 33 million USD in China. Investment returns in China represent 33-31% of total net income. From these numbers, we found intensive interactions among Taiwanese companies and Chinese market, and in the global arena, for the last two decades, no firm that aspires to global competitiveness can afford to ignore the emergence of greater China as a gigantic world economic force. For this reason, while this article is based on Taiwanese listed businesses, it has very important implications for the study on emerging Chinese businesses.

While this study takes the first step on examining effects of team behavioral integration on TMT demographic heterogeneity and firm performance relationship in a Taiwanese setting, further empirical examinations with elaborate research design taking into consideration of longitudinal observation on Taiwanese businesses in transition is required to unveil the effects and influences between TMT and firm performance.

VI. REFERENCES

- [1] J. Bae & M. Gargiulo, "Partner substitutability, alliance network structure, and firm profitability in the telecommunications industry, " *Acad Manage J*, 47(6), pp. 43-59, 2004.doi: 10.2307/20159626
- [2] K. A. Bantel, & S. E. Jackson, "Top Management and Innovations in Banking: Does the Composition of the Top Team Make a Difference?," *Strategic Management Journal*, 10(Spec. Iss.), pp. 107-127, 1989.doi: 10.1002/smj.4250100709
- [3] J. Barney, "Firm resources and sustained competitive advantage," *Journal of Management*, vol. 17, pp. 99-120, 1991.doi: 10.1177/014920639101700108
- [4] P. M. Blau, *Inequality and Heterogeneity: A Primitive Theory of Social Structure*. New York: Free Press, 1977.doi: 10.1177/000271627944200146
- [5] L. J. III. Bourgeois, "Performance and consensus," *Strategic Management Journal*, vol. 1, pp.227-248,1980.doi: 10.1002/smj.4250010304
- [6] M. A. Carpenter, "The implications of strategy and social context for the relationship between top management team heterogeneity and firm performance," *Strategic Management Journal*, vol. 23, pp. 275-284, 2002.doi: 10.1002/smj.226
- [7] M. A. Carpenter & S. Fredrickson, "Top management teams, global strategic posture, and the moderating role of uncertainty," *Academy of Management Journal*, 44 (3), pp. 533-545, 2001.doi: 10.2307/3069368
- [8] M. A. Carpenter, M. A. Geletkanycz & W. G. Sander, "Upper Echelon Research Revisited: Antecedents, Elements, and Consequences of Top Management Team Composition," *Journal of Management*, 30 (6), pp. 749-778, 2004.doi: 10.1016/j.jm.2004.06.001
- [9] M. A. Carpenter, W. G. Sanders & H. B. Gregersen, "Bundling human capital with organizational context: The impact of



- international assignment experience on multinational firm performance and CEO pay," *Academy of Management Journal*, vol. 44, pp. 493-512, 2001. doi: 10.2307/3069366
- [10] J. Cohen, P. Cohen, L. S. Aiken & G. W. West, *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd version). Mahwah, NJ: L. Erlbaum Associates, 2003. doi: 10.1002/jhbs.20264
- [11] C. J. Collins & K. D. Clark, "Strategic human resource practices, top management team social network, and firm performance: the role of human resource practices in creating organizational competitive advantage," *Academy of Management Journal*, 46 (6), pp. 740-751, 2003. doi: 10.2307/30040665
- [12] R. Cyert & J. March, *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice Hall, 1963. doi: 10.1080/00137916408928711
- [13] U. Daellenbach, A. McCarthy & T. Schoenecker, "Commitment to innovation: The impact of top management characteristics," *R&D Management*, vol. 29, pp. 199-208., 1999. doi: 10.1111/1467-9310.00130
- [14] J. Denis, L. Lamothe & A. Langley, "The dynamics of collective leadership and strategic change in pluralistic organizations," *Academy of Management Journal*, vol. 44, pp. 809-837, 2001. doi: 10.2307/3069417
- [15] G. G. Dess, "Consensus on strategy formulation and organizational performance: competitors in a fragmented.," *Strategic Management Journal*, 8 (3), pp. 259-278, 1987. doi: 10.1002/smj.4250080305
- [16] L. T. Eby, G. H. Dobbins, "Collectivistic orientation in teams: an individual and group-level analysis," *Journal of Organizational Behavior*, 18(3), pp. 275-295, 1997. doi: 10.1002/(SICI)1099-1379(199705)18:3<275::AID-JOB796>3.0.CO;2-C
- [17] K. Eisenhardt & C. Schoonhoven, "Organizational growth: linking founding team, strategy, and growth among U.S. semiconductor ventures, 1978-1988," *Administrative Science Quarterly*, vol. 35, pp. 504-529, 1990. doi: 10.2307/2393315
- [18] K. Eisenhardt & C. Schoonhoven, "Resource-based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms," *Organization Science: A Journal of the Institute of Management Sciences*, 7 (2), pp. 136-150, 1996. doi: 10.1287/orsc.7.2.136
- [19] M. D. Ensley, A. Pearson & C. L. Pearce, "Top management team process, shared leadership, and new venture performance: a theoretical model and research agenda," *Human Resource Management Review*, 13 (2), pp. 329-346, 2003. doi: 10.1016/S1053-4822(03)00020-2
- [20] S. Finkelstein & D. C. Hambrick, "Top-Management-Team Tenure and Organizational Outcomes: The Moderating Role of Managerial Discretion," *Administrative Science Quarterly*, 35 (3), pp. 484-503, 1990. doi: 10.2307/2393314
- [21] P. C. Flood, K. A. Smith & P. Derfus, "Top management teams: A neglected topic in strategic human resource management," *Irish Journal of Management*, 17 (1), pp. 1-17, 1996. doi: 10.1177/014920639201800205
- [22] D. C. Hambrick, "Top management groups: a conceptual integration and reconsideration of the "team" label," *Research in Organizational Behavior*, vol. 16, pp. 171-213. 1994. doi: 10.1287/mnsc.38.10.1445
- [23] D. C. Hambrick, "Upper echelons theory: an update," *Academy of Management Review*, 32(2), pp. 334-343, 2007. doi: 10.5465/AMR.2007.24345254
- [24] D. C. Hambrick, T. Cho & M. J. Chen, "The influence of top management team heterogeneity on firms' competitive moves," *Administrative Science Quarterly*, vol. 41, pp. 659-684. 1996. doi: 10.2307/2393871
- [25] D. Hambrick, & P. Mason, "Upper echelons: The organization as a reflection of its top managers," *Academy of Management Review*, 9(2), pp. 193-206, 1984. doi: 10.5465/AMR.1984.4277628
- [26] A. Henderson & J. Fredrickson, "Top management team coordination needs and the CEO pay gap: a competitive test of economic and behavioral views," *Academy of Management Journal*, 44 (1), pp. 96-117, 2001. doi: 10.2307/3069339
- [27] S. Keck, "Top Management Team Structure: Differential Effects by Environmental Context," *Organization Science: A Journal of the Institute of Management Sciences*, 8 (2), pp. 143-157, 1997. doi: 10.1287/orsc.8.2.143
- [28] B. S. Lawrence, "The black box of organizational demographic," *Organization Science*, vol. 8, pp. 1-22, 1997. doi: 10.1287/orsc.8.1.1
- [29] J. T. Li & D. C. Hambrick, "Factional groups: A new vantage on demographic faultiness, conflict, and disintegration in work team," *Academy of Management Review*, vol. 48, pp. 794-813, 2005. doi: 10.5465/AMJ.2005.18803923
- [30] M. Lubatkin, Z. Simsek, Y. Ling, & J. F. Veiga, "Ambidexterity and performance on small-to medium-sized firms: The pivotal role of TMT behavioral integration," *Journal of management*, 32, pp. 646-672, 2006. doi: 10.1177/0149206306290712
- [31] J. March & H. Simon, *Organizations*. New York: John Wiley, 1958. doi: 10.1177/017084068100200308
- [32] R. J. Mooney & L. Roy, Content-based book recommending using learning for text categorization, in *Proceedings of Digital Libraries*, pp. 195-204, San Antonio, TX, 2000. doi: 10.1007/s007990000038
- [33] J. Michel & D. Hambrick, "Diversification posture and top management team characteristics," *Academy of Management Journal*, vol. 35, pp. 9-37, 1992. doi: 10.2307/256471
- [34] D. Miller & J. Toulouse, "Chief executive personality and corporate strategy and structure in small firms," *Management Science*, 32 (11), pp. 1389-1410, 1986. doi: 10.2307/256471
- [35] W. Mischel, "The interaction of person and situation," in D. Magnusson & N.S. (Eds.), *Personality at the crossroads: Current issues in interactional psychology*, pp. 217-247. Hillsdale, NY: Lawrence Erlbaum Associates, 1977. doi: 10.1002/1520-6807(198010)17:4<549::AID-PITS2310170427>3.0.CO;2-O
- [36] C. A. O'Reilly, R. C. Snyder, & J. N. Boothe, "Executive team demography and organizational change," in G.P. Huber & W.H. Glick (Eds.) *Organizational change and redesign: Ideas and insights for improving performance*, pp.147-175, New York: Oxford University Press, 1993. doi: 10.1016/S0737-6782(97)83953-7
- [37] V. Papadakis & P. Barwise, "How much do CEOs and top managers matter in strategic decision-making?" *British Journal of Management*, 13 (1), pp. 83-95, 2002. doi: 10.1111/1467-8551.00224
- [38] R. Reuber & E. Fischer, "The influence of the management team's international experience on the internationalization behaviors of SMEs," *Journal of International Business*, vol. 28, pp. 807-825, 1997. doi: 10.1057/palgrave.jibs.8490120
- [39] D. Rousseau & Y. Fried, "Location, location, location: Contextualizing organizational research," *Journal of Organizational Behavior*, vol. 22, pp. 1-13, 2001. doi: 10.1002/job.78
- [40] R. B. Sambharya, "Foreign experience of top management teams and international diversification strategies of U.S. multinational corporations," *Strategic Management Journal*, 17 (9), pp. 739-746, 1996. doi: 10.1002/(SICI)1097-0266(199611)17:9<739::AID-SMJ846>3.0.CO;2-K
- [41] W. Sanders & M. Carpenter, "Internationalization and firm governance: the role of CEO compensation, top team composition, and board structure," *Academy of Management Journal*, vol. 41, pp. 158-178, 1998. doi: 10.2307/257100
- [42] A. Seers, "Team-member exchange quality: A new construct for role-marketing research," *Organizational Behavior & Human Decision Processes*, vol. 43, pp. 118-135, 1989. doi: 10.1016/0749-5978(89)90060-5
- [43] Z. Simsek, J. F. Veiga, M. H. Lubatkin & R. N. Dino, "Modeling the multilevel determinants of top management team behavioral integration," *Academy of Management Journal*, 48 (1), pp. 69-84, 2005. doi: 10.5465/AMJ.2005.15993139
- [44] K. G. Smith, K. A. Smith, J. D. Olian, H. P. Sims, D. P. O'Bannon, & J. A. Scully, "Top management team demography and process: The role of social integration and communication," *Administrative Science Quarterly*, vol. 39, pp. 412-438, 1994. doi: 10.2307/2393297
- [45] N. Takeuchi, M. Wakabayashi & Z. Chen, "The strategic HRM configuration for competitive advantage: Evidence from Japanese firms in China and Taiwan," *Asia Pacific Journal of*



- Management*, vol. 20, pp. 447-480, 2003.doi: 10.1002/hrm.20240
- [46] E. J. Thomas & C. K. Fink, "Effect of group size," *Psychological bulletin*, vol. 60, pp. 371-384, 1963.doi: 10.1037/h0047169
- [47] L. Tihanyi, A. E. Ellstrand, C. M. Daily, D. R. Dalton, "Composition of the top management team and firm international diversification," *Journal of Management*, vol. 26, pp. 1157-1177, 2000.doi: 10.1177/014920630002600605
- [48] E. G. Wagner, G. Pfeffer & C. A. O'Reilly, "Organizational demography and turnover in top management groups," *Administrative Science Quarterly*, vol. 29, pp. 74-92, 1984.doi: 10.2307/2393081
- [49] M. A. West & N. R. Anderson, "Innovation in top management teams," *Journal of Applied Psychology*, 81 (6), pp. 680-693, 1996.doi: 10.1037/0021-9010.81.6.680
- [50] M. Wiersema & K. Bantel, "TMT demography and corporate strategy change," *Academy of Management Journal*, vol. 35, pp. 91-121, 1992.doi: 10.2307/256474
- [51] B. Wooldridge & S. Floyd, "Strategic process effects on consensus," *Strategic Management Journal*, vol.10, pp.295-302, 1989.doi: 10.1002/smj.4250100308

BIOGRAPHIES



Chung-Wen Tsao received her Ph. D in management from National Sun Yat-sen University in 2007. She is an assistant professor at the Department of Business & Management, National University of Tainan. Her research interests include strategic human resource management, female entrepreneurs, and board behavior in family firms. Her works appeared in *Family Business Review*, *Social Behavior and Personality*, and *Sun Yat-sen Management Review*.



Shyh-er Chen received his Ph. D from University of Illinois at Urbana-Champaign in 1995. He is a professor at the Institute of Human Resource Management, National Sun Yat-sen University. His research interests are international human resource management and industrial relations. His papers appeared in *Journal of International Business Studies*, *Human Resource Management*, *International Journal of Human Resource Management*, *Industrial Relations*, and *Industrial and Labor Relations Review*.



I-Chun Lin is a candidate and continues her Ph. D program in management of information systems from National Sun Yat-sen University, Kaohsiung, Taiwan so far. Her primary research interests include IT professional career, knowledge management, and cross-culture study.



Hung-chieh Liao is a PhD candidate in management at National Sun Yat-sen University. He received his MS both in Engineering Management from the University George Washington and in Resource Strategy from the Industrial college of Armed Forces. He is currently working as the Chief of Resource Strategy for Accton Technology.