A Study on Construction of Relationship between Ambidexterity and Performance through Social Capital View: Market Orientation as a Moderator

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ABSTRACT

The importance of organizational ambidexterity was stressed in different fields of management. The previous research results have guided this study to understand the advantages (what), the necessity of existence (why), the formation causes (how) and formation factors (which) of organizational ambidexterity and how to manage the conflict between the exploration of new knowledge and the exploitation of existing capabilities and reach the optimal mediacy. It is believed in this study that exploring new capabilities and markets is equally important with maintaining existing capabilities and market operation for an organization; if the firm focuses on the former one and commit itself to the development of new products or markets to enhance the future growth momentum, it may ignore existing benefits and lose direction and get into repeated testing; conversely, if the firm focuses on the latter one and blindly pursue short-term interests while ignoring the sustainable growth, it is likely to get into organizational inertia or competence trap and fail to respond to the changes in the environment. In this study, a distinct way was used to measure the differences in the degree of ambidexterity to bridge the gap with the previous researches and to provide more insights in the successful management of exploitation capability and exploration capability. Finally, this study proposed implications and some suggestions for future research.

Keywords: Internal Social Capital, External Social Capital, Ambidexterity, Exploitation Capability, Exploration Capability, Market Orientation.
INTRODUCTION

Small and medium-sized enterprises (SMEs) have been playing a significant role in the economic development of Taiwan in last decade. With the intensive increase of competitive pressure of local and foreign markets and the rapid changes of technology and environment, firms should constantly accumulate, adjust and update internal knowledge, resource and core competitive capability. Explorative and exploitative resources (e.g., tacit knowledge, explicit knowledge) and capabilities (e.g., technological development, marketing expertise) contribute significantly to a SME’s total market capitalization (Ramaswamy et al. 2009). Helfat and Peteraf (2003) stressed the importance of dynamic capability and pointed out that the developmental direction and path of capacity would change remarkably with time. From the dynamic capability view, firms should face changing environment with good flexibility and adaptability (Teece, Pisano & Shuen, 1997). Eisenhardt and Martin (2000) believed that dynamic capability was a concrete process, namely integrating, relocating and acquiring resources, or taking advantage of resources to seek for and even create market changes. In such cases, dynamic capabilities become important, because Morgan (2012, p. 108) mention “the firm’s ability to engage in market-based learning and use the resulting insight to reconfigure the firm’s resources and enhance its capabilities in ways that reflect the firm’s dynamic market environment”. Therefore, dynamic capabilities and resources are inseparable from each other. Due to the lack of applicable resources, problems concerning resource allocation will be resulted in as dynamic capabilities are divided into two or more capability orientations because of industrial or market demand. However, yet valuable explorative and exploitative capabilities may become liabilities when firms face environmental turbulence (Leonard-Barton 1992; O’Reilly & Tushman 2008), especially if capabilities gaps (trade-off relationship) arise (Day 2011). O’Reilly and Tushman (2008) divided dynamic capability into exploitative capability and explorative capability. They held that the routines, procedures and
skills required by exploitative capability were fundamentally different from those of explorative capability.

Scholars believe that the long-term survival of an organization depends on engagement in exploitative capability in order to maintain current profit, and at the same time, invest sufficient energy in obtaining survivability in the future (Levinthal & March, 1993). However, just focusing on explorative or exploitative capabilities many bring in unpredictable threats to firms’ competitive advantage. For example, firms spend much energy in maintaining current status and highly develop specialized competence may lead to core rigidity (Leonard-Barton, 1992), and get into “competence trap”, thus failing to confront environmental changes. Besides, focusing on explorative capability may enhance firms’ ability in updating knowledge constantly, but it may also make firms get trapped in exploring endless circulation and become excessively sensitive to short-term variation and biases (Levinthal & March, 1993). In this regard, Duncan (1976) proposed ambidexterity strategy from the complementary view of explorative and exploitative capabilities (Cao, Gedajlovic, & Zhang, 2009; Kristal, Huang, & Roth, 2010).

In addition to illustrating the methods of capability development (Ethiraj, Kale, Krishnan, & Singh, 2005; Helfat & Peteraf, 2003; Subramanian & Youndt, 2005; Zollo & Winter, 2002) and exploring the influence of capabilities on organizational performance and survivability (Adner & Helfat, 2003; Gulati, Dialdin, & Wang, 2002; Helfat & Raubitschek, 2000; Macpherson, Jones, & Zhang, 2004), many studies even pointed out that “resource-capabilities-competitive advantage (performance)” is a continuous development process as the resource produces capabilities and capabilities further influences firm performance (Barney, 1991; Chang & Gotcher, 2007). Although the most studies have verified that ambidexterity strategy has positive influence on organizational performance, some scholars argued that there was negative influence between ambidexterity strategy and
performance (Menguc & Auh, 2008). Kristal et al. (2010) indicated that due to the lack of resource and the limitation of management scope, there was trade-off relationship between explorative and exploitative capabilities instead of complementary relationship. It meant that firms are concentrated on either expanding managerial competence or obtaining new competence. In this regard, the cognition of different schools on the relationship between ambidexterity and organizational performance are still an ambiguous block box. Previous studies tended to choose western firms as research objects. Whether ambidexterity have synergized positive effect on Asian SMEs' performance or demonstrated a weakening process of firms with scattered distribution of resources are valuable and essential issues to explore.

In addition, most of previous studies focused on enhancing dynamic capabilities were intensively focused on the application of internal resource or the knowledge integration process, but few of them discussed from the perspective of intangible relationship factor (social capital). Many studies verified social capital was a key resource source which met the VRIN characteristics of resource-based view (Dyer & Hatch, 2006; Kotabe & Murray, 2004; McEvily & Zaheer, 2005). Firms should establish a strategic relationship with each other and obtain valuable knowledge assets from their partners. The resources that originated from strategic relationship and leverage effect are called inter-firm social capital (Nahapiet & Ghoshal, 1998; Yli-Renko, Autio, & Tontti, 2002), which neglected the ability of intra-firm members in coordinating external resources and information (Griffith & Harvey, 2004; Francis, Ananda, & Jyotsna, 2009). Therefore, this study held that firms were tend to obtain competitive advantages like resources and knowledge through social capital, including intra-firm and inter-firm social capitals.

Despite research into how explorative and exploitative capabilities affect performance, we still lack a sufficient understanding of how firms can align these capabilities with the changes in their internal environment, as well as how frequent ambidexterity utilization might
facilitate these capabilities alignment. This gap in marketing strategy literature demands stronger theory and tests of potential methods for improving combination of explorative and exploitative capabilities (Vorhies et al. 2011). Although previous studies have investigated the moderating role of turbulence on the relationship between dynamic capabilities and performance (e.g., Wu 2010), few studies has determined whether the use varying effects on explorative, exploitative capabilities and explorative and exploitative in distinct cultural conditions. Kristal et al. (2010) stressed on the trade-off relationship between the two capabilities, while Tushman and O'Reilly (1997) detected in their research that the ambidexterity of a firm may succeed when there was an intensive social control and common culture connecting the two capabilities (Gibson & Birkinshaw, 2004). Menguc and Auh (2008) proposed that market orientation was a complete organizational culture that could integrate explorative and exploitative capabilities within the firm and make them complementary, instead of trade-off. Market orientation comes from marketing theories. Conceptually, scholars interpreted the views from different perspectives. This study adopted the integrative perspective proposed by Narver & Slater (1990), Anwar (2008) and Menguc and Auh (2008), including customer orientation, competitor orientation and inter-function coordination, strategy implementation and new services development.

Inter-firm social capital plays an increasingly important role for SMEs to obtain external knowledge and information. However, intra-firm social capital is also essential. Previous studies mostly focus on the former one and ignored the role of the latter one in the organization. SMEs are at the time of knowledge economy and organizational knowledge management is one of the topics that firms should pay attention to. In order to make valuable knowledge and information be circulated and shared within the organization, intra-firm social capital should exert its functional role. In order to establish explorative and exploitative capabilities within the organization, which is more important, inter-firm or intra-firm social
capital, is the top priority of this research. Secondly, explorative and exploitative capabilities differ in their contribution to performance enhancement. Some scholars held that SMEs failed to develop these two capabilities at the same time because of resource shortage, thus these two capabilities were complementary to each other. But is that possible if they can complement each other? Thirdly, if complementary relationship exists, ambidexterity will be resulted in, thus if this can bring in better firm performance? Finally, if the role that market orientation mechanism plays can effectively integrate explorative and exploitative capabilities to make ambidexterity strategy successful?

![Figure 1 Conceptual Framework](image)

THEORETICAL FRAMEWORK and HYPOTHESES

According to the perspectives of organizational learning and dynamic capability, this study is aimed to construct a complete research model and several previous studies argued that organizational ambidexterity was a kind of dynamic capability (O’Reilly & Tushman, 2008) which was characterized by path dependence (Teece, 2006). Constructing and cultivating explorative and exploitative capabilities of ambidexterity depends on the amount of
organizational resource and knowledge store (Nonaka & Toyama, 2003; Rothaermel & Alexandre, 2009; Teigland & Wasko, 2009). From social capital perspective, this study also explored about how the firms established and maintained relationship with partners and how they shaped formal and informal mechanisms with internal members (Yli-Renko et al., 2002) to realize ambidextrous effect between explorative and exploitative capabilities. In other words, inter-firm social capital is conducive for organizations to enhancing their effectiveness and efficiency in obtaining and exchanging external information (Andersson, Holm, & Johanson, 2007; Dhanaraj, Lyles, Steensma, & Tihanyi, 2004; Zaheer & Bell, 2005), but intra-firm social capital could reduce members’ bias in understanding information and accelerate the spread and flow of information within the organization (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998). Besides, when there was an intensive social control and common culture connecting the two capabilities (Day, 1994; Deshpande, Farley & Webster, 1993; Slater & Narver, 1995), ambidexterity plays a more significant role, thus this study considered the moderated effect of market orientation on ambidexterity and the relations among explorative capabilities, exploitative capabilities, ambidexterity and organizational performance, as illustrated in Fig. 1.

Social capital: inter- and intra-firm

Social resources of firms besides physical capital and human resource are also their production factors which are known as the fourth-type capital influencing the competitive power and economic development of firms and are known as social capital (Coleman, 1988; Nahapiet & Ghoshal, 1998). According to RBV, Nahapiet and Ghoshal (1998) regarded social capital as organizational resource and defined it as the existing or potential resources in network relation that acquired or transferred by individual or social organization. Both the position and relationship of firms in network may affect the ability of firms in acquiring resources and the different positions and relationships can really bring in adequate relational
rents and competitive advantages to the firms (Uzzi, 1997; Dyer & Singh, 1998; Yli-Renko et al., 2002). Social capital should be in two forms intra-firm and inter-firm social capital (Adler & Kwon, 2002; Yli-Renko et al., 2002; Li, 2004; Tsai, Huang, & Ma, 2009). The external social capital that relates to external organization is conducive to acquisition and assimilation of idiosyncratic knowledge (Dyer & Hatch, 2006; McEvily & Marcus, 2005); complete intra-firm social capital will facilitate the utilization of intra-firm knowledge and resource, so as to perfect the responsiveness of multinational corporations (MNCs) in facing up to global challenges (Griffith & Harvey, 2004).

The research on inter-organizational relationships/inter-firm relationships and network is mainly focused on the repetitive interaction (such as resource, friendship and information) among a group of actors (such as individual, team and organization). Scholars have not reached an agreement on measuring the variables of inter-firm social capital (McEvily & Marcus, 2005; Tsai et al., 2009; Uzzi, 1997). According to the research direction of this study and referring to relevant research results, this paper presents that inter-firm social capital covers bridge ties (structural dimension), joint problem solving (relational dimension) and shared value (cognitive dimension).

Nahapet & Ghoshal(1998) believed that members’ using bridge ties to share ideas may produce new knowledge instead of merely transfer existing information (Zaheer & Bell, 2005); firms could acquire and create more new knowledge and advanced (creative) ideas from their interactions with creative ideas which could be applied to practice and produce new, creative products and service, so as to improve their application and exploration capabilities. For example, tangible resources, such as communication results of sales personnel, marketing and financial market and production reports, are all accessible information. These tangible resources are easy to circulate, thus they are mostly in a favorable structural position and which provides many channels to get access to these resources and information instead of
drawing support from intimate relationship or quality interaction. But for such routine-oriented work like marketing, sales manager can quickly learn about the information of product marketing through the network and master these resources with their favorable position (Moran, 2005).

McEvily and Marcus (2005) assured that joint problem solving played an important role in the development of competitive capability, namely both parties bear a responsibility to maintain their relationship in order to confront their common problems together (Heide & Miner, 1992). This kind of cooperation agreement contains common routines or mechanisms abided by both parties. Whenever a problem appears, firms will seek for solutions together through coordination (Uzzi, 1997). Firms engaging in joint problem solving implied that they were also devoted to establishing high degree of trust. Partners may pay additional efforts to help firms solve problems, which not only can reduce speculative behavior caused by information asymmetry in the transaction process (Zaheer, McEvily, & Perrone, 1998) and accelerate firms to share tacit and explicit knowledge and the transparency of information exchange (Ring & Van de Ven, 1994; Dhanaraj et al., 2004).

Tiwana (2008) believes that the shared value between members in network can facilitate firms to absorb each other’s ideas (Regans & McEvily, 2003), which conduces to the transfer and integration of tacit knowledge, lower distrust and uncertainty and boost mutual coordination and problem solving (McEvily & Marcus, 2005). If high degree of intra-firm cognition and social identity exists, strong ties will be created to enhance reciprocal knowledge acquisition and reduce the demand for formal supervision, thus SMEs could spare more efforts into knowledge absorption and application (Tsai & Ghoshal, 1998; Presutti, Boari, & Fratocchi, 2007).

*H1a:* **Inter-firm social capital positively correlate with explorative capability.**

*H1b:* **Inter-firm social capital positively correlate with exploitative capability.**
Intra-firm social capital refers to the interaction mode among all members within the organization (Burt, 1992; Nahapiet & Ghoshal, 1998), and proper intra-organizational network structure will facilitate members to acquire information from the interactions (Nahapiet & Ghoshal, 1998), thus firms can establish new technical knowledge quickly (Kogut & Zander, 1992; Tsai & Ghoshal, 1998). In tight network structure, employees of each organizations can transfer knowledge and information through lasting and repetitive interactions and communication, enhance their managerial learning to new market environment information (Yli-Renko et al., 2002) and improve firms’ capability of combining existing knowledge (Li, 2004). Moreover, inter-organizational network structure integrates different activity processes, facilitates the coordination of scattered resources and activities (Gupta & Govindarajan, 2000; Persson, 2006), which is deemed as an integrated mechanism (integrative mechanism) (Tsai et al., 2009). According to the study structure of Nahapiet and Ghoshal (1998), this study held that intra-firm social capital was consisted of structural, cognitive and relational perspectives and it discussed key constitutes of internal social capital like information-based mechanism (structural), people-based mechanism (structural), trust (relational) and shared vision (cognitive) based on previous studies made by Tasi and Ghoshal (1998), Yli-Renko et al. (2002) and Tsai et al. (2009).

Information-based mechanism can effectively deal with plenty of intra-organizational routines and information and timely provide information to facilitate the communication between firms, thus to assure the transfer, flow and sharing of information (Hartmann, Trautmann, & Jahns, 2008). Information-based mechanism can effectively deal with plenty of intra-organizational routines and information and timely provide information to facilitate the communication between firms, thus to assure the transfer, flow and sharing of information (Hartmann et al., 2008). If firms can constantly share knowledge and information in between, they can quickly grasp customer demand through constant adjustment and respond to them in
the best way. People-based mechanism stated that as obtaining external knowledge, the organization depends on internal members to transform new knowledge to management practice (Tsai et al., 2009). This mechanism is deemed as the guideline for the socialization of organization members and interpersonal communication, including conferences, team project and training departments (Kim et al., 2003). No matter organizing ability, organizational learning and organizational creativity, they all come from the expression of individual capabilities. The existence of people-based mechanism is conducive to the interpersonal communication between members. In other words, significant communication can help integrate existing knowledge of members and the unique information of the market, interpret the knowledge, endow it a certain meaning and transfer it into organizational routines (Li, 2004; Yli-Renko et al., 2002): So, through people-based mechanism, firms can effectively internalize and routinize external knowledge and information, thus to form up the existing knowledge base which can create new knowledge in the combination with original knowledge (Tsai et al., 2009). Trust is deemed as an important factor in organizational situation which is always an antecedent variable for the cooperation between intra-organizational members. When trust exists between members, they will be willing to share knowledge and resource, thus communication and resource combination will be resulted in (Tsai & Ghoshal, 1998). Moreover, as intra-organizational members share knowledge through effective communication, they need to have common knowledge (Cohen & Levinthal, 1990) to facilitate the combination of knowledge in different types, so as to apply knowledge effectively and create new knowledge. The establishment degree of common knowledge rests with the degree of members in sharing common language (Bouty, 2000), vision and mechanism. The establishment of the significant sharing mechanism will facilitate firms to get access to knowledge program, and improve the effectiveness of information researching (Gupta & Govindarajan, 2000). When organizational members share common vision, they
will be more likely to know the behaviors of each other, thus misunderstandings will be reduced and ideas and recourses can be exchanged more easily (Tsai & Ghoshal, 1998).

**H2a:** *Inter-firm social capital positively correlate with explorative capability.*

**H2b:** *Inter-firm social capital positively correlate with exploitative capability.*

**Direct effects of explorative and exploitative capabilities on organizational performance**

In this study, a firm is in pursuit of two distinct and conflicting capabilities, namely firms are capable of applying current assets and status and can explore new technology and market simultaneously, in order to reconstruct organizational resources to obtain new opportunities, such as explorative and exploitative (He & Wang, 2004; Helfat & Raubitschek, 2000; Holmqvist, 2004; March, 1991; Teece, 2006). Given action of both capabilities, an organization not only improves operational efficiency (profitability, market share, productivity), but also promote innovative performance (new product development, new market development, environmental adjustment, flexibility). Our study thus consults with related studies of organizational ambidexterity, then divides organizational performance into organizational effectiveness (relative product quality, new product success, customer retention), growth/share (sales level, growth rate, target market share), and profitability (ROE, gross margin, ROI) (Narver & Slater, 1990, 1994; Jaworski & Kohli, 1993; Lubatkin et al., 2006; Han & Celly, 2008).

The essence of explorative capability is to examine new alternatives (March, 1991), a source of new technology and knowledge (Rothaermel & Alexandre, 2009) as well as a type of innovation capability. Explorative capability is the foundation of organizational growth. Firms under competition environment of lacking in resources and industrial development will devote themselves to seeking opportunities for growth and promoting innovation (Hurley & Hult, 1998). In internationalization process of enterprises, Prange and Verdier (2011) indicate that explorative capability reflects firms who dynamically make use of value-adding or
disruptive capability in order to achieve new and innovative competitive advantages; all in all, destructive capability can increase tendency for organizations to engage in structure-destructed changes, letting them overcome path-dependence and inertia to expedite organizational growth. Accordingly, explorative capability not only can create new products and services as well as develop new markets (Jansen, Van den Bosch, & Volberda, 2006), but also enable organizations to seek appropriate structures (Katila & Ahuja, 2002; He & Wong, 2004).

However, stubbornly pursuing explorative capability is not the right direction to develop organization. Firms engaged in explorative process take advantage of expenditures or resources that originally belong to exploitive process. This will lead to a firm landing itself in substantial experimental cost and even failing to make a profit (March, 1991). Failure often impels organizations to adopt explorative strategies for dynamics of failure will sink organization into "crazy experiments, change and innovation" (Levinthal & March 1993). With financial resources invested in rapid expansion, new routines and/or adaptation, firms engaged in explorative capability fail to garner direct profits from continuous profit source. Establishment of explorative capability and implementation of such activities often require more time than exploitive capability and its activities. Also, the former must bear risk and cost with uncertainties (Andriopoulos & Lewis, 2009): e.g., firms develop new products directed at customer demand and new markets, siphoning capital, resources and manpower. Development of new products often belongs to long-term orientation, after a new product appears, it will experience initial stages of product life cycle, and new product operational performance cannot defray operating cost. If firms seldom engage in exploitive capability or activity concerning organizational survival (threshold capabilities, consolidated capabilities, refining or expanding existing capabilities, technologies and models), it may reduce their survival chances (Prange & Verdier, 2011). Therefore, we hypothesize:

Exploitative capability is a type of dynamic capability, involving activities like path-dependent learning and knowledge storage. Firms tend to stress development of existing markets, not extending to new ones until they accumulate adequate capabilities. Except for reducing uncertainties of explorations and experiments, their survivability will also be improved (Prange & Verdier, 2011). Slater and Narver (1995) proposed that firms’ continuous learning will tend to track and respond to consumer demands, feeling and capturing market opportunities while providing suitable target products so as to promote profitability, sales growth, and customer retention. Great accumulation of experience and lessons makes enterprises aware of how to avoid repeating mistakes, how to reduce production cost and transaction cost, and how to strengthen capabilities of mutual understanding as well as problem coordination and solving (Jiang & Li, 2009). If an organization merely engages in exploitation and excludes exploration, it might decline or become outdated by virtue of technology progress or customer preference changes (Levinthal & March, 1993). When an organization succeeds, its attention often shifts from explorative to exploitive activities, since firms in a well-defined field develop capabilities that further enhance their specified competence, but opportunity cost of exploration will increase concurrently. In other words, existing routines within an organization are extracted and implemented over time, organization based on strong subjective learning and constantly engaging in old routines, such that they cannot meet a new situation or environment and thus embark in a wrong direction (Levinthal & March, 1993). According to Prange and Verdier (2011), firms put focus of exploitative capabilities on organizational survival, earning chips of survival in short-term by effectively exploiting existing resources, knowledge and routine within organization. Still, in the long-term of organizational development, failing to satisfy
conditions of organizational growth will more likely heighten risk of decline. Therefore, we hypothesize:

**H4.** Exploitative capabilities show inverse U-shaped relationship with organizational performance.

**Effect of combining explorative and exploitative capabilities on organizational performance**

An organization facing basic problems devotes itself to using adequate exploitative capability to confirm current viability; at the same time, organizational energy should be concentrated on explorative capability to confirm future viability (March, 1991). Yet in constriction of industrial condition and limitation of resources, an organization cannot pursue both capabilities at same time, finding itself “stuck in the middle.” Ebben and Johnson (2005) found in strategic research of 300 small enterprises those pursuing efficiency and flexibility with lower performance than those using single and concentrated strategy. Some scholars believe this situation means using single effective strategy in the short term until one can no longer make progress, albeit not for pursuit of long-term adaptation (Knott and Posen, 2005).

Gibson and Birkinshaw (2004) refer to Tushman and O'Reilly’s (1996) findings on the concept of ambidexterity, using "juggler" metaphor to depict an ambidextrous organization’s goal of cost-efficiency and incremental innovation in mature market on one hand; on the other hand, they achieve inspection, speed, flexibility and other activities in emerging markets by developing new products or services (Andriopoulos & Lewis, 2009).

The concept of combined ambidexterity represents the balance between explorative and exploitative capabilities as not for competition, trade-off, but for an interrelation of complementary deficiencies instead (Gupta et al., 2006). As for competition, two views with different orientations have not only competitive relationship, but prove mutually supportive, helping each other leverage usage of resources, called combined ambidexterity (He & Wang,
Regarding influence of explorative and exploitative capabilities, by repeated usage of existing knowledge and resources, managers detect relevant knowledge and resources within firms more easily and understand it more thoroughly, causing reconfiguration of existing resources and knowledge while promoting capability to excavate new products and markets (Kogut & Zander, 1992). Burgelman (1994) cites how Intel’s managers can identify and sense sustainable competitive advantages in microprocessor industry due to their knowledge of capability and engineering on existing memory chips as well as by their understanding of market trends. In other words, more exploitative capabilities can improve efficiency of firms to explore new knowledge and develop resources to support new products and markets (Cao et al., 2009). On the other hand, mastering explorative process can enhance firms’ capacity for exploitative activities; when firms internalize external knowledge and resources by explorative capabilities, they mean to extend their own competence, so that effective routines and processes are utilized in larger economies of scale. We stress that ambidexterity can leverage synergy between new opportunities and limitation of existing routines and knowledge, as improvisation described by Miner, Bassoff, and Moorman (2001), it restructures existing elements in new ways which contribute to connecting appropriate idea to proper demand at the right time. We hypothesize:

\[ H5 \] Strength of organizational ambidexterity will positively correlate with organizational performance.

**Moderating effect of market orientation**

Kohli and Jaworski (1990) and Narver and Slater (1990) suggested that actions, decisions, and attitudes of senior managers “trickle down” organizational levels to employees charged with implementing strategy. A strong (market-oriented) culture is characterized by pervasiveness and consistency of shared (customer satisfaction-focused) values, which tend to foster open functional communication, frequent customer contact, enquiries about customer
problems, and shared efforts to solve problems. This study adopts Narver and Slater’s widely used perspective on market orientation that consists of customer orientation, competitor orientation, and interfunctional coordination. Most authors agree that all three components are vital and provide a holistic view of firms’ ability to collect and use market information effectively (Jaworski & Kohli 1993; Narver & Slater 1990).

Tushman and O’Reilly (1996) indicate ambidexterity more likely successful with strong social control and common culture combining capabilities of an organization (Gibson & Birkinshaw, 2004). Menguc and Auh (2008) postulate market orientation as an organizational culture wherein explorative and exploitative capabilities coalesce, creating complementary versus trade-off relationship. Besides cultural perspective, most empirical research discusses implication of organizational culture and strategic behavior from an integrated perspective (Homburg & Pflesser, 2000), indicating that market orientation promotes effective behavior by accumulating, sharing, and responding to relevant information from customers and competitors. On the other hand, by fostering cultures among diverse departments and using valuable resources with harmony, firms improve production efficiency by interdepartmental communication, collaboration, and coordination (Narver & Slater, 1990). Current marketing strategy literature highlights how explorative capability hammers at advance in efficiency, while exploitative capabilities focus on efficiency. Market orientation strikes a balance between explorative and exploitative while fostering organizational atmosphere, enabling both capabilities to strive for goal of creating and delivering superior customer value (Menguc & Auh, 2008). We hypothesize:

\textit{H6.} Market orientation moderates relationship between organizational ambidexterity and performance.
RESEARCH METHODOLOGY

Sample and procedure

This study first modified scales developed in extant literature to conform to its research goals. Thirty firm managers in Taiwan were selected as subjects of questionnaire pre-test. Recovered questionnaires confirmed appropriateness of wording as well as test reliability and validity; formal questionnaire was compiled after deleting inappropriate items. Database of Taiwan Association of Industries in Science Parks was used to create a sample list, which was filtered by company business items. To test hypotheses, we employed Taiwan’s high-tech firms and surveyed informants’ (CEOs, vice presidents, senior managers) knowledge about and shouldering responsibilities related to their companies. As these top managers can well master most company’s businesses (Stump & Heide, 1996) and familiarize with actual situations of internationalization, capability development and operation of the company, this study selected such persons as the main information providers. We sent 1000 questionnaires and received 237 completed answer, making 23.7% of response rate. After eliminating 3 invalid questionnaires, there were 234 valid ones left with a 23.4% of effective response rate. When self-report questionnaires are used to collect data at the same time from the same participants, common method variance (CMV) may be a concern. A post hoc Harman one-factor analysis was used to test common method variance (Podsakoff & Organ, 1986). The factor analyses produced neither a single factor nor one general factor that accounted for the majority of the variance. As results show that test thus failed to identify that common method variance was a problem.

Measurement

The questionnaire variables in this study were chiefly developed from scales available in previous literature. Except for firm size and firm age, all questions were answered using a seven-point Likert scale. The five questions on the explorative capability scale and the four
questions on the exploitative capability scale were taken from He and Wong (2004), Lubatkin et al. (2006), Menguc and Auh (2008) and Cao et al. (2009). We asked respondents to state how their firms divided attention and resources between exploitative and explorative activities in the last three years.

Inter-firm social capital shapes from the external network of firms, including vertical relationship, horizontal relationship and social relationship, where the firms can get access to valuable intangible assets like knowledge and resources to enhance their competitive advantage. Referring to the research results of Dhanaraj et al. (2004), McEvily and Marcus (2005) and Tiwana (2008), this study takes bridge ties (structural dimension), joint problem solving (relational dimension) and shared value (cognitive dimension) as variables to measure inter-firm social capital. Intra-firm social capital refers to internal members’ coordination of structure, routines and processes. The effective communication, interaction and coordination between internal members is conducive to facilitating business operation and reducing management cost and other costs. Referring to the research results of Tasi and Ghoshal (1998), Yli-Renko et al. (2002) and Tsai et al. (2009), this paper discussed the main elements of intra-firm social capital, such as information-based mechanism (structural dimension), people-based mechanism (structural dimension), trust (relational dimension) and shared vision (cognitive dimension).

Following Gibson and Barkinshaw’s (2004) study, ambidexterity, a multiplicative term of explorative and exploitative capabilities, concurs with theoretical conceptualization of ambidexterity (e.g., Tushman & O’Reilly, 1996). Since we measured ambidexterity as the multiplication of explorative/exploitative capability constructs, we acknowledged that it may suffer from multicollinearity. To minimize this concern to our analyses, we mean-centered constructs of marketing and design capabilities before deriving ambidexterity (Aiken & West, 1991).
Firm performance is a complex construct, we used perceived measures to assess firm performance in terms of organizational effectiveness (three items), growth/share (three items) and profitability (three items), based on an established reflective scale (Narver & Slater, 1990, 1994; Jaworski & Kohli, 1993; Lubatkin et al., 2006; Han & Celly, 2008). Senior managers assessed their firms’ performance relative to their competitors’ for the past 3 years.

Consistent with previous work in marketing literature (Narver & Slater, 1990; Kohli & Jaworski, 1990; Anwar, 2008; Menguc & Auh, 2008), we operationalize market orientation as a higher-order construct of customer orientation (seven items), competitor orientation (five items), environmental scanning (four items), strategy implementation (four items) and new services development (four items).

This study controlled two other variables that might affect model: firm size and age. According to RBV, size (the number of fulltime employees) exerts positive effect on resource allocation; it was consequently taken as a control variable, expressed in the model as number of a firm’s employees. Since firm age (the number of years since inception) expresses a firm’s development stage to acquire new knowledge and technology, and is associated with its explorative and exploitive capability (Zahra, Sapienza, & Davidson, 2006; Cao et al., 2009), these attributes also served as control variables. Follow Lubatkin et al. (2006), both size and age were transformed by their square root because their distributions departed from normality.

RESULTS and ANALYSIS

Reliability and Validity

All scales were reliable, with composite reliabilities ranging from 0.55 to 0.90, which the most of them were greater than benchmark of 0.70. Table 2 shows reliability for each scale and factor loadings for each item therein. To gauge validity, this study employs confirmatory factor analysis (CFA) with LISREL 8.54 (Jöreskog & Sörbom, 1993) to verify construct
validity of scale, both convergent and discriminant. Fornell and Larcker (1981) designated convergent validity criteria: (1) standardized factor loading higher than 0.5; (2) Average Variance Extracted (AVE) above 0.5; and (3) Composite Reliability (CR) above 0.7. Evaluation standard for discriminant validity is square root of Average Variance Extracted (AVE) for one dimension greater than correlation coefficient with any other dimension(s). Table I plots that Average Variance Extracted for all dimensions were above threshold value of 0.5, except slightly lower dimension of power (0.487). Composite reliability values of all dimensions exceeded 0.7. As suggested above, all items in measures of exogenous variables are significantly explained: i.e., converge to this factor and hence to corresponding dimensions. The scale thus has convergent validity to some extent. Finally, Table I shows, correlation coefficients of dimensions were all less than square root of AVE, suggesting that each dimension in this study had good discriminant validity.

Inter-firm and intra-firm social capitals, market orientation and organizational performance are often higher-order in nature, with items measuring them as indirect reflective measures (Edwards & Bagozzi, 2000) of both second- and first-order factors associated with them (Gerbing & Anderson, 1988), where the Inter-firm and intra-firm social capitals, market orientation and organizational performance label are umbrella terms for multiple sub-constructs (Cadogan, 2012). Inter-firm social capital is often conceptualized as a four-dimensional construct, intra-firm social capital as a three-dimensional construct, market orientation as a five-dimensional construct, and organizational performance as a three-dimensional construct. In this study, these higher-order variables are formative in nature: it cannot be reflective in nature, since Cadogan and Lee (2013) suggested that research should avoid developing and assessing a model containing a direct link from the antecedent variable to the aggregate endogenous variable. Using higher-order reflective variables in conceptual models is very dangerous, since one does not know what the entity is that one is modelling.
Following Özturan, Özsomer and Pieters (2014), we preferred to use parcels for measure validation so that scales were comparable and consistent with the previous work. Parcels are averages of the uneven and even numbered items in a scale. All factor loadings of item parcels were greater than .50 and significant at \( p < .01 \). Four measurement models fit well with data, as seen in statistics for Inter-firm social capital (RMSEA=0.063, CFI=0.966, NNFI=0.952, GFI=0.923), intra-firm social capitals (RMSEA=0.057, CFI=0.966, NFI=0.958, GFI=0.934), d market orientation (RMSEA=0.072, CFI=0.946, NFI=0.943, GFI=0.930), and organizational performance (RMSEA=0.066, CFI=0.963, NFI=0.960, GFI=0.935). Six constructs comprised final model: Inter-firm and intra-firm social capitals, explorative and exploitative capabilities, market orientation and organizational performance. Confirmatory factor analysis allowed satisfactory measurement models. Fit indices greater than 0.90 benchmark (GFI=0.95, AGFI=0.93, TLI=0.98 and CFI=0.98) indicated data fitting said model. Similarly, levels of misfit were tolerable, with RMSEA=0.076 and RMR=0.053, which all of them were below the relevant benchmark of 0.08. Additional tests included normed chi-square of 2.78 (less than benchmark of 5) and SRMR=0.035 (less than benchmark of 0.08), which were conducted to support construct validity.
### Table I Measurement

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Main findings

We started by investigating the direct effects of the model, without accounting for the hypothesized interaction and moderating effects. To test the model’s explanatory power regarding the frequency of inter- and intra-firm social capital processes on explorative and exploitative capabilities, we examined the coefficient of determination ($R^2$). For the full sample, the $R^2$ values were as follows: explorative capabilities, exploitative capabilities, and firm performance.

Next, we examined the path coefficients and their significance values to test the hypotheses, and we used partial least squares (PLS graph) to analyze data which is known to be particularly advantageous for the exploratory nature of this study (Julien & Ramangalahy, 2003; Lee et al., 2006; Tsang, 2002). The results of H1a and H1b suggest that inter-firm social capital has a significant positive relationship with explorative capabilities ($\beta = .207, p < 0.05$) but does not relate to exploitative capabilities ($\beta = -.007, p > .10$). Therefore, the findings do support H1a, but reject H1b. The results of H2a and H2b indicate that intra-firm social capital relates significantly and positively to explorative ($\beta = .558, p < .01$) and exploitative capabilities ($\beta = .376, p < .01$). Therefore, the findings support H2a and H2b.

We then proceeded to test the mediating effects of explorative and exploitative capabilities on the link between the two social capital and firm performance. For tests of mediation effects, PLS performs well (Bontis et al. 2007); it is best combined with a causal steps approach based on regression analysis. Path coefficients generated by PLS provide an indication of relationships and can be applied similar to traditional regression coefficients (Gefen et al. 2000). Following Bontis et al. (2007), we adopted a four-step approach to test for mediation. First, inter- and intra-firm social capital exerted significant direct effects on firm performance ($\beta = .15, p < .05; \beta = .19, p < .05$, respectively). Second, when we included explorative and exploitative capabilities as mediators in the model, the results indicated that
the inter- and intra-firm social capital had no significant direct effects on performance ($\beta = .11$, $p > .10$; $\beta = .05$, $p > .10$, respectively) but significant effects on explorative and exploitative capabilities. Third, explorative and exploitative capabilities revealed significant relationships with firm performance ($\beta = .19$, $p > .01$; $\beta = .24$, $p > .01$, respectively). Therefore, explorative and exploitative capabilities fully mediated the social capital-firm performance relationship.

![Main Path Analysis](image)

**Figure 2 Main Path Analysis**

**Interaction and Moderating Analysis**

To test H3-H6, we used hierarchical regression analysis (Aiken & West, 1991). An initial regression was run with the control variables, explorative and exploitative capabilities, and the quadratic terms for both capabilities to determine their main effects (Model 2). The two-way interaction term (ambidexterity) of explorative and exploitative capabilities was added in Model 3. In Model 4, we added market orientation to assess the moderating effect on the relationship between ambidexterity and firm performance. A positive sign for the coefficient of the quadratic term indicates a U-shaped relationship, while a negative sign indicates an inverted U-shaped relationship (Aiken and West, 1991). The constituent variables were mean-centered prior to creating the quadratic items and interaction terms to avoid multicollinearity (Aiken & West, 1991). The variance inflation factors (VIF) were below the cutoff of 10 (Mason & Perreault, 1991), indicating that multicollinearity is not a problem.
The results in Table II (model 2) show that the addition of the quadratic terms to the main effects model increases $R^2$ by 56.6 percent. The addition of the interaction term (ambidexterity) to the main effects model increases 1.3 percent (Model 3). The final step entered the moderated effect of interaction term between market orientation and ambidexterity on firm performance which increases $R^2$ by 1.4 percent (Model 4). The coefficient for the quadratic term of explorative capability is negative and significant ($\beta=-0.232, p < .01$) which in support of H3, there is evidence of an inverted U-shaped relationship between explorative capability and firm performance. This function is strictly decreasing, suggesting that for values below $e_1$, there is a positive relationship between explorative capability and firm performance. However, beyond that, the relationship turns negative, as shown in the plot in Figure 2. The coefficient for the quadratic term of exploitative capability is positive and significant ($\beta=0.203, p < .01$) which in reject of H4, there is evidence of an U-shaped relationship between exploitative capability and firm performance (see Figure 2 for a graphical illustration of the relationship).

In H5, we argue that ambidexterity (interaction effect of explorative and exploitative capabilities) has a positive effect on firm performance. Table II indicates that ambidexterity is significantly related to firm performance ($\beta=.168, p < .01$). Consequently, H5 is supported. With regard to H6, which posits that the positive effect of ambidexterity on firm performance gets attenuated by greater market orientation, Table II shows that the interaction term between market orientation and ambidexterity moderates positively to firm performance ($\beta=.541, p < .01$). The relationship between ambidexterity and firm performance becomes significantly more positive when the level of market orientation is high. Therefore, our findings support H6.
### DISCUSSIONS and CONCLUSIONS

This study was made to construct a complete research model based on organizational learning and dynamic capability view. It pointed out that organizational ambidexterity is a kind of dynamic capability, which had the characteristic of path dependence. Cultivating and developing explorative and exploitative capabilities of ambidexterity depended on the stock of resource and knowledge of the enterprise. From the social capital view, this study discussed about how should the firms establish and maintain relationship with partners and how should...
they shape formal and informal mechanisms with internal members to make ambidextrous effect among explorative and exploitative capabilities. Moreover, when there was strong social control and common culture to connect these two capabilities, the ambidexterity will have greater influence. Therefore, this study discussed about the contextual effect of market orientation on ambidexterity.

This study assumed that inter-firm social capital had positively influence on development of explorative and exploitative capabilities. The results showed that inter-firm social capital was conducive for firms to enhance quality and quantity of knowledge acquisition and exchange through external cooperation, so as to develop new and existing explorative capabilities. Due to the pressure from turbulent market and technology, the development of explorative capabilities will be more expensive and bring in high “failure traps” risk. Besides, as knowledge comes with cumulativity, peculiarity, complexity and tacitness, its characteristics have different influence on competitors and have transfer boundaries and limitations to some degree (Foss, 2007). Therefore, acquiring knowledge from external firms is an effective way to improve explorative capabilities. Firms can shorten development circle to lower exploration cost through acquiring knowledge from partners and improving explorative capabilities by first time right. Andersson et al. (2007) deemed that, in industrial network, firms might ignore customers’ customers or suppliers’ suppliers. Therefore, firms with well-structural embeddedness may occupy superior position and receiving explicit knowledge from customers or supplier groups (Zaheer & Bell, 2005). Tsai (2006) found that firms located in customer network center, in addition to having greater influence and higher position, could also get access to more resources, information and customer knowledge. The research results showed that inter-firm social capita did not have any influence on exploitative capability. Exploitative capability was obtained through refining existing knowledge (Levinthal & March, 1993), applying and improving current capabilities and concentrate
technology, process and products in existing market (March, 1991). Knowledge acquisition included salespersons’ communication outcome, marketing and financial data and product-related reports. Such knowledge and information were easy to get access to. Firms who invest heavily in single partner in order to obtain knowledge may confront with problems of high repeatability and low value, and they may fail to use existing knowledge store which will turn into sunk cost.

The results of this study showed that intra-firm social capita could effectively enhance firms’ explorative and exploitative capabilities. In other words, firms construct an information exchange platform within the organization to cultivate members’ ability in the interpretation and demonstration of external information and knowledge and lower internal cognitive difference. With organizational learning process, the accumulation of new knowledge is helpful for updating existing knowledge store and changing knowledge structure, so that enterprises can constantly enhance new and existing capabilities to facilitate organizational growth. “Explorative capabilities” means to create things beyond existing knowledge, such as developing new knowledge, using new methods to test technology and business processes or market. In particular situations, firms use new knowledge in the problem-solving process to facilitate the integration of existing knowledge store and knowledge system in order to create new knowledge (Rothaermel & Alexandre, 2009. “Exploitative capability” means to establish reliability for some activities of an enterprise, such as refining existing knowledge, use and improve existing capability (Rothaermel & Alexandre, 2009). Relying on intra-firm social capital will facilitate the reform and improvement of organizational structure and system, and integrating members’ knowledge and skills with corporate value and norms will facilitate inter-department and inter-functional cooperation, so as to enhance the work efficiency of the team (Adler & Know, 2002). Most scholars believe that the explorative and exploitative capabilities have influence on organizational performance significantly, such as improvement
of long-term performance (Tushman & O'Reilly, 1996), market share, cost decreasing, high flexibility and the acceleration of new product development. However, due to some tension between the two capabilities, there must be some trade-offs in between. This study inferred the relationship among explorative, exploitative capabilities and organizational performance system was curvilinear (inverted U-shaped) relationship. Our findings show that explorative capabilities have a curvilinear (inverted U-shaped) relationship with organizational performance; exploitative capabilities have a U-shaped relationship with organizational performance. In the early development, explorative firms may taste the sweet fruits of competitive advantage obtained from new capabilities. But as they are in lack of existing customer base, they may fail to maintain sustained profit source. Once the environment changes lead to the changes of consumption habits, or more powerful new competitors join in to make them lose their original advantages, the expenditure and investment caused by explorations will become a burden to manufacturers for growth. However, in long-term development, whatever the situations call for new capabilities. The development of new products, production technology and marketing mode will bring new value to our customers, which are all helpful for manufacturers to expand existing markets or new market, so that explorative capabilities are indispensably necessary. Exploitative capabilities have U-shaped relationship with organizational performance significantly, although this hypothesis is inconsistent with the hypothesis of this study and were not supported. This can be interpreted by “threshold effect”, namely relationship between exploitative capabilities and organizational performance has two stages. First, in the early stages of development and marketing organization, exploitative capabilities are helpful for manufacturers to achieve higher pay and performance. But in the mature stage of the product life cycle, exploitative resources will be consumed substantially, which may lead to financial burden and negative effect on performance. In fact, the recession of multi-exploitative strategies in the life cycle
often lead to extra control cost and coordination cost. After entering the second stage, firms will invest more resources in exploitation. Then it surpasses the threshold between application activity and performance and achieves Scale Economies Effect (Lee & Rugman, 2012), such as differentiated production process, simplified sales process and reduced purchasing cost, it will be beneficial for firms to realize performance improvement.

In terms of ambidexterity, this study referred to the researches of He and Wang (2004) and Cao et al. (2009), and verified the relationship between ambidexterity and organizational performance. The research results show that ambidexterity and organizational performance has a significant positive relationship in between, which means that explorative and exploitative capabilities may now have competitive relationship with organizational resource, or complementary relationship instead. Firms may apply sequential or rhythmic ways to adjust the conversion between them gradually (He & Wang, 2004). Firms with high explorative capabilities can improve its efficiency in exploring new knowledge and developing new products as well as expanding market. This is because that by repeatedly using existing knowledge and resource, managers can have a clear acknowledgement of resource and knowledge and a better understanding of their functions (Kristal et al., 2010). In this case, the firms may be more powerful in controlling the construction of existing knowledge and resource and the successful development of new products and technologies. The establishment of market-oriented culture could provide firms a direction to perceive and interpret explorative and exploitative capabilities, thus to facilitate the complementary relationship of them. Results of this study shows that market orientation will enhance the positive effects of ambidexterity on organizational performance. Market-driven firms with market-oriented culture will transfer, absorb and reserve knowledge through inside-out, cross boundary process, and engage in new product and technology development. Furthermore, firms using outside-in flow capacity are committed to cost control, financial management and
manufacturing processes, which are consistent with exploitative capabilities. From this we can know that firms with high market orientation will facilitate integration among explorative and exploitative capabilities, and provide the basis for the development of explorative capabilities with fixed profit to achieve complementary effect.

**Research limitations and suggestions for future studies**

This research is not without its limitations and therefore should prompt further research. First, due to the cross-sectional nature of the study, we cannot test whether firms follow a sequential strategy in which they cascade their exploration into exploitation or vice versa. To conduct such tests, additional studies could employ longitudinal data and a unit of analysis at the project level.

Second, we focused on selected constructs to develop our research framework. While this strategy helped us to maintain conceptual clarity and parsimony, we may have overlooked other variables. Thus, we encourage more research on the organization, interfirm, and environmental determinants of organizational ambidexterity.

Third, this study didn’t take sound consideration of how to avoid the occurrence of common method variance when issuing questionnaires, so future studies should try their best to consider and avoid the occurrence of common method variance when carrying out research designs and experimental designs. Therefore, the existence of common method variance and problems arising from it will affect not only the results of statistical analysis, but also the process and results of methods and verification. For this reason, relevant issues and verification about common method variance should be further studied.
REFERENCES


Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural equation modeling and
regression: Guidelines for research practice. *Communications of the association for information systems, 4*(1), 7.


Jiang, X., & Li, Y. (2009). An empirical investigation of knowledge management and


