

# How Buyer Performance Is Influenced in a Supply Chain?

## A Social Capital Perspective

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**Abstract**— The majority of research work that explore performance variation in buyer-supplier relations based on social capital theory only concentrate on relational dimension and/or structural dimension, which might limit their theoretical contributions. In this study, we take a more holistic view to develop a research model based on the social capital theory to investigate how social capital elements result in desired buyer (manufacturer) performance behind the supply chain integration strategy. In addition, we will also look into the effects of two resource capabilities, supplier flexibility and supplier collaboration, resulted from suppliers' relationship-specific investments on relational capital. A sample composed of manufacturing firms from different industries in Taiwan will be used to test the hypotheses in the proposed research model.

**Keywords**— Social Capital, Cognitive Capital, Structural Capital, Relational Capital, Buyer Performance

### I. Introduction

Due to the ever increasing competition in the global business environment and the emerging globalization trend, in the past two decades, the research of supply chain management (SCM) has received lots of attention among academicians around the world and it has also been incorporated in the competitive strategy of many firms as a crucial element in industries to survive in the dynamic environment. One of the key elements in SCM is supply chain integration (SCI), which provides manufacturers important benefits such as reduced inventory costs, reduced manufacturing costs, escalated customer value and satisfaction, faster response to market environment changes, and improved product development and innovation. (Flynn, Huo and Zhao, 2010; Homburg and Stock, 2004; Koufteros, Vonderembse and Jayaram, 2005; Song and Di Benedetto, 2008) These benefits can be obtained through effective and efficient flows of products and services, information, and financial resources. (Flynn, Huo and Zhao, 2010)

Apparently the success of SCI requires intimate and cooperative relationships between supply chain members. But, what are drivers behind these virtuous relationships? Trust and commitment have been considered as important cornerstones of relationship development in the literature. (Morgan and Hunt, 1994; Kwon and Suh, 2004; Johnston, McCutcheon, Stuart and Kerwood, 2004; Shin, Collier and Wilson, 2000) However, trust and commitment are part of the elements to create relationships. They reflect the relational capital and represent only one single dimension of social capital in a supply network. Other factors not considered much in the literature such as reciprocity, shared goals, shared norms, strength of the ties, the position within the network and the extent of the network might also play roles in shaping good relationships.

According to Nahapiet and Ghoshal (1998), social capital is composed of three elements: cognitive capital, structural capital and relational capital. Through a systematic literature review, Matthews and Marzec (2012) conclude that the majority of research papers that explore

performance variation in buyer-supplier relations based on social capital theory only concentrate on relational dimension and/or structural dimension, which might limit their theoretical contributions. (Adler and Kwon, 2002; Cousins, Handfield, Lawson and Petersen, 2006; Krause, Handfield and Tyler, 2007; Ketchen and Hult, 2007; Lawson, Tyler and Cousins, 2008; Panayides and Venus Lun, 2009) To fulfill this literature gap, in this study we take a more holistic approach based on the social capital theory to research how social capital elements result in a buyer's performance behind the supply chain integration strategy. In particular, we specify our research scope within a business-to-business context to study how the perceived social capital of a manufacturer (customer) accrued from its strategic relationship with the major supplier (seller) influence its performance. In addition, we will also look into the effects of two capabilities, supplier flexibility and supplier collaboration, resulted from a supplier's relationship-specific investments on relational capital. In other words, we like to know whether the buyer-seller relations can be enhanced further by relationship-specific investments, which in turn leads to better buyer performance.

Based on the above arguments, we would like to address the following research questions:

- (1) Can structural capital and cognitive capital boost relational capital?
- (2) Can supplier flexibility and supplier collaboration escalate relational capital?
- (3) Can social capital as a whole result in better buyer performance?

To answer the above three research questions, a research model based on the social capital theory will be developed. The proposed research model will be empirically tested against a sample data composed of manufacturing firms who will evaluate their relationships with their major suppliers according to the measurement tool developed in this study.

### II. Literature Review

#### A. Social Capital Theory

The researchers in organizational area commonly note that social capital is a valuable asset that originates from access to resources generated from social relationships. (Granovetter, 1992) In this study, we will use this definition to argue that a manufacturer (buyer) can accumulate social capital resulted from social interactions with its key supplier(seller). Indeed, from the resource view, social capital represents available and valuable resources of an

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organization, which are accrued through social relations. The inter-organizational interactions are crucial elements of social relations. However, social capital builds more on the strength of weak ties than that of strong ties, because weak ties enable an organization to mobilize diversified resources that they or their similar partners don't have. (Matthew and Marzec, 2012) In the supply chain context, suppliers engage in materials or parts production that required different knowledge and capabilities from those of manufactures. Thus, we consider social interactions between suppliers and manufacturers are weak ties that can build up social capital.

Nahapiet and Ghoshal (1998) argued that social capital should contain three elements: cognitive capital, structural capital and relational capital. The cognitive capital is characterized by shared goals, norms, vision and values between members. (Tsai and Ghoshal, 1998) In other words, this social capital element generates common understanding and sense-making within the community. Thus, with cognitive capital members are able to make sense of and classify new information and knowledge. (Grant, 1996; Nonaka, 1994) In addition, the cognitive capital help identify appropriate ways for members to coordinate their exchange and thinking processes. (Roden and Lawson, 2014) Since the cognitive capital provides members a positive psychological environment, researches have shown its positive linkage to positive and cooperative behavior. (Kostova and Roth, 2003; Ring and Van De Ven, 1992; Zaheer, McEvily and Perrone, 1998)

The structural capital indicates the network of relations as a whole. It includes the strength of the ties, the individual's position within the network and the scope of the network. Roden and Lawson (2014) operationalize structural capital as social interaction ties existing between buyers and sellers, which refers to the extent of arranged social processes and activities to coordinate. For example, buyers and sellers can arrange certain social events, organize workshops, or launch cross-functional teams. (Roden and Lawson, 2014) The social interaction ties facilitate information and resources flow within a community. The managerial and technical communication sharing based on these social interaction ties boosts buyers' performance improvement. (Lawson et al., 2008)

The relational capital contains assets generated from established relationships, which include trust, obligation and identification. Trust refers to the confidence of one party on reliability and integrity of an exchange partner and the belief that the partner will perform actions resulting in positives as well as not take unexpected actions resulting in negative outcomes. (Morgan and Hunt, 1994; Anderson and Narus, 1990) It can serve as a powerful control mechanism to reduce opportunistic behavior. (Adler and Kwon, 2002) Obligation is a commitment or duty for community members to take certain normative or reciprocal actions in the future. (Roden and Lawson, 2014) Identification represents the way that community members see themselves as one with another member or group of members. (Nahapiet and Ghoshal, 1998)

Matthews and Marzec (2012) argue that the main function of social capital theory can provide insights into gaining access to valuable resources through social relations as well as serve as a control mechanism that explains how communities behave. They further indicate that the majority of papers that explore performance variation in buyer-

supplier relations based on social capital theory only concentrate on relational dimension and/or structural dimension, which might limit their theoretical contributions. Hence, to obtain a more complete picture, in this paper we will investigate the effects of all three social capital elements on buyers' performance. Before adopting a holistic approach, we need to first clarify the relationships among the three social capital elements.

Since cognitive capital is involved with consensus on common goals, norms and values, and structural capital is involved with social ties, they together provide infrastructure and building blocks for relational capital that result in strategic buyer-supplier relationships. (Nahapiet and Ghoshal, 1998; Carey, Lawson and Krause, 2011; Roden and Lawson, 2014) In a community environment where common goals, values and norms are well-implemented to reduce the risk of free-riding, mutual trust, reciprocity and obligation can then be developed. (Coleman, 1990; Nahapiet and Ghoshal, 1998) Adler and Kwon (2000) also indicate that it is unlikely for relational capital to exist without mutual understanding of one another in a community. When common cognitions exist, buyers and suppliers tend to more trust one another, expect reciprocity from other parties, and work toward shared goals. (Tsay and Ghoshal, 1998; Carey, et al., 2011) On the other hand, Carey et al. (2011) argue that arranged social events and team building exercises make mutual evaluation on trustworthiness possible; thus, behavioral transparency can be expected, free-riding can be reduced and information asymmetries can be avoided. Bell, Oppenheimer and Bastien (2002) and Granovetter (1985) also provide evidence that trust between organizations can be developed through direct interactive experiences. Based on the above arguments, we set the following two hypotheses:

*H1: Cognitive capital positively influences relational capital.*

*H2: Structural capital positively influences relational capital.*

## **B. Supplier Flexibility and Supplier Collaboration**

In transaction cost economics theory, relationship-specific assets (physical and human resources) are considered risky because their value either decrease or even vanish if the relationship terminates. However, why members in a business relation still desire to make such relationship-specific investments? Exchange partners tend to sacrifice short-term losses for long-term gains, if they are pursuing a long-term relationships. (Heide and Miner, 1992) Kwon (2011) provides empirical evidence that when suppliers have confidence on a long-term relationship with their buyer, they are more willing to invest in joint problem solving, timely and reliable delivery, as well as a flexible response to requests and emergencies. (Kwon, 2011) To build up close and successful business relationships, relationship-specific investments made by partners can strengthen mutual orientation, interdependence, and solidarity. (Johanson and Mattson, 1987; Murry and Kotabe, 2005; Kwon, 2011)

In this study, instead of including relationship-specific adaptation explicitly in the research model, we consider two important resource capabilities, flexibility and

collaboration, resulted from relationship-specific investments made by suppliers to explore their effects on relational capital accrual. Flexibility can be defined as a behavioral element or capability of suppliers with which to respond effectively and efficiently to unanticipated sudden changing needs or special requests from customers (Bowersox, Daugherty, Dröge, Rogers and Wardlow 1989). Business environments are changing dynamically and in a fast-than-ever step. Because of the globalization trend, the global materials supply market has become very competitive, outperforming suppliers should demonstrate flexibility in adapting to changes or requests from customers to acquire their trust, commitment and reciprocity. In this sense, flexibility can be regarded as a source of relational capital.

To collaborate with customers closely to maintain relationships, suppliers are more willing to share operations related information with customers, fulfill their promises to customers and adapt to changing needs from customers. Collaboration has been emphasized in supply chain management literature as a key factor to successful supply relationships. Collaboration can be regarded as a core and relational capability of a supplier to generate relational capital for customers. Because close collaboration with customers is likely to fully meet their requirements, such as changing needs or special requests in service requirements. Based on the reciprocal mindsets, customers are likely to generate feelings of obligation and are more likely to give repeat business to suppliers. Thus, the relationships can be maintained and enhanced to guarantee long-term competitive advantage (Artz, 1999). Through close collaboration with customers, suppliers know more and better about emergent needs and special requests from customers, and thus can make more effective relationship-specific investments to benefit customers (Brewer and Speh, 2000; Sabath and Fontanella, 2002; Wong and Karia, 2010).

The capability of being flexible makes a supplier more attractive to customers. The markets faced by customers are competitive and market needs could be volatile. To deal with uncertainties in demands, firms rely very much on their suppliers who can be flexible to respond to sudden changes in needs and/or special material specification requests. On one hand, if suppliers can flexibly adapt themselves to customers' needs, customers will likely be more confident on their capabilities and believe that suppliers want to take actions that favor them; hence suppliers can expect more trust from their customers (Han, Sung and Shim 2014). On the other hand, when customers perceive the flexibility of their suppliers to be helpful, they usually will not take risky actions to jeopardize the relationship. And, they should be desired to maintain the relationship as possible as they can; otherwise, they will incur high switching costs to find other competent suppliers.

Collaboration plays an important role in facilitating other capabilities such as flexibility. If suppliers engage in effective collaboration with their customers in forecasting, planning and arranging material requirements in an optimal manner, customers are more able to plan and implement their routine and non-routine demands in production operations efficiently. Through intensive and transparent collaborations and communications, customers shall get to know their suppliers better about the corporate culture, processes, attitude toward the relationship. This will lead in

high trust level in the long run. The collaborative behaviors will impel both suppliers and customers to emphasize on maintaining a productive exchange and do all they can to maintain the relationship (Artz 1999; Wong and Karia 2010). Based on the above arguments, we make the hypotheses below:

*H3: Supplier flexibility positively affects relational capital.*

*H4: Supplier collaboration positively affects relational capital.*

### **C. Buyer Performance**

As a buyer of materials from suppliers and a seller of products to customers, manufacturers are concerned about their production and procurement operations related performance, which is referred to buyer performance in this study. In the operations management and supply chain management literature, researchers have developed commonly acceptable performance indices for manufacturers as product providers, which include cost, quality, delivery, flexibility and innovation. (Ward, McCreery, Ritzman and Sharma, 1998; Krause et al., 2001) These performance indices reflect competitive priorities in the market and are sources of competitive advantages for manufacturers in their product markets.

Manufacturers tend to reasonably reduce costs of materials purchased from their supplier in order to be price competitive and obtain satisfactory returns. Part of the achievement on lowering cost efforts made by suppliers may transfer to their buyers in the form of lower buying prices. (Clark, 1989; Turnbull, Oliver and Wilkinson, 1992; Human and Provan, 1997) The quality of input materials from suppliers has great effects on production performance and product function for manufacturers. Quality has been considered as an order qualifier in industries; the inappropriate quality assurance may result in quality problems and production delays for manufacturers. (Human and Provan, 1997; Liker and Wu, 2000)

Aggressively pursuing lower inventory goals with just-in-time mindsets, manufacturers tend to rely on their reliable on-time delivery practices and this might be related to the delivery performance of ordered materials from their suppliers. Krause et al. (2007) indicate that reliability of delivery and delivery speed together shape delivery performance. To respond to fast and unpredictable market changes, manufacturers should maintain flexible operations. Manufacturing flexibility partly relies on suppliers' quality, delivery time, reliability, and flexibility. (Krause et al., 2007)

In addition to cost improvement, innovation improvement is another crucial competitive priority for manufacturers. (Ward et al., 1998; Krause et al., 2001) They need to have innovation improvement in product design to satisfy more and more demanding customers and process design to make products in a more efficient while lower cost manner. The involvement of suppliers in product and process innovation is crucial for manufacturers' innovation performance through collaborative relationships. (Petersen, Handfield and Ragatz, 2005; Lawson et al., 2008)

In this study, we will examine the influence of buyer performance from the relational aspect in a more holistic

way, especially relationships between manufacturers and suppliers based on accrued social capital. Cognitive capital is characterized by shared goals and culture, which are present when members within a relation share a common understanding and approach to performing tasks within the network. (Tsai and Ghoshal, 1998; Inkpen and Tsang, 2005) Through the experiences of continued interactions, shared goals and values between buyers and their key suppliers are firmly embedded, which result in a self-reinforcing process that benefits sense-making in participation activities within the network. (Weick, 1995) This self-reinforcing process of cooperative cognitive sense making can lead to buyer performance improvement. (Krause et al., 2007) Hult, Ketchen and Slater (2004) provide empirical evidences that complementary cognitions of shared goals and culture can be linked to performance improvements in buyer-seller relationships. Shared goals such as best serving the end market while pursuing benefits of the supply chain as a whole may motivate cooperation and collaboration of suppliers to improve cost, quality, delivery, flexibility and innovation for buyers. On the contrary, incongruent goals and values between members within a relation will generate misunderstanding and conflicts, which undermine the relation and go against buyer performance improvement. Hence, we set the following hypothesis:

*H5: Cognitive capital positively influences buyer performance.*

Structural capital is involved with the network of relations as a whole and is reflected by social interaction ties. Social interaction ties facilitate information and resources flow within a network. In this study, we follow Roden and Lawson's (2014) definition to operationalize structural capital as social interaction ties that exist between buyers and sellers.

Social interaction ties refer to the extent of arranged social processes and activities to coordinate. For example, buyers and sellers can arrange certain social events, organize workshops, or launch cross-functional teams. (Carey et al., 2011; Roden and Lawson, 2014) Through these interaction activities, suppliers and buyers can share crucial information and knowledge to improve their operations. (Uzzi, 1997; Dyer and Nobeoka, 2000) For example, suppliers may obtain technical support in their production process and quality assurance, production plan and inventory information, shared end market information from buyers. Cousins et al. (2006) and Kale et al. (2000) provide empirical evidences that social interaction ties can influence performance improvements and value creation in buyer-supplier relationships through shared information and access to valuable resources. Hence, buyers are able to share suppliers' information about capacity, inventory quality, and logistics. Based on the exchanged information and knowledge, both parties can make improvement in their operations; thus, buyers' performance on cost, quality, delivery, flexibility and innovation can be enhanced accordingly. (McEvily and Marcus, 2005; Moran, 2005) Based on the above argument, we make the following hypothesis:

*H6: Structural capital positively influences buyer performance.*

Relational capital is composed of assets created by established relationships, which include trust, obligation and identification. Through continuous interaction experiences, buyers and sellers more and more understand their common goals, value and norms that can benefit them as a whole. Thus, trust and commitment can be expected in the relation. Relational capital can effectively discourage opportunistic behavior, increase the confidence, and decrease transaction costs in established buyer-seller relationships. (Dyer and Singh, 1998) Both parties feel obligated to make adjustments or work with the other parties to boost joint performance by removing barriers and inefficiencies. (Cousins et al., 2006). Artz (1999) empirically proves that the relational norms of collaboration and commitment result in higher buyer-supplier performance while Kotabe et al. (2003) provide empirical evidence that better supplier relationships lead to increased buyer performance in product design, process design, lead time and quality.

In established relationships, relational capital can generate a store of trust, goodwill and reciprocity for future use. They can be directed to generated benefits such as lower costs, greater capacity for innovation, and shortened time to market for new products. (Carey et al., 2011) With relational capital, buyers and sellers can more effectively combine knowledge that could only be shared in established relations to lower operating and product costs, obtain insights into new technology opportunities, shorten time to market for new products, and improve product and process design. (Corsten and Felde, 2005; Cousins et al., 2006; Handfield, Ragatz, Petersen, Monczka, 1999). Based on the above arguments, we set the a hypothesis below:

*H7: Relational capital positively influences buyer performance.*

#### **D. Conceptual Model**

Based on the social capital theory, we take a more holistic view to develop a research model that examines the effects on buyer performance of all three social capital elements: cognitive capital, structural capital, and relational capital. We also take supplier flexibility and supplier collaboration capabilities into account as two additional antecedent factors to relational capital. These two important elements are the results of relationship-specific investments made by suppliers. Though risky, they play roles in consolidate relations and, in turn, generate performance for buyers and suppliers as a whole. By applying the proposed model, suppliers learn that how to make proper relationship-specific adjustments to benefit accumulation of social capital, which in turn benefits customers in performance improvement, results in customer loyalty, and wins repeated business in the long run. Through the review of relevant research literature in the previous section, we have made seven research hypotheses which will be tested with a surveyed sample. The proposed research model is depicted in Figure 1 below.

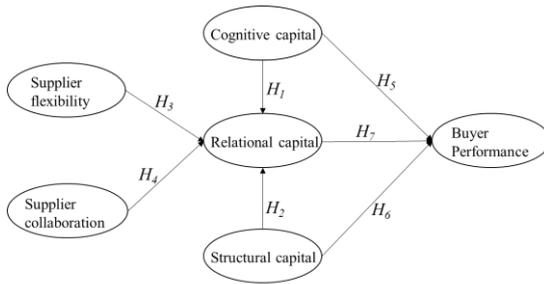


Figure 1. Research Framework

### III. Research Methodology

#### A. Survey Measures and Data Analysis Methods

Multiple items for each research construct are adapted from measurement scales empirically validated in the literature to measure research constructs in the proposed model. All items used in the questionnaire instrument are seven-point Likert scales anchored by “strongly disagree” and “strongly agree”. The four items used for measuring cognitive capital adapted from scales empirically tested by Carey et al. (2011) and Roden and Lawson (2014). Questionnaire respondents, managers who interact with their suppliers intensively, are asked to answer the following four question items based on the evaluations on their relationships with the key supplier:

1. Both parties often agree on what is in the best interest of the relationship.
2. Both parties share the same business values
3. This supplier does not share our goals for this business (reversed)
4. We share the same ambitions and vision

Following Tsai and Ghoshal (1998) and Carey et al. (2011), we use social interaction ties as a proxy for structural capital. A five-item scale empirically tested by Cousins et al. (2006), Cousins and Menguc (2006), Carey et al. (2011) and Roden and Lawson (2014) are used to measure the extent to which the buyer and the supplier engage in social interaction. Questionnaire respondents are asked to answer to what extent they engage in the following five types of activities with the key supplier:

1. Organized social events
2. Joint workshops
3. Cross-functional teams
4. Co-location
5. Team building exercises

Relational capital is measured by a five-item scale adapted from scales validated by Carey et al. (2011), Roden and Lawson (2014) and Lawson et al. (2008). This five-item scale was developed by Kale et al. (2000) according to the earlier work of Dyer and Singh (1998) and Madhok (1995). Respondents are asked to answer the following five questions according to their evaluation on the relationships with the key supplier:

1. The relationship is characterized by close interaction at multiple levels

2. The relationship is characterized by mutual trust at multiple levels
3. The relationship is characterized by mutual respect at multiple levels
4. The relationship is characterized by mutual friendship at multiple levels
5. The relationship is characterized by high levels of reciprocity

Flexibility are measured by four items of Hartmann and de GrahL’s scale (2011), which was adapted from the studies of Noordewier, John and Neviv (1990), Cannon and Homburg (2001). Respondents are required to answer the following questions based on their evaluations on the key supplier:

1. The key supplier is flexible in response to requests we make.
2. The key supplier flexibly handles unanticipated problems.
3. The key supplier handles sudden changes of orders well.
4. The key supplier readily adapts to unforeseen changes of orders.

Collaboration were measured by four items adapted from Sinkovics and Roath’s (2004) scale. Respondents are asked to answer the following questions based on their evaluations on the key supplier:

1. The key supplier exploits possibilities to improve inter-organizational processes with us.
2. The key supplier and our firm can find synergistic ways to cooperate.
3. The key supplier works together to help us with product and process innovation.
4. The key supplier and our firm continuously share proprietary information mutually.

The scale for buyer performance contains eight items adapted from scales developed and validated by Kotabe et al. (2003), Krause et al. (2007), Carey et al. (2011) and Lawson et al. (2008). Respondents are asked to answer the following questions according to their evaluations on their firms:

1. In the last 2–3 years, we have been able to improve product design performance through the relationship.
2. In the last 2–3 years, we have been able to improve process design performance through the relationship.
3. In the last 2–3 years, we have been able to improve our product quality through the relationship.
4. In the last 2–3 years, we have been able to improve our ability to innovate through the relationship.
5. In the last 2–3 years, we have been able to improve our manufacturing flexibility through the relationship.
6. In the last 2–3 years, we have been able to shorten our new product development cycle times through the relationship.
7. In the last 2–3 years, we have been able to achieve total cost reductions through the relationship.
8. In the last 2–3 years, we have been able to lower product cost through the relationship.

We will invite marketing scholars and professional managers in the manufacturing sector to comment on the draft of the questionnaire. Based on their suggestions, we will make adjustments to the wording of the questionnaire to assure all items are readable.

After confirming the validity and reliability of the designed measurement scales for all research constructs, a bi-variate correlation analysis will be performed on the research constructs in order to obtain a preliminary insight into the mutual relationships among research constructs. Then, a structural equations model (SEM) will be fitted for the proposed research model. The research hypotheses testing will be based on the path coefficients obtained from the SEM model.

## B. Sampling Plan

The empirical analysis in this study is to examine the hypothesized relationships of constructs in a research model based on the social capital theory in a buyer-seller inter-organizational context from buyers' perspective. In order to access to effective respondents for the questionnaire investigation, we will ask Department of Statistics, Ministry of Economic Affairs for help to provide us a list of manufacturing firms from different industries. Self-administered questionnaires will be send to potential respondents according to the addresses provided by Ministry of Economic Affairs. Follow ups will be made 10 days after sending the questionnaires. Non-response bias will be checked by the method proposed by Armstrong and Overton (1977). Common method bias will be tested by using Harman's single-factor test (Podaskoff, MacKenzie, Lee and Podsakoff, 2003).

**To be continued.**

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