The consequences of individual and organisational level social capital on supply risk management

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Abstract

Most research on buyer-supplier relationships to date has approached social capital as an organisational level phenomenon. In contrast, we adopt a multi-level perspective to specify the effects of organisational and individual level social capital on supply risk management capability and firm resilience. A survey research design is adopted to collect data from manufacturing organisations in China. We suggest that organisational social capital deriving from buyer-supplier relationships has a direct positive effect on risk management capability and an indirect positive effect on firm resilience. These effects were also explored with the contingencies of individual social capital and environmental dynamism.

Keywords: Social Capital, Risk Management, Firm Resilience

Introduction

The interconnectedness of supply chains, the accelerating pace and uncertainty of organisational activities, and the substantial losses that can occur from not being resilient to supply chain risks have motivated many organisations to collaborate with supply chain partners (e.g. Scholten and Schilder, 2015). It has been acknowledged, for example, that organisations are at an advantage if they can look into their supply network and work more effectively together with other actors. Resilience, as the ultimate goal of supply risk management (SRM), is the ability to effectively deal with supply chain risks (Colicchia and Strozzi, 2012) yet there is limited empirical research concerning how the buyer-supplier relationship (BSR) may facilitate SRM capabilities to enhance firm resilience. SRM capability describes the organisational abilities embedded in a firm's routines – learned, stable patterns of collective activity (Schilke, 2014) – to identify, assess, mitigate, and monitor potential supply risks (Tummala and Schoenherr, 2011), potentially allowing firms to generate competitive advantage. Further, empirical work on the antecedents to SRM capabilities is also scarce. The few prior studies have been largely in the context of developed countries with more research needed in developing countries such as China where *guanxi* is important.

In this paper, we use a survey design to collect data from manufacturing organisations in China and investigate how the buyer-supplier relationship impacts supply risk management capability and firm resilience. Our analysis is aided by social capital theory with its three dimensions of structural, relational, and cognitive capital (Nahapiet and

Ghoshal, 1998). It can be used to explore how networking relationships bring value to actors such as individuals or organisations (Leenders and Gabbay, 1999) by enabling them to access resources embedded in those relationships (Bourdieu and Wacquant, 1992) and by facilitating actions (Adler and Kwon, 2002). Social capital can be defined as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal, 1998, p. 243). This definition acknowledges that social capital may reside at both an individual and an organisational level. Indeed, inter-firm relationships almost always depend on individuals connecting people affiliated with other firms. The owners of organisations therefore do not always control these connections and consequently cannot always profit from them (Sorenson and Rogan, 2014). Thus, it is necessary to consider social capital at both an individual and an organisational level to understand how BSRs influence SRM capability and firm resilience. The context (i.e. China) chosen for this study also necessitates the application of social capital from a multi-level theoretical perspective. *Guanxi*, which is closely related to individual social capital, is cultivated by managers in their personal relationships (Park and Luo, 2001). This is in contrast to organisational-level social capital, which is often not easily transferable or traded (Nahapiet and Ghoshal, 1998). Yet, there are also negative aspects of *guanxi* (Gu *et al.*, 2008) that relate to the dark-side of social capital in BSRs (Villena *et al.*, 2011).

Social capital theory has been increasingly adopted in SCM research during the past decade (Krause *et al.*, 2007; Villena *et al.*, 2011; Roden and Lawson, 2014), but the use of social capital as a multi-level construct is rather limited (Payne *et al.*, 2011; Kwon and Adler, 2014). Prior studies have implicitly imported the individual-level mechanism for social capital to the organisational level by collecting data from individuals whilst treating the organisation as the unitary actor – with the same sets of motivations, cognitions, and emotions as individuals, such as the ability to trust one another (Sorenson and Rogan, 2014). Undoubtedly, such importation has contributed to an improved understanding of BSRs and performance outcomes. But the link between social capital and performance has been theorised in general terms only. There is a need to look closer at the precise nature of how social capital influences SRM in a multi-level context.

It is therefore argued here that a multi-level view of social capital will offer greater insight into the multidimensional nature of BSRs and their effect on SRM. Underpinning any corporate BSR are individual connections between people; and these individuals may pursue interests that are aligned/misaligned with organisational interests (Sorenson and Rogan, 2014). On the one hand, a buyer's SRM capability could be improved if individual-level informal relationships (e.g. via *guanxi*) provide access to scarce information and resources (Park and Luo, 2001); but, equally, a buyer representative may feel obligated to reciprocate favours for an individual from the supplier company (Gu *et al.*, 2008) even if these do not advantage the buyer firm.

In summary, this study uses a survey of manufacturing firms in China to examine how BSRs influence a buyer firm's SRM capability and resilience. The theoretical lens for our study is social capital theory (Nahapiet and Ghoshal, 1998). Building social capital in BSRs has been argued to be critical to resilience (Johnson *et al.*, 2013) but researchers have called for a shift away from applying social capital as a single-level model, i.e. at an organisational level only (Inkpen and Tsang, 2016). Thus, we examine how social capital –at both an individual level and an organisational level – influences SRM capability and firm resilience.

Research method

We started with a literature review on supply chain risk management (Fan and Stevenson,

2018). Based on our focus on the BSR, SRM, and firm resilience, we formulate our hypotheses informed by a multi-level perspective of social capital. A survey-based methodology was then adopted to test our hypotheses.

We applied the Q-Sort approach over three rounds followed by a pilot survey with 31 firms to refine the instrument. As our instruments to measure constructs were collected from multiple sources, i.e. literature review and interviews, we used a Q-Sort approach spread over three rounds (Moore and Benbasat, 1991; Menor and Roth, 2007; Block, 2008). As suggested by Moore and Benbasat (1991) and Block (2008), the Q-Sort approach is useful to determine if: (1) the measure 'at face value' seems like a good translation of the theoretical concept (i.e., face validity); (2) all facets of a construct are measured (i.e. content validity); (3) the measures for a construct belong together (i.e. convergent validity); and, (4) are distinguishable from the measures of other constructs (i.e. discriminant validity).

Specifically, respondents were requested to classify a randomized listing of the items to the construct definitions provided over multiple rounds. In the first round (unstructured sorting), sorters were asked to sort the questions by dragging each set of related questions together into a box and to give each set of questions a label (which created a construct). After the first round, we discussed the sorting process and focused particularly on misplaced items. This allowed us to refine the items accordingly and identify any ambiguously worded questions. We also checked whether the labels named by the sorters were consistent with the names of actual constructs. In the second stage (structured sorting), sorters were provided with the names and definitions of the constructs. In the first two rounds, the Q-sorting was conducted with the help of academics and doctoral students that were knowledgeable about the literature. In the third round, we used industry experts who had prior experience of working in buyer-supplier relationships. Four, five and four respondents were used in the first, second, and third rounds of the Q-Sort, respectively. In each round, inconsistencies between the sorter's item placement and the researcher's expectations were identified and discussed. Sorters were asked to provide feedback on the reasoning behind their placements and on any perceived ambiguous items. Consequently, unclear items/questions were either changed or removed from the questionnaire.

Three Q-sort measures were used to evaluate the instruments (Moore and Benbasat, 1991). First, the *inter-judge raw agreement score* is the number of items that both judges agree to place into a certain category divided by the total number of items. Second, the *item placement ratio* (i.e. hit ratio) refers to the items that are correctly sorted into the intended theoretical category divided by twice the total number of items. Third, *Cohen's Kappa* is a measure of inter-rater reliability, i.e. the proportion of joint judgments, which corrects for chance agreements. The results suggest good quality measures.

We collected survey and archival data on firms headquartered in China, covering diverse industries including automobiles, electronics, food, chemicals, etc. We selected these sectors because they contain a wide range of purchasing arrangements and provide a sampling frame of adequate size. China is an ideal setting, typifying an emerging market because of its population, fast-growing economy, increased liberalisation of most economic sectors, and its role as a global manufacturing centre and primary location for international outsourcing (Liu *et al.*, 2009). As the survey was conducted in Chinese, a rigorous process of translation and back-translation was employed to ensure consistent use of the scales (Brislin, 1986). The target respondents for the survey were senior-level managers with knowledge of BSRs and risk management. Our hypotheses were tested through data collected from 248 manufacturing firms, including multiple respondents from 57 firms.

Analysis

We applied structural equation modelling (SEM) and followed the two-stage procedure recommended by Anderson and Gerbing (1988) in testing our hypotheses. We also included a number of control variables in the models to account for any extraneous influences. The coefficient for the primary independent variable, i.e. organisational social capital, was significant and in the hypothesised direction thereby offering support for the influence of organisational social capital on SRM capability. We also found support that organisational social capital can indirectly enhance firm resilience through SRM capability. In addition, the moderating effects of individual social capital and environmental dynamism were significant.

Expected contribution and conclusions

Drawing on a social capital perspective, we have hypothesised about the benefits to SRM capability and firm resilience for a buyer from the social capital that reside in its relationship with a supplier. We suggested that organisational social capital has a direct positive effect on SRM capability and an indirect positive effect on firm resilience – and this hypothesis was supported.

In addition, and taking a contingency-based perspective, we investigated the conditions under which organisational social capital leads to enhanced SRM capability and firm resilience. We suggested that the impact of organisational social capital on firm resilience is enhanced under the condition of greater environmental dynamism. This is in line with the argument that social capital is an effective instrument for getting access to strategic information and resources required to cope with dynamic environmental change. We also argued that individual social capital affects supply risk management capability indirectly by moderating the organisation's ability to leverage its social capital with suppliers to affect risk management capability. Moreover, individual social capital acts as another contingency factor and can reduce the effects of organisational social capital on SRM capability.

Overall, this study aims to go beyond previous social capital and SRM research in four ways. First, social capital is conceptualised as a multilevel construct, thereby responding to the call by Inkpen and Tsang (2016); and this perspective complements prior single (organisational) level analyses. Second, we provide empirical evidence on the relationship between SRM capability and firm resilience. This contributes to debate in the supply chain resilience literature on the interrelationship between SRM and resilience. Third, we establish important conditions created by environmental dynamism and individual social capital, suggesting when the primary relationship is enhanced or impaired. Last, the study is expected to highlight theoretical and managerial implications for leveraging buyer-supplier multi-level social capital to improve SRM capability and build firm resilience.

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