GLOBAL SOURCING AND FIRM PERFORMANCE: THE ROLE OF STRATEGIC FLEXIBILITY AND SUPPLIER INTEGRATION

ABSTRACT

Despite the managerial and scholarly expectations surrounding global sourcing, research to date on the impact of global sourcing on firm performance has resulted in mixed evidence. This study aims to clarify the relationship between global sourcing and firm performance by drawing on dynamic capabilities literature to investigate the roles of strategic flexibility and supplier integration. Rather than focus on the direct effect of global sourcing on performance, we submit that the performance effects of global sourcing are mediated by strategic flexibility, and that this mediation effect is moderated by the capability to integrate with suppliers of high-value inputs. Using a combination of survey and archival data of 223 firms across 12 different manufacturing industries, we show that the mediation effect of strategic flexibility between global sourcing and firm performance is moderated by supplier integration. We distinguish between explorative and exploitative dimensions of strategic flexibility. The findings suggest that supplier integration effectively reduces the negative effects of global sourcing and create positive effects on firm performance through exploitative strategic flexibility, however, supplier integration fails to create positive effects of global sourcing on firm performance through explorative strategic flexibility.

INTRODUCTION

In today's complex and turbulent business environment, firms must increasingly cooperate with other firms to succeed (Wong, Tjosvold and Zhang, 2005). As a result, we have seen a dramatic increase in the deployment of cooperative strategies in recent years (Child, Faulkner and Tallman, 2005). Scholarly research has argued that cooperative strategies contribute significantly to competitive advantages, since the network of relationships in which the firm is embedded can either impede or enable performance (Dyer and Singh, 1998; Lavie, 2006).

Despite its increasing deployment in practice, global sourcing, i.e. the acquisition of products and services from suppliers in foreign countries, has received relatively little attention as a cooperative strategy in international business research (Quintens, Pauwels, and Matthyssens, 2006). Many firms are rapidly increasing their deployment of global sourcing strategies. For instance, in the period 2003-2007, manufacturing firm Royal Philips Electronics increased the proportion of foreign-sourced purchasing from 29 percent to 42 percent of its overall purchasing of nearly €19 billion in 2007. For bill-of-material purchases, the percentage is now even above 50 percent (Philips, 2007). Previous scholarly work in this area has argued that the application of global sourcing positively influences the access to higher quality goods and services (Frear, Metcalf and Alguire, 1992; Quinn and Hilmer, 1994), and advantages and synergies by increasing economies of scale and building greater experience (Furness, 2005).

Although the number of empirical studies on this important topic is limited (Quintens et al., 2006), a review of previous research indicates that the performance implications of global sourcing are inconclusive (Murray, Kotabe and Wildt, 1995; Mol, Van Tulder and Beije, 2005). A survey study conducted by Mol et al. (2005) among 200 managers of the largest manufacturing companies in the Netherlands did not find a significant relationship between the level of global sourcing and firm performance. In a study in the international courier and small packages services industry, Hsieh, Lazzarini, Nickerson and Laurini (2009) found that firms that source globally, experience a mixed impact on their performance and that global sourcing could even slightly reduce firm performance. Against the

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background of these mixed findings, researchers have called for more contingency-based research that takes into account how global sourcing activities are managed (Trent and Monczka, 2005).

Our study responds to this call by drawing on the dynamic capabilities and resource-contingency perspectives. Dynamic capabilities are "specific organizational and strategic processes by which managers alter their resource base" (Eisenhardt and Martin, 2000: 1111). The dynamic capabilities perspective is built on the resource-based view (e.g. Barney, 1991; Penrose, 1959 and Wernerfelt, 1984), which studies firms as bundles of assets, resources and competencies. However, while the classical resource-based view emphasizes the choice and selection of appropriate resources, the dynamic capability perspective emphasizes the development and renewal of resources. According to Teece (2007), sourcing can be considered as a key building block of dynamic capabilities, and therefore can be a fundamental driver of sustainable competitive advantage (e.g. Teece and Pisano, 1994; Teece, Pisano and Shuen, 1997).

Several studies support the notion that the management of supplier relations can contribute to the creation of sustainable competitive advantage (e.g. Capon, Farley and Hoening, 1990; Dyer and Singh, 1998; Gulati, 1995; Mol, 2003,1), while other studies view global sourcing as a critical element of competitive advantage (e.g. Frear et al., 1992; Carter and Narasimhan, 1996; Petersen, Frayer and Scannell, 2000). From a dynamic capabilities perspective, a global sourcing strategy can be critical to the long-term competitiveness of the firm if it helps to develop, integrate and add other key resources over time. However, this approach to the relationship between global sourcing and firm performance is unexplored in the literature.

The resource-contingency approach adds the notion of context-specificity to the resources and dynamic capabilities perspectives. For example Brouthers, Brouthers and Werner (2008) show how resource-based advantages are dependent on country-specific institutional mechanisms in entry mode decisions. Verwaal, Commandeur and Verbeke (2009) show that the value of resources and dynamic capabilities provided by outsourcing partners is dependent on transaction attributes in strategic outsourcing arrangements. From the resource-contingency perspective, the search for contingency factors

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suggested by Trent and Monczka (2005), is the logical step to disentangle the mechanisms of external resource value creation in the heterogeneous institutional setting of global sourcing.

In the current study, we seek to develop a *contingent resources and dynamic capabilities perspective* on the performance implications of global sourcing. First, we explore *strategic flexibility* as a critical mediator of the relationship between global sourcing and firm performance. There is growing anecdotal evidence in the business press that global and particularly low costs country sourcing can lead to reduced flexibility in the supply chain. Longer transportation lines, increased delivery lead times and product obsolescence can become critical concerns (Campbell, Hexter and Yin, 2004). Still, the strategic management literature lacks sufficient research exploring the role of strategic flexibility in the relationship between global sourcing and firm performance. Second, we explicitly compare and contrast the impact of global sourcing on firm performance in the context of *the nature of* global sourcing relationships, by considering the level of *supplier integration*, i.e. the extent to which the buying firm operates within trustworthy, loyal and cooperative supplier relations (Chen, Paulraj and Lado, 2004).

The current study contributes to the development of a contingent dynamic capabilities theory by developing a model of the global sourcing → firm performance relationship that incorporates the roles of strategic flexibility, in the context of different levels of integration with suppliers of core and high-value activities. In doing so we focus on the comparison of hybrid versus more market based forms of exchange. Hierarchical governance or captive offshoring is excluded from this study as this governance modes varies fundamentally in its adaptive coordination capabilities (Williamson, 1991), and therefore in its relationships with dynamic capabilities. However, by analyzing the potential and limitations of market and hybrid global sourcing to the firm's strategic flexibility, our study may have important implications for the study of captive offshoring of core and high-value activities.

We organize the paper as follows: in the next section we examine previous literature to develop a conceptual framework, focusing on the nature of the relationships between global sourcing, strategic flexibility and the role of supplier integration in the formation of firm performance. We empirically test the proposed relationships using survey and archival data from manufacturing firms across 12 industries

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active in the Netherlands. We present evidence that supplier integration moderates the mediation effect of explorative and exploitative strategic flexibility in the global sourcing and firm performance relationship. In addition, we find evidence that supplier integration is capable of transforming the negative impact of global sourcing on firm performance into a positive one through exploitative strategic flexibility but not through explorative strategic flexibility. We conclude with a discussion of the findings, managerial implications and further research.

BACKGROUND AND HYPOTHESES DEVELOPMENT

Global Sourcing

The definition of global sourcing in the academic literature has evolved over the years, partly because firms have expanded the scope of global sourcing strategies over time (Beamish, Morrison, Rosenzweig and Inkpen, 2000). Global sourcing was first identified as a separate research topic in the late 1980s (Kotabe and Omura, 1989). During the 1980s, US firms struggled to maintain market share in the global economy and began to apply global sourcing as a reactive strategy, primarily to realize cost advantages (Monczka and Trent, 1991). During the late 1980s and early 1990s, firms shifted from a restrictive focus on cost advantages to a broader focus that increasingly included the quality, reliability and technology of products and services (Murray, Wildt and Kotabe, 1995). In addition to seeking the lowest prices, firms began searching the world for the higher quality, innovative technologies, product development and design that are related to core and high-value company functions (Pyke, 1998). Because global sourcing enables firms to pick the best world suppliers (Quinn and Hilmer, 1994), firms were able to base their global sourcing strategies on their own competitive advantages and the comparative advantages of the various suppliers firms in different locations (Kotabe and Murray, 2004). Overall, global sourcing has evolved from a predominantly reactive strategy aimed at competing on cost into a more proactive strategy aimed at creating long-term value.

In this study, we decided to use a broad definition of global sourcing that is widely used in the field of management and international business (e.g. Kotabe, 1992; Murray et al., 1995; Mol et al., 2005). In this approach global sourcing is defined as buying and/or assembling components, parts or finished commodity and high-value inputs in non-domestic countries. We argue that the full supplier portfolio is important in assessing the impact of global sourcing strategies from a dynamic capabilities perspective. Removing the low-value inputs from the global supply base would ignore the dynamic nature of global sourcing. What is a commodity supplier today might become a supplier of strategic inputs tomorrow. In fact, many multinational firms such as Nike and IBM intentionally develop their strategic supply base over many years from what originally were commodity or low-value offshore suppliers (Gadde and Håkansson, 2001). Thus, by adopting a broad definition, we can examine the impact of supplier integration routines for the overall global sourcing strategy.

Strategic Flexibility

In today's dynamic and competitive environment, organizations that operate in the manufacturing industry must cope with frequent changes in consumer preferences, discontinuous innovations, the increasing speed and cost of technological change (Wang and Lo, 2003), and the emergence of new global competitors. While the importance of flexibility as an element of strategic management has been acknowledged (e.g. Evans, 1991), and the strategic aspects of manufacturing flexibility have been studied (e.g. Gerwin, 1993), this paper seeks to apply the concept of strategic flexibility to the area of international business in general and global sourcing in particular. According to Carter and Narasimhan (1996), one of the primary focal points in recent global sourcing strategies, has been their potential to affect strategic flexibility.

Aaker and Mascarenhas (1984) define strategic flexibility as the ability of an organization to adapt to substantial, uncertain and sudden environmental changes that impact organizational performance. Strategic flexibility enables firms to manage turbulent markets effectively and consists of the managerial capability to modify organizational activities (Volberda, 1999) and strategies. Strategic flexibility differs

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from other types of flexibility as it involves the development of effective long-term strategies (Carlsson, 1989) and short-term tactics to manage consequential environmental changes (Van der Weerdt, 2009). This type of flexibility is especially important for companies in high technology arenas that are in a continuous state of flux (Evans, 1991).

Strategic flexibility fits the definition of a dynamic capability as an organizational or strategic routine by which firms achieve new resource configurations or adapt existing ones. Dynamic capabilities differ from resources as they consist of general strategic and organizational processes characterized by high degrees of equifinality, homogeneity, and substitutability across firms (Eisenhardt and Martin, 2000). Strategic flexibility allows for changes in the configuration of the resource base of the firm (Eisenhardt and Martin, 2000), creating new product market combinations (Krijnen, 1979) and is generally defined as the capability of a firm to change strategy (Evans, 1991). Therefore, we conceive strategic flexibility as a dynamic capability.

The current study refines the traditional conception of strategic flexibility common to the literature by incorporating March's (1991) distinction between organizational learning aimed at the *exploration* of new knowledge and skills versus the *exploitation* of existing knowledge and skills. Just as organizational learning, organizational adaptation, technological innovation and organizational design (Raisch and Birkinshaw, 2008) are thought to be subject to exploitation and exploration, strategic flexibility is divided in an exploration and an exploitation dimension. With respect to organizational learning, innovation and strategic flexibility, exploration involves creating new knowledge and business practices, while exploitation involves optimizing current business practices and using current knowledge more efficiently (March, 1991). In the strategic flexibility literature, Evans (1991) makes a similar distinction between pre-emptive and exploitative manoeuvres of strategic flexibility. However, we adopt March's "exploration" versus "exploitation" terminology throughout the present paper. Both dimensions of strategic flexibility fit the definition of dynamic capabilities as they allow to reconfigure existing resources bases (i.e. exploitation) or to configure new resource bases (i.e. exploration) (cf. Eisenhardt and Martin, 2000).

Scholars from the dynamic capability perspective argued that companies' choices to engage in international business might impact their dynamic capabilities base (e.g. Sapienza, Autio, George and Zahra, 2006; Zahra, Sapienza and Davidsson, 2006). However, the question how global sourcing influences a firm's dynamic capabilities base remains unexplored in the literature. Some authors proposed that applying a global sourcing strategy can help firms to achieve strategic and organizational flexibility (Quinn and Hilmer, 1994; Murray, 2001), but these claims lack empirical support. Although studies on manufacturing flexibility have investigated the role of sourcing practices such as early supplier involvement, they have largely neglected the role of global sourcing (Gerwin, 1993; Narasimhan and Das, 2000).

Hence, we must look to studies that can inform us more indirectly on the potential relationship between global sourcing and strategic flexibility, for instance by exploring the effect of cultural and institutional differences on global sourcing. Global sourcing brings companies together that are rooted in different national cultures and institutional structures. Unfortunately, the role of cultural and institutional differences has received little attention in research on strategic flexibility. However, there is evidence that cultural and institutional differences directly impact managerial variables that may in turn affect strategic flexibility. For example, studies present evidence that managers from different national cultures vary widely in their conceptions of effective management practice (Laurent, 1983; Neelankavil, Mathur and Zhang, 2000), definitions of effective leadership (Koopman, Den Hartog, Konrad and Akerblom, 1999), managerial values (Bigoness and Blakely, 1996) and business goals (Hofstede, Van Deusen, Mueller and Charles, 2002). Fundamental cultural differences that manifest in differing management styles, reward and control systems, decision-making procedures and task formalizations are believed to increase conflict potential (Buono, Bowditch and Lewis, 1985), lead to polarization, and hinder agreement over management issues. Substantial cultural differences, may impede the compatibility of organizational practices, systems and routines between buyer and supplier firm (Gomez-Mejia and Palich, 1997). As such, cultural and institutional differences might negatively impact strategic flexibility.

The resource-contingency perspective links the impact of cultural and institutional differences to the value of resources and dynamic capabilities (e.g. Brouthers et al., 2008; Oliver, 1997; Priem and Butler, 2001). According to Oliver (1997), resources of a firm that create a competitive advantage in one country might not create this resource advantage in another context, due to institutional and cultural differences among countries. Furthermore, the institutional context of resource decisions can limit a firm's ability and willingness to change. Brouthers et al. (2008) show that differences in institutional contexts, that firms encounter when expanding into foreign countries, negatively affect the value and effectiveness of their resource-based advantages. Therefore, we posit global sourcing to have a negative impact on strategic flexibility. Culturally and institutionally determined differences in leadership and management styles, reward and control systems, decision-making procedures and task formalizations hinder both the exploitation and exploration learning activities (March, 1991) to develop in global sourcing arrangements. Put differently, global sourcing is not capable of building critical capabilities necessary for increasing strategic flexibility. Hence, we hypothesize:

Hypothesis 1:   *Global sourcing negatively affects strategic flexibility.*

While the importance of strategic flexibility to create competitive advantage is increasingly recognized in the strategic management field, there have been few influential studies that explore the performance implications of strategic flexibility (Wang and Lo, 2003). However, several authors argue that strategic flexibility improves a firm's performance in terms of its potential to create competitive advantage (e.g. Das, 1995; Sanchez, 1995; Nadkarni and Narayanan, 2007).

Additionally, scholarly research suggests that the relationship between manufacturing flexibility and performance is manifold and that the relationship should be specified according to the type of flexibility needed and the choice of means to attain that specific flexibility (Olhager, 1993). However, the exploration and exploitation dimensions of strategic flexibility are both important and interlinked in achieving high firm performance (e.g. O'Reilly, 2008; Gupta, Smith and Shalley, 2006; March, 1991).

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Therefore we propose that both explorative and exploitative dimensions of strategic flexibility have a positive impact on firm performance in general. Therefore, we posit:

Hypothesis 2:   Strategic flexibility positively affects firm performance.

Supplier Integration

Supplier integration refers to the level of trust, commitment and cooperation that characterizes partnerships with key suppliers (Mohr and Spekman, 1994). We conceive supplier integration as a cooperative relationship to achieve a shared strategic goal. More specifically, supplier integration can be defined as the capacity to purposefully create, extend, or modify a firm's resource base, augmented to include the resources of its alliance partner (Dyer and Kale, 2007).

In order to study the influence of supplier integration in relation to global sourcing, it is helpful to make two distinctions: (1) between sourcing that is managed on an arms length basis and sourcing that is managed on a strategic partnership basis, and (2) between strategic and non-strategic inputs (Kraljic, 1983). Strategic inputs are differentiated products of high value (Dyer, Cho and Chu, 1998) whereas non-strategic inputs are undifferentiated commodities. Establishing effective supplier integration is about building cooperative and trustful relations with the suppliers of strategic, high value inputs, while selectively and properly applying such integration routines (Bensaou, 1999). In this study, we therefore define supplier integration as the capability of the firm to build cooperative and trustful relations with suppliers of strategic, high value inputs.

By achieving a high level of supplier integration, firms can profit from supplier investments in specific assets and the development of relationship-specific capabilities (Dyer, 1996; Dyer and Singh, 1998; Dyer and Hatch, 2006). This will allow firms to purposefully create, extend, or modify their resource base, augmented to include the resources of suppliers (Dyer and Kale, 2007). As dynamic capabilities include the cooperative abilities of the buying and selling firm to use current resources, create new resources, and devise new ways of using resources (Eisenhardt and Martin, 2000), supplier integration can be framed as a dynamic capability (Chen et al., 2004).

Supplier Integration and Firm Performance

There is evidence that strategically managed long-term relationships with key suppliers positively affect firm financial performance (Carr and Pearson, 1999; Chen et al., 2004). Maintaining a high level of supplier integration for the sourcing of strategic inputs offers several advantages, such as supplier investments in specific assets, and fast access to global knowledge and markets (Takeishi, 2001). There is also evidence reported in the literature that a low level of supplier integration negatively influences the long-term competitive position of the firm (Dyer, 1994). By maintaining a low degree of supplier integration and using strong bargaining power positions with suppliers of strategic inputs, companies may restrict the size and scope of their suppliers. The threat these suppliers face to lose orders to competitors creates an uncertain business environment that results in a shorter planning horizon. This leads to operating decisions that may decrease their level of innovation and increase their long-term production and material costs (Dyer and Hatch, 2006; Kotabe and Murray, 2004). Thus, we hypothesize:

Hypothesis 3:   *Supplier integration positively affects firm performance.*

Supplier Integration, Strategic Flexibility and Firm Performance

In addition to directly impacting firm performance, supplier integration may also indirectly affect firm performance by increasing strategic flexibility. By achieving a high level of supplier integration, firms may enjoy increased flexibility to meet the rapidly changing demands of the marketplace (Quinn and Hilmer, 1994). Firms can increase speed to the global market by benefiting from a sourcing network that consists of worldwide partners with complementary strengths and specific market knowledge. Such a strategy provides a relatively simple option to access world markets and cope with the need for internationalization and related diversification (Kotabe and Murray, 2004).

Supplier integration is an increasingly popular approach to enhance product development performance in terms of cost, speed and quality. This innovation is one of the key dimensions of strategic flexibility (Primo and Amundson, 2002; Carson, 2007; Takeishi, 2001; Van Echtelt, Wynstra, Van Weele

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and Duysters, 2008). Differently put, supplier integration functions like a strategic network, i.e. is part of a hybrid governance form (Dyer and Kale, 2007). This enables to retrieve profits from global sourcing as opposed to pure forms of market sourcing. The exploitation dimension of strategic flexibility focuses on refinement, choice, production and efficiency (March, 1991). Therefore, we propose that this exploitation dimension will be positively influenced by higher levels of supplier integration. Hence, we hypothesize:

Hypothesis 4a: *Supplier integration positively affects the exploitation dimension of strategic flexibility.*

However, supplier integration implies a paradox; close supplier relationships are necessary for a company's success, but at the same time may restrict the ability to change. The more successful a company is in controlling its network; the less innovative it may become (Dubois and Wynstra, 2005). For example, the propinquity trap, i.e. favoring solutions near to existing ones, might prevent to work with novel, emerging and pioneering technologies (Ahuja and Lampert, 2001). The same accounts for groupthink (Janis and Mann, 1977) and uniformity pressures (Whyte, 1989). As the exploration dimension of strategic flexibility involves search, variation, experimentation and innovation (March, 1991), we expect a negative relationship between supplier integration and this exploration dimension. Hence, we hypothesize:

Hypothesis 4b: *Supplier integration negatively affects the exploration dimension of strategic flexibility.*

Supplier Integration and Global Sourcing

We have thus far hypothesized that supplier integration positively affects firm performance and that it has a positive impact on the exploitation dimension and a negative impact on the exploration dimension of strategic flexibility. In addition, we expect that supplier integration routines may improve the consequences of global sourcing on firm performance. Earlier work discusses transmission and processing costs, quality control and feedback problems due to geographic distance and cultural

differences (Kotabe, Murray and Javalgi, 1998). Furthermore, the literature on global sourcing of services discusses the impact of hidden costs (Ellram, Tate and Billington, 2008) and invisible costs (Stringfellow, Teagarden and Nie, 2007). Empirical research shows that domestic sourcing results in higher sales growth than foreign sourcing (Murray et al., 1995), which might be caused by differences between the domestic and foreign location.

The negative effects of global sourcing might be reduced by supplier integration. Trust is important for knowledge acquisition and exchange in the pursuit of organizational learning (Verwaal, Verdu and Recter, 2008). Building cooperative and trustful relationships with global suppliers may be difficult, but if a firm acquires the routines to do so, those relational routines could provide powerful positive contributions to the strategic flexibility of the firm, especially as expressed through explorative endeavors such as product innovation. This can be illustrated with the fact that Western manufacturers increasingly rely on Chinese and Indian firms to develop new products and services (Engardio and Einhorn, 2005; Philips, 2007). Still, existing empirical studies have scarcely investigated the impact of the content or quality of supplier relations on the results of global sourcing, although the importance of supplier development and generation of synergies have been acknowledged (e.g. Quintens et al., 2006).

Scholars investigating the effects of cultural and institutional distance in international business relationships have generally assumed that the negative effects of these factors are constant (Shenkar, 2001). However, the effects of cultural and institutional distance in international business relationships may decrease as firms build up more experience and knowledge with a particular supplier, leading to more effective buyer-supplier relationships (Verwaal and Donkers, 2002; Chang and Rosenzweig, 2001). International experience can be valuable in the selection of foreign suppliers, as well as during the processes of negotiation and implementation (Bruton, Oviatt and White, 1994). However, this type of experience is of a generic nature and does not relate to a particular supplier. Building integrated supplier relationships based on trust and mutual understanding may reduce the negative impact of institutional and cultural differences and increase the compatibility of organizational practices, systems and routines between buyer firms and foreign supplier firms (Gomez-Mejia and Palich, 1997).

The literature indicates inconclusive findings about the relationship between global sourcing and performance (e.g. Mol et al., 2005). However, global sourcing enables building capabilities necessary for strategic flexibility, e.g. adjusting quickly to changing demand and resource requirements (Galbraith, 1990), changing from rapid product development to low cost strategies (Hayes and Pisano, 1994) and creating new product market combinations (Krijnen, 1979). Additionally, research has shown that international expansion builds strategic flexibility (Smith and Zeithaml, 1996). Dynamic capabilities that build strategic flexibility generate superior firm performance (e.g. Nadkarni and Narayanan, 2007).

We expect supplier integration to moderate this mediation or indirect effect of global sourcing on firm performance through strategic flexibility. In order to profit from international experience, supporting organizational structures and organizational capabilities are necessary to enable efficient exploitation and exploration of competitive advantages (Chang and Rosenzweig, 2001). Put differently, an appropriate structure is necessary to build on the developed capabilities (Smith and Zeithaml, 1996), as value erosion might be prevented by such organizational structures (Brouthers et al., 2008). Supplier relationships provide these organizational learning capabilities as they allow collaborating with suppliers in strategic networks (Dyer and Kale, 2007). Although relational contracts might be imperfect, they do allow for the necessary speed in knowledge transfer and integration (Grant, 1996), which is necessary and essential in building strategic flexibility. Thus, we posit the following hypothesis:

Hypothesis 5: *The effect of global sourcing on firm performance mediated by strategic flexibility will be moderated by supplier integration.*

Insert Figure I about here

METHODS

To test our hypotheses we collected data from a sample of manufacturing firms in the Netherlands. In general, multinational corporations in the manufacturing industry are operating in a dynamic, competitive environment. These organizations have to cope with frequent changes in consumer preferences and an increasing speed of technological change (Wang and Lo, 2003). This results in a frequent exchange of information on complex technological product and process requirements in for example continuous parallel new product development and improvement.

The manufacturing industry in the Netherlands is a suitable location for this study for several reasons. First, a large number of firms use the Netherlands as a European manufacturing location. The manufacturing industry presents 26.4 percent of added value produced in the Netherlands (CBS, 2008:56). Second, the Dutch economy is a knowledge intensive one, in which advanced technology and innovation are profoundly integrated (WEF, 2008). Third, the Dutch manufacturing industry is characterized by a growing added value and an above average efficiency in research & development, expressed in the number of patents obtained (SIC, 2008).

The sample consists of 223 manufacturing firms active in 12 manufacturing industries in the Netherlands from a population of 1,259 firms that were contacted (18.7% response). Purchasing managers, sourcing and supply chain managers, sales managers and members of the Board of Directors of manufacturing companies with at least one production facility in the Netherlands were contacted and asked to complete an electronic survey. The sample is representative for the manufacturing industry in the Netherlands, with respect to the size distribution and variety of business sectors.

The questionnaire was adapted from existing validated scales, with the advice of a small group of senior sourcing managers. The descriptive statistics, items, constructs and measurement model can be found in Tables I and II.

Insert Table I and Table II about here

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Global sourcing. The extent of global sourcing is measured as the percentage of the total value of a firm's sourcing that is purchased from foreign suppliers. Respondents were asked to specify which countries their organization was purchasing from and to identify the percentage of total purchasing that was spent in each country. The electronic survey verified the cumulative total of all reported values from each respondent.

Strategic flexibility. There are not many validated measurement tools and frameworks available in the strategic management field that measure strategic flexibility. Therefore, in this study we developed a new measure to determine strategic flexibility. Our measure includes to what extent firms can perform exploration and exploitation activities quickly within their organization. We define exploration as creating new knowledge and business practices, while we define exploitation as optimizing current business practices and using current knowledge efficiently (cf. March, 1991). By measuring to what extent firms can perform exploration and exploitation activities quickly, our instrument combines the two dimensions of flexibility with the related concepts of variety and speed in managerial capabilities (Volberda, 1999).

To determine exploration and exploitation, we used the validated measurement scale created by Jansen, van den Bosch and Volberda (2006). This scale consists of 14 items, of which 7 items measure the exploration dimension of strategic flexibility, while the other 7 items measure the exploitation dimension. We adapted the accompanying survey questions by including the words 'fast' and 'easily' to integrate the temporal dimension of strategic flexibility.

Supplier integration. We define supplier integration as the level of trust, commitment and cooperation in partnerships with key suppliers. To measure the trust, loyalty, and cooperation variables, we employed a measurement scale developed by Mohr and Spekman (1994) and operationalized by Mol (2003). Calculating the average score of the 10 different items created an index-score. We measured these variables only with regard to relationships with suppliers of strategic inputs. We explained our respondents that "strategic inputs are products that are of high value to your organizations and that are

differentiated (they differ from the products of competing suppliers)". This explanation is based on the definition of Dyer et al. (1998).

Firm performance. Consistent with prior studies in international business research, we rely on multiple measures of firm performance (Brush and Vanderwerf, 1992; Bingham, Eisenhardt and Furr, 2007). First, we measured firm financial performance as the growth in assets and revenues in the year 2006 of the respondent companies. To gather this data, we used publicly available financial figures that Dutch companies must submit annually to the Chamber of Commerce. We chose these measures because they provide a reliable and objective measure of performance and this data was available across the entire sample. Second, we measured firm performance using a 7-point Likert scale, adapted from the research of Jaworsky and Kohli (1993). These authors studied the overall performance of organizations relative to the performance of major competitors.

Using factor analysis, we combined the objective and perceptual performance measures. This produced a single factor with an eigenvalue of 3.1 and significant loading for both the objective performance measures and the Likert scale items. Combining congruent objective and subjective measures produces more reliable performance measures than from objective or perceptual measures alone (Bingham et al., 2007).

Data Collection

The data were gathered using a pre-tested web-mail survey. Companies were randomly selected by using the database 'Reach', which contains financial and contact information of all companies that are registered at the Chamber of Commerce in the Netherlands. We sent invitations to participate in our electronic survey to 1,417 manufacturing companies by e-mail and sent reminders to participate after one week. 158 e-mail addresses turned out to be invalid and in total, 1,259 companies received an invitation to participate in the online survey. During the specified period, 236 respondents completed the survey, which indicates a response rate of 18.7 percent. At the same time, 268 companies (21.3 percent) replied by indicating that they did not want to participate in the survey. These companies were asked for what

reason they did not want to participate. The most important reasons given were (1) lack of time; (2) not interested; (3) the right person was not available. A total of 755 companies (60.0 percent) did not provide any response. Thirteen respondents (5.6 percent) were not able to provide information about the sourcing practices of their organization, because they were not in the right position to answer this question. Because the sourcing questions are essential to the study, we decided to remove these responses from the dataset. The total number of responses (n) used in the analyses of this study is therefore 223. To address the possibility that response rates and global sourcing activities might be related, we tested the non-response bias of the sample using the test of Armstrong and Overton (1977). We found no significant differences between early and late respondents.

Validation

We first analyzed the scale items using exploratory factor analysis to assess their uni-dimensionality and factor structure, using the criteria suggested by DeVillis (1991). Next, we assessed the reliabilities of the dimensions of each scale by means of the Cronbach alpha coefficient. The alphas are 0.90 (supplier integration, 10 items), 0.88 (strategic flexibility, 12 items). Furthermore, all items have correlations of 0.70 or more with their respective constructs, which suggests satisfactory item reliability (Hulland, 1999). Composite reliabilities are all above the commonly used threshold value of .70, and variance extracted measures exceed the threshold value of .50 (Hair, Anderson, Tatham and Black, 1998).

We used confirmatory factor analysis with EQS 6.1 (Multivariate Software, Inc., Encio, CA) to assess the model fit of the measurement model. A satisfactory fit was achieved, $\chi^2 = 184$, df = 74, $p < 0.01$, CFI - 0.96, RSMEA = 0.05. The ratio of χ^2 to degrees of freedom is 2.48; a value less than 3.00 for the ratio indicates good model fit (Carmines and McIver, 1981). Furthermore, the root mean square estimated residual (RSMEA) of 0.05 indicates a good model fit because it does not exceed the critical value of 0.08 (Bentler and Bonett, 1980). We consider the measurement model acceptable, given the supportive indices. The results for our CFA test also indicate that the relationship between each indicator and its respective variable was statistically significant ($p < 0.001$). This supports the posited relationships

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among indicators and constructs, and thus, convergent validity. We further verified the discriminant validity of the scales by comparing the highest shared variance between any two constructs and the variance extracted from each of the constructs. In all cases, the shared variance between two constructs was far less than the variance extracted from each of the constructs, supporting the discriminant validity of the measurement model (Fornell and Larcker, 1981). Finally, none of the confidence intervals of the correlation coefficients between any two constructs contained 1.0 (Anderson and Gerbing, 1988). Overall, the statistical indices indicate a high degree of confidence in the validity of the measures.

Common method bias

Although we use a combination of survey and archival data to measure firm performance, common method bias may still affect other relations between the survey-based measures of different constructs in the model relationships (Podsakoff, Mackensie, Lee and Podsakoff, 2003). To address this possibility we first performed Harman's one factor test on the self-reported items of the latent constructs included in our study. The hypothesis of one general factor underlying the relationships was rejected (p < 0.01). In addition, we found multiple factors and the first factor did not account for the majority of the variance (27%). Second, a model fit of the measurement model of more than 0.90 suggests no problems with common method bias (Bagozzi, Yi and Phillips, 1991). In sum, we conclude that the evidence supports the assumption that common method bias does not account for the study's results.

Control variables

We used several control variables, which are described below. To decide on including or omitting a control variable in de model, we used Ramsey's omitted variable error test. When theory is not absolutely clear about including a variable in the model, the Ramsey omitted variable test is an appropriate tool. The procedure is to run the model with and without the variable and next to evaluate the t-test, change in adjusted r2, and coefficient bias between the two models.

"*Firm size*". We expect large organizations (with more than 100 FTE's employed in the Netherlands) to source relatively more from foreign suppliers than small (up to 20 FTE) and medium-sized (up to 100 FTE) organizations. Therefore, we included "firm size" as a control variable in our analysis as it may bias the results.

"*Strategic integration*" is defined as the degree to which a sourcing strategy is integrated into the overall corporate strategy. To measure the degree of strategic integration, we used the 'strategic purchasing' measures of Chen et al. (2004). A high level of strategic integration implicates that a sourcing strategy is well-integrated into the strategy of the organization. Trent and Monczka (2005) argue that if organizations integrate their sourcing strategy into their corporate strategy, this may positively affect the performance of such firms. Also Murray (2001) proposes that the successful integration of sourcing into the firm strategy will improve a firm's performance. Therefore, we included strategic integration as a control variable in our analysis.

"*Multi-nationality*". According to Mol et al. (2005), global sourcing can be a consequence of a firm's presence in multiple countries. We therefore included a control variable that takes into account whether a firm has foreign operations and/or a foreign headquarter.

"*Industry*". All manufacturing firms that participated in our study were classified into business sectors, based on BIK-codes of the Chamber of Commerce in the Netherlands. We used "industry" as a control variable, as it is assumed that companies within these business sectors have similar degrees of added value and thus purchase a comparable percentage of their turnover from external suppliers. The 12 different business sectors and their distribution are described in Table III. However, not all business sectors in the sample have sufficient observations. We therefore combined the sectors with less than 10 percent of observations and used this group as the base variable for our analysis.

Insert Table III about here

RESULTS

A two-step structural equation modelling approach was used to test the hypothesized relationships between the constructs (Anderson and Gerbing, 1988). In the first step we apply a confirmatory factor analysis to assess the overall validity for each measurement model of strategic flexibility (strategic flexibility; explorative strategic flexibility and exploitative strategic flexibility). Next we estimate for each model the structural paths using maximum likelihood estimation procedures.

The confirmatory factor analysis obtained a satisfactory fit for each model (for strategic flexibility: Comparative Fit Index (CFI) = 0.97; Bentler-Bonett Normed Fit Index (NFI) = 0.96, Absolute Fit Index (RMSEA) = 0.05. For explorative strategic flexibility: CFI = 0.99; NFI = 0.98, RMSEA = 0.04. For exploitative strategic flexibility: CFI = 0.98; NFI = 0.98, RMSEA = 0.03). The ratio of chi-square to degrees of freedom is for all three measurement model less than 3.0 which indicates a good fit (Carmines and McIver, 1981). A CFI and NFI value above 0.90 also indicates a good fit. The RMSEA (root mean square error approximation) measures the discrepancy between the predicted and observed covariance structure per degree of freedom. An RMSEA less than .05 indicates a close model fit (Browne and Cudek, 1993), and none of the models exceed the critical value of .08.

Table I shows the correlations between the variables of this study. The size of the correlations indicates no problems with multicollinearity. In addition we checked variance inflation factors (VIF < 2.029; condition numbers < 18) and examined the assumptions of homoscedasticy and normality of the data (Goldfeld-Quandt test F-value < 1.23). The results do not indicate violation of these standard assumptions.

The results of the maximum likelihood estimation of the path coefficients are presented in Table IV. Model I estimates the results for overall strategic flexibility whereas model II and model III estimate respectively the results for the explorative and exploitative dimensions of strategic flexibility. In order to assess the impact of the moderator between the extent of global sourcing and supplier integration, we estimate for each of the three models a model, (a) excluding and (b) including the moderator. Because it is recommended that centered variables are used in the SEM analysis (Williams, Edwards and Vandenberg, 2003), we rescaled the variables into standardized z-scores. As indicated by the fit indices, all three full

models show a good fit (NFI = 0.96-0.98; CFI = 0.98-0.99; RMSEA = 0.02-0.05) with the data. The total R-squares of the models have a range between 0.12-0.19 for the path to strategic flexibility and 0.21-0.30 for firm performance.

Insert Table IV about here

The path coefficient from global sourcing → strategic flexibility is negative and significant for all three full models ($p < 0.05$), which supports hypothesis 1 for both explorative as well as exploitative strategic flexibility.

The path coefficient from strategic flexibility → firm performance is positive and highly significant ($\beta = 0.29$, $p < 0.001$). When strategic flexibility is decomposed into its exploration and exploitation dimensions, the path coefficient from the explorative dimension of strategic flexibility → firm performance is larger ($\beta = 0.32$, $p < 0.001$). On the other hand, the exploitative dimension of strategic flexibility → firm performance is smaller but still significant ($\beta = 0.17$, $p < 0.01$). Thus, these findings support hypothesis 2. Also the path coefficient from supplier integration → firm performance ($\beta = 0.29$, $p < 0.05$) is both positive and significant in all three models, which supports hypothesis 3.

The path coefficient from supplier integration → strategic flexibility is positive and significant ($\beta = 0.11$, p < 0.05). Interestingly, when looking at the explorative dimension of strategic flexibility (model 2b), the path coefficient supplier integration → explorative strategic flexibility is not significant. On the other hand, for the exploitative dimension the path coefficient supplier integration → exploitative strategic flexibility is positive and significant   ($\beta = 0.13$, $p < 0.05$). Thus, the results support hypothesis 4a, however, do not support hypothesis 4b.

The path coefficient for the moderating effect of supplier integration on the relation global sourcing → strategic flexibility is positive and significant in all three full models. Comparing the full models with the model excluding the moderator, we find a significant reduction of model fit and explanatory power, which indicates support for hypothesis 5. The moderating effect of supplier

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integration on the relation global sourcing → explorative dimension of strategic flexibility is smaller and significant on a higher threshold level ($\beta = 0.13$, $p < 0.05$) than the moderating effect of supplier integration on the relation global sourcing → exploitative dimension of strategic flexibility ($\beta = 0.23$, $p < 0.01$). Again, this represents an interesting difference, suggesting that supplier integration is more effective in the context of exploitative strategic flexibility. Finally, the paths of all control variables are significant and in line with expectations.

The SEM model tests the moderator effect on the global sourcing → strategic flexibility relationship. However, the model estimates does not test the moderation of the mediation effect of global sourcing on firm performance through strategic flexibility. To perform a specific test on moderated mediation we performed the moderated mediation analysis developed by Preacher, Rucker and Hayes (2007). The results of the moderated mediation analyses are presented in Table V. As can be seen in this table, the indirect effect of global sourcing on firm performance through strategic flexibility is tested for different values of the moderator supplier integration. The results indicate that a significant negative indirect effect exists for values of supplier integration lower than 4.42 ($p < 0.10$ two-sided; $p < 0.05$ one-sided). Significant positive values exist for value higher than 6.30 ($p < 0.10$ two-sided; $p < 0.05$ one-sided). These results support the moderated mediation hypothesis 5. The results do not only support the presence of moderated mediation but also indicate that both positive and negative mediation is found in the data. Thus, supplier integration is able to reverse the negative effects of global sourcing on firm performance.

We also performed the moderated mediation analyses for explorative and exploitative dimensions of strategic flexibility separately. The results support the moderated mediation effect for exploitative strategic flexibility. However, the results in Table V reveal that moderated mediation is not able to reverse the negative effects through explorative strategic flexibility. These results suggest that supplier integration is an important instrument to improve the mediating effect of exploitative strategic flexibility. However, it may be ineffective as an instrument to reverse the negative mediation effect through explorative strategic flexibility.

Finally, we compared different alternative specifications in line with the procedure suggested by Anderson and Gerbing (1988), using the Lagrange multiplier test option in EQS 6.1. Removing the direct effect of global sourcing slightly improved the model fit, however the change in chi-square was not significant. No alternative specification of the parameters would have led to a model that better represented the data.

DISCUSSION AND CONCLUSION

The results of this study indicate that global sourcing has an indirect, negative impact on firm performance, through strategic flexibility. This mediation effect is, however, substantially moderated by supplier integration with suppliers of core and high-value activities. Supplier integration also has a positive direct impact on firm performance. The significant negative relationship between the extent of global sourcing and the degree of strategic flexibility reported in this study implies that firms with a higher percentage of global sourcing tend to have a relatively lower degree of strategic flexibility, if their supplier integration routines are low. An explanation of this negative relationship may be that the physical and intercultural distances involved in global sourcing impair the flexibility to quickly and easily create and implement product improvements and innovations (Campbell et al., 2004). This supports the notion that the value of resources and dynamic capabilities of external suppliers are contingent on institutional context in which the firm operates (Brouthers et al., 2008; Verwaal et al., 2009).

Furthermore, the moderated mediation effect of supplier integration reported in this study suggests that firms may effectively reverse the negative impact of global sourcing on strategic flexibility by developing highly integrated supplier relationships with suppliers of (potentially) strategic inputs. This supports 'supplier integration' as a powerful resource-contingency variable in global sourcing strategies. The literature on supplier integration suggests that involving suppliers in cooperative activities such as new product development can increase the efficiency and effectiveness, and thereby the strategic

flexibility, of firms (Van Echtelt et al., 2008). However, there are no studies that explicitly address whether such involvement is more difficult to achieve with foreign versus domestic suppliers.

Our results show that supplier integration is more effective in reducing the negative impact on the exploitation dimension of strategic flexibility. In fact, our results indicate that the indirect negative effect through explorative strategic flexibility is neutralised but not reversed into a positive effect. One explanation of this result could be that tacit knowledge exchange and communication, that are often required in explorative activities, are more hindered by cultural differences (Dyer and Hatch, 2006), compared to more explicit communication that applies to exploitative activities. Future research might take this result into account.

The importance of strategic flexibility to create competitive advantage is increasingly recognized in the strategic management field (e.g. Das, 1995; Sanchez, 1995; Volberda, 1999; Wang and Lo, 2003). The empirical results of this study support the notion that strategic flexibility exerts a positive and significant effect on firm performance. In this study we refined the knowledge of this relationship by showing that the exploration dimension of strategic flexibility augments more to firm performance than the exploitation dimension. However, explorative and exploitative activities are interlinked in creating firm performance. Future research may further investigate which mix of both types of strategic flexibility has the best effects on performance (e.g. O'Reilly, 2008; Gupta et al., 2006; March, 1991).

The results of this study indicate that global sourcing has no direct effect on firm performance. This is in line with the findings of Mol et al. (2005), who concluded that global sourcing does not provide a significant explanation of firm performance. In this study we provide an alternative explanation and demonstrate that instead of a direct effect, global sourcing has a complex moderated mediation effect on firm performance. These results are also in accordance with a contingent dynamic capabilities perspective in strategic management, which suggests that the creation of valuable, inimitable resources is context dependent.

Countries such as China and India, popular 'destinations' for global sourcing, are increasingly participating as strategic supply partners in the creation of more sophisticated and complex products, as

sourcing patterns for firms like Philips Electronics (Philips, 2007) and trade statistics reveal. Our study addresses this issue explicitly by considering the impact of supplier integration, which measures the extent of trust, loyalty and cooperation in relationships with the most important suppliers of the firm. Arguably, strategic advantages, including competitive advantages, reside not only within the firm but also between the firm and its partners (Dyer and Singh, 1998; Lavie, 2006). Consequently, strategically managed long-term relationships with key suppliers can be key building blocks of dynamic capabilities (Teece, 2007) that positively impact financial performance (Carr and Pearson, 1999).

This study demonstrates that a global sourcing strategy has the *potential* to generate superior firm performance and competitive advantage. Furthermore, this study identifies mechanisms that facilitate the realization of this potential. The empirical results demonstrate that simply purchasing from foreign suppliers does not explain superior performance. Instead, dynamic capabilities are essential to explain the success of a global sourcing strategy. The findings of this study contribute to the dynamic capabilities literature by demonstrating the importance of supplier integration as a contingency factor in successful global sourcing strategies. As such, this study helps to clarify the inconclusive performance effects of global sourcing strategies, providing a basis for further development of a contingent view on resource-advantages and dynamic capabilities in global sourcing strategies and strategic management.

While this is a large-scale empirical study, there are still a number of limitations and issues to address. First, the sample of the study is limited to firms with manufacturing activities in the Netherlands. Future research may extend and validate the results of this study with different sample selection procedures to augment the external validity of the results. Second, the study is cross-sectional and does not address longitudinal effects in global sourcing strategies. For example, building supplier integration capabilities may take considerable time. Future research could extend our framework by exploring such capability development processes over time. Third, we only focus on external sourcing, i.e. relocation of activities outside the boundaries of the firm. Future studies may further explore the relationship between captive offshoring and dynamic capabilities and discuss capabilities typically applicable in that context, as strategic flexibility is probably built by other dynamic capabilities than supplier integration. Furthermore,

other variables may mediate or moderate the relationship between global sourcing and firm performance and such variables may affect the relationships reported in our study. Although we included relevant control variables and tested several variables for omitted variable specification bias (Ramsey, 1969) - further extension of our model would allow a more precise estimation. We hope that the findings reported in this study demonstrate that global sourcing is a topic that deserves increased scholarly attention and that the examination of global sourcing issues represents a highly relevant and promising agenda for future research.

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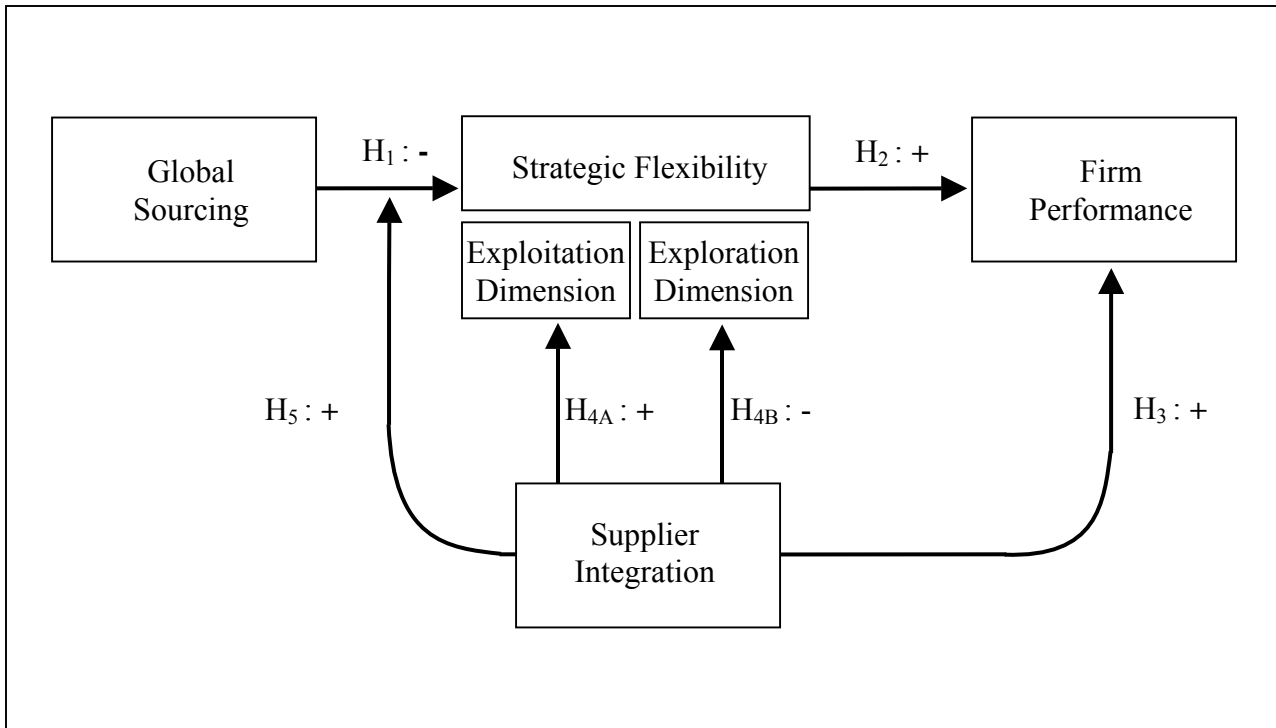
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FIGURE I
Conceptual Framework

TABLE I

Descriptive Statistics (N=223)

	Mean	S.D.	1	2	2a	2b	3	4	5	6	7	8	9	10
1. Global sourcing	44.63	31.13	1											
2. Strategic Flexibility	4.85	0.87	-.06	1										
2a. Strategic Flexibility - Exploration	4.84	1.02	-.07	.89**	1									
2b. Strategic Flexibility - Exploitation	4.86	0.96	-.03	.87**	.55**	1								
3. Supplier Integration	4.89	0.84	-.01	.19**	.13	.20**	1							
4. Strategic Integration	4.67	0.13	.17*	.36**	.30**	.34**	.26**	1						
5. LN Firm size	1.29	0.37	.26**	.02	-.06	.10	-.03	.10	1					
6. Industry 1	0.15	0.36	.04	.08	.08	.06	-.06	.07	.18**	1				
7. Industry 2	0.17	0.38	-.24**	-.11	-.13	-.06	-.06	-.10	-.10	-.19**	1			
8. Industry 8	0.11	0.32	.10	-.01	.03	-.06	-.11	-.05	-.13	-.15*	-.16*	1		
9. Industry 10	0.11	0.32	-.05	.01	.01	.02	.05	.12	-.05	-.15*	-.16*	-.123	1	
10. Industry 12	0.11	0.31	-.02	.04	.08	-.03	.07	-.11	.04	-.15*	-.16*	-.12	-.12	1

TABLE II
Items, Constructs and Measurement Model

Constructs	Item correlation with total score	Factor loading
Supplier Integration (Cronbach α =0.896)		
We trust that the decisions of these manufacturers will be beneficial to our business.	0.65	0.62
We feel that we get a fair deal from these manufacturers.	0.73	0.72
The relationships with these manufacturers are marked by a high degree of harmony.	0.75	0.62
We would like to continue carrying the products of these manufacturers.	0.77	0.64
We are very committed to carrying the products of these manufacturers.	0.73	0.59
We have a maximal commitment to these manufacturers.	0.77	0.61
In the relationships with these manufacturers, the parties work together to solve problems.	0.75	0.74
These manufacturers are flexible in response to questions we make.	0.73	0.72
These manufacturers make an effort to help us during emergencies.	0.71	0.77
When an agreement is made, we can always rely on these manufacturers to fulfill all the requirements.	0.66	0.56
Firm Performance (Cronbach α =0.837)		
Our organization is very profitable in comparison with similar organizations.	0.85	0.69
In comparison to similar organizations, we are doing very well.	0.90	0.83
Our competitors can be jealous of our performance.	0.87	0.76
Strategic Flexibility (Cronbach α =0.896)		
To what extent can your organization perform the following activities *fast* and *easily*?		
Developing new products and/or services.	0.68	0.66
Experimenting with new products and/or services in our local market.	0.70	0.69
Introducing products/services to the market that are new to our organization.	0.62	0.65
Benefiting from new chances or possibilities in new markets.	0.72	0.71
Using new distribution channels.	0.67	0.49
Searching and approaching new customers in new markets.	0.64	0.56
Refining the supply of our present product or service portfolio.	0.58	0.66
Making small adaptations to our products or services.	0.59	0.74
Introducing improved versions from existing products/services in our local market.	0.67	0.75
Improving our supply by increasing efficiency.	0.71	0.74
Increasing economies of scale for present customers.	0.65	0.61
Expanding our services for present customers.	0.64	0.56

Explorative dimension of Strategic Flexibility (Cronbach α =0.843)

Construct	Item correlation with total score	Factor loading
Accepting demands that go beyond our present product/service portfolio.	0.54	0.69
Developing new products and/or services.	0.77	0.72
Experimenting with new products and/or services in our local market.	0.79	0.64
Introducing products/services to the market that are new to our organization.	0.76	0.62
Benefiting from new chances or possibilities in new markets.	0.81	0.74
Using new distribution channels.	0.67	0.63
Searching and approaching new customers in new markets.	0.68	0.65

Constructs	Item correlation with total score	Factor loading
Exploitative dimension of Strategic Flexibility (Cronbach α =0.837)		
Refining the supply of our present product or service portfolio.	0.75	0.59
Making small adaptations to our products or services.	0.65	0.81
Introducing improved versions from existing products/services in our local market.	0.72	0.78
Improving our supply by increasing efficiency.	0.83	0.73
Increasing economies of scale for present customers.	0.76	0.65
Expanding our services for present customers.	0.65	0.57
Decreasing the costs of internal processes.	0.59	0.54
Strategic Integration (Cronbach α =0.90)		
Purchasing is included in the firm's strategic planning process.	0.80	0.68
The purchasing function has a good knowledge of the firm's strategic goals.	0.87	0.79
Purchasing performance is measured in terms of its contributions to the firm's success.	0.86	0.75
Purchasing professionals' development focuses on elements of the competitive strategy.	0.81	0.69
The purchasing department plays an integrative role in the purchasing function.	0.83	0.72

TABLE III
Overview of the business sectors

	Business Sector	n	Percentage
1	Manufacture of food products and beverages (BIK 15)	33	14.8
2	Manufacture of basic metals (BIK 27); manufacture of fabricated metal products (BIK 28)	39	17.5
3	Manufacture of chemicals and chemical Products (BIK 24)	12	5.4
4	Manufacture of textiles (BIK 17); manufacture of wearing apparel, dressing and dyeing of fur (BIK 18); tanning and dressing of leather, manufacture of luggage (BIK 19)	10	4.5
5	Publishing, printing and reproduction of recorded media (BIK 22)	5	2.2
6	Manufacture of machinery and equipment (BIK 29)	22	9.9
7	Manufacture of motor vehicles (BIK 34); manufacture of transport equipment (BIK 35)	13	5.8
8	Manufacture of rubber and plastic products (BIK 25)	25	11.2
9	Manufacture of pulp, paper and paperboard (BIK 21)	8	3.6
10	Manufacture of electrical machinery and apparatus (BIK 31); manufacture of radio (BIK 32); manufacture of medical (BIK 33)	25	11.2
11	Manufacture of other non-metallic mineral products (BIK 26)	7	3.1
12	Manufacture of furniture, other manufacturing n.e.c. (BIK 36)	24	10.8
	Total	223	100

TABLE IV
Maximum likelihood estimates of the structural paths (n=223)

Model fit / structural paths (standardized path coefficients)	Model 1a Strategic Flexibility (excl. moderator)	Model1b Strategic Flexibility (incl. moderator)	Model 2a Explorative Strategic Flexibility (excl. moderator)	Model 2b Explorative Strategic Flexibility (incl. moderator)	Model 3a Exploitative Strategic Flexibility (excl. moderator)	Model 3b Exploitative Strategic Flexibility (incl. moderator)
NFI (Bentler-Bonett Normed Fit Index)	0.94	0.98	0.94	0.96	0.94	0.98
CFI (comparative fit index)	0.96	0.99	0.96	0.98	0.96	0.99
RMSEA (absolute fit index)	0.08	0.05	0.06	0.05	0.05	0.02
90% confidence interval RMSEA	0.03 - 0.12	0.00 - 0.08	0.01 - 0.11	0.00 - 0.10	0.02 - 0.10	0.00 - 0.07
Global sourcing → Strategic flexibility	-0.11 *	-0.14 *	-0.12 *	-0.14 *	-0.08	-0.11 *
Supplier integration → Strategic flexibility	0.09	0.11 *	0.05	0.06	0.11 *	0.13 *
Strategic integration → Strategic flexibility	0.35 ***	0.37 ***	0.30 ***	0.31 ***	0.32 ***	0.34 ***
Global sourcing x Supplier integration → Strategic flexibility		0.20 **		0.13 *		0.23 **
Strategic flexibility → Firm performance	0.29 ***	0.29 ***	0.32 ***	0.32 ***	0.17 **	0.17 **
Supplier integration → Firm performance	0.12 *	0.12 *	0.13 *	0.13 *	0.13 *	0.13 *
Strategic integration → Firm performance	0.20 **	0.20 **	0.20 **	0.20 **	0.25 **	0.25 **
Global sourcing → Firm performance	-0.02	-0.02	-0.02	-0.02	0.04	-0.04 Ns
LN Firm size → Firm performance	0.16 *	0.16 *	0.19 **	0.19 **	0.15 *	0.15 *
Industry 1 → Firm performance	-0.13 *	-0.13 *	-0.14 *	-0.14 *	-0.12 *	-0.12 *
Industry 2 → Firm performance	0.18 *	0.18 *	0.19 **	0.19 **	0.17 *	0.17 *
Industry 8 → Firm performance	0.02	0.02	0.01	0.01	0.03	0.03
Industry 10 → Firm performance	0.07	0.07	0.07	0.07	0.07	0.07
Industry 12 → Firm performance	0.10	0.10	0.08	0.08	0.12 *	0.12 *
Path Strategic flexibility R^2	0.15 ***	0.19 ***	0.10 **	0.12 ***	0.13 ***	0.18 ***
Path Firm performance R^2	0.27 ***	0.27 ***	0.30 ***	0.30 ***	0.22 ***	0.22 ***

Note: † = $p < 0.10$; * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$

TABLE V
Boottrapping Results Moderated Mediation Analysis

Moderator	Conditional indirect effect at range of values of the moderator(s)			Conditional indirect effect at range of values of the moderator(s)			Conditional indirect effect at range of values of the moderator(s)		
Supplier integration	indirect effect strategic flexibility	Boot SE	Boot Z-score	indirect effect exploitative strategic flexibility	Boot SE	Boot Z	indirect effect explorative strategic flexibility	Boot SE	Boot Z
2.3000	-0.0071	0.0031	-2.2705	-0.0057	0.0025	-2.2301	-0.0070	0.0028	-2.5111
2.5350	-0.0065	0.0029	-2.2650	-0.0052	0.0023	-2.2250	-0.0061	0.0029	-2.1183
2.7700	-0.0060	0.0026	-2.2572	-0.0047	0.0021	-2.2175	-0.0054	0.0027	-1.9960
3.0050	-0.0054	0.0024	-2.2459	-0.0042	0.0019	-2.2066	-0.0060	0.0024	-1.6341
3.2400	-0.0048	0.0022	-2.2293	-0.0037	0.0017	-2.1900	-0.0033	0.0022	-1.5422
3.4750	-0.0042	0.0019	-2.2043	-0.0032	0.0015	-2.1642	-0.0030	0.0019	-1.5496
3.7100	-0.0037	0.0017	-2.1655	-0.0028	0.0013	-2.1227	-0.0027	0.0017	-1.5546
3.9450	-0.0031	0.0015	-2.1033	-0.0023	0.0011	-2.0526	-0.0023	0.0015	-1.5536
4.1800	-0.0025	0.0013	-1.9999	-0.0018	0.0009	-1.9288	-0.0020	0.0013	-1.5390
4.4150	-0.0019	0.0011	-1.8218	-0.0013	0.0008	-1.7002	-0.0016	0.0011	-1.4940
4.6500	-0.0014	0.0009	-1.5112	-0.0008	0.0006	-1.2782	-0.0013	0.0009	-1.3840
4.8850	-0.0008	0.0008	-0.9980	-0.0003	0.0006	-0.5872	-0.0009	0.0008	-1.1515
5.1200	-0.0002	0.0008	-0.2868	0.0001	0.0006	0.2467	-0.0006	0.0007	-0.7565
5.3550	0.0004	0.0008	0.4481	0.0006	0.0007	0.9332	-0.0002	0.0008	-0.2716
5.5900	0.0009	0.0009	1.0187	0.0011	0.0008	1.3726	0.0001	0.0009	0.1576
5.8250	0.0015	0.0011	1.3953	0.0016	0.0010	1.6338	0.0005	0.0010	0.4686
6.0600	0.0021	0.0013	1.6332	0.0021	0.0012	1.7921	0.0008	0.0012	0.6792
6.2950	0.0027	0.0015	1.7861	0.0026	0.0014	1.8929	0.0012	0.0014	0.8222
6.5300	0.0032	0.0017	1.8881	0.0031	0.0016	1.9604	0.0015	0.0017	0.9223
6.7650	0.0038	0.0019	1.9589	0.0035	0.0018	2.0078	0.0019	0.0019	0.9948
7.0000	0.0044	0.0022	2.0100	0.0040	0.0020	2.0423	0.0022	0.0021	1.0490