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Do horizontal relationships matter to production and operations managers?

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This paper shifts the focus of production, operations and supply chain management business relationships from the vertical to the horizontal side and calls for more research on this issue. The main intent is to provide managerially oriented arguments regarding the linkages between the achievement of operations-related goals and decisions related to horizontal business relationships. Specifically, we address the following research question: Does a linkage exist between production and operations objectives and the decisions a company makes about horizontal agreements, particularly horizontal governance mode choice? To answer this research question, we develop literature-based hypotheses and collect data from 4316 agreements of mergers and acquisitions and alliances and joint venture announced and completed between 2000 and 2010 by 88 of the first 100-ranked members of the Fortune 500 in the year 2000. We then test the hypotheses through a binary logistic regression model. This study brings interesting results and findings in terms of how and why production management considerations should play a crucial role in the type of strategic decisions that are usually reserved for finance and strategy managers. Operations managers should be fully involved in such decisions if they are to be well acquainted about how their choices impact on operational objectives.

Keywords: horizontal relationships; operations performance; governance choice; mergers and acquisitions; alliances and joint ventures

1. Introduction

Every firm (referred to as the focal firm) is embedded in a network of business relationships that allow it to carry out its business activities. These relationships can be classified into two classes. On the one hand, there are vertical relationships, which include firms that operate in different market levels, and that either sell to (i.e. suppliers) or buy from (i.e. buyers) the focal firm. From a business agreement point of view, vertical relationships are basically the sourcing or outsourcing of contracts, but may also include alliances and joint ventures (A&JVs) with suppliers or buyers. On the other hand, there are the horizontal relationships, which include relationships with firms that operate at the same market level and produce products/services that are either substitutable (i.e. competitors) or complementary (i.e. complementors) to those produced by the focal firm. From a business agreement point of view, horizontal relationships are basically A&JV, but also mergers and acquisitions (M&A) of competitors or complementors.

Figure 1 shows the focal firm network context and captures the difference between horizontal and vertical relationships.

The majority of studies into business networking production and operations management investigate strategic decisions concerning the vertical dimension of a firm's relationships (i.e. buyer–supplier relationships). For example, Nordin (2008) individualises three main kinds of decisions regarding sourcing: make-or-buy decisions; supply-base structure; and the nature of the buyer–seller relationship. He argues that these decisions actually play a strategic role in achieving competitive advantage because they help in the pursuit of the firm's business strategy. Many studies exist in the production and operations management literature regarding each of these groups of decisions.

First, the 'make-or-buy' issues mainly relate to the choice between whether to outsource a specific business activity or not, as well as the drivers that lead to this decision such as a firm's distinctive capabilities, opportunism risk and so on. For example, Cánez, Platts, and Probert (2000) built a make-or-buy framework to address the make-or-buy decisions for either a specific mechanical component or a family of components.

Second, studies on 'supply-base structure' decisions basically concern the supplier selection, the number of suppliers in the supply base and the interrelationships among them. The supplier selection is one of the most discussed topics within such a topic, with multiple research approaches proposed in the production research literature to face such issue.

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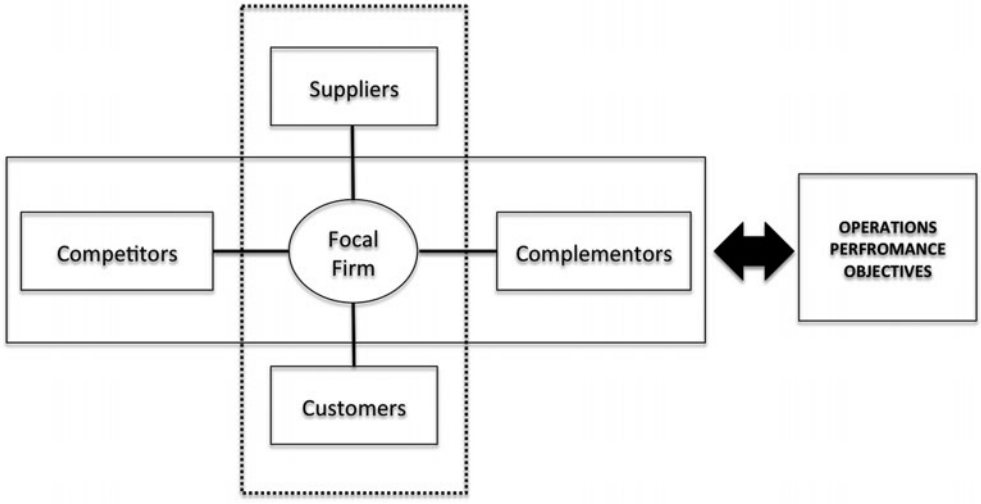

Figure 1. Horizontal relationships and operations performance.

Some studies provide a portfolio approach for supplier selection depending on the characteristics of the products/processes to be outsourced (Şen et al. 2008; Wu et al. 2013). Other studies adopt multidimensional and fuzzy decision-making approaches to tackle the multiple criteria and inherent uncertainty in supplier selection (Chen and Hung 2010; Lin 2012). Econometric models are also adopted in order to assess the relative impact of cost, flexibility, delivery and quality features on the supplier selection process (van der Rhee, Verma, and Plaschka 2009). Also, recent studies have focused on supply partner selection in agile supply chains by adopting a dynamic feedback model (e.g. Wu and Barnes 2012). Other research into this topic regards the number of suppliers in the supply base and the interrelationships among them (Choi and Krause 2006). Regarding the number of suppliers, many studies examine conditions under which a multiple-sourcing approach performs better than a single-sourcing approach on supply chain performance (Glock and Ries 2013; Gosling, Purvis, and Naim 2010; Li and Amini 2012). Also, by extending studies regarding buyer–supplier relationship management, production research has recently shown interest in investigating how the buying company manages relationships between suppliers in its supply base (Gimenez, van der Vaart, and van Donk 2012). Other studies propose a different typology of the supplier–supplier relationships, seeing it as a unique configuration of the relational characteristics and exploring the respective managerial implications (Choi et al. 2002; Wu and Choi 2005).

Thirdly, studies related to the 'nature of buyer–supplier relationships' mainly regard the empirical analysis of the characteristics of the relationship in a continuum from transactional to relational buyer–supplier adaptation. Many studies investigate the impact of different relationship characteristics on buyer and/or supplier performance. Among these, there are studies focused on the role played by cooperation and collaboration (Howard and Squire 2007; Huang et al. 2012; Li et al. 2007, 2013; Sharafali and Co 2000; Vachon, Halley, and Beaulieu 2009); communication (Paulraj, Lado, and Chen 2008; Vanpoucke and Vereecke 2010); asset specificity (Abd. Rahman, Bennett, and Sohal 2009); knowledge management processes and practices (Li, Tarafdar, and Rao 2012; Yang 2013); stability (Lai, Cheng, and Yeung 2005); trust and fairness (Ebrahim-Khanjari, Hopp, and Iravani 2012; Ha, Park, and Cho 2011; Liu et al. 2012) and commitment (Saghiri and Hill 2013).

Also, most of these studies into production management research investigate the impact of vertical networking decisions on the buyer and supplier's competitive advantage in terms of financial, commercial and operational performance. For example, Jiang, Belohlav, and Young (2007) investigated the relationship between firms' market valuation and outsourcing decisions; González-Benito (2010) analysed the effect of purchasing and supply strategies on commercial and financial performance; Rosenzweig, Roth, and Dean (2003) provided empirical evidence that supply chain integration intensity leads directly to improved business performance; and Wu et al. (2005) presented different outsourcing approaches in relation to the long-term performance of an enterprise. Other studies investigate how different buyer–supplier relationship management practices impact the operations performance of either the buyer (Krause, Handfield, and Tyler 2007; Prajogo et al. 2012; Wagner 2011) or the supplier (Oosterhuis, van der Vaart, and Molleman 2011).

Thus, while the production and operations management literature has dealt with studies about strategic decisions on vertical relationships and their impact on performance, very few studies deal with horizontal relationships (Riccobono, Bruccoleri, and Perrone 2013). Therefore, we wonder whether horizontal relationships really matter to production and operational managers, and in this paper, we try to answer this question. Specifically, we argue and empirically test

whether horizontal relationships – like A&JVs with competitors and/or complementors, but also M&A – might have a significant role in achieving production and operations objectives, and thus whether they matter to production and operational managers.

We highlight the existence of a gap in the production and supply chain management literature concerning the study of horizontal agreements in terms of the role that they play in the achievement of production and operations performance objectives. For example, the acquisition of a product-related firm can allow the focal firm to reduce both product development time and manufacturing costs by exploiting both economy of scope and scale. In sum, the objective of this study is to explore how horizontal agreements (A&JV and M&A) might allow a company to achieve production and operations performance objectives. This kind of study might bring very interesting results and findings in terms of how and why operational considerations should play a crucial role in the type of strategic decisions that are usually reserved for finance and strategy functions. Signing an extraordinary joint venture with a long-term competitor, making acquisitions, planning mergers, and buying and selling divisions are easily explained to and understood by boards, shareholders and the media. They offer the prospect of nearly immediate gratification, and are consistent with the modern image of the executive as someone who focuses on a grand strategy while leaving operational details to others, despite the fact that operations are the source of sustained performance gain for many companies (Hammer 2004). On the contrary, production and operations managers should be fully involved in such decisions if they are to be well acquainted with how their choices impact on operational objectives.

In this paper, we focus on the production and operational reasons that underlay the choice between two different kinds of horizontal governance agreements, namely M&A and A&JV. Specifically, we address the following research question: Does a linkage exist between the pursued operations performance objectives and the choice between M&A and A&JV horizontal agreements? As we already said, similar research questions have been addressed in production and operations management literature in the realm of vertical relationships, yet none of these studies explore how such objectives could be achieved through horizontal relationships with competitors and complementors.

We develop literature-based hypotheses and empirically test them using secondary data sources. Specifically, our sample includes all of the M&A and A&JV announced and completed between 2000 and 2010 by 88 of the first 100-ranked members of the Fortune 500 in the year 2000. In total, we collected data from 4316 horizontal agreements. We took the agreement as a unit of analysis and we tested our hypotheses using a binary logistic regression model.

The rest of the paper is structured as follows: Section 2 reviews the main theories inherited from operations and strategic management literature about inter-firm relationships. Section 3 develops and states the hypotheses. Section 4 presents the research method, results and findings. Section 5 discusses the contribution and the implications of this paper.

2. Inter-firm relationships as sources of competitive advantage: a literature review

This section provides an overview of the most influential streams of literature about inter-firm networking, with specific focus on network governance mechanism decisions. Specifically, we identify six prominent literature streams that provide different perspectives on the identification of the main drivers for business relationships formation: transaction cost economics (TCE); resource-based view (RBV); and relational, operational, co-opetition and institutional theory.

2.1 *Transaction cost theory*

The TCE theory, which was first developed by Coase (1937) and then refined by Williamson (1975), addresses the issue about the existence and the boundary of the firm, and provides a framework for the identification of the governance structure in the buyer–supplier relationship that minimises transaction costs and risk of opportunism. According to this framework, a more hierarchy-oriented form of governance should be preferred over a market-oriented governance mode when the asset specificity, the frequency of the transaction and the environmental uncertainty are high (Williamson 1975, 1985). Specifically, three kinds of governance structures are identified in such a framework: the market, the hierarchy and the hybrid. The market refers to arm's length relationship with suppliers, and is the governance structure that minimises transaction costs when asset specificity and uncertainty are low. The hierarchy refers to the integration of the supplier in the focal firm structure, and is a response to when asset specificity and uncertainty are high and transactions are frequent. Finally, between these two extremes there are the hybrids, such as bilateral contracts and cooperative alliances. Such governance structures should be adopted when uncertainty is low and asset specificity is medium or high.

2.2 *Resource-based view*

The RBV theory explains firms as bundles of resources (Penrose 1959). Such resources are considered a source of competitive advantage in cases where they are valuable, rare, inimitable and non-substitutable (VRIN) (Barney 1991, 1997).

Resources consist of all the firm's tangible or intangible assets and capabilities. Accordingly, inter-firm relationships can generate VRIN resources by the synergies that are created when linking and pooling different companies' resource endowment. The RBV theory recommends choosing the governance mode that provides the best opportunity for sharing and transferring resources. Also, the knowledge-based theory – an extension of the RBV – emphasises knowledge as the firm's most important distinctive resource (Conner and Prahalad 1996; Kogut and Zander 1992). From this perspective, more hierarchy-oriented governance modes are better suited when the level of knowledge to be shared is high.

2.3 *Relational*

The relational school emphasises the strategic role played by close and unique business relationships. The relational school suggests that rather than transactional business relationships, relational can be a source of competitive advantage because such kinds of relationships are rare and difficult to imitate. The relational school initially underlined how a firm's relationships with customers can develop a sustained competitive advantage if organisations build strong, close and positive relationships with them (Rowe and Barnes 1998). The focus of the relational school then moved to firm's relationships with suppliers, and suggests that external relationships with suppliers governed by an informal mechanism (such as trust) can be a source of competitive advantage; this is known as 'relational rent'. A relational rent is defined as a supernormal profit jointly generated in an exchange relationship that cannot be generated by an isolated firm, but only through the joint idiosyncratic contributions of the specific alliance partners (Dyer and Singh 1998). Specifically, there are four sources of relational rent: (1) inter-firm specific assets; (2) inter-firm knowledge-sharing routines; (3) complementary resource endowments and (4) effective governance. Also, informal self-enforcing safeguards are preferred over formal third-party safeguards as the mechanisms to govern the relationships, since they ensure lower marginal cost and the difficulty of imitation.

2.4 *Operational*

The operational school explains how vertical disintegration and modular production networks are the key governance modes for responding to the competitive drivers of contemporary economies, including market globalisation, production efficiency (especially in terms of costs), innovation (Sturgeon 2002) and responsiveness (Chopra and Meindl 2013). Accordingly, the operational approach is more oriented toward an operations management point of view; that is, the management of activities and resources required by an organisation to produce goods or services for customers (Slack and Lewis 2002). Companies increase outsourcing and off-shoring practices to organise their production at a global level and in an efficient way (Zhang and Gregory 2011). In order to pursue such an operational strategy, organisations are reducing their direct ownership of 'non-core' activities.

2.5 *Co-opetition*

The co-opetition approach recognises that competition nowadays is not among firms, but among firm networks; it thus proposes the idea of the so-called 'value-net' that consists of the company, its suppliers and customers, competitors and 'complementors' (Brandenburger and Nalebuff 1998). These last players are able to make the firm's products more competitive, and can take the form of a company or set of companies who help the firm to build more value for the final customers. The added value is defined as 'the difference of the dimension of the cake when you are in the game compared when you are not' (Brandenburger and Nalebuff 1998), meaning that companies should look for partners who are able to make bigger the whole cake.

2.6 *Institutional*

The institutional theory (DiMaggio and Powell 1983) suggests that institutional environments should impose pressures on organisations so as to appear legitimate and conform to prevailing social norms. In a business context, institutional pressures motivate firms to pursue activities that will increase their legitimacy by appearing to be in agreement with the prevailing social rules and norms of their business environments (Oliver 1990; Scott and Meyer 1983; Zucker 1977). For example, small firms can increase their reputation, image and prestige through partnerships with larger and better-established companies. Hence, from an institutional point of view, inter-firm relationships could allow firms to gain competitive advantage by enhancing firm legitimacy and improving their status and image.

3. Governance choices in horizontal relationships and operations performance: conceptual model and hypotheses

We adopt a contingency approach to develop our conceptual model (Figure 2). In fact, we developed our hypotheses based on the contingent role of operations performance objectives within such a decision, i.e. based on considerations about how specific horizontal relationships allow firms to achieve a better solution in terms of achieving operational objectives (cost, quality, time and flexibility). Thanks to this approach, we are able to understand real contingent decisions, i.e. decisions that not only are influenced by the specific context, but that represent the best decision for operations performance in that context.

We derive the drivers that lead to the choice of M&A and A&JV by relying on the theories presented in the previous section. We individualise three different categories of drivers according to the theories that may affect the firm governance mode choice. The first category relates to the *internal factors*: this refers to a firm's characteristics, such as its resources and capabilities (R&C) endowment (White 2000). The second category relates to the *transactional factors*: these are transactional characteristics, such as specificity of transaction-related investments and transaction cost (Hoffmann and Schaper-Rinkel 2002). Finally, the third category relates to *external factors*: these are environmental characteristics, such as industry competitiveness and environmental uncertainty (Geyskens, Steenkamp, and Kumar 2006).

Accordingly, we operationalise and individualise specific variables belonging to the *internal*, *transactional* and *external* categories of factors that affect the choice between M&A and A&JV, and develop hypotheses on these variables based on the pursued operations objectives as it is described in the next section. Figure 2 summarises the resulting conceptual framework and the relative hypotheses.

3.1 *Firm's internal R&C for the business activity (internal factor)*

The TCE theory suggests that governance mode choices should be driven by an intention to minimise transaction costs (i.e. the sum of coordination, monitoring and opportunism risk). In the context of horizontal relationships, the higher the level of relatedness between the R&C owned by the firm and the R&C needed to carry out the business activity/s involved in the transaction, the higher the risk of knowledge-appropriation and opportunism risk (since partners operate in the same market), and thus the higher the transaction costs. In this situation, M&A can be considered as a way in which to reduce these transaction costs by avoiding competition among partners, and thus allowing them to share their similar knowledge-base. Conversely, low levels of relatedness decrease the risk of knowledge-appropriation and the related opportunism risk. Accordingly, A&JV should be adopted to reduce the transaction costs associated with the acquisition of a target firm.

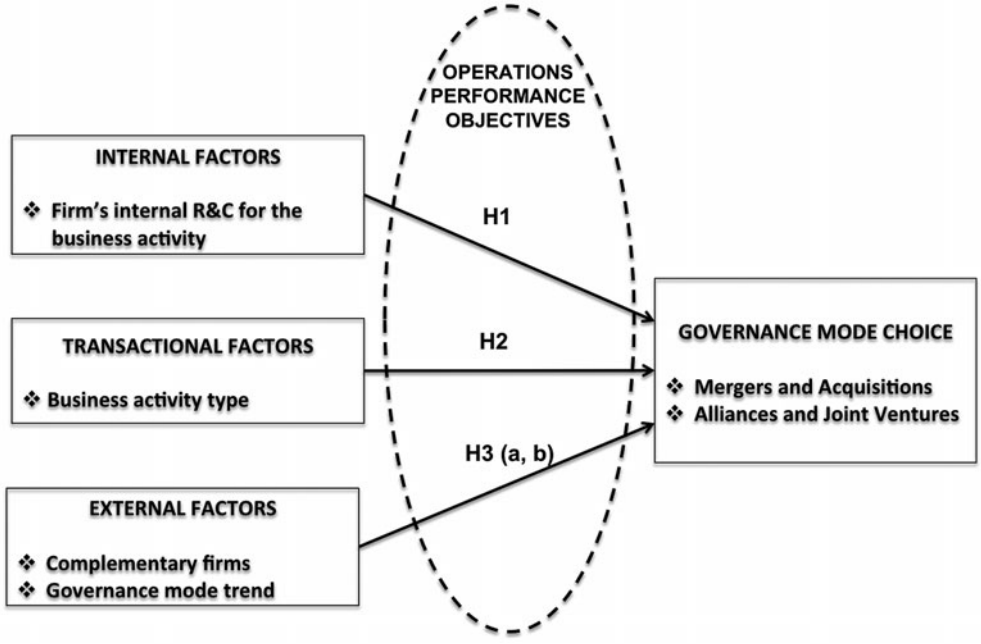

Figure 2. Conceptual model.

On the other hand, the RBV considers firms as a bundle of resources, and relates strategic decisions to resources accordingly (e.g. Lewis et al. 2010) rather than being based on cost considerations. Horizontal relationships allow the focal firm to pool its R&C endowment with those of other firms. When the focal firm has high levels of R&C needed to carry out the business activity/s involved in the transaction, M&A can be used to exploit the long-term benefits of economies of scale and scope by pooling the same kinds of very similar resources to carry out specific business activities. Also, such economies allow the acquirer to sink the high level of capital requested by these kinds of deals and thus reduce the cost of the investment. Conversely, when the focal firm's levels of R&C needed to fulfil the transaction business activity is low, A&JV can provide the firm with the requested R&C sooner and at a lower cost than M&A can.

Thus, when considering cost- and time-driven objectives, the level of relatedness between the R&C owned by the firm and the R&C necessary to carry out the business activity/s involved in the transaction has to be taken into consideration when choosing the governance mode in horizontal relationships. If the level is very high – meaning that the company fully owns the necessary R&C to carry out the business activity (which is the object of the transaction) – then it's convenient for the focal firm to adopt a more hierarchy-oriented governance mode in order to exploit economies of scale and scope benefits, achieve costs-related benefits and reduce associated transaction costs. On the other hand, if the level of R&C is low, then it's more convenient to adopt a spot governance mode in order to ascertain benefits in terms of cost and time-based performance by acquiring R&C that the firm does not own, but that are requested for the fulfilment of the specific business activity. Hence, the following statement has been hypothesised:

Hypothesis 1: The higher the firm's internal R&C to carry out the business activity (which is the object of the transaction), the higher the likelihood that the firm will choose M&A over A&JV.

3.2 *Business activity type (transactional factor)*

The knowledge-based view considers knowledge as the firm's most important distinctive resource (Conner and Prahalad 1996). The relational school suggests that inter-firm knowledge-sharing routines (among others) are a source of competitive advantage (Nagati and Rebolledo 2012). Since innovation primarily requires new synergies of R&C, a constant inflow of knowledge from external sources is required to create a productive research and development (R&D) environment (Fey and Birkinshaw 2005). In vertical relationships, because of the high level of tacit knowledge frequently involved in technological capabilities, A&JV have been shown to have advantages over conventional contracts or markets for the fulfilment of R&D business activities, since they allow higher knowledge transferability (Fey and Birkinshaw 2005). The formation of A&JV with suppliers for R&D activities has been a continuous trend in technology-intensive industries (e.g. semiconductors and ICT) since 1975. Such a trend has been motivated by higher levels of knowledge and technology transfer among participants (Mowery, Oxley, and Silverman 1996). The production and operations literature provide evidence that cost, time to market and flexibility related to R&D activities jointly conducted by buyer and supplier can be reduced when people use, share and create knowledge (Danese and Filippini 2010; Stevenson and Spring 2009).

When considering horizontal relationships, transaction costs considerations lead to different implications about the most appropriate governance mode to choose when the activities involved in the transaction are high knowledge-intensive activities (i.e. R&D activities), since after the fulfilment of the R&D activities, the partners still remain competitors in the market. Accordingly, horizontal relationships could obstruct the fluid transfer of knowledge, reduce the potentiality of knowledge as a source of competitive advantage and increase the transaction costs of partner coordination and monitoring, because the opportunism risk associated with knowledge-appropriation is higher. In this situation, M&A can overlap with the above problems by avoiding the post-deal competition, while exploiting the potentiality of inter-firm knowledge-sharing routines as a source of competitive advantage in terms of reducing time to market for new product development. The acquisition of biotechnology firms by pharmaceutical companies provides a good example in this sense.

On the other hand, when the transaction business activities are less knowledge-intensive (e.g. manufacturing and marketing), the operational school suggests that modular production networks are the key governance modes for enhancing production efficiency (especially in terms of costs), flexibility, innovation and responsiveness. Accordingly, less hierarchy-oriented agreements with complementors should be preferred over more hierarchy-oriented ones when the transaction activities are related to less knowledge-intensive and more operations-intensive activities.

Summing up, cost-, time- and flexibility-based considerations lead us to associate manufacturing and marketing activities with A&JV, while knowledge-based R&D activities are associated with M&A. Accordingly, the following hypothesis has been stated:

Hypothesis 2: The more knowledge-intensive the business activity (which is the object of the transaction), the higher the likelihood the firm will choose M&A over A&JV.

3.3 *Complementary firms (external factor)*

We refer to complementary firms as companies of the same industry (incumbents or new entrants) with capabilities that are different yet mutually supportive (Hitt, Harrison, and Ireland 2001; Luo 2002). According to the co-opetition approach, 'complementors' (Brandenburger and Nalebuff 1998) are able to make the products of the focal firm more competitive by enabling it to build more value for the final customers. If we also adopt a relational perspective (that is usually considered for relationships with customers and suppliers) for analysing relationships with 'complementors', we must say that building unique relationships with this kind of partner should allow the focal firm the potential to strengthen their competitive advantage creation in its industry. Accordingly, horizontal relationships with complementary firms (i.e. complementors) allow the focal firm to enhance its competitive position. Despite this, the co-opetition approach, combined with the relational perspective, does not provide insight into the most appropriate horizontal governance mode to adopt. The operational school suggests that the 'vertical disintegration' (Stigler 1951), and the consequent emergence of intermediate markets, is mainly driven by the willingness of firms to gain advantages from the trade of specialised production. In this context, market-oriented vertical business relationships for capital-intensive production activities at specialised firms enhance their ability to respond flexibly to changes in technology or demand reductions in product development cycle times (e.g. Harrigan 1983). In a similar way, when the focal firm operates in an industry with a high number of complementary firms, adopting multiple horizontal agreements with complementors can enhance its ability to exploit such relationships more flexibly, and to enhance their added value for the final customer in a shorter time. Accordingly, in a context characterised by high number of complementary firms, A&JV horizontal relationships should be preferred over M&A. On the other hand, when the number of complementary firms is low, M&A can allow the focal firm to achieve an advantage by exploiting the value created by horizontal relationships with complementors while drastically reducing the transaction cost due to the monopoly/oligopoly position of the few complementary firms that operate in the industry. These arguments suggest the following hypothesis:

Hypothesis 3a: The higher the number of complementary firms in the focal firm industry, the higher the likelihood the firm will choose A&JV over M&A.

3.4 *Governance mode trend (external factor)*

The cognitive domain refers to the shared beliefs and values that lead the actors of a given organisation or societal entity to interpret and motivate specific context in a certain way. Such a domain is considered as the 'internalised symbolic representations of the world' (Scott 1995). Consequently, the institutional theory suggests that firms' decision-makers are unaware of the full range of known alternatives (DiMaggio and Powell 1983; Greenwood and Hinings 1996), and only consider the options with high levels of cognitive legitimacy. Regarding the adoption of specific governance modes rather than the cognitive domain suggests that firms that belong to a particular industry will tend to imitate the governance mode choice adopted by the majority of firms in the industry. Also, from an operations perspective, the adoption of M&A by the majority of firms in the same industry allows them to reduce operating costs by exploiting the benefits of economy of scale and scope. Hence, if the majority of firms strongly reduce costs by adopting such a governance mode, it could be necessary for the others firms to adopt it in order to survive. On the other hand, for firms that operate in industries where the propensity is to adopt A&JV, it is likely that the routinisation of such a practice would allow them to take advantage of such collaborations while exploiting the related flexibility advantage and reducing the transaction costs and timings due to the habit in adopting this kind of governance mode. Accordingly, the following hypothesis has been stated:

Hypothesis 3b: The higher the M&A governance mode trend in the focal firm industry, the higher the likelihood the firm will choose M&A over A&JV.

4. Research method

The research method adopted to test the theory-based hypotheses consists of a secondary data set analysis. Secondary data analysis consists of analysing data collected by someone else (not specifically for the research questions at hand) and using the data to get a better understanding of a theoretical concept (Frankfort-Nachmias and Nachmias 1992; Stewart 1984). Different sources are generally used to collect such types of data (e.g. annual reports and organisational statistics, industry statistics provided by government agencies, etc.).

We collected the information we needed from the Security Data Company (SDC) Platinum and from ORBIS.

SDC (http://thomsonreuters.com/sdc-platinum) is a multi-sector database that collects a very wide range of agreements typologies from 1990 to 2005. Specifically, SDC provides two data-sets of business deals: those regarding M&A

agreements and another regarding A&JV. The information provided includes the name, the standard industry classification (SIC) code, the nationality of the participants and the terms of the deal.

ORBIS (http://www.bvdinfo.com/en-gb/products/company-information/international/orbis) is a global company database that provides private company financial information (depending on the country in which the company is located). ORBIS also allows the user to get extensive data about a company, including locations of subsidiaries; screens for companies based on geography, financial performance, industry, deals, ownership structure, number of employees, year of incorporation and other criteria; and compares a company to its competitors along multiple dimensions. The specific information that we got from the above-mentioned databases is described in the following sections.

In the following section, we present the measures we used to operationalise the conceptual model variables (Section 4.1), the data collection (Section 4.2) and the analysis of the data by applying a logistic regression and results (Section 4.3).

4.1 *Variables' operationalisation*

The first stage of the empirical research consists of defining the measures of the variables that emerged in the hypotheses. Starting with Hypothesis 1, the first variable to be measured is the level of a *firm's internal R&C for the business activity*. This variable refers to the contribution of the focal firm's R&C to the ones requested for the delivery of the business activities involved in the transaction. We assume that the higher the similarity between the SIC codes of the company and the business activity, the higher the likelihood that the firm owns internal R&C for conducting that business activity. Many other papers have already used the proximity in the SIC codes of the focal firm and the deal (or target firm) as a measure of relatedness between the focal firm and the deal itself (e.g. Villalonga and McGahan 2005). Specifically, we measure this variable as the ratio between the R&C that the focal firm already owns to carry out the business activities involved in the transaction, and the overall R&C requested to carry out these activities. Thus, its value is one if the focal firm owns all the R&C requested by the business activities involved in the transaction; zero if it does not own any of the R&C requested; and a percentage value between the two in the other cases. For the measure of this variable, we collected information in SDC about the SIC code of the 'participants' and the SIC code of the 'deal' when the deal regards an alliance or joint venture, as well as information about the SIC codes of the 'acquirer' and of the 'target' when the deal is a merger or acquisition.

The variable involved in Hypothesis 2 regards the *business activity type*. This variable individualises two main activity categories: the R&D activities and the manufacturing and marketing (M&M) activities. Specifically, it takes the value two if the deal regards R&D activities, and one if it concerns M&M activities. The higher value considered for the R&D activities signals the higher level of tacit knowledge frequently involved in these kinds of activities. Information about the activity type was found in SDC.

Regarding the *complementary firms* (Hypothesis 3a), this variable refers to the number of firms that belongs to the same 'major group' of the SIC as the focal firm, but which operate in different SIC 'industry groups'. For example, let's suppose that the focal firm belongs to the SIC major group *transportation equipment*, and specifically to the SIC industry group *motor vehicles and motor vehicles equipment*. In this case, the complementary firms are those that belong to the SIC major group *transportation equipment*, but which do not operate in the SIC industry group *motor vehicles and motor vehicles equipment*. We collected information about focal firms' SIC codes in SDC, and about the number of complementary firms in ORBIS. Finally, the *governance mode trend* variable (Hypothesis 3b) refers to the trend of the industry (i.e. companies that have exactly the same SIC code) towards adopting a more hierarchy-oriented governance mode (e.g. there are more M&A than A&JV). This is a dummy variable that takes the value 2 if the number of M&A is bigger than A&JV, and 1 otherwise. This information has been collected by screening in SDC for M&A and A&JV deals that were undertaken between 2000 and 2010 by firms that belong to the same SIC code of the focal firm.

The dependent variable – the *governance mode* – takes the value 1 if the deal of the focal firm is a merger or an acquisition, and 0 if it is an alliance or a joint venture. We control for the *focal firm size* effect that we measured as the firm profit in 2000. We took such a value from the CNN Money Website. Table 1 presents each variable, the way it is measured, the hypothesis it is related to, its predicted sign and the data source.

4.2 *Data collection and descriptive statistics*

The second stage of the empirical research consists of collecting information used to measure the variables. First, we selected those who engaged in at least one of the two kinds of deals considered (M&A or A&JV) between the years 2000 and 2010 from among the first 100-ranked members of the Fortune 500 in the year 2000. The final sample was composed of 88 of the first 100-ranked members. Second, we collected all the information requested to measure the

variables from SDC and ORBIS. Finally, we took each deal as a unit of analysis and built the data-set by transforming the raw data collected into the variable measures previously defined. The final data-set includes 4316 observations coming from all of the M&A and A&JV announced and completed between 2000 and 2010 by 88 of the first 100-ranked members of the Fortune 500 in the year 2000.

Table 2 indicates that 2926 of the deals in the sample (68%) are M&A and 1390 (32%) are A&JV. The firms in the sample engaged in an average of 49 deals, 33 of which were M&A and 15 of which were A&JV. Table 3 lists the number of M&A and A&JV for each firm in the sample period (2000–2010). Some firms used mixed governance strategies, while others specialised in one particular governance form. Citigroup had the most acquisitions (330). Microsoft had the most alliances (210). Finally, Citigroup pursued more total deals than any other firm (347). TIAA-CREF, Chevron Texaco and FleetBoston Financial pursued fewer deals than any other firm (1). Table 4 shows the distribution of deals by focal firm sector (where the sector refers to the industry division as classified by the Standard Industrial Classification). The most deals of all types are in manufacturing. The fewest deals occur in the mining sector.

Table 5 shows the number of values, and the minimum, maximum, average and standard deviation of each of the variables involved in the final data-set.

Finally, Table 6 reports the resulting correlation matrix of the data-set and shows that the variables of our model are not correlated.

4.3 *Data analysis, results and findings*

All of our hypotheses predict a linear relationship between the independent variable and the level of hierarchy in the governance mode. In fact, they suggest that higher values of the independent variable correspond to higher (or lower) values of the dependent variable. We used binary logistic regression because the dependent variable, namely 'governance mode', takes two possible values (as mentioned before). Thus, a positive (negative) coefficient on any of the independent variables can be interpreted as relating to a higher (lower) probability that the firm will choose to adopt M&A over A&JV. The results of the logistic analysis linking internal, transactional and external factors to the governance mode choice are presented in Table 7.

The *firm's internal R&C for the business activity* variable is significantly and positively associated with the choice of a more hierarchical governance mode, as predicted by Hypothesis 1. The higher the fitting between the firm's internal resources' endowment and the resources requested by the business activities involved in the transaction, the higher the intent of the firm to share it strictly with other partners. From an operations performance perspective, M&A with product-related firms allows costs reductions in terms of economies of scope and scale exploitation due to R&C sharing. This result supports the knowledge-based theory that firms can gain benefits by not only combining complementary

Table 1. Hypothesis variables – measures, expected sign and source of information.

Variable	Measure	Hypotheses	Sign	Source
Governance mode	The variable takes the value 1 if the deal of the focal firm is a merger or an acquisition; 0 if it is an alliance or a joint venture	1, 2, 3a, 3b	/	SDC
Firm's internal R&C for the business activity	Proximity in the SIC codes of the focal firm and the business activities involved in the transaction. In case of M&A, the measure is the ratio of the number of focal firms' SIC codes that are equal to the target firms and the number of all the SIC codes of the target firms. In case of JV&A, the measure is the ratio of the number of focal firms' SIC codes that are equal to those of the deal and the number of all the SIC codes of the deal	1	+	SDC
Business activity type	The variable takes the value 2 if the activities of the target firm (in M&A) and of the deal (in A&JV) regard research and development; and 1 if they concern manufacturing and marketing	2	+	SDC
Complementary firms	The measure is the ratio of the number of firms that have the first two digits of their primary SIC code equal to the focal firm ones, but where the last two are different to the number of firms that have the first two digits of their primary SIC code equal to the focal firms'	3a	−	SDC; ORBIS
Governance mode trend	The variable takes the value 2 if the number of mergers and acquisitions is bigger than the alliances and joint venture; 1 otherwise	3b	+	SDC
Firm size	The focal firm profit value	/	/	CNN

Table 2. Descriptive statistics of deals in the sample.

	M&A	A&JV	All deals
Average	33.25	15.79	49.04
Median	14.5	7	28.5
Min.	0	0	1
Max.	330	210	347
Total no. of deals	2926	1390	4316

knowledge, but also by pooling their expertise in the same area of knowledge. On the other hand, A&JV at non-product-related firms allow both cost and time reduction as a result of the possibility of using other companies' R&C.

The *business activity type* variable is significantly and positively associated with the choice of a more hierarchical governance mode, as predicted by Hypothesis 2. High knowledge-based business activities are carried out by M&A instead of A&JV. From an operations performance perspective, M&A initiated for R&D activities allow firms to minimise coordination costs and opportunism risk, and reduce time to market by exploiting the benefits of strict relational bonds between cooperating and non-competing entities. On the other hand, A&JV initiated for M&M allow firms to enhance their production efficiency in terms of costs, flexibility, responsiveness and exploiting advantages of distributed production and decentralised marketing. Also, as argued by Danese and Filippini (2010) and Stevenson and Spring (2009), less hierarchical governance modes for manufacturing activities allows companies to change their products/services at shorter notice and a lower cost.

The *complementary firms* variable is statistically non-significant in our logistic model. Thus, Hypothesis 3a is not supported in our analysis. On the contrary, the *governance mode trend* is significantly and positively associated with the choice of a more hierarchical governance mode, as predicted by Hypothesis 3b. The governance mode trend of adopting M&A in the industry means firms are more likely to adopt M&A instead of A&JV. This result supports the institutional theory, according to which organisations adopt structures and practices that are 'isomorphic' to those of the other organisations in the same industry (DiMaggio and Powell 1983; Greenwood and Hinings 1996). From an operations performance perspective, in industries where there are a lot of M&A, it is easier to achieve cost reduction due to the exploitation of economies of scope and scale already developed by other companies. Furthermore, companies in such industries are more likely to adopt the same governance mode than all the other companies in the market in order to maintain similar company size. Similarly, in industries in which A&JV are frequently implemented, firms continue with such governance modes for future collaborations because the routinisation of such a practice brings about reductions in transaction costs and timing.

Finally, the *firm size* is significantly and negatively associated with the choice of a more hierarchical governance mode. In other words, the higher the firm size, the lower the probability that firms will choose M&A over A&JV. Such a result could be justified by the higher inclination of smaller firms to adopt a growth strategy such as M&A.

5. Contribution, implications and conclusions

The main intent of this paper was to overcome the limitations of existing production, operations and supply chain management literature in providing managerially oriented arguments regarding the linkages between the achievement of operations-related objectives and decisions related to horizontal business relationships. By relying on the main theories about business-to-business relationships, and by examining 4316 M&A and A&JV deal announcements signed between 2000 and 2010 by the first 100-ranked members of the Fortune 500 in the year 2000, this paper adopts an operations objectives' contingent approach to provide theoretical arguments and empirical evidence for existing linkages between horizontal and hierarchy-oriented governance modes (M&A and A&JV) and production and operations performance.

This paper has both theoretical and managerial implications. The main theoretical implication for production, operations and supply chain management literature is represented by the shift of the research focus from the linkage between operations performance and vertical relationships to the linkage between operations performance and horizontal relationships. Specifically, this study opens up new frontiers for researchers wishing to extend their studies concerning supply chain relationships with respect to the three main investigated issues – 'make or buy', 'supply base' and 'nature of buyer–supplier relationship' – and their impact on operations performance. Firstly, by considering M&A and A&JV, along with competitors and complementors, as a way to achieve specific operations performance objectives, this study

Table 3. M&As, A&JVs and total number of deals for each of the 88 firms selected from the first 100-ranked Fortune 500 in the year 2000.

Focal firm name	M&A	A&JV	All deals
Aetna	2	1	3
Allstate	4	2	6
Altria Group	42	0	42
American Express	27	36	63
American Intl. Group	0	2	2
AMR	1	3	4
Aquila	4	2	6
AT&T	66	39	105
AutoNation	8	0	8
Bank of America Corp.	75	20	95
Bank One Corp.	0	2	2
BellSouth	10	14	24
Berkshire Hathaway	128	1	129
Boeing	22	28	50
Bristol-Myers Squibb	9	33	42
Cardinal Health	34	11	45
Caterpillar	32	7	39
Chase Manhattan Corp.	0	7	7
ChevronTexaco	0	1	1
Cigna	15	0	15
Citigroup	330	17	347
Coca-Cola	120	15	135
Compaq Computer	16	32	48
ConAgra Foods	13	2	15
Conoco	21	6	27
Costco Wholesale	1	1	2
CVS	0	2	2
Dell	0	31	31
Dow Chemical	2	17	19
Duke Energy	28	10	38
DuPont	0	9	9
Electronic Data Systems	0	27	27
Enron	19	9	28
Exxon Mobil	21	11	32
FleetBoston Financial	0	1	1
Ford Motor	42	31	73
General Electric	196	20	216
General Motors	12	22	34
Georgia-Pacific	11	2	13
Goldman Sachs Group	288	11	299
GTE	0	2	2
Hewlett-Packard	74	98	172
Home Depot	35	3	38
Honeywell Intl.	48	32	80
Ingram Micro	15	13	28
Intel	78	58	136
International Paper	32	4	36
Intl. Business Machines	148	3	151
J.P. Morgan	0	20	20
Johnson & Johnson	63	9	72
Kroger	12	1	13
Lehman Brothers Hldgs.	120	12	132
Lockheed Martin	31	35	66
Loews	14	0	14
Lucent Technologies	21	52	73
Marathon Oil	0	6	6
McKesson	0	14	14
Merck	17	60	77

(*Continued*)

Table 3. (*Continued*).

Focal firm name	M&A	A&JV	All deals
Merrill Lynch	0	21	21
MetLife	31	4	35
Microsoft	110	210	320
Morgan Stanley	0	8	8
Motorola	1	83	84
New York Life Insurance	14	1	15
PepsiCo	24	7	31
Procter & Gamble	28	14	42
Prudential Financial	66	3	69
Raytheon	15	18	33
Safeway	12	0	12
Sara Lee	0	2	2
SBC Communications	0	7	7
Sears Roebuck	9	5	14
Sprint	5	7	12
State Farm Insurance Cos	0	2	2
Supervalu	4	0	4
Sysco	21	0	21
Target	0	4	4
Texaco	0	11	11
TIAA-CREF	0	1	1
Time Warner	0	29	29
United Technologies	126	5	131
UnitedHealth Group	35	3	38
Wachovia Corp.	0	5	5
Wal-Mart Stores	26	7	33
Walgreen	38	4	42
Walt Disney	39	0	39
Wells Fargo	0	8	8
Xerox	15	14	29

Table 4. Number of M&As, A&JV, and total number of deals by focal firm sector.

	M&A		A&JV		All deals	
Sector (SIC division)	Number	% of all deals	Number	% of all deals	Number	% of all deals
Finance, insurance and real estate	1149	86	188	14	1337	100
Manufacturing	831	55	676	45	1507	100
Mining	40	60	27	40	67	100
Retail trade	145	84	27	16	172	100
Services	360	56	278	44	638	100
Transportation, communications, electric, gas and sanitary services	331	68	156	32	487	100
Wholesale trade	70	65	38	35	108	100
All sectors	2926	68	1370	32	4316	100

suggests extending the dimension ‘make or buy’ to ‘make/buy/make together’. Secondly, by considering not just vertical partners (i.e. buyer and supplier), which is often examined in the production and operations literature, but also the horizontal ones (competitors and complemetors), this study suggests extending the dimension ‘supply-base structure’ to ‘network-based structure’. Thirdly, by considering also the horizontal side of the focal firm network, this study suggests extending the dimension ‘nature of buyer–supplier relationship’ predominantly investigated in the production and operations literature to the ‘nature of business relationships’.

Among the above-mentioned dimensions, the research presented in this paper extends the dimension ‘make or buy’ to ‘make/buy/make together’, and specifically considers the two options A&JV (make together) and M&A (make). We

Table 5. Descriptive statistics of the model variables.

Variables	*N*	Minimum	Maximum	Mean	Standard deviation	Median	Mode
Governance mode	4316	0.00	1.00	/	/	1	1
Firm's internal R&C for the business activity	4316	0.00	1.00	/	/	0	0
Business activity type	4316	1.00	2.00	1.11	0.31009	1	1
Complementary firms	4316	0.00	1.00	0.88	0.14921	0.935	0.982
Governance mode trend	4316	1.00	2.00	/	/	1	1
Firm size	4316	−935	10.717	4171.35	3360.14	2708	7785

Table 6. Correlation matrix.

	1	2	3	4	5
1. Firm's internal R&C	1				
2. Business activity type	0.0553	1			
3. Complementary firm	0.0050	0.0568	1		
4. Governance mode trend	−0.1198	−0.1342	−0.2124	1	
5. Firm size	0.0273	0.0296	0.0861	−0.1561	1

Table 7. Logistic analysis of governance mode choice.

Variable	Hypothesis	Coefficient	Standard error
Firm's internal R&C for the transaction activity	1	0.47***	0.082673
Transaction activity type	2	0.35***	0.1086695
Complementary firms	3a	0.02	0.2468328
Governance mode trend	3b	1.59***	0.0745851
Firm size		−0.00***	0.000101
Log likelihood		−2525.3679	
No. of observations		4316	
Prob. > χ^2		0.000	
Pseudo R^2		0.1134	

***$p < 0.01$.

found empirical evidence that internal, transactional and external factors influence companies' choices between these two options because such contingent decisions become the best choice with respect to operations and production performance objectives.

From a managerial perspective, production and operations managers should consider the following findings as guidelines for the achievement of operations performance objectives through the most appropriate horizontal agreement:

- Firms that own similar R&C endowment tend to work closely with each other through M&A (or otherwise through A&JV). Production and operations managers should be aware that M&A are more suitable to achieve cost-related performance through the exploitation of economies of scale and scope; however, A&JV should be used to achieve time-based and cost-related benefits through the easy access to R&C, which they lack.
- Firms that have to jointly carry out R&D activities generally adopt M&A; whereas, firms that have to jointly carry out M&M activities are likely to adopt A&JV. Production and operations managers should consider that M&A are more appropriate to reduce time to market through better implementation of knowledge-sharing routines; whereas, A&JV allow firms to increase flexibility, innovation and responsiveness by exploiting the dynamic nature of such agreement types.
- Firms that operate in industries characterised by a high adoption of M&A tend to adopt the same governance mode. Production and operations managers should take into account that following the M&A trend would benefit cost-related performance, whereas following the A&JV trend would increase flexibility, cost and time advantages.

This study can be considered 'exploratory' because, as already mentioned, it is a starting point in the investigation of how horizontal relationships allow firms to achieve specific operations performance objectives. We achieved this result by extending the traditional decisional dimensions on vertical relationships into 'extended' dimensions of horizontal relationships. However, we have only considered the 'make/buy/make together' dimension of horizontal business relationships (M&A and A&JV) and their linkage with operations objectives. Therefore, further studies should investigate other decision dimensions related to horizontal relationships (the 'network-based structure' and the 'nature of business relationships') and their linkages to production and operations. This study lacks of a confirmatory analysis that can effectively investigate if managers actually adopt horizontal relationships and agreements to achieve operations performance objectives and, specifically, which kind of agreement (i.e. M&A vs. A&JV) they actually adopt depending on the specific operations performance objective that they wish to achieve. Unfortunately, the secondary-data analysis approach did not allow us investigate these issues any deeper. Also, further research that considers the longitudinal impact of governance mode choices on post-deal operation capabilities and performance would certainly provide more insights on the actual effectiveness of governance mode decisions. For example, there is a broad literature that investigates the impact of M&A managerial practices on deal success in terms of market and financial performance (Cusatis and Blumberg 2009; Gill 2012; Martin and Combs 2009), but very few studies in terms of operations performance.

References

Abd. Rahman, A., D. Bennett, and A. Sohal. 2009. "Transaction Attributes and Buyer–Supplier Relationships in AMT Acquisition and Implementation: The Case of Malaysia." *International Journal of Production Research* 47 (9): 2257–2278.

Barney, J. 1991. "Firm Resources and Sustained Competitive Advantage." *Journal of Management* 17 (1): 99–120.

Barney, J. B. 1997. *Gaining and Sustaining Competitive Advantage*. Reading, MA: Addison-Wesley.

Brandenburger, A. M., and B. J. Nalebuff. 1998. *Co-opetition: 1. A Revolution Mindset that Combines Competition and Cooperation. 2. The Game Theory Strategy that's Changing the Game of Business Co-opetition*. New York: Doubleday.

Cánez, L. E., K. W. Platts, and D. R. Probert. 2000. "Developing a Framework for Make-or-buy Decisions." *International Journal of Operations & Production Management* 20 (11): 1313–1330.

Chen, L. H., and C. C. Hung. 2010. "An Integrated Fuzzy Approach for the Selection of Outsourcing Manufacturing Partners in Pharmaceutical R&D." *International Journal of Production Research* 48 (24): 7483–7506.

Choi, T. Y., and D. R. Krause. 2006. "The Supply Base and Its Complexity: Implications for Transaction Costs, Risks, Responsiveness, and Innovation." *Journal of Operations Management* 24 (5): 637–652.

Choi, T. Y., L. Zhaohui Wu, B.R. Ellram, and B. Koka. 2002. "Supplier–Supplier Relationships and Their Implications for Buyer–Supplier Relationships." *IEEE Transactions on Engineering Management* 49 (2): 119–130.

Chopra, S., and P. Meindl. 2013. *Supply Chain Management: Strategy, Planning and Operation*. 5th ed. Upper Saddle River, NJ: Pearson.

CNN Money Website. http://money.cnn.com/magazines/fortune/fortune500_archive/full/2000/.

Coase, R. H. 1937. "The Nature of the Firm." *Economica* 4 (16): 386–405.

Conner, K. R., and C. K. Prahalad. 1996. "A Resource-based Theory of the Firm: Knowledge versus Opportunism." *Organization Science* 7 (5): 477–501.

Cusatis, P., and M. Blumberg. 2009. "Why Can't We Predict Merger and Acquisition Success? Ana Analysis and Preliminary Test of a New Approach." *Southern Business & Economic Journal* 32 (3/4): 79–112.

Danese, P., and R. Filippini. 2010. "Modularity and the Impact on New Product Development Time Performance: Investigating the Moderating Effects of Supplier Involvement and Interfunctional Integration." *International Journal of Operations & Production Management* 30 (11): 1191–1209.

DiMaggio, P. J., and W. W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48 (2): 147–160.

Dyer, J. H., and H. Singh. 1998. "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage." *Academy of Management Review* 23 (4): 660–679.

Ebrahim-Khanjari, N., W. Hopp, and S. M. R. Iravani. 2012. "Trust and Information Sharing in Supply Chains." *Production and Operations Management* 21 (3): 444–464.

Fey, C. F., and J. Birkinshaw. 2005. "External Sources of Knowledge, Governance Mode, and R&D Performance." *Journal of Management* 31 (4): 597–621.

Frankfort-Nachmias, C., and D. Nachmias. 1992. *Research Methods in the Social Sciences*. 4th ed. London: Edward Arnold.

Geyskens, I., J. E. M. Steenkamp, and N. Kumar. 2006. "Make, Buy, or Ally: A Transaction Cost Theory Meta-analysis." *Academy of Management Journal* 49 (3): 519–543.

Gill, C. 2012. "The Role of Leadership in Successful International Mergers and Acquisitions: Why Renault-Nissan Succeeded and DaimlerChrysler-Mitsubishi Failed." *Human Resource Management* 51 (3): 433–456.

Gimenez, C., T. van der Vaart, and D. P. van Donk. 2012. "Supply Chain Integration and Performance: The Moderating Effect of Supply Complexity." *International Journal of Operations & Production Management* 32 (5): 583–610.
Glock, C. H., and J. M. Ries. 2013. "Reducing Lead Time Risk through Multiple Sourcing: The Case of Stochastic Demand and Variable Lead Time." *International Journal of Production Research* 51 (1): 43–56.
González-Benito, J. 2010. "Supply Strategy and Business Performance: An Analysis Based on the Relative Importance Assigned to Generic Competitive Objectives." *International Journal of Operations & Production Management* 30 (8): 774–797.
Gosling, J., L. Purvis, and M. M. Naim. 2010. "Supply Chain Flexibility as a Determinant of Supplier Selection." *International Journal of Production Economics* 128 (1): 11–21.
Greenwood, R., and C. R. Hinings. 1996. "Understanding Radical Organizational Change: Bringing Together the Old and New Institutionalisms." *Academy of Management Review* 21 (4): 1022–1054.
Ha, B. C., Y. K. Park, and S. Cho. 2011. "Suppliers' Affective Trust and Trust in Competency in Buyers: Its Effect on Collaboration and Logistics Efficiency." *International Journal of Operations & Production Management* 31 (1): 56–77.
Hammer, M. 2004. "Deep Change: How Operational Innovation Can Transform Your Company." *Harvard Business Review* 82 (4): 84–93.
Harrigan, K. R. 1983. *Strategies for Vertical Integration*. Lexington, KY: Lexington Books.
Hitt, M. A., J. S. Harrison, and R. D. Ireland. 2001. *Mergers and Acquisitions: Creating Value for Stakeholders*. New York: Oxford University Press.
Hoffmann, W. H., and W. Schaper-Rinkel. 2002. "Acquire or Ally? A Strategy Framework for Deciding between Acquisition and Cooperation." *Management International Review* 41 (2): 131–159.
Howard, M., and B. Squire. 2007. "Modularization and the Impact on Supply Relationships." *International Journal of Operations & Production Management* 27 (11): 1192–1212.
Huang, G. Q., T. Qu, Y. F. Zhang, and H. D. Yang. 2012. "RFID-enabled Product-service System for Automotive Part and Accessory Manufacturing Alliances." *International Journal of Production Research* 50 (14): 3821–3840.
Jiang, B., J. A. Belohlav, and S. T. Young. 2007. "Outsourcing Impact on Manufacturing Firms' Value: Evidence from Japan." *Journal of Operations Management* 25 (4): 885–900.
Kogut, B., and U. Zander. 1992. "Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology." *Organization Science* 3 (3): 383–397.
Krause, D. R., R. B. Handfield, and B. B. Tyler. 2007. "The Relationships between Supplier Development, Commitment, Social Capital Accumulation and Performance Improvement." *Journal of Operations Management* 25 (2): 528–545.
Lai, K., T. C. E. Cheng, and A. C. L. Yeung. 2005. "Relationship Stability and Supplier Commitment to Quality." *International Journal of Production Economics* 96 (3): 397–410.
Lewis, M., A. Brandon-Jones, N. Slack, and M. Howard. 2010. "Competing through Operations and Supply: The Role of Classic and Extended Resource-based Advantage." *International Journal of Operations & Production Management* 30 (10): 1032–1058.
Li, H., and M. Amini. 2012. "A Hybrid Optimisation Approach to Configure a Supply Chain for New Product Diffusion: A Case Study of Multiple-sourcing Strategy." *International Journal of Production Research* 50 (11): 3152–3171.
Li, W., P. K. Humphreys, A. C. L. Yeung, T. C. Edwin Cheng. 2007. "The Impact of Specific Supplier Development Efforts on Buyer Competitive Advantage: An Empirical Model." *International Journal of Production Economics* 106 (1): 230–247.
Li, H.-H. J. K., Y. J. Shi, M. Gregory, and K. H. Tan. 2013. "Rapid Production Ramp-up Capability: A Collaborative Supply Network Perspective." *International Journal of Production Research*. http://dx.doi.org/10.1080/00207543.2013.858837.
Li, Y., M. Tarafdar, and S. S. Rao. 2012. "Collaborative Knowledge Management Practices: Theoretical Development and Empirical Analysis." *International Journal of Operations & Production Management* 32 (4): 398–422.
Lin, R. 2012. "An Integrated Model for Supplier Selection under a Fuzzy Situation." *International Journal of Production Economics* 138 (1): 55–61.
Liu, Y., Y. Huang, Y. Luo, and Y. Zhao. 2012. "How Does Justice Matter in Achieving Buyer–Supplier Relationship Performance?" *Journal of Operations Management* 30 (5): 355–367.
Luo, Y. D. 2002. "Contract, Cooperation, and Performance in International Joint Ventures." *Strategic Management Journal* 23 (10): 903–919.
Martin, J. A., and J. G. Combs. 2009. "Punishing Managers for Bad Acquisitions: Does Firm Size Matter?" *Academy of Management Perspectives* 23 (3): 92–93.
Mowery, D. C., J. E. Oxley, and B. S. Silverman. 1996. "Strategic Alliances and Inter-firm Knowledge Transfer." *Strategic Management Journal* 17 (Winter Special Issue): 77–91.
Nagati, H., and C. Rebolledo. 2012. "The Role of Relative Absorptive Capacity in Improving Suppliers' Operational Performance." *International Journal of Operations & Production Management* 32 (5): 611–630.
Nordin, F. 2008. "Linkages between Service Sourcing Decisions and Competitive Advantage: A Review, Propositions, and Illustrating Cases." *International Journal of Production Economics* 114 (1): 40–55.
Oliver, C. 1990. "Determinants of Interorganizational Relationships: Integration and Future Directions." *Academy of Management Review* 15 (2): 241–265.
Oosterhuis, M., T. van der Vaart, and E. Molleman. 2011. "Perceptions of Technology Uncertainty and the Consequences for Performance in Buyer–Supplier Relationships." *International Journal of Production Research* 49 (20): 6155–6173.

Paulraj, A., A. A. Lado, and I. J. Chen. 2008. "Inter-organizational Communication as a Relational Competency: Antecedents and Performance Outcomes in Collaborative Buyer–Supplier Relationships." *Journal of Operations Management* 26 (1): 45–64.
Penrose, E. 1959. *The Theory of the Growth of the Firm*. London: Basil Blackwell.
Prajogo, D., M. Chowdhury, A. C. L. Yeung, and T. C. E. Cheng. 2012. "The Relationship between Supplier Management and Firm's Operational Performance: A Multi-dimensional Perspective." *International Journal of Production Economics* 136 (1): 123–130.
van der Rhee, B., R. Verma, and G. Plaschka. 2009. "Understanding Trade-offs in the Supplier Selection Process: The Role of Flexibility, Delivery, and Value-added Services/Support." *International Journal of Production Economics* 120 (1): 30–41.
Riccobono, F., M. Bruccoleri, and G. Perrone. 2013. "Business Agreements Objectives and Decisions: A Field Research." *Management Research Review* 36 (5): 495–527.
Rosenzweig, E. D., A. V. Roth, and J. W. Dean. 2003. "The Influence of an Integration Strategy on Competitive Capabilities and Business Performance: An Exploratory Study of Consumer Products Manufacturers." *Journal of Operations Management* 21 (4): 437–456.
Rowe, W. Glenn, and J. G. Barnes. 1998. "Relationship Marketing and Sustained Competitive Advantage." *Journal of Market-Focused Management* 2 (3): 281–297.
Saghiri, S., and A. Hill. 2013. "Supplier Relationship Impacts on Postponement Strategies." *International Journal of Production Research*. http://dx.doi.org/10.1080/00207543.2013.857053.
Scott, W. R. 1995. *Institutions and Organizations*. London: Sage.
Scott, W. R., and J. W. Meyer. 1983. "The Organization of Societal Sectors." In *Organizational Environments: Ritual and Rationality*, edited by J. W. Meyer and W. R. Scott, 129–153. Beverly Hills, CA: Sage.
Şen, S., H. Başligil, C. G. Şen, and H. BaraÇli. 2008. "A Framework for Defining Both Qualitative and Quantitative Supplier Selection Criteria Considering the Buyer–Supplier Integration Strategies." *International Journal of Production Research* 46 (7): 1825–1845.
Sharafali, M., and H. C. Co. 2000. "Some Models for Understanding the Cooperation between the Supplier and the Buyer." *International Journal of Production Research* 38 (15): 3425–3449.
Slack, N., and M. Lewis. 2002. *Operations Strategy*. London: Prentice Hall.
Stevenson, M., and M. Spring. 2009. "Supply Chain Flexibility: An Inter-firm Empirical Study." *International Journal of Operations & Production Management* 29 (9): 946–971.
Stewart, D. W. 1984. *Secondary Research: Information Sources and Methods*. Beverly Hills, CA: Sage.
Stigler, G. J. 1951. "The Division of Labor is Limited by the Extent of the Market." *Journal of Political Economy* 59 (3): 185–193.
Sturgeon, T. J. 2002. "Modular Production Networks: A New American Model of Industrial Organization." *Industrial and Corporate Change* 11 (3): 451–496.
Vachon, S., A. Halley, and M. Beaulieu. 2009. "Aligning Competitive Priorities in the Supply Chain: The Role of Interactions with Suppliers." *International Journal of Operations & Production Management* 29 (4): 322–340.
Vanpoucke, E., and A. Vereecke. 2010. "The Predictive Value of Behavioural Characteristics on the Success of Strategic Alliances." *International Journal of Production Research* 48 (22): 6715–6738.
Villalonga, B., and A. M. McGahan. 2005. "The Choice among Acquisitions, Alliances, and Divestitures." *Strategic Management Journal* 26 (13): 1183–1208.
Wagner, S. 2011. "Supplier Development and the Relationship Life-cycle." *International Journal of Production Economics* 129 (2): 277–283.
White, S. 2000. "Competition, Capabilities, and the Make, Buy, or Ally Decisions of Chinese State-owned Firms." *Academy of Management Journal* 43 (3): 324–341.
Williamson, O. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.
Williamson, O. 1985. *The Economic Institutions of Capitalism*. New York: Free Press.
Wu, C., and D. Barnes. 2012. "A Dynamic Feedback Model for Partner Selection in Agile Supply Chains." *International Journal of Operations & Production Management* 32 (1): 79–103.
Wu, Z., and T. Y. Choi. 2005. "Supplier–Supplier Relationships in the Buyer–Supplier Triad: Building Theories from Eight Case Studies." *Journal of Operations Management* 24 (1): 27–52.
Wu, F., H. Z. Li, L. K. Chu, and D. Sculli. 2005. "An Outsourcing Decision Model for Sustaining Long-term Performance." *International Journal of Production Research* 43 (12): 2513–2535.
Wu, F., H. Z. Li, L. K. Chu, and D. Sculli. 2013. "Supplier Selection for Outsourcing from the Perspective of Protecting Crucial Product Knowledge." *International Journal of Production Research* 51 (5): 1508–1519.
Yang, J. 2013. "Harnessing Value in Knowledge Management for Performance in Buyer–Supplier Collaboration." *International Journal of Production Research* 51 (7): 1984–1991.
Zhang, Y., and M. Gregory. 2011. "Managing Global Network Operations along the Engineering Value Chain." *International Journal of Operations & Production Management* 31 (7): 736–764.
Zucker, L. G. 1977. "The Role of Institutionalization in Cultural Persistence." *American Sociological Review* 42 (5): 726–743.