The impact of alternative financial supply chain practices on supply risk: a relationship quality-buyer relative power perspective

ABSTRACT

The business-to-business marketing and supply chain literature both show increasing attention being paid by researchers in considering financial supply chain management (FSCM) practices as a key concept that enables firms to gain competitive advantage. Despite a large body of research on the concept of buyer-supplier relationships, however, only a limited numbers of studies have addressed the potential association between FSCM practices and business-to-business relationship consequences. The literature lacks insights into how FSCM practices can help buying firms to manage their supply-side risk. This study empirically examines the impact of financial supply chain practices on supply risk using the relationship quality-buyer relative power matrix. Based on cross-sectional survey of 256 manufacturing firms in Iran, and employing both multivariate regression and cluster analysis, we found that depending on the quality of the buyer-supplier relationship and the level of the buyer's relative power, different FSCM practices can be implemented to mitigate supply risk. Our empirical findings present important implications for both theory and practice.

The impact of alternative financial supply chain practices on supply risk: a relationship quality-buyer relative power perspective

INTRODUCTION

Over the last 30 years an extensive body of literature has evolved on buyer-supplier relationships, mostly suggesting that a close relationship with suppliers is vital for the success of firms (Carr & Kaynak, 2007; Cousins, Lawson, Petersen & Handfield, 2011; Dowlatshahi, 1999; Yang, Jiang & Xie, 2019). The focus of the literature has shifted from suppliers competing for and satisfying customers to buyers finding promising suppliers (Schiele, Calvi & Gibbert, 2012). Strategically important suppliers have access to critical resources that can offer competitive advantage to the buyers. As such, managing the business relationship between a buyer and its suppliers has never been more critical to the success of the firm.

However, buyer-supplier relationships are complex phenomena that are not always as successful as planned. Supply risk, as the potential deviations in upstream supply chain activities (Kumar, Tiwari & Babiceanu, 2010; Sreedevi & Saranga, 2017; Srinivasan, Mukherjee & Gaur, 2011), can be considered as one of the main detrimental consequences of poor synchronisation and management of buyer-supplier relationships. Supply risk can be defined as suppliers defaulting on their obligations in terms of time, quality and quantity of product, or their inability to meet customers' needs (Chen, Sohal & Prajogo, 2013). Indeed, the lack of a supplier's ability to meet buyer quality specifications, or to deliver goods or services on time and in full, is a well-documented risk, with a proven damaging influence on buyer performance and loyalty, as well as on downstream supply chain activities (Zsidisin, Panelli & Upton, 2000; Zsidisin & Smith, 2005).

One of the advanced practices highlighted in the literature to deal with supply chain disruptions (i.e. here supply risk) is the employment of "financial supply chain management" (FSCM) practices by buying firms (e.g. Dyckman, 2011; Fairchild, 2005; Wuttke, Blome & Henke, 2013). Financial supply chain management practices are defined as "as optimized planning, managing, and controlling of supply chain cash flows to facilitate efficient supply chain material flows" (Wuttke et al., 2013, p. 774). Although FSCM practices have recently experienced more attention from scholars (e.g. Liebl, Hartmann & Feisel, 2016; Silvestro & Lustrato, 2014; Wandfluh, Hofmann & Schoensleben, 2016; Wuttke et al., 2013), the B2B marketing and supply chain management literature, in general, has been dedicated mainly to studying the product and information flows, and only a limited number of studies have focused on financial supply chain related issues and their consequences (Fairchild, 2005; Gupta & Dutta, 2011; Silvestro & Lustrato, 2014).

Despite the scant attention paid to financial supply chain issues, the review of the few studies in this field shows that previous work has concentrated mostly on one specific aspect of the FSCM e.g. bank loans, reverse factoring, etc. (Blackman, Holland & Westcott, 2013). Moreover, although the importance of FSCM for buyer-supplier relationship consequences such as supply risk reduction has been highlighted previously (e.g. Dyckman, 2011;

Fairchild, 2005; Wuttke et al., 2013), no prior research empirically investigates the potential impact of FSCM practices on supply risk.

Furthermore, a review of the B2B literature presents relationship quality (RQ) as a key factor influencing the outcome of a buyer-supplier relationship. While a large body of research has focused on RQ (Emberson & Storey, 2006), only a limited numbers of studies have addressed the potential interaction between buyer-supplier relationship quality and supply risk (e.g. Caniëls & Gelderman, 2005, 2007). The creation of trust, commitment, and satisfaction (as the three main dimensions of RQ) between the parties decreases opportunism between the partners (Jap, Manolis & Weitz, 1999), and could thus be the decisive drivers for the level of supply risk associated in buyer-supplier relationship.

Similarly, the literature highlights the importance of inter-firm dependency and its influence on supply risk as perceived by the buyer (Doney & Cannon, 1997; Handfield & Bechtel, 2002). Indeed, the partners involved in dyadic relationships can experience different levels of dependency. In this study, following suggestions of previous research (e.g. Kumar, Scheer & Steenkamp, 1995), we use the term "buyer relative power" -BRP- (resulting from the subtraction of buyer dependence from supplier dependence) to represent the level of interdependency between partners. In a buyer-supplier relationship, it is likely that one of the parties dominates the other. In such a relationship, the dominant partner is more able to use its power over the other (Caniëls & Gelderman, 2007), which could be very influential for dyadic relationship outcomes such as the level of supply risk associated with buyer-supplier relationships.

Considering the buyer-supplier relationship spectrum, firms undertake different sets of actions depending on different levels of power (Nair, Narasimhan & Bendoly, 2011) and the quality of the relationship between partners (Liu, Li & Zhang, 2010). For instance, when the buyer is powerful, suppliers may need to offer strong incentives to persuade a buying firm to continue the business relationship with them. Similarly, successful supplier involvement in the buying firms' internal processes, such as new product development, is contingent on the level of relationship quality between the buyer and supplier (Walter, 2003). Based on this logic, we argue that employing financial related practices also depends on the levels of RQ and power between buyers and suppliers.

This study therefore aims to investigate the relationship between financial supply chain management practices and supply risk. We seek to address the following research question: "which financial supply chain practices can best mitigate supply risk for a buying firm?" We theorise that the potential impact of FSCM practices on supply risk is contingent on the levels of power and relationship quality (RQ) between the buyer and supplier. To address our research question, we employ a matrix structure, and classify firms in our sample into four clusters based on the level of relationship quality and the buyer relative power (representing the level of interdependency). Drawing on the RQ-BRP matrix, we therefore examine the relationship between FSCM practices and supply risk to identify key FSCM practices in each of the four clusters.

Addressing this research question can make significant contributions to the B2B marketing literature. This study, to best of our knowledge, is the first empirical research to explore the impact of different financial supply chain management practices on supply risk associated with buyer-supplier relationships. Moreover, the study presents an in-depth and systematic understanding of the relationship between FSCM practices and supply risk by employing the relationship quality-buyer relative power matrix. We empirically demonstrate that the consequence and outcome of the buyer-supplier relationship differs based on both the

variation in the levels of RQ and dependence (the level of power), and that relationship quality and buyer relative power are critical factors for understanding the interplay between FSCM practices and supply risk.

The structure of this manuscript is as follows. The following section reviews the literature on supply risk, financial supply chain management practices, buyer-supplier relationship quality, and power and interdependency, and lays the foundation for the research question to be empirically addressed. Section 3 describes the research methodology, and the research measurement, followed by the statistical analysis in Section 4. Finally, Section 5 highlights the findings, research conclusion, and theoretical and managerial implications.

THEORETICAL BACKGROUND AND LITERATURE REVIEW

Supply risk and financial supply chain management practices

In today's volatile business environment, firms are surrounded by different types of risk including supply disruptions, production and delivery delays (Sreedevi & Saranga, 2017) which together represent supply chain risk. The risk in the supply chain is defined as a "variation in the distribution of possible supply chain outcomes, their likelihood, and their subjective values" (Jüttner, Peck & Christopher, 2003, p. 204) and can be classified into three categories of demand, supply, and process risk, based on the variation in the flow of goods (Chen et al., 2013). Among the different types of risks identified in supply chain literature, supply risk is highlighted as one of the key sources of disruptions in downstream activities (Sreedevi & Saranga, 2017) which consequently can result in poor performance (Zhao, Huo, Sun & Zhao, 2013). Supply risk refers to ''the potential occurrence of an incident associated with inbound supply from individual supplier failures or the supply market (Zsidisin, 2003, p. 14). Therefore, supply risk can be defined as suppliers' defaulting on fulfilling their obligations in terms of time, quality and quantity of product, or their inability to meet customers' needs (Chen et al., 2013). The presence of supply risk can result in incomplete orders (Kumar et al., 2010; Sreedevi & Saranga, 2017) that in turn causes serious complications for a buying firm in successfully responding to market demands (Srinivasan et al., 2011). The supply risk, which is an integral part of the buyer- supplier relationship (Hoffmann, Schiele & Krabbendam, 2013; Van Poucke, Matthyssens, van Weele & Van Bockhaven, 2018) may occur in different forms such as supplier business risks, limitations of supply market production capacity, quality glitches, etc. (Zsidisin et al., 2000).

Earlier empirical studies in the pertinent literature suggest several factors to mitigate supply risks associated with the buyer-supplier relationship. For instance, from the B2B relationship perspective, close collaboration and early involvement of the supplier are highlighted as critical factors in supply risk management (e.g. Hallikas, Puumalainen, Vesterinen & Virolainen, 2005; Zsidisin & Smith, 2005). Similarly, from a strategic point of view, practises such as proactive supply management (e.g. Smeltzer & Siferd, 1998; Van Poucke et al., 2018) and supply flexibility enhancement (e.g. Sreedevi & Saranga, 2017; Tang & Tomlin, 2008) are highlighted as critical antecedents of successful supply risk management.

In general, to tackle such supply side uncertainties (i.e. supply risk), the buyer-supplier relationship and SCM literature has traditionally devoted attention to material and information flows, negotiation and contracting associated with procuring strategies (Wandfluh et al., 2016). Inspired by the adjustments of business practices in dealing with current dynamic business environment, i.e. market volatility and financial crisis (Jüttner & Maklan, 2011), recent research streams however show more interest in considering the

outcome of financial related activities in dyadic supply chain relationships (Gupta & Dutta, 2011; Silvestro & Lustrato, 2014). As a result, in the past decades, "*financial supply chain management*" practices have been proposed as vital mechanisms in managing and mitigating risks related to the supply chain (e.g. Dyckman, 2011; Fairchild, 2005; Wuttke et al., 2013). Although a limited number of previous studies have partially addressed the importance of FSCM practices in mitigating supply risk in buyer-supplier relationships, none of these studies empirically examined the potential association between FSCM practices and supply risk.

Different view of FSCM exist in the literature that can be classified mainly into either actor-based or practice-based views. From the first point of view, FSCM is considered as the network of business actors that work closely together to smooth the financial flow within the supply chain activities. For instance, Blackman, Holland, & Westcott (2013, P.133-134) defined FSCM as "the network of organisations and banks that coordinate the flow of money and financial transactions via financial processes and shared information systems in order to support and enable the flow of goods and services between trading partners in a product supply chain".

From the practice-based view, however, FSCM consists of a set of financial activities employed by actors in the supply chain that can be defined as "optimized planning, managing, and controlling of supply chain cash flows to facilitate efficient supply chain material flows" (Wuttke et al., 2013, p. 774). In fact, FSCM reflects a number of practices that deal with the management of financial processes not only within the firm's boundaries, but also when firms communicate with external actors such as suppliers and customers (Popa, 2013). Based on an extensive literature review, Wuttke et al. (2013) summarise eight real-world FSCM practices namely as Buyer credit, Inventory/work-in-progress financing, Reverse factoring, Supply chain finance, Electronic platforms, Letters of credit, Open account credit, and Bank loans for financing the supply chain.

When adopting a "*buyer credit*" strategy, a buyer firm offers term financing to finance suppliers by using methods such as advance payments or deposits (Chauffour & Malouche, 2011; Wuttke et al., 2013). In this practice, a buying firm agrees to pay in advance based on the discount opportunities promised by a supplier, which in turn enables the supplier to increase the profit margin by earning interest on this deposit (Thangam, 2012) and more importantly performing better in day-to-day operations. In "*inventory/work-in-progress financing*", the buying firm offers a loan to the supplier, that enables the financing of semi-finished products and work-in-progress (Chauffour & Farole, 2009; Wuttke et al., 2013). In buyer-supplier relationships, the inventory/work-in-progress financing practice is commonly employed by powerful buying firms and enables suppliers with low relative power to reduce their cost of capital (Gomm, 2010). The "*reverse factoring*" practice considers financial flows between buyers, suppliers, and financial third parties such as banks. In this financial agreement, the supplier receives credit from a bank and the buying firm is responsible to pay back the original loan amount. However, due to the payment terms agreed by all three parties, the supplier is committed to pay interest to the bank according to the buyer's interest rate/credit rating (Tanrisever, Cetinay, Reindorp & Fransoo, 2012; Wuttke et al., 2013). In fact, by using this financial practice, the buying firms are able to help suppliers to "finance their receivables more easily, with a better interest rate" (Silvestro & Lustrato, 2014, p. 319). "*Supply chain finance*" is considered as an automated approach that enables buyers to expand employing the reverse factoring practice from a single supplier to the entire upstream supply chain (Wuttke et al., 2013). Using this practice improves the levels of flexibility and transparency of a financial process of both the buying firms and their suppliers (Demica,

2007; Shang, Song & Zipkin, 2009). The "*Electronic platforms*" indicate the mechanisms implemented by third parties that facilitate automatic financial flows via configuring the electronic connections among buyers, suppliers, and financial institutions (Aberdeen-Group, 2007; Wuttke et al., 2013). Based on the automatic financial processes (i.e. a payment process), parties involved in this practice can benefit from high levels of payment transparency (Fairchild, 2005) as well as the smooth flow of financial information between all parties (Protopappa-Sieke & Seifert, 2010). The "*Letters of credit*" practice represents the financial agreement between buyers, suppliers, and financial institutions (e.g. banks). In this practice, a financial institution guarantees the payment that should be made by a buying firm to the supplier. By doing this, all risks associated with a buyer payment (e.g. delay in payment) are carried by the financial institution (Amiti & Weinstein, 2011; Wuttke et al., 2013), which might be considered by a supplier firm as a reliable assurance for the future buyer's payment. In the "*open account credit*" practice, buying firms benefit from the credit offered by suppliers. In this practice, "a buying firm receives credit from suppliers without formally offering securities or involving third-party security" (Wuttke et al., 2013, p. 774). Employing the open account credit practice can improve the level of trust in a buyer-supplier relationship which, in turn, facilitates the flow of information between them (Summers & Wilson, 2003). Finally, the "*bank loan for financing the supply chain*" is a common practice that buying firms benefit from short and medium-term financing offered by financial institution which facilitates firms in working capital management (Chauffour & Farole, 2009; Wuttke et al., 2013).

This study follows a practice-based view and uses the FSCM practices identified by Wuttke et al. (2013). However, considering our research aim, we focus on the subset of those FSCM practices that are both focused on a single buyer-supplier relationship and which are also commonly employed by buying firms and not by the suppliers. The logic behind the latter is that, as we want to investigate the impact of FSCM practices on supply risk, we are only interested in practices that can be employed by a buyer party in its relationship with a key supplier. In other words, FSCM practices initiated by suppliers (e.g. *open account credit*) are usually employed as an incentive for the buying firms to stay in the relationship with the supplier (Summers & Wilson, 2003), and so their presence may not influence supply risk/dependability management. Therefore, to examine the study research question, we focus on four FSCM practices that meet our conditions: 1) Buyer credit (FSCM1), 2) Inventory/work-in-progress financing (FSCM2), 3) Reverse factoring (FSCM3), and 4) Letters of credit (FSCM4).

Relationship quality-buyer relative power Matrix

In this study, we employ a relationship quality- buyer relative power matrix to shed light on the relationship between FSCM practices and supply risk (see figure 1). Several definitions of buyer-supplier *relationship quality* are highlighted in the literature. The most cited in previous studies include the appropriateness of the relationship in order to meet the customers' needs (Roberts, Varki & Brodie, 2003), development of a long-term relationship between supply chain parties to create value (Fynes, De Búrca & Marshall, 2004), and fostering a strong relationship with customers in order to convert them into loyal customers (Rauyruen & Miller, 2007). The concept of "relationship quality", in general, can be considered as the level of satisfaction of each party in their dyadic relationship. In the pertinent literature, relationship quality is mostly considered as a multidimensional construct including trust, commitment, and satisfaction (e.g. Alejandro, Souza, Boles, Ribeiro & Monteiro, 2011; Hutchinson, Wellington, Saad & Cox, 2011; Marquardt, 2013; Skarmeas,

Saridakis & Leonidou, 2018). Reviewing the B2B marketing literature highlights these three facets as the key factors in evaluating successful buyer-supplier relationships (Hewett, Money & Sharma, 2002; Ulaga & Eggert, 2006), and improving the performance, effectiveness, and productivity of such relationships (Morgan & Hunt, 1994). These RQ dimensions are also suggested to be among the factors affecting firms' opportunistic behaviour (Morgan & Hunt, 1994). In this research, we follow the mainstream B2B literature and consider relationship quality as a multidimensional construct made up of trust, commitment, and satisfaction, reflecting the strength of the relationship between buyer and supplier (Leonidou, Samiee, Aykol & Talias, 2014; Skarmeas et al., 2018). Roberts et al. (2003) have defined *trust* as the level of assurance that a business partner has in their counterpart, arguing that it leads to efficiency and effectiveness. *Commitment*, as the second dimension of RQ, enables buyer and supplier to establish and maintain a long-term relationship (Rauyruen & Miller, 2007; Walter, Müller, Helfert & Ritter, 2003), which in practice means positive attitudes towards a future relationship and investment in it (Walter et al., 2003). Finally, *satisfaction* is "a positive affective state resulting from the appraisal of all aspects of a firm's working relationship with another firm" (Anderson & Narus, 1984, p. 66) and reflects the extent to which the partner (i.e. buyer) is satisfied with its working relationship with its partner, i.e. supplier (Skarmeas, Katsikeas, Spyropoulou & Salehi-Sangari, 2008).

The second factor structuring our RQ-BRP matrix is the buyer's relative power. Ramsay (1996) defined *power* as the sense of *dependency* between buyer and supplier that is due to the relative attractiveness of each party's resources, and the availability of a substitute for the counterparty. Kim (2000) described power as the ability of firms to influence the beliefs, attitudes, and behaviour of their partners. Moreover, Bacharach and Lawler (1980, p. 65) define relative power as "the dependence of one party compared to the dependence of the other party". Similarly, Caniëls and Gelderman (2005) define power as being how much each party depends on the trading partner. The two properties of magnitude and asymmetry are discussed in the literature for the power construct (Kumar et al., 1995). While the magnitude is the sum of buyer and supplier power, the asymmetry is calculated by subtracting them (Kim, 2000). In this study, we consider the *relative power* as the representative of the level of interdependency between buyer and supplier (Caniëls & Gelderman, 2007; Ramsay, 1996) which highlights the net dependence of the one party on the other (Pfeffer & Salancik, 2003). Based on this view we measure the buying firm's relative power as "the difference between supplier's dependence and buyer's dependence" (Caniëls & Gelderman, 2007, p. 221).

Based on the nature of the interdependency and levels of relationship quality between the partners, dyadic buyer-supplier relationships can be categorized into four groups/clusters (see figure 1). In Cluster 1, the supplier is powerful (the buyer has a low level of relative power) and the quality of relationship between the two partners is high. Similarly, in Cluster 2 the supplier is powerful (supplier dominance), however, there is a low level of RQ. In contrast, in Cluster 3, while the level of RQ is still low, the buying firm has a high level of relative power (i.e. the buyer dominance). Finally, in Cluster 4, the buyer is powerful and the relationship quality level between the buyer and supplier is high. Based on this classification, the partners involved in the relationship experience different levels of power and relationship quality.

Therefore, influenced by the level of power and RQ, we argue that different financial practices might be employed by the buying firm to reduce concerns regarding the potential supply risk. In other words, varying levels of power and relationship quality can influence a buying firm to undertake different FSCM practices in each of the 4 clusters. Thus, based on the RQ-BRP matrix, we examine the impact of different FSCM practices on supply risk in the

different clusters. This empirical examination helps to identify constructive FSCM practices that can facilitate buying firms in managing and mitigating supply risk.
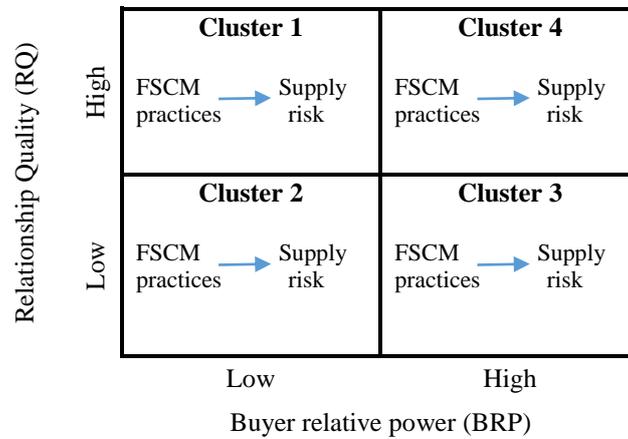

Figure 1: RQ-BRP matrix structure

METHODOLOGY

Sample and Data collection

To explore the impact of financial supply chain management practices on supply risk, this study conducted empirical research employing a questionnaire-based survey. The survey data were collected from a sample drawn from the Iranian manufacturing industry in various sectors containing high, medium-high, medium-low, and low-tech industries. Iran represents many Middle Eastern countries not only in terms of the stage of growth and development but also considering the region culture, and this population can reasonably be extended to other similar countries (Najafi-Tavani, Najafi-Tavani, Naudé, Oghazi & Zeynaloo, 2018).

An English version of our questionnaire was structured by reviewing the relevant literature on relationship quality, supplier and buyer dependence, supply risk, and financial supply chain management practices. We then carried out a consultation stage with academic colleagues to refine and improve the content and structure of our questionnaire. In the next stage, to reduce concerns about the face validity, the questionnaire was translated from English into Persian and then back translated into English by the professional translators. Moreover, before carrying out the survey, we further examined the face validity of the questionnaire by interviewing and conducting a pilot study of five supply chain managers/directors in Iran.

The research data were collected by conducting personal interviews as suggested by Hoskisson et al. (2000) for undertaking research in emerging economics such as Iran and other Middle-Eastern countries. In order to do this, we randomly selected 850 manufacturing firms from the Iranian Ministry of Industry, Mine and Commerce database (www.behinyab.ir). Then, the questionnaires were addressed to senior managers or directors in charge of supply chain management. They were asked to answer the questionnaire based on their relationship with their key supplier. In total, 256 usable responses were collected representing the acceptable response rate of 30.1%.

To limit the potential impact of non-response bias – a common bias in studies conducting a questionnaire based survey - we inspected whether non-respondent companies differ significantly from the responding companies considering the characteristics such as size and age. As the result of this comparison shows no significant differences, we conclude that non-response bias is not a major concern in this research. The firms in our sample represent an acceptable range of different high, medium-high, medium-low, and low-tech industries (OECD, 2003). The participating firms' age is between 3 and 60 years while the number of their employees ranged from 10 to 6.800.

Common method bias

In this study, data for both dependent and independent variables are collected using a single informant strategy. Therefore, utmost care was taken to reduce concern regarding common method bias (CMB) by following the suggestions of previous studies (see Podsakoff, MacKenzie & Lee, 2003). As explained earlier, we undertook a refining process involving academic scholars to avoid any unclear phrases and grammatical complications. We also tried not to categorise items in separate sections in the questionnaire to reduce the possibility of the respondents picturing the relationship among the variables. In addition, we acknowledged the anonymity of participants at the beginning of the interviews to enhance the response accuracy.

After collecting research data, we employed the confirmatory factor analysis (CFA) technique to check the existence of CMB. The CFA technique relies on the comparison of fit indices between the research model and alternative model with a different level of complexity. CMB can be serious a problem if fit indices of the two models (simpler vs. more complex) are not significantly different (Korsgaard & Roberson, 1995). To develop an alternative model, we ran a simple CFA model containing a single construct loaded by all items in the research model (X^2 = 1968.691, df = 209, NFI = 0.523, TLI = 0.450, CFI = 0.545, and RMSEA= 0.182). The comparison of the alternative model and our measurement model with X^2 = 353.745, df = 194, NFI = 0.914, TLI = 0.946, CFI = 0.959, and RMSEA= 0.057, confirms a significant difference i.e. ΔX^2 = 1614.946 with Δdf = 15, p < 0.001. This result suggests that CMB is not a major concern in our study.

Variable measurement

In this study all construct measures were based on previous relevant studies. Appendix A presents a full description of the questionnaire scales and item loadings.

The measures for *trust*, *commitment*, and *satisfaction* as the three underlining dimensions of buyer-supplier relationship quality where adapted from the study of Skarmeas et al. (2008). A four-item scale for *trust* reflects the buyer's assessment of the supplier's honesty and reliability in the relationship. A four-item scale for *commitment* reflects buyers' sense of unity and strength in their relationships with their key supplier. Moreover, a five-item scale for *satisfaction* measures the extent to which the buyer firms were satisfied with their working relationship with a key supplier. To assess all three RQ dimensions, participants used a seven-point Likert scale (from 1 = strongly disagree to 7 = strongly agree) to respond the related items.

To measure *buyer dependence* and *supplier dependence*, a six-item scale were adapted from Kumar et al. (1995) using a similar seven-point Likert-type measurement scale. A three-item scale for *supplier dependence* measures the supplier's difficulty to replace the sales and

profits stem from the existing customer. On the other hand, a three-item scale *buyer dependence* measures the buyers' level of dependence by assessing their ability to replace the key supplier with alternative sources.

To measure *supply risk*, six-item scale was adopted from the study of Chen et al. (2013) and reflects the variance of supply in terms of volume, quality, lead-time as well as overall assessment of risk in the comparison to buyers' expected value from the key supplier. A seven-point Likert scoring format (1= strongly disagree to 7 = strongly agree) was used to assess the buyers' perception of supply risk.

The FSCM practices represent the four types of practices employed by buying firms in the relationship with their key supplier (Buyer credit, Inventory/work-in-progress financing, Reverse factoring, and Letters of credit). We adapted the FSCM practices from the study of Wuttke et al. (2013), and first asked respondents to specify which one of the four FSCM practices they employed in their relationship with a key supplier (note that they tend to be mutually exclusive – the use of one of the practices makes it extremely difficult to adopt one of the other practices at the same time). They were then asked to evaluate the extent to which they employed FSCM practice using seven-point Likert scale range from 1 = very rare to 7= very frequent. Finally, we also considered firm size (the number of employees) and firm age as control variables in our research model.

ANALYSIS AND RESULTS

Reliability, validity, and descriptive statistics

Confirmatory factor analysis (CFA) was employed using AMOS 25 to refine the research measurements for all research constructs apart from financial supply chain practices, which are treated as four single variables in the model. Item loadings of less than the cut of point 0.7 were removed to improve the fit indices. The fit indices verified the model to fit the data quite well with X^2 = 353.745, *df* = 194, NFI = 0.914, TLI = 0.946, CFI = 0.959, and RMSEA= 0.057. Table 1 shows the mean, standard deviation, factor loadings, composite reliabilities (CRs), average variances extracted (AVE), and Cronbach's alpha for each multi-item construct. Considering the figures in table 1, all composite reliability and average variances are higher than the minimum threshold of 0.7 and 0.5 respectively. In addition, item loadings for each research items are higher than the accepted level of 0.7 and significant at the 0.01, suggesting convergent validity (Bagozzi, Yi & Phillips, 1991).

Table 1: Summary Statistics of the measurement analysis

Latent Variables	Mean	SD	Cronbach's alpha	Item Loadings*	CR	AVE
Trust	4.235	1.449	0.885	0.75-0.86	0.885	0.659
Commitment	4.384	1.472	0.880	0.78-0.90	0.882	0.714
Satisfaction	4.409	1.499	0.920	0.86-0.92	0.920	0.793
Supplier dependence	4.276	1.587	0.798	0.70-0.82	0.814	0.594
Buyer dependence	3.840	1.416	0.839	0.72-0.86	0.842	0.641
Supply risk	4.023	1.498	0.914	0.73-0.86	0.915	0.644
FSCM1	1.949	2.587	NA	NA	NA	NA
FSCM2	0.469	1.460	NA	NA	NA	NA
FSCM3	0.444	1.510	NA	NA	NA	NA
FSCM4	0.818	1.843	NA	NA	NA	NA

Firm's Size	2.088	0.688	NA	NA	NA	NA
Firm's age	1.172	0.367	NA	NA	NA	NA

Note:* item loadings after deleting values < 0.7. SD: standard deviation. The natural logarithm value was considered for both control variables instead of the original value.

We also evaluated discriminant validity by comparing the square root of the AVEs and the inter-construct correlation estimates. As can be seen in Table 2, for all constructs, the square root of the AVEs are higher than the respected construct correlations, representing discriminant validity (Fornell & Larcker, 1981).

Table 2: Inter-construct correlation estimates and square root of the AVEs.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Trust	**<u>0.812</u>**											
(2) Commitment	0.767**	**<u>0.845</u>**										
(3) Satisfaction	0.814**	0.843**	**<u>0.891</u>**									
(4) Supplier Dependence	-0.228**	-0.256**	-0.226**	**<u>0.771</u>**								
(5) Buyer Dependence	0.061	0.042	0.086	0.145*	**<u>0.801</u>**							
(6) Supply Risk	-0.073	-0.082	-0.081	0.290**	-0.004	**<u>0.802</u>**						
(7) FSCM1	0.062	0.094	0.082	-0.066	-0.149*	0.007	**<u>NA</u>**					
(8) FSCM2	-0.033	0.047	0.017	0.047	-0.015	-0.051	-0.243**	**<u>NA</u>**				
(9) FSCM3	0.139*	0.127*	0.108	-0.066	0.040	-0.244**	-0.200**	-0.036	**<u>NA</u>**			
(10) FSCM4	-0.079	-0.138*	-0.093	0.065	-0.044	-0.005	-0.229**	-0.144*	-0.130*	**<u>NA</u>**		
(11) Firm's Size	0.055	0.055	0.120	-0.214**	0.000	-0.173**	-0.099	-0.043	0.099	0.056	**<u>NA</u>**	
(12) Firm's Age	0.109	0.129	0.186**	-0.088	-0.023	-0.060	-0.086	0.015	0.010	-0.024	0.435**	**<u>NA</u>**

Notes: The bold, underlined figures on the diagonal are the square root of the AVEs. ∗ p < 0.05; ∗∗ p < 0.01.

Cluster Analysis

We employed cluster analysis, commonly used as an appropriate method for analysing matrix structures (Hair, Black, Babin & Anderson, 2010), to classify the study sample. Buyer-supplier dependency and relationship quality are used as cluster variables to form the matrix structure. It should be noted that prior to conducting the cluster analysis, we calculated the asymmetry of buyer-supplier dependency named "buyer relative power" (BRP) by subtracting buyer dependence from supplier dependence (i.e. BRP = supplier dependence – buyer dependence). We first utilized a hierarchical cluster analysis to find the number of clusters appropriate for our analysis. As recommended by Lehmann (1989) the number of clusters should be between (n/30) and (n/60), whereas *n* represents the sample size. Thus, following the suggestion of Lehmann (1979) and considering our sample size, 256 firms, the suitable number of clusters for this study should be between four to nine clusters. As Table 3 shows, the agglomeration coefficient increases significantly when moving from stage 252 to 253 (from 4.706 to 8.083). More importantly, the movement between stages 252 to 253 presents the largest increases in heterogeneity (71.763%). Thus, these results indicate that four clusters are sufficient to describe our sample, supporting our theoretical framework.

Table 3: Agglomeration Schedule

Stage	Coefficient	Number of clusters after combining	Differences	Percent Change in Heterogeneity
251	04.612	5	0.094	02.032
252	04.706	4	3.337	71.763
253	08.083	3	2.388	29.539
254	10.470	2	4.449	42.493
255	14.919	1		

In the next step, K-means cluster analysis was carried out to generate four clusters. It should be noted that we used K-means clustering, as it is among the most common methods of clustering used in previous studies (Kodinariya & Makwana, 2013). K-means cluster analysis is "an example of a non-hierarchical method that starts with a predefined number of clusters and cluster centres. The method then clusters all the cases that fall within a set distance of each of the defined group centres" (Tai & Ho, 2010, p. 1392).

Figure 2 presents the classified samples based on the levels of buyer relative power and relationship quality in the four clusters. We employed the ANOVA test to assess the differences between the four clusters. The F-values show that the four clusters differ significantly from each other considering relationship quality and buyer relative power as cluster dimensions (107.877 and 324.213 respectively, $p < 0.001$). Cluster 1 with 58 members represents high levels of relationship quality and low levels of buyer relative power (supplier dominance with high RQ). The second cluster (cluster 2) containing 63 members demonstrates low levels of both RQ and buyer relative power (supplier dominance with low RQ). Cluster 3 with 59 members shows low levels of RQ and high levels of buyer relative power (buyer dominance with low RQ). Finally, Cluster 4, representing 76 members, depicts high levels of both RQ and buyer relative power (Buyer dominance).

		Low	High
Relationship Quality (RQ)	High	Cluster 1 n = 58 centre: RQ = 5.22 & BRP = -1.83	Cluster 4 n = 76 centre: RQ = 5.38 & BRP = 0.89
	Low	Cluster 2 n = 63 centre: RQ = 3.32 & BRP = -0.51	Cluster 3 n = 59 centre: RQ = 3.19 & BRP = 3.08
		Low	High

Buyer relative power (BRP)

Figure 2- Matrix Structure, relationship quality and buyer relative power

Regression Analysis

To examine the relationship between financial supply chain practices and supply risk, we conducted hierarchical regression in each of the four clusters. Table 4 presents the results of the regression analysis. Model 1 contains the control variables, firm's size and age. The natural logarithm value was given to each control instead of the original value to reduce concerns regarding the problem of skewness. In the next step, financial supply chain practices (i.e. FSCM1: Buyer credit, FSCM2: Inventory/work-in-progress financing, FSCM3: Reverse factoring, and FSCM4: Letters of credit) were entered in model 2.

As shown in Table 4, the F-values for the incremental R^2 values achieve a 0.05 level of statistical significance in all clusters except cluster 2. Furthermore, considering Model 1 in all four clusters, only one of the control variables, firm's size, was significant in cluster 3.

Considering model 2, in Cluster 1, while FSCM1 and FSCM3 show negative and significant effects on supply risk (β = -0.38 and -0.34, respectively; $p < 0.05$), FSCM 2 and FSCM4 are not significantly related to the supply risk (β = 0.16 and 0.09, respectively; $p > 0.05$). In Cluster 2, however, the coefficient estimate for all four FSCM practices did not reach statistical significance. This statistical result indicates that no FSCM practices in Cluster 2 can facilitate firms in reducing supply related risks. In Cluster 3, while FSCM1 does not show a significant relationship with supply risk (β = 0.09, $p > 0.05$), FSCM 2 (β = -0.31, $p < 0.05$), FSCM3 (β = -0.37, $p < 0.01$), and FSCM4 (β = -0.30, $p < 0.05$) are found to have negative and significant impact on supply risk. Finally, in Cluster 4, FSCM1, FSCM2, and FSCM3 show negative and significant association with supply risk (β = -0.35, -0.30 and -0.37, respectively; $p < 0.05$). However, the coefficient estimate for FSCM4 (β = -0.02, $p > 0.05$) was not significant in this cluster.

Table 4: Regression Analysis

	Cluster 1		Cluster 2		Cluster 3		Cluster 4	
Variable	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Size	0.03	0.20	0.02	-0.02	-0.42	-0.27	-0.16	-0.15
	(0.19)	(1.24)	(0.09)	(-0.11)	(-2.92)**	(-1.99)*	(-1.01)	(-1.09)
Age	-0.33	-0.42	-0.01	-0.02	0.21	0.16	0.11	-0.01
	(-1.93)	(-2.60)*	(-0.07)	(-0.12)	(1.43)	(1.30)	(0.75)	(-0.06)
FSCM1		-0.38		0.16		0.09		-0.35
		(-2.36)*		(0.94)		(0.62)		(-2.51)*
FSCM2		0.16		0.11		-0.31		-0.30
		(1.09)		(0.68)		(-2.42)*		(-2.24)*
FSCM3		-0.34		0.12		-0.37		-0.37
		(-2.20)*		(0.73)		(-3.00)**		(-2.64)*
FSCM4		0.09		0.02		-0.30		-0.02
		(0.61)		(0.09)		(-2.10)*		(-0.14)
R^2	0.10	0.34	0.00	0.04	0.15	0.42	0.02	0.24
Adj-R²	0.06	0.23	-0.04	-0.10	0.11	0.34	-0.02	0.15
F-Value	2.23	3.10*	0.01	0.26	4.28*	5.45***	0.56	2.56*

*** *, p<0.001; ** , p<0.01, * , p<0.05; T-values are in parentheses*

As a post-hoc analysis, we also conducted an additional regression test considering the whole sample (Table 5). The F-value for the incremental R^2 was significant at a 0.01 level in model 2. Moreover, the coefficient estimate for the control variable, firm's size, was statistically significant ($\beta = -0.16$, $p < 0.05$). As can be seen in model 2, only FSCM3 is found to have a negative and significant effect on supply risk ($\beta = -0.26$, $p < 0.001$) while the coefficient estimates for FSCM1, 2, and 4 did not attain the statistical significance ($\beta = -0.10$, -0.10, and -0.07 respectively; $p > 0.05$). This result statistically demonstrates the importance of employing the relationship quality-buyer relative power perspective in examining the impact of different FSCM practices on supply risk.

Table 5, Regression analysis, considering whole sample

Variable	Model 1	Model 2
Size	-0.18 (-2.34)*	-0.16 (-2.08)*
Age	0.02 (0.24)	0.00 (0.04)
FSCM1		-0.10 (-1.33)
FSCM2		-0.10 (-1.40)
FSCM3		-0.26 (-3.65)***
FSCM4		-0.07 (-0.93)
R^2	0.03	0.10
Adj-R^2	0.02	0.70
F-Value	3.11*	3.46**

*** , p<0.001; **, p<0.01, *, p<0.05; T-values are in parentheses.*

DISCUSSION AND IMPLICATIONS

Theoretical discussion and implications

Previous research in the context of business-to-business relationships and supply chain management highlight the potential key role of financial supply chain management practices in improving relationship related outcomes such as a buyer-supplier integration (Silvestro & Lustrato, 2014), supply chain decisions (Kouvelis & Zhao, 2017), and supply disruption risk (Wuttke et al., 2013). However, a review of the pertinent literature to date identifies no empirical studies that investigate the impact of FSCM practices on supply risk. To address this gap in the literature, we examine the effect of buyer side's financial supply chain management practices on supply risk in different clusters of the relationship quality-buyer relative power matrix, employing a sample of Iranian manufacturing firms. Using the RQ-BRP matrix structure enabled us to empirically shed light on FSCM practices that can be effective in managing supply related risk for buying firms, depending on the levels of quality of their relationship with key suppliers, as well as levels of relative power between the partners. Figure 3 highlights the influential FSCM practices that can assist firms to reduce supply risk in different clusters of the RQ-BRP matrix.

	Low	High
High	**Cluster 1** FSCM1 FSCM3	**Cluster 4** FSCM1 FSCM2 FSCM3
Low	**Cluster 2**	**Cluster 3** FSCM2 FSCM3 FSCM4

Relationship Quality (RQ) — vertical axis

Low — High : Buyer relative power (BRP)

Figure 3- Key FSCM practices in managing supply risk

As can be seen in Figure 3, different FSCM practises can cause risk reduction in all clusters except Cluster 2, in which no significant association exists between FSCM practices and supply risk. The absence of influential practises in Cluster 2 is an interesting finding especially considering the characteristics of this cluster (i.e. high levels of supplier power and low levels of the relationship quality between partners). In this situation, employing financially related practices may not reduce the risk associated with the supply side as a supplier may act opportunistically. The opportunistic behaviour can sabotage the relationship (Narasimhan, Narayanan & Srinivasan, 2013) and may result in poor supplier performance (Aron, Clemons & Reddi, 2005).

Considering the other three clusters, reverse factoring (FSCM3) is a common practice that can facilitate firms in reducing supply risk. Furthermore, supply risk can be managed effectively by employing the buyer credit (FSCM1) as a common practice in Cluster 1 and 4 where the quality of the relationship is high between buyers and suppliers. Similarly, the inventory/work-in-progress financing (FSCM2) is also a common practice in reducing supply risk where a buying firm is powerful (Cluster 3 and 4). Moreover, considering Cluster 3, where a powerful buyer has a poor relationship with its key supplier, adopting the letters of credit practice (FSCM4) can also result in supply risk reduction.

The results provide evidence that financial supply chain practices can help firms in managing supply risk. Furthermore, while there is no single recipe for supply risk reduction regarding FSCM practices, depending on the levels of RQ and buyer relative power, a buying firm is able to consider different financial related practices in dealing with a key supplier. In addition, our post-hoc analysis reveals that only the single practice of reverse factoring, FSCM3, enables supply risk reduction without considering the contingent roles the levels of RQ and buyer relative power. This finding further supports our original argument in employing the RQ-BRP matrix in studying the relationship between FSCM practices and supply risk.

By shedding light on the research question as to which financial supply chain practices can best mitigate supply risk for a buying firm, the contributions of this study to the current literature on B2B marketing and supply chain management are twofold:

Our study, to best of our knowledge, is the first to empirically explore the impact of different FSCM practices on buyer-supplier relationship consequences such as supply risk. The

importance of financial interaction/and flow in buyer-supplier relationships was identified from the pertinent literature. In fact, the importance of financial flow stands equal to the material flow in managing the successful relationship with a firm's partner (Fairchild, 2005; Silvestro & Lustrato, 2014). While previous research has focused mostly on the material flow and in few cases on information flow, the finding of our study addresses this gap by suggesting influential financially related practices that can further enhance the relationship between a buying firm and its supplier. In particular, our empirical findings can complement the previously highlighted strategies and mechanisms in B2B relationships, which mostly focused on material and information flow, such as supplier involvement (Najafi-Tavani, Sharifi & Ismail, 2014) and joint ERP system (Kelle & Akbulut, 2005) in successfully managing a buyer-supplier relationship.

Furthermore, our exploratory study contributes to the current literature on B2B marketing by using the RQ-BRP matrix. This innovative approach empirically supports the contingent influences of the relationship quality and buyer relative power on the association between FSCM practices and supply risk. Using the RQ-BRP matrix enabled us to identify the effective FSCM practices that can facilitate buying firms in managing the supply risks. This finding magnifies the importance of the levels of relationship quality and buyer relative power between partners in investigating the antecedents and consequences of buyer-supplier relationship, suggesting the RQ-BRP matrix as an innovative theoretical perspective in the B2B field.

Managerial Implications

This study also suggests important implications for managerial practice. Since financial flow is an inevitable part of any business relationship, firms must choose effective financially related practices in dealing with their suppliers. A selection of appropriate financial supply chain practices, in turn, can facilitate firms in managing their relationships with suppliers more effectively. To choose an appropriate financially related practice, it is vital for managers to understand the nature of their buyer-supplier relationship in terms of two main characteristics namely as the relationship quality (Casidy & Nyadzayo, 2017; Naudé & Buttle, 2000) and buyer-supplier dependency (Kim, 2000; Kumar et al., 1995).

Employing the relationship quality- buyer relative power matrix structure, this study offers an applicable guideline to help managers of manufacturing firms (particularly Middle Eastern) to employ effective financially related practices to deal with their key suppliers in ways that are harmonised with the business relationship characteristics. In particular, our findings have a clear message for managers that different FSCM practices can be used in the relationship with a key supplier with the aim of managing supply risks associated with that relationship. Managers should, however, consider the levels of relationship quality and buyer relative power as the two main criteria to select the right FSCM practices to deal with their key suppliers.

Limitations and future research

While our findings offer new insights into buyer-supplier relationships, like other studies, it is subject to some limitations and shortcomings that need to be considered in future research. First, since our study was focused on a sample of Iranian manufacturing firms, the generalisability of our findings needs further validation. Therefore, extending the study to other contexts can be considered as one of the main areas for future research. Second, we collected data for both dependent and independent variables using a single-informant

strategy. Despite utmost care having been taken to reduce concerns regarding the common method bias, the collection of data from different sources (i.e. inside and outside of a firm boundary) can be targeted in future studies. Next, our study investigates the consequences of FSCM practices in terms of supply risk. However, financially related practices can influence other relationship outcomes (i.e. performance), which scholars can address this issue in their future studies. Similarly, we discussed the contingent effect of the relationship quality and buyer relative power on the association between FSCM practices and supply risk. Future research can investigate the potential roles of other business relationship characteristics (e.g. relationship length, relationship types) on the linkage between financially related practices and business relationship outcomes. Finally, our study focuses on the relationship of a buying firm with its key supplier. As firms deal with a network of suppliers, future studies can examine FSCM practices and their consequences in a wider context considering a network structure for the supply base of buying firms.

Questionnaire items and factor loadings

Variable	Item	Loading
Trust	Supplier's honesty about problems that might arise (e.g. shipment delay)	0.750
	Feeling that the supplier has been on our side	0.827
	Supplier's not making false claims	0.803
	Supplier's reliability of promises	0.863
Commitment	Supplier being a very important ally of our business	0.777
	Lacking a strong business link with the supplier ®	-
	Existence of a high sense of unity exists between this supplier and us*	0.853
	Development of a close business relationship with this supplier	0.900
Satisfaction	In general, we are satisfied with our dealings with this supplier	0.921
	We would discontinue working with this supplier if we could* ®	-
	This supplier is a good company to do business with	0.862
	If we had to do it over again, we would not do business with this supplier ®	0.887
	On the whole, we are satisfied with the products and services we get from this supplier*	-
Supplier Dependency	In our trade area, there are other firms that could provide the supplier with comparable offerings ®	0.703
	In our trade area, the supplier would incur minimal costs in replacing our firm with another ®	0.822
	It would be difficult for the supplier to replace the sales and profits our firm generates	0.782
Buyer Dependency	There are other suppliers who could provide us with comparable product and service ®	0.718
	Our total costs of switching to a competing suppliers would be prohibitive	0.857
	It would be difficult for our firm to replace the sales and profits generated from this supplier	0.821
Supply Risk	This supplier meets our quality specification requirement on a consistent basis ®	0.749
	This supplier meet our required delivery lead times on a consistent basis ®	0.795
	This supplier meet our volume requirement on a consistent basis ®	0.839
	This supplier consistently meet our overall requirement ®	0.832
	This supplier always deliver our orders as promised ®	0.859
	This supplier have the capacity to meet our requirement ®	0.734
Financial supply chain practices	Buyer credit: Your firm offers term financing to finance this supplier by using methods such as advance payments or deposits	n/a
	Inventory/work-in-progress financing: Your firm provides loan to this supplier to finance work in progress	n/a
	Reverse factoring: This supplier obtains a credit from a bank and pays the interest according to your firm's interest rate and your firm pays the loan principal to payment terms	n/a
	Letters of credit: A financial institution provides guarantee to this supplier by replacing your firm's risk with its own default risk	n/a

Notes:*, Deleted based on loadings; ® Reverse-coded items

REFERENCE

Aberdeen-Group. (2007). *The 2008 state of the market in supply chain finance*. Boston: Aberdeen Group.

Alejandro, T. B., Souza, D. V., Boles, J. S., Ribeiro, Á. H. P., & Monteiro, P. R. R. (2011). The outcome of company and account manager relationship quality on loyalty, relationship value and performance. *Industrial Marketing Management, 40*(1), 36-43.

Amiti, M., & Weinstein, D. E. (2011). Exports and financial shocks. *The Quarterly Journal of Economics, 126*(4), 1841-1877.

Anderson, J. C., & Narus, J. A. (1984). A model of the distributor's perspective of distributor-manufacturer working relationships. *Journal of marketing, 48*(4), 62-74.

Aron, R., Clemons, E. K., & Reddi, S. (2005). Just right outsourcing: understanding and managing risk. *Journal of management information systems, 22*(2), 37-55.

Bacharach, S. B., & Lawler, E. J. (1980). *Power and politics in organizations*: Jossey-Bass Inc Pub.

Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly, 36*(3), 421–458.

Blackman, I. D., Holland, C. P., & Westcott, T. (2013). Motorola's global financial supply chain strategy. *Supply Chain Management: An International Journal, 18*(2), 132-147.

Caniëls, M. C., & Gelderman, C. J. (2005). Purchasing strategies in the Kraljic matrix—A power and dependence perspective. *Journal of purchasing and supply management, 11*(2-3), 141-155.

Caniëls, M. C., & Gelderman, C. J. (2007). Power and interdependence in buyer supplier relationships: A purchasing portfolio approach. *Industrial Marketing Management, 36*(2), 219-229.

Carr, A. S., & Kaynak, H. (2007). Communication methods, information sharing, supplier development and performance: an empirical study of their relationships. *International Journal of Operations and Production Management, 27*(4), 346-370.

Casidy, R., & Nyadzayo, M. (2017). Drivers and outcomes of relationship quality with professional service firms: An SME owner-manager perspective. *Industrial Marketing Management*.

Chauffour, J.-P., & Farole, T. (2009). *Trade finance in crisis: market adjustment or market failure?* : The World Bank.

Chauffour, J.-P., & Malouche, M. (2011). *Trade Finance during the great trade collapse*. Washington, D.C.: World Bank.

Chen, J., Sohal, A. S., & Prajogo, D. I. (2013). Supply chain operational risk mitigation: a collaborative approach. *International Journal of Production Research, 51*(7), 2186-2199.

Cousins, P. D., Lawson, B., Petersen, K. J., & Handfield, R. B. (2011). Breakthrough Scanning, Supplier Knowledge Exchange, and New Product Development Performance. *Journal of Product Innovation Management, 28*(6), 930-942.

Demica, S. S. (2007). The growing role of supply chain finance in a changing world. *Demica Report Series*.

Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer–seller relationships. *Journal of marketing, 61*(2), 35-51.

Dowlatshahi, S. (1999). Early supplier involvement: Theory versus practice. *International Journal of Production Research, 37*(18), 4119-4139.

Dyckman, B. (2011). Supply chain finance: Risk mitigation and revenue growth. *Journal of corporate treasury management, 4*(2).

Emberson, C., & Storey, J. (2006). Buyer–supplier collaborative relationships: Beyond the normative accounts. *Journal of Purchasing and Supply Management, 12*(5), 236-245.

Fairchild, A. (2005). Intelligent matching: integrating efficiencies in the financial supply chain. *Supply Chain Management: An International Journal, 10*(4), 244-248.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement errors. *Journal of Marketing Research, 18*(1), 39–50.

Fynes, B., De Búrca, S., & Marshall, D. (2004). Environmental uncertainty, supply chain relationship quality and performance. *Journal of Purchasing and Supply Management, 10*(4-5), 179-190.

Gomm, M. L. (2010). Supply chain finance: applying finance theory to supply chain management to enhance finance in supply chains. *International Journal of Logistics: Research and Applications, 13*(2), 133-142.

Gupta, S., & Dutta, K. (2011). Modeling of financial supply chain. *European journal of operational research, 211*(1), 47-56.

Hair, F. J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective*. New Jersey: Pearson Education.

Hallikas, J., Puumalainen, K., Vesterinen, T., & Virolainen, V.-M. (2005). Risk-based classification of supplier relationships. *Journal of Purchasing and Supply Management, 11*(2-3), 72-82.

Handfield, R. B., & Bechtel, C. (2002). The role of trust and relationship structure in improving supply chain responsiveness. *Industrial Marketing Management, 31*(4), 367-382.

Hewett, K., Money, R. B., & Sharma, S. (2002). An exploration of the moderating role of buyer corporate culture in industrial buyer-seller relationships. *Journal of the Academy of marketing Science, 30*(3), 229-239.

Hoffmann, P., Schiele, H., & Krabbendam, K. (2013). Uncertainty, supply risk management and their impact on performance. *Journal of purchasing and supply management, 19*(3), 199-211.

Hoskisson, R. E., Lorraine, E., Chung, M. L., & Wright, M. (2000). Strategy in Emerging Economies *Academy of Management Journal, 43*(3), 249-267.

Hutchinson, D., Wellington, W. J., Saad, M., & Cox, P. (2011). Refining value-based differentiation in business relationships: A study of the higher order relationship building blocks that influence behavioural intentions. *Industrial Marketing Management, 40*(3), 465-478.

Jap, S. D., Manolis, C., & Weitz, B. A. (1999). Relationship quality and buyer–seller interactions in channels of distribution. *Journal of business research, 46*(3), 303-313.

Jüttner, U., & Maklan, S. (2011). Supply chain resilience in the global financial crisis: an empirical study. *Supply Chain Management: An International Journal, 16*(4), 246-259.

Jüttner, U., Peck, H., & Christopher, M. (2003). Supply chain risk management: outlining an agenda for future research. *International Journal of Logistics: Research and Applications, 6*(4), 197-210.

Kelle, P., & Akbulut, A. (2005). The role of ERP tools in supply chain information sharing, cooperation, and cost optimization. *International Journal of Production Economics, 93*, 41-52.

Kim, K. (2000). On interfirm power, channel climate, and solidarity in industrial distributor-supplier dyads. *Journal of the Academy of Marketing Science, 28*(3), 388.

Kodinariya, T. M., & Makwana, P. R. (2013). Review on determining number of Cluster in K-Means Clustering. *International Journal, 1*(6), 90-95.

Korsgaard, M. A., & Roberson, L. (1995). Procedural Justice in Performance Evaluation: The Role of Instrumental and Noninstrumental Voice in Performance Appraisal Discussions. *Journal of Management, 21*(4), 657-669.

Kouvelis, P., & Zhao, W. (2017). Who should finance the supply chain? Impact of credit ratings on supply chain decisions. *Manufacturing & Service Operations Management, 20*(1), 19-35.

Kumar, N., Scheer, L. K., & Steenkamp, J.-B. E. (1995). The effects of perceived interdependence on dealer attitudes. *Journal of marketing research, 32*(3), 348-356.

Kumar, S. K., Tiwari, M., & Babiceanu, R. F. (2010). Minimisation of supply chain cost with embedded risk using computational intelligence approaches. *International Journal of Production Research, 48*(13), 3717-3739.

Lehmann, D. R. (1989). *Market research and analysis* (Vol. 3): Irwin Homewood, IL.

Leonidou, L. C., Samiee, S., Aykol, B., & Talias, M. A. (2014). Antecedents and outcomes of exporter–importer relationship quality: synthesis, meta-analysis, and directions for further research. *Journal of international marketing, 22*(2), 21-46.

Liebl, J., Hartmann, E., & Feisel, E. (2016). Reverse factoring in the supply chain: objectives, antecedents and implementation barriers. *International Journal of Physical Distribution & Logistics Management, 46*(4), 393-413.

Liu, Y., Li, Y., & Zhang, L. (2010). Control mechanisms across a buyer–supplier relationship quality matrix. *Journal of Business Research, 63*(1), 3-12.

Marquardt, A. J. (2013). Relationship quality as a resource to build industrial brand equity when products are uncertain and future-based. *Industrial Marketing Management, 42*(8), 1386-1397.

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of marketing, 58*(3), 20-38.

Nair, A., Narasimhan, R., & Bendoly, E. (2011). Coopetitive buyer–supplier relationship: an investigation of bargaining power, relational context, and investment strategies. *Decision Sciences, 42*(1), 93-127.

Najafi-Tavani, S., Najafi-Tavani, Z., Naudé, P., Oghazi, P., & Zeynaloo, E. (2018). How collaborative innovation networks affect new product performance: Product innovation capability, process innovation capability, and absorptive capacity. *Industrial marketing management, 73*, 193-205.

Najafi-Tavani, S., Sharifi, H., & Ismail, H. S. (2014). A study of contingency relationships between supplier involvement, absorptive capacity and agile product innovation. *international Journal of Operations and Production Management, 34*(1), 65-92.

Narasimhan, R., Narayanan, S., & Srinivasan, R. (2013). An investigation of justice in supply chain relationships and their performance impact. *Journal of Operations Management, 31*(5), 236-247.

Naudé, P., & Buttle, F. (2000). Assessing relationship quality. *Industrial marketing management, 29*(4), 351-361.

OECD. (2003). *OECD science, technology and industry scoreboard*. Paris: OECD Publishing.

Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective*: Stanford University Press.

Podsakoff, P. M., MacKenzie, S. B., & Lee, J. Y. (2003). Common method biases in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology 88*(5), 879-903.

Popa, V. (2013). The financial supply chain management: a new solution for supply chain resilience. *Amfiteatru Economic Journal, 15*(33), 140-153.

Protopappa-Sieke, M., & Seifert, R. W. (2010). Interrelating operational and financial performance measurements in inventory control. *European Journal of Operational Research, 204*(3), 439-448.

Ramsay, J. (1996). Power measurement. *European Journal of Purchasing & Supply Management, 2*(2-3), 129-143.

Rauyruen, P., & Miller, K. E. (2007). Relationship quality as a predictor of B2B customer loyalty. *Journal of business research, 60*(1), 21-31.

Roberts, K., Varki, S., & Brodie, R. (2003). Measuring the quality of relationships in consumer services: an empirical study. *European Journal of marketing, 37*(1/2), 169-196.

Schiele, H., Calvi, R., & Gibbert, M. (2012). Customer attractiveness, supplier satisfaction and preferred customer status: Introduction, definitions and an overarching framework. *Industrial Marketing Management, 41*(8), 1178-1185.

Shang, K. H., Song, J.-S., & Zipkin, P. H. (2009). Coordination mechanisms in decentralized serial inventory systems with batch ordering. *Management Science, 55*(4), 685-695.

Silvestro, R., & Lustrato, P. (2014). Integrating financial and physical supply chains: the role of banks in enabling supply chain integration. *International journal of operations & production management, 34*(3), 298-324.

Skarmeas, D., Katsikeas, C. S., Spyropoulou, S., & Salehi-Sangari, E. (2008). Market and supplier characteristics driving distributor relationship quality in international marketing channels of industrial products. *Industrial Marketing Management, 37*(1), 23-36.

Skarmeas, D., Saridakis, C., & Leonidou, C. N. (2018). Examining relationship value in cross-border business relationships: A comparison between correlational and configurational approaches. *Journal of Business Research, 89*, 280-286.

Smeltzer, L. R., & Siferd, S. P. (1998). Proactive supply management: the management of risk. *International Journal of Purchasing and Materials Management, 34*(4), 38-45.

Sreedevi, R., & Saranga, H. (2017). Uncertainty and supply chain risk: The moderating role of supply chain flexibility in risk mitigation. *International Journal of Production Economics, 193*, 332-342.

Srinivasan, M., Mukherjee, D., & Gaur, A. S. (2011). Buyer–supplier partnership quality and supply chain performance: Moderating role of risks, and environmental uncertainty. *European Management Journal, 29*(4), 260-271.

Summers, B., & Wilson, N. (2003). Trade credit and customer relationships. *Managerial and Decision Economics, 24*(6-7), 439-455.

Tai, Y.-M., & Ho, C.-F. (2010). Effects of information sharing on customer relationship intention. *Industrial Management & Data Systems, 110*(9), 1385-1401.

Tang, C., & Tomlin, B. (2008). The power of flexibility for mitigating supply chain risks. *International journal of production economics, 116*(1), 12-27.

Tanrisever, F., Cetinay, H., Reindorp, M., & Fransoo, J. (2012). Value of reverse factoring in multi-stage supply chains. *Available at SSRN, 2183991*, 28.

Thangam, A. (2012). Optimal price discounting and lot-sizing policies for perishable items in a supply chain under advance payment scheme and two-echelon trade credits. *International Journal of Production Economics, 139*(2), 459-472.

Ulaga, W., & Eggert, A. (2006). Relationship value and relationship quality: Broadening the nomological network of business-to-business relationships. *European Journal of marketing, 40*(3/4), 311-327.

Van Poucke, E., Matthyssens, P., van Weele, A., & Van Bockhaven, W. (2018). The effects of purchasing proactivity on value creation and supply risk reduction in sourcing projects: Implications for marketers' capabilities. *Industrial Marketing Management.*

Walter, A. (2003). Relationship-specific factors influencing supplier involvement in customer new product development. *Journal of Business Research, 56*(9), 721-733.

Walter, A., Müller, T. A., Helfert, G., & Ritter, T. (2003). Functions of industrial supplier relationships and their impact on relationship quality. *Industrial marketing management, 32*(2), 159-169.

Wandfluh, M., Hofmann, E., & Schoensleben, P. (2016). Financing buyer–supplier dyads: an empirical analysis on financial collaboration in the supply chain. *International Journal of Logistics Research and Applications, 19*(3), 200-217.

Wuttke, D. A., Blome, C., & Henke, M. (2013). Focusing the financial flow of supply chains: An empirical investigation of financial supply chain management. *International journal of production economics, 145*(2), 773-789.

Yang, Z., Jiang, Y., & Xie, E. (2019). Buyer-supplier relational strength and buying firm's marketing capability: An outside-in perspective. *Industrial Marketing Management.*

Zhao, L., Huo, B., Sun, L., & Zhao, X. (2013). The impact of supply chain risk on supply chain integration and company performance: a global investigation. *Supply Chain Management: An International Journal, 18*(2), 115-131.

Zsidisin, G. A. (2003). Managerial perceptions of supply risk. *Journal of supply chain management, 39*(4), 14-26.

Zsidisin, G. A., Panelli, A., & Upton, R. (2000). Purchasing organization involvement in risk assessments, contingency plans, and risk management: an exploratory study. *Supply Chain Management: an international journal, 5*(4), 187-198.

Zsidisin, G. A., & Smith, M. E. (2005). Managing supply risk with early supplier involvement: a case study and research propositions. *Journal of supply chain management, 41*(4), 44-57.