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RELATIONAL CAPABILITIES UNDER MODERATING AND MEDIATING EFFECTS TO UNDERSTAND THEIR IMPACTS ON FIRM FINANCIAL PERFORMANCE

(iD) **Angelica PIGOLA**[1+]
(iD) **Priscila Rezende DA COSTA**[2]
(iD) **Fernando Antonio Ribeiro SERRA**[3]

[1]*Master at Nove de Julho University, Brazil.*
[1]*Email: a_pigola@uni9.edu.br Tel: +5511982870202*
[2,3]*Professor and PhD at Nove de Julho University (UNINOVE), Brazil.*
[2]*Email: priscilarc@uni9.pro.br Tel: +5511987262989*
[3]*Email: fernandoars@uni9.pro.br Tel: +5511976857557*

(+ Corresponding author)

ABSTRACT

Relational Capabilities (RC) appear are valuable capabilities not only for performance but also to generate profitability. In this vein, this study performed a meta-analytic investigation of RC dimensions influencing firm financial performance. It also examined the role of mediating and moderating effects of knowledge management and partners integration influencing this association. From a meta-analytic procedure, 54 empirical studies were examined through random-effects model of Pearson's correlations as the effect size and a meta-analytical regression analysis (MARA) to examined moderation effects and meta-analytical structure equation modeling (MASEM) to examined mediation effects. Our findings confirm that firm financial performance is impacted directly and positively by RC itself excepting by the intrafirm relational capacity dimension. We also find that knowledge management and partner integration do not mediate positively the effect RC on firm financial performance. Further, RC dimensions effects on firm financial performance vary positively and negatively across partner integration and knowledge management moderation effects.

Contribution/Originality: This study challenges RC into firms' business ecosystem as one of their sources of growth to create several opportunities. Therefore, by indicating a potential evolution of this dynamic capability in a more financial favorable comprehension, this article contributes to society, economy in general and to the science of business management.

1. INTRODUCTION

Relational Capabilities (RC) blow up into literature as precursors to orchestrate and enhance efficiency outcomes in innovation performance, internationalization, or coopetition in business network (Murray, 2020; Sraha, Sharma, Crick, & Crick, 2020; Wang, Jean, & Zhao, 2020). Further, RC as also a promising approach in the literature on strategic management and entrepreneurship (Cavicchi & Vagnoni, 2018; Fischer, 2019; Fujimoto & Uddin, 2020). However, the literature analysis shows that RC dimensions findings have confused research progress due to complexity on their effects on firm financial performance and the variety of measurement and ambiguity on what they are RC. These interrelated problems bring unclarity among empirical research and theorizing and have a clutter development on relational capabilities.

The influence of RC on firm performance have been recognized into the literature and have been increasing the number of scholars keen on investigating this research field (Kianto, Andreeva, & Pavlov, 2013; Nhon, Thong, &

Trung, 2020). However, few studies have been looking for more clarification regarding RC effects on firm financial performance. In this vein, we start going back our analysis to seminal authors who employed RC terms instinctively highlighting positive effect in business performance such as relational rents (Dyer & Singh, 1998) relational governance (Poppo & Zenger, 2002) relational capital (Kale, Singh, & Perlmutter, 2000) relational embeddedness (Kostova, 1999) relational assets (Saraf, Langdon, & Gosain, 2007) power relationships (Todorova & Durisin, 2007), relational capability itself (Lorenzoni & Lipparini, 1999).

More recently, the literature fragmented RC in different dimensions to pursue deeper clarification about its effects on performance which is the case of interfirm and intrafirm relationships (Ekanayake, Childerhouse, & Sun, 2017; Skarmeas, Zeriti, & Argouslidis, 2019; Sklyar, Kowalkowski, Tronvoll, & Sörhammar, 2019) to increase the competitiveness of firm's resources and capabilities (Rodríguez-Díaz & Rodríguez-Díaz, 2018) or still creating an extended enterprise networks, to achieve goals and profitability (Hensen & Dong, 2020). Therefore, we are looking for understanding 'RC in action' (Mouritsen, 2006) for the sake of identifying RC dimensions and its effect on firm financial performance.

Differently from many authors who only keen on finding gaps that identify the advancement of knowledge in some research field, we follow Sandberg and Alvesson (2011) cited in Rivard (2020) chapter 4) who identified gap-spotting modes about confusion literature, when evidence from extant research is contradictory (Rivard, 2020; Sandberg & Alvesson, 2011). Therefore, we purse to identify the accuracy of findings among different research that connect RC and firm financial performance to clarify any contradictory results and extend the dynamic capabilities literature field enriching its level of impact into business financial performance. Additionally, following some recommendations for future studies about understanding direct and indirect relationships of business relational ties on firm performance (Yeniaras, Kaya, & Dayan, 2020) or measuring financial performance through stakeholder-wide view in coopetition, where RC is irreplaceable (Crick, 2019) drawn our attention to identify to what extent of RC dimensions itself vary or through some moderating and mediating mechanisms they impact on firm financial performance.

This research brings some contributions. First, a setting of findings presenting patterns in RC dimensions and evidence about the positive relationship of RC dimensions on firm financial performance. Second, it also improves understandings about the importance of RC itself regardless any other influencer measurement variable. Third, our results shed light on some RC dimensions as relatively important to firm financial performance such as costumer relationship quality and supply chain relation capacity and their contribution to the literature as predictors of productivity and profitability, as well as to the body of dynamic capabilities theory. Finally, we believe that our study improves precision in RC dimensions research empirically and presents the necessary theoretical development to clarify the multidimensional approach to RC.

2. CONCEPTUAL DEVELOPMENT

Concerning the RC dimensions, they appear in several models of firm performance (Kianto et al., 2013; Nhon et al., 2020). The idea that RC dimensions interact to influence firm financial performance has logical appeal regarding organizational efforts to standardized RC through alliances, supplier contracts, rental ties strength to overcome the dynamism of business market and the rapid changes caused by innovations, for instance. Demeter, Losonci, and Nagy (2020) RC is related to firms' ability to set up and keep closer relationships using resources available in their net to reach out objectives (Demeter et al., 2020).

The resource-based view theory (RBV) points out that relational capabilities may benefit firm financial performance in various paths (Wang, Dou, Zhu, & Zhou, 2015). First, RC may enhance the access of partners to assets and capabilities beyond other complementary resources that can enhance firm´s financial performance. Second, it encourages solving problems and conflicts, keeping beneficial relationships for firm's performance. Third, it enhances the ability to identify better costs and cycles reduction for development of technologies accepting

additional resources that may reduce financial risk and target appropriate customers (Choi & Hwang, 2015; Dubey et al., 2019; Wang et al., 2015).

2.1. RC Dimensions

An important scholars' recognition about RC dimensions is observed in prior literature. First, searching and identifying valuable customer relationship quality (Chierici, Mazzucchelli, Garcia-Perez, & Vrontis, 2019; Monteiro, Soares, & Rua, 2017) second, understanding, exploiting, and transforming interfirm relational capacity (Lee, Chen, Kim, & Johnson, 2008; Tzempelikos & Gounaris, 2015) which we suggest are the main functions of firms to survive and enhance innovation, third, converting the acquired intrafirm relational capacity to transfer individual knowledge to organization knowledge through sharing it Garcia-Perez-de-Lema, Madrid-Guijarro, and Martin (2017); Vela-Jiménez, Martínez-Sánchez, Pérez-Pérez, and Abella-Garcés (2014); Zollo and Reuer (2010) and fourth referring to supply chain relational capacity as performing the function of production productivity and technology converter and transmitter (Hofer, Hofer, & Waller, 2014; Lado, Paulraj, & Chen, 2012; Paulraj, 2011).

Customer Relationship Quality. It is related to relationship capacity to use customers engagement and their relational information (Harrigan, Evers, Miles, & Daly, 2018) to improve firm's sales growth, market share and profits (Chen, Li, & Arnold, 2013). This strong relational capability enables firms to hold customers increasing the product and / or service quality to benefit markets with incremental or radical innovations which can leverage profitability. And, better customer relationship quality may provoke higher value propositions to the market and therefore achieve better business performance (Chen et al., 2013). Further, the customer linkage also fortress value creation to delivery processes improvements of products and services (Grimmer, Miles, & Grimmer, 2015) ensuring that customers potentially could be more satisfied (Chen et al., 2013; Moorman & Rust, 1999). In addition, this closer relationship between shoppers and sellers conducts to greater customer retention ensuring profitability (Chen et al., 2013; Doney & Cannon, 1997).

This relational capability is critical for firms that increasingly exploit resources and new capabilities combined with customers channels to create knowledge that could enhance innovation and performance. However, it requires to firms to employ governance mechanisms to protect their interests with strong partnership and knowledge management (Adams & Graham, 2017) to keep a competitive advantage that could generate profitability.

Interfirm Relational Capacity. It identifies and understands the mechanisms of relationships that jeopardize the firm´s survival. It can be viewed as a form of relational capability embedded inside of a network constituting a major source of business competitive advantage to pavement a way of generating firm financial performance through knowledge transferring into an innovative ecosystem generation (Adams & Graham, 2017; Hensen & Dong, 2020). Interfirm relational capacity can be affected by cultural and language barriers, however an established connection that encourages frequent and open communications among partners helps overcome these barriers (Lee et al., 2008).

Interfirm relationships coordination mechanism depends on whether firms can fit internal and external resources characteristics and interorganizational relationship properties (Gao & Shi, 2011). Therefore, different dynamics can be adopted to develop, extend or upgrade firms activities through relationships that allow them to improve their chances of harnessing internal resources and capabilities for the sake of identifying and shaping new business opportunities (Claver-Cortés, Zaragoza-Sáez, Úbeda-García, Marco-Lajara, & García-Lillo, 2018) and profitable outcomes. Hence, interfirm relationships demand a superior relational capability to embrace different actors in different scenarios.

Intrafirm Relational Capacity. It can be important to transfer knowledge. For example, explicit knowledge of a technology for its understanding and usage. This tacit knowledge can facilitate implementation of processes or other incremental technologies to other actors among business ecosystem (Collins & Hitt, 2006). Intrafirm relational capacity also facilitates knowledge integration, supporting continuous trust interactions through

dialogues as central source of relational improvement and learning to performance prosperity (Einola, Kohtamäki, Parida, & Wincent, 2017; Mastio, Chew, & Dovey, 2019).

Following Salvato and Vassolo (2018) a perspective for intrafirm relational capacity is in the soul of the collective praxis, that is, the firms' capacity to examine criterial the internal actors' bias, assumptions, and interests by debates and contested approach with productive dialogue which could fortified internal and interpersonal relationships. The defiance is to build individuals capabilities to improve social relations well-proportioned with learning requirements. It means, dispositions to make easier the collaborative mindset for value creation. Yet, it involves internal organizational practices and individuals abilities to manage operation and also someone else's cognitive aspects as a collective exercise to reduce losses, rework and time consuming with noncore business subjects (Mastio et al., 2019; Salvato & Vassolo, 2018).

Supply Chain Relational Capacity. is presented as a capacity to manage operational issues together with net partners for sake of suiting and respond market dynamism for rapid manufacture practices (Fosso & Akter, 2019; Liu, Ke, Wei, & Hua, 2013) and is considered extremely critical for supply chain Management. This relational capability is most often mentioned about handling supplier relationships, where buyer fits an strategic position in the domain of supply chain (Golgeci & Gligor, 2017). It can be understood as the capacity of leveraging a network structure over time (Capaldo, 2007) or as a fundamental social capital enabler for manufacture activities and market innovations production (Li, Zhang, & Zheng, 2016).

As a facet of organizational strategy, supplier focus may offer a development of supply chain relation capacity through knowledge-based competences to manage relationship with partners (Chen et al., 2013). These competences include a long-term relations adoption, collaborative interactions fostered, cross-functional teams designed and partners involvement to create and delivery strategic value to stakeholders (Lado et al., 2012). These relational capabilities also embrace connection, coordination, and cooperation capability for reconfiguring supply chains to attend customers' needs and enhance production issues reducing manufacturing losses.

2.2. Potential Moderators of the RC Dimensions

Since RC dimensions are essentially about integrating resources, sharing, and acquiring knowledge to achieve firm financial performance, they are dependent on integrability of actors into business ecosystem. We identify two highlighted conditions: partner integration mode as a source of external knowledge (Adams & Graham, 2017) and the management of this knowledge (Susanty, Yuningsih, & Anggadwita, 2019). In what follows, we present these conditions influencing RC dimensions relationships as potential factors for firm financial performance.

Partners Integration. A higher inclination to collaborate with partners may enhance the probabilities of exposure to different and new ideas (Qi Dong, McCarthy, & Schoenmakers, 2017). Hensen and Dong (2020) pointed out that point out universities and research institutions as a science-based partners to exposure firms to broader R&D perspectives. Partners integration may provide a large range of information and additional resources benefits for co-development of products to the purpose of higher profitability (Hensen & Dong, 2020). However, managing all data around these relationships and knowing the market and customer's needs are major activities. Partner's integration demands additional dynamic capabilities as collaboration and internal resources reconfiguration (Hofer et al., 2014) to integrate different actors into a business ecosystem that would gather additional conditions for a potential financial performance and therefore can be seen as a higher level of capability.

Knowledge Management. Knowledge Management, since the 1990s, has become an emerged discipline in both the business and academic fields (Donate & Guadamillas, 2015). There is a concentrated literature in knowledge management processes (Inkinen, Kianto, & Vanhala, 2015) and static and dynamic streams interpretations about knowledge (Kianto, 2011) knowledge-based resources (Cabrilo, Dahms, Mutuc, & Marlin, 2020) and knowledge-based capabilities, (Cabrilo et al., 2020; Cabrilo. & Dahms, 2018; Kogut & Zander, 2009; Teece, 2007) what reflect the complexity about knowledge management and its challenge to evaluate the effects that appear as long-term in

perspective (Carlucci, 2014; Gavrilova, Alsufyev, & Pleshkova, 2018). However, knowledge management is presented as a 'social art' and should not be evaluate under a group of techniques (Lundvall & Nielsen, 2007).

It's necessary for managers to handle with finesse and under wisdom the challenge of knowledge management due to the fact that it is closer of human mind (Lundvall & Nielsen, 2007). Therefore, as a structured and systematic effort, knowledge management is crucial in decision-making process towards organizational performance (Susanty et al., 2019) and this process can leverage relational capabilities on the search of these performance achievements. For instance, knowledge management potentially differ according to social characteristics (Oliveira, Curado, Balle, & Kianto, 2020) which is the case of small businesses that have stronger relational connections and less complex organizational structures compared to large enterprises (Wee & Chua, 2013) and this can accelerate the causes of firms' performance enhancements.

Having articulated the RC dimensions and potential moderators on firm financial performance, we steer these research questions: (1) to what extent the four RC dimensions vary in their effect on firm financial performance? (2) to what extent the effects of RC dimensions vary across knowledge management and partner integration on firm financial performance? (3) To what extent do the effects of knowledge management and partner integration influence the effect of RC dimensions on firm financial performance?

3. METHOD

Meta-analysis methodology was adopted due to its statistic robustness to integrate findings come across literature. The output of meta-analysis provides a consolidated review for a conflicted and complex body of literature. Hence, this technique depends on the relevance of a particular variable in each study identified. Additionally, meta-analysis of Pearson's correlation as effect size is the adopted methodological procedure through the 'random-effects' model proposed by Hunter and Schmidt (1990).

3.1. Sample

The database was built from the main journals classified by the JCR (Journal Citation Reports), on the ISI - Web of Science portal. The main international journals in the social sciences are indexed in this database and is the most used in academic articles that review the literature (Vogel & Güttel, 2012). The definition of the sample consisted of researching, among the selected journals, works aimed at RC. For this, a set of keywords was used in the "topic" field of the search tool. This field searches for the title, summary, and keywords of the documents. The words used were *relational capabilities AND financial performance OR management OR performance*"*, without time constraint. The keywords that were followed by an asterisk ("*") to search for all variations of the term. Thus, all articles listed in the database were considered in the collection. Preliminarily, a selection was made by reading the titles, abstracts, and introduction, eliminating articles not related to the theme.

The search initially identified 394 validated articles from 2005 to 2020 where titles, abstracts, and methods applied in the studies and, eventually, the entire document were read. To be maintained in the sample, the works should obey some criteria which are summarize in detail in Appendix A.

We built our sample of 54 empirical studies with 104 reported bivariate correlations and 29,570 sampled observations. For the list studies included in our sample, see Appendix B. The sample is consistent with the average of studies analyzed in recent meta-analyses in different fields, such as innovation [e.g., Bıçakcıoğlu-Peynirci, Hizarci-Payne, Özgen, and Madran (2019)) who analyzed 38 studies and Khosravi, Newton, and Rezvani (2019) who analyzed 66 studies] and dynamic capabilities topics [e.g., Tang and Gudergan (2018) who analyzed 71 studies and Fainshmidt, Pezeshkan, Lance, Nair, and Markowski (2016) who analyzed 79 studies].

3.2. Data Coding Procedures

Following recommendations for meta-analysis steps (Steel, Beugelsdijk, & Aguinis, 2021) a code protocol was developed to capture the measures of variables and reduce errors in the coding process in order to ensure consistency in the extraction of information. The measures of variables used were identified and analyzed based on their similarities with the code protocol Table 1. The variables used to test the relationships were defined (using the code name) and publication details (author, journals, year of publication, sample size), data collection methods, and variables involved were recorded. We provide a syntax of data analytic approach in Appendix C.

Table-1. Coding of variables.

Variables	Definitions	Studies Coded Examples
Financial Performance (FP)	Increased overall financial performance, Sales growth, Market share growth, Profit Growth, Return of Investment (ROI), Return of Assets.	(Hensen & Dong, 2020; Rudy & Johnson, 2019; Wang et al., 2015; Wang, Wang, & Liang, 2014)
Interfirm Relational Capacity (INTER)	Interaction with international companies or subsidiaries, global relationship with colleagues, partners, stakeholders, and shareholders. Relationship with global account customers to continue for a long time. Ability to strive and build a mutually beneficial partnership in response to requests for changes and accommodate unexpected situations. Adjust in the ongoing relationships and cope with any circumstances.	(Cabrilo & Dahms, 2018; Crick, 2019; Gounaris & Tzempelikos, 2013; Tzempelikos & Gounaris, 2015)
Intrafirm Relational Capacity (INTRA)	Actions and behaviors towards effective relationship with colleagues. Also, any political or relational activities associated with intrafirm relationship. And stay together during adversity/challenge sharing information and solve conflicts.	(Garcia-Perez-de-Lema et al., 2017; Hwang & Kim, 2019; Tasavori, Zaefarian, & Eng, 2018; Vela-Jiménez et al., 2014; Zollo & Reuer, 2010)
Supply Chain Relational Capacity (SCRC)	Long-term relationships involve suppliers and high levels of trust between partners to stay within the terms of contract being skeptical of the information provided by the other party. Relationship with key supply chain partners. A set of trust and commitment among supplier involvement.	(Choi & Hwang, 2015; Hofer et al., 2014; Lado et al., 2012; Paulraj, 2011; Zhu, Krikke, Caniëls, & Wang, 2017)
Customer Relationship Quality (CRQ)	Focus on customer relationships as an asset in any level of organization, closeness of existing customer relationships, strong and long-term relationship with customers, invest time and efforts to build strong relationships with customers and commitment to retain strong relationships with customers.	(Chierici et al., 2019; Garrido-Moreno, García-Morales, King, & Lockett, 2020; Grimmer et al., 2015; Monteiro et al., 2017; Pfajfar & Mitrega, 2014)
Partner Integration (PI)	Intensive integration with internal and external partners. Improves functional integration facilitating the evaluation of financial performance. Enhancing communication level with partners. Synergistic ways to do business together. Integration that strives to build a mutually beneficial collaborative partnership to support financial performance	(Adams & Graham, 2017; Hensen & Dong, 2020; Hofer et al., 2014; Hwang & Kim, 2019)
Knowledge Management (KM)	Promoting exchange, participatory techniques, electronic relationship-specific repositories to acquire and store common information gained from interfirm organization relationships. Sharing knowledge of know-where or know-whom with others.	(Chierici et al., 2019; Choi & Hwang, 2015; Claver-Cortés et al., 2018; Wang et al., 2014)

3.3. Meta-Analysis Procedures

The meta-analytic procedures robustly answer the research questions first trough the random effect of Hunter-Schmidt type meta-analysis (HSMA) to calculate and compare the mean effect sizes for the variables presented combinations (see Table 1). Second, through meta-analytic structural equation modeling (MASEM) we examine direct and indirect effects of RC dimensions on firm financial performance and conduct mediation tests. And third,

using the meta-analytic regression analysis (MARA) we test the moderating effects of Knowledge management and partner integration. We follow Bergh et al. (2016) to establish the guidelines for performing these analyses. Further details procedures are ahead (Bergh et al., 2016).

HSMA procedures. As a common input of management meta-analysis studies (Geyskens, Krishnan, Steenkamp, & Cunha, 2009; Song, Gnyawali, Srivastava, & Asgari, 2018) Pearson correlation (r) is used to estimate the mean effect sizes since it is a well-known statistic measure. Additionally, it is easy to convert the sizes of other effects such as Cohen (2013) and Hedges (1981) into Pearson 'r' when necessary (Field, 2001). This type of meta-analysis investigation is also popular in behavioral research (Lipsey & Wilson, 2001).

MARA procedures. We adopted PROCESS procedure for SPSS, version 3.5.3 to calculate moderation regression. Subsequently, we included RC dimensions (customer relationship quality, intrafirm relational capacity, interfirm relational capacity, and supply chain relational capacity) as independent variables; knowledge management and partner integration as moderators; and financial performance as dependent variables to test their effects.

MASEM procedures. We opt to MASEM (Meta-analysis structural equation modeling) as an opportunity to test and compare the structure of the theoretical models found into the literature and examine the direct and indirect effects of RC dimensions on firm financial performance. First, we conducted 21 separate HSMA analyses to build the correlation matrix (see Table 2). Second, we apply maximum likelihood structural equation modeling procedure and follow the recommendations from Bergh et al. (2016).

Table-2. MASEM correlation matrix.

	CRQ	**INTER**	**INTRA**	**SCRC**	**KM**	**PI**	**FP**
CRQ		9,811 (34)	5,276 (22)	5,996 (24)	2,771 (11)	148 (2)	2,919 (13)
INTER	0.293		9,249 (30)	9,969 (32)	4,219 (12)	2,572 (8)	6,892 (21)
INTRA	0.388	0.289		5,434 (20)	790 (3)	1,567 (6)	2,357 (6)
SCRC	0.363	0.214	0.353		396 (2)	1,862 (6)	3,077 (11)
KM	0.336	0.259	0.326	0.302		14,325 (50)	8,176 (28)
PI	0.353	0.256	0.345	0.309	0.308		6,149 (22)
FP	0.386	0.192	0.391	0.306	0.320	0.280	

Note: Italicized numbers on the above diagonal are sample size using in computing and in brackets are number of studies in computing. CRQ - Customer Relational Quality; INTER - Interfirm Relational Capacity; INTRA - Intrafirm Relational Capacity; SCRC - Supply Chain Relational Capacity; KM- Knowledge Management; PI - Partner Integration; FP - Financial Performance.

4. RESULTS

We first present the overall effect of RC, knowledge management and partner integration on firm financial performance. Table 3 shows the results from the HSMA and the mean effect size (r) of .315 with a low standard error (0.040) and a small confidence interval (0.213 to 0.411) indicates a positive and significant effect of overall RC on firm financial performance. Variation in the effect sizes can be explained in the sample demonstrating a high level of heterogeneity (Tau² = 0.075, I^2 = 0.954, Q (54) = 1,143.628, df = 54, p < 0.001).

Relational Capabilities on Financial Performance. Research question 1 asks to what extent the four RC dimensions vary in their effect on firm financial performance. As presented in Table 3, interfirm relational capacity is the most used RC dimension, but it has the lowest mean effect size ($r = 0.192$). Among the variables, customer relationship quality yields the second highest mean effect size. And its mean effect size ($r = 0.387$) significantly greater (z test for difference [4.22]: p = 0.000) than the mean effect size of supply chain relational capacity ($r = 0.281$). Intrafirm relational capacity assumes the highest mean effect size ($r = 0.391$) but not greater (z test for difference [1.66]: p = 0.000) than the mean effect size of supply customer relationship quality.

The explanation for the highest effect size of intrafirm relational capacity might be that this dimension is highly influential because it is about internal organizational relationships, especially those that emphasize the ability of individual be engaged into organizational culture for knowledge transferring and where relational capabilities lay down initially through interactions among primary business actors, e.g. managers and employees who are highly involved with firm financial performance to survive (Kim, Lee, Paek, & Lee, 2013). In contrast,

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interfirm relational capacity focuses on knowledge-building endeavors that are more future oriented, and it may take more time to be built before all benefits become apparent (Wang et al., 2020). Supply chain relational capacity is built on foundations that are more involved specialized supplier to enhance productivity or technology-based oriented, and it has greater path dependency, which is helpful when innovativeness is related, and which could be one of the causes of firm financial performance (Lado et al., 2012; Paulraj, 2011). Other explanation is about studies that measure customer relationship quality are all survey based, and they may capture more aspects of RC with their measurement instruments and particularly interact with the proximity of customers involvement in product and/or services creation or incremental modification to attend market needs reaching out more profitability (Chierici et al., 2019; Monteiro et al., 2017). *Relational Capabilities versus Knowledge Management and Partner Integration.* To answer research question 2 about to what extent the effects of RC dimensions - customer relationship quality, intrafirm relational capacity, interfirm relational capacity, and supply chain relational capacity - vary across knowledge management and partner integration on firm financial performance, we examined the differential effects, as shown in Table 3, finding that customer relationship quality and intrafirm relational capacity have small effect sizes when predicting by knowledge management and partner integration on firm financial performance. In addition, we find that interfirm relational capacity and supply chain relational capacity have a greater effect size when predicting knowledge management and partner integration. Additionally, customer relationship quality has a greater effect size (z test for difference [2.94]: p = 0.000) when predicting partner integration ($r = 0.353$) than when predicting knowledge management ($r = .336$). Interfirm relational capacity has similar effect sizes when predicting partner integration (r = .256) and knowledge management ($r = 0.259$); (z test for difference [1.70]: p = 0.000). While supply chain relation capacity also has similar effect sizes when predicting partner integration (r = 0.309) and knowledge management ($r = 0.302$); (z test for difference [1.98]: p = 0.000). Comparing intrafirm relational capacity when predicting partner integration is higher ($r = 0.345$) but not greater (z test for difference [2.91]: p = 0.000) than intrafirm relational capacity predicting knowledge management ($r = 0.326$). One explanation for the findings would be that supply chain relational capacity is lightly higher when predicting knowledge management and partner integration because the need for a more interaction among actors to reach out new external knowledge to innovate process and production technologies assume greater importance for firms that pursue higher productivity or a new place into market share to enhance their financial performance (Hofer et al., 2014). Interfirm relational capacity also follows similar rational when predicting partner integration and knowledge management because the main purpose of creating partnership with external resources could be an exploitative innovation purpose when knowledge and integrability of partners assume greater importance, as well. Prior research (Adams & Graham, 2017; Hensen & Dong, 2020) suggest that network constitutes a major source of competitive advantage to pavement a way of generating financial performance through knowledge transferring or innovative ecosystem generation. *Mediation and Moderation effects of knowledge management and partner integration.* Using MASEM and MARA procedures to answer the research question 3 which asks to what extent do the effects of knowledge management and partner integration influence the effect of RC dimensions on firm financial performance, we additionally examined the effects of RC dimensions on firm financial performance mediated through knowledge management and partner integration. Using the MASEM procedure for the mediation analysis, we show in Table 4, that 73.87% of the total effect of RC is mediated through knowledge management and 26,13% of the total effect of RC is mediated through partner integration on firm financial performance. The effect of RC base on firm financial performance is negatively mediated through knowledge management (β = - 0.311, p = 0.001) and partner integration (β = - 0.110, p = 0.001). An explanation for this result could be that RC base itself plays a direct role in productivity, partnerships, knowledge, innovativeness, and even to integrate partners so to benefit from it requires first be utilized in value creation activities to potentially generate any financial outcomes (Garrido-Moreno et al., 2020; Saraf et al., 2007). Figure 1 show the results of MASEM analysis.

Table-3. Results of Hunter-Schmidt meta-analysis.

Study name / Subgroup name	Number Studies	K	Total Sample	r	Z value	SE	CI LL	CI UL	Q	I2	T2	T	PI LL	PI UL
Overall Relationship of RC	*54*	*54*	*15,245*	*0.315*	*7.780*	*0.040*	*0.213*	*0.411*	*1,143.627*	*0.954*	*0.075*	*0.274*	*0.109*	*0.495*
Customer Relational Quality	13	13	2,919	0.387	6.930	0.060	0.272	0.490	156.598	0.923	0.057	0.238	-0.125	0.736
Interfim Relational Capacity	21	21	6,892	0.192	3.180	0.060	0.067	0.311	372.066	0.946	0.059	0.242	-0.316	0.614
Intrafim Relational Capacity	9	9	2,357	0.391	5.270	0.080	0.228	0.532	102.995	0.922	0.048	0.220	-0.125	0.740
SC Relational Capacity	11	11	3,077	0.281	2.710	0.110	0.052	0.482	277.870	0.964	0.106	0.325	-.441	0.782
Knowledge Management	28	28	8,176	0.304	8.940	0.040	0.238	0.368	397.073	0.932	0.050	0.224	-0.150	0.653
Partner Integration	22	22	6,149	0.318	5.510	0.060	0.202	0.425	715.835	0.971	0.124	0.352	-0.391	0.790
Financial Performance	54	104	29,570	0.302	12.290	0.030	0.255	0.347	2,457.177	0.958	0.082	0.287	-0.254	0.707
Customer Relational Quality → Knowledge Management	11	11	2,771	0.336	11.205	0.030	0.252	0.414	657.341	0.939	0.060	0.244	0.217	0.444
Interfim Relational Capacity → Knowledge Management	12	12	4,279	0.259	7.779	0.030	0.144	00.366	779.115	0.938	0.052	0.227	0.081	0.420
Intrafim Relational Capacity → Knowledge Management	3	3	790	0.326	10.304	0.030	0.247	0.401	601.610	0.940	0.058	0.240	0.225	0.421
SC Relational Capacity → Knowledge Management	2	2	396	0.302	8.008	0.040	0.288	0.316	678.445	0.944	0.061	0.247	0.288	0.316
Customer Relational Quality → Partner Integration	2	2	148	0.353	8.268	0.040	0.281	0.421	872.780	0.961	0.098	0.313	0.281	0.421
Interfirm Relational Capacity → Partner Integration	8	8	2,572	0.256	6.078	0.040	0.125	0.378	1,351.307	0.969	0.107	0.327	0.060	0.433
Intrafirm Relational Capacity → Partner Integration	6	6	1,567	0.345	7.388	0.050	0.270	0.416	818.843	0.963	0.099	0.315	0.270	0.416
SC Relational Capacity → Partner Integration	6	6	1,862	0.309	6.024	0.050	0.277	0.340	1,070.412	0.970	0.120	0.347	0.277	0.340

Note: K = number of effect sizes; *r* = mean effect size for measurement error–corrected correlations; SE = standard error of *r*; CI = confidence interval; Q = Cochran's homogeneity test (all Q values are significant at p = 0.000).

Table-4. Meta-analytic structural equation modeling results.

	Model 1 Direct Effect	Model 2 Indirect Effect	Model 3 Total Effect
Knowledge Management			
Customer Relational Quality	–0.138		–0.138
Interfirm Relational Capacity	–0.180		–0.180
Intrafirm Relational Capacity	0.436		0.436
SC Relational Capacity	0.871		0.871
Partner Integration			
Customer Relational Quality	0.125		0.125
Interfirm Relational Capacity	0.228		0.228
Intrafirm Relational Capacity	–0.233		–0.233
SC Relational Capacity	0.936		0.936
Financial Performance			
Customer Relational Quality	0.170	0.029	0.199
Interfirm Relational Capacity	0.138	0.031	0.169
Intrafirm Relational Capacity	–0.061	–0.110	–0.171
SC Relational Capacity	10.324	–0.374	0.950
Knowledge Management	–0.311		–0.311
Partner Integration	–0.110		–0.110
Overall model			
R2	0.228		
RMSEA	00.00		
CFI	10.00		
Likelihood ratio test			
Baseline vs0. saturated	–350,987		
Model vs0. Saturated	00.00		

Note: RMSEA = root mean square error of approximation; CFI = comparative fit index.
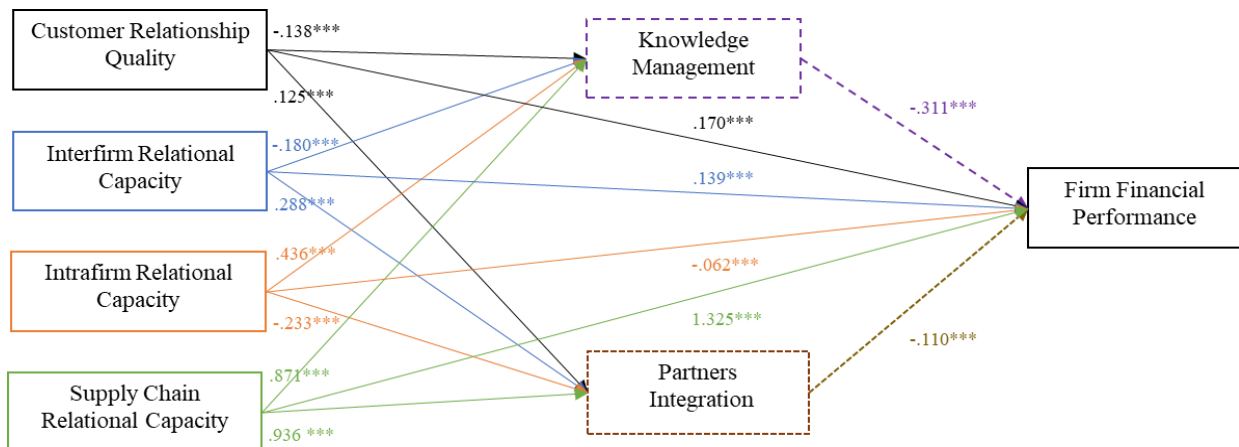

Figure-1. Meta analytical structure equation modeling.

Note: p < 0.001 (***).

Using the MARA procedure, Table 5 shows the results of the moderation tests. In terms of Knowledge management in model 1, the coefficient of INTER is negative and not significant ($\beta = -31.118$, p = .181). In comparison with the model 2 – partner integration, we find that the coefficient of interfirm relational capacity (INTER) is positive and significant ($\beta = 2.125$, p = .007). This finding is consistent with our expectations because partner integration provides a greater condition of firm to sharing knowledge and innovate or at least make improvements in process production or organizational structures to enhance productivity and as consequence profitability. Additionally, knowledge management can be seen as major consequent of the firm's partners interaction after knowledge exchanging.

The coefficient of intrafirm relational capacity (INTRA) assumes other perspective in model 1 and appears positive and significant (β = 13.215, p = 0.015) when compare with model 2 (β = -7.864, p = 0.010). And this finding is also consistent with our expectations as seen in prior research (Andreeva & Kianto, 2012; Helfat & Martin, 2015; Kianto, Ritala, Spender, & Vanhala, 2014) where systematic internal mechanisms of firms with which practitioners can control and handle knowledge process and resources, typically called knowledge management practices leverage effectively and efficiently to superior organizational performance (Cabrilo & Dahms, 2020).

Next, we compared customer relationship quality (CRQ) positive and significant in model 2 (β =3.161, p = 0.038) but not significant in model 1 (β = 5.539, p = 0.205). This consistent with our expectations, as well considering prior research (Birkinshaw, Hamel, & Mol, 2008; Stephan, Andries, & Daou, 2019) where information sources are related to scanning external environments for new knowledge to the firm. As a good example is customers information which offer valuable resource to develop or improve products and services (Chiesa, Coughlan, & Voss, 1996; Khan & Manopichetwattana, 1989; Stephan et al., 2019).

Finally, we examined how the effects of supply chain relational capacity (SCRC) differ in model 1 positive and significant (β = .971, p = .005) when compared with model 2 negative and significant (β = -1.605, p = 0.013). This finding is not consistent with our expectation. One possible explanation would be that knowledge from suppliers represents a critical for manufacture technological advances (Nguyen, Onofrei, Akbari, & McClelland, 2020) and a developed process of knowledge sharing to enhance patents and know-how techniques require supplier communication and learning from them (Nguyen et al., 2020).

Table-5. Meta-analytic regression analysis moderation results.

	Model 1 Knowledge Management						Model 2 Partner Integration					
	Coef.	**SE**	*t*	**r²**	**F**	**p**	**Coef.**	**SE**	*t*	**r²**	**F**	**p**
CRQ	5.539	28.805	0.192	0.857	4.015	0.205	3.161	8.878	0.360	0.974	25.189	0.038
Constant	0.539	3.625	0.149				-0.135	1.159	-0.117			
INTER	-31.118	54.591	-0.570	0.875	4.669	0.181	2.125	2.571	0.826	0.995	128.910	0.007
Constant	-3.499	5.074	-0.690				-0.031	0.209	-0.146			
INTRA	13.215	7.397	1.786	0.990	64.741	0.015	-7.864	3.549	-2.216	0.992	93.053	0.010
Constant	0.758	0.717	10.573				-1.134	0.358	-3.165			
SCRC	0.971	2.426	0.400	0.997	199.550	0.005	-1.605	3.748	-0.428	0.991	73.414	0.013
Constant	0.332	0.193	1.722				-0.372	0.364	-1.023			

Note: Customer Relational Quality (CRQ); Interfirm Relational Capacity (INTER); Intrafirm Relational Capacity (INTRA); Supply Chain Relational Capacity (SCRC).

Robustness Checking. Ensuring the robustness of our results, we conducted the sample-adjusted meta-analytic deviancy statistic method (Beal, Corey, & Dunlap, 2002) to adjust influences from potential outliers and we do not identify anyone in the sample. We report the result in Appendix D.

5. DISCUSSION

Given the relevance of firm financial performance aspects to the theory and practice, relational capabilities are presented as key predictors of performance, therefore our results are consistent and relevant in some respects: First, the analyses revealed that the overall relational capabilities might affect directly firm financial performance. Prior research (Bonner, Kim, & Cavusgil, 2005; Geletkanycz & Hambrick, 1997) highlighted that a strategic network identity is leaded by partner integration and relational embeddedness causing better performance in sales growth and market development. And external ties improve resources and financing or diversity of information to improve decisions towards firm financial performance. More recently, Chierici et al. (2019); Hwang and Kim (2019) knowledge management practice and innovation are affect by different practices from customers' data gathering in social media which also affect customer relationship quality and potentially contribute to different levels of financial performance. In sum, RC dimensions are present among interactions of innovation efforts, entrepreneurship

challenges, R&D demands, alliances, internalization, supply chain agility, globalization process, and other strategic management among firms.

Second, the RC dimensions might predict beyond their additive effects of ability and motivation (Van Iddekinge, Aguinis, Mackey, & DeOrtentiis, 2018). And third, the mediation analysis showed that partners integration and knowledge management interaction do not account to explain any variance in firm financial performance. This suggests an interactive effect of RC is not relatively important. And fourth, RC dimensions in some cases when moderated by knowledge management or partner integration present an invert effect on firm financial performance.

Overall, the findings quite clearly suggest the positive effects of RC dimensions on firm financial performance also in line with some existent research findings (Chierici et al., 2019; Lee et al., 2008). Lacking support for a direct hypothesis about RC acting in firm financial suggest the need to revisit models that predict or imply a non-interactive relation between RC dimensions and firm financial performance. It means, performance theories and models should specify RC dimensions exerting independent effects on financial performance and not only interactive effects (Crick, 2019; Torkkeli, Kuivalainen, Saarenketo, & Puumalainen, 2016; Van Iddekinge et al., 2018). In addition, RC should not be an asset highly demanded only towards specific tasks, such as alliances, internationalization, or overall networks. As highlighted by Srivastava, Iyer, and Rawwas (2017) it should support the conventional wisdom relating collaboration to operational and financial performance (Srivastava et al., 2017). This conclusion also has other implications for future research such as new estimates of statistics that can focus not only on interactive effects but also on additive effects of RC dimensions. This, in turn, can substantially improve the lack of clarity about relational capabilities requirements and make future research more practically effective.

6. CONCLUSION AND IMPLICATIONS

RC dimensions should be much more debate as a business strategy towards firm financial performance. This study adopted a meta-analysis approach to build a consensus on this relationship perspective through empirical studies reported in the literature from 2005 to 2020. Knowledge Management and Partner integration were explored as mediators and moderators of this relationship, as well. And the results reveal an aggregate level of positive association between RC dimensions itself and firm financial performance and slightly improvements when the presence of some moderating aspects.

Our findings contribute to theory by testing on understanding of the relative importance of RC dimensions for business survival. We shed light on whether RC dimensions is relatively more important to firm financial performance and how organizations might understand these dynamic capabilities to facilitate decision-making. The results also provide an impulse for practitioners to continue to pay attention on relationships quality into organizations practices.

However, this research offers certain limitations once prior research claims that contexts are important for RC dimensions success. Thus, we suggest to booster the RC dimensions research field alternative contexts such as, distance between partners, similarities, and discrepancies among type of industry, complexity of relationships to provide further insights into our proposed research questions.

Additionally, to examine this link more closely, the relationship between RC dimensions (intrafirm and interfirm relational capacity, customer, and supply chain relationships, and potential others relational capabilities) and firm financial performance measures can be investigated more explicitly without any other interactive variables. Furthermore, the upcoming studies could also understand direct and indirect relationship of business political and relational ties on firm financial performance also exploring the role of other moderators towards the association RC dimensions on firm financial performance.

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Appendix-A. Inclusion Criteria

This appendix expands upon information included in the article's Method section. We used some criteria to determine parameters to include primary studies in the meta-analysis. First, we only included studies that measured in some way relational capabilities and firm financial performance. This approach allowed the estimates to be based on a common set of studies, rather than on different studies for each relation in the model. It also enabled us to directly compare the different effects and avoid concerns about relations being based on different numbers and types of primary studies. Further, to test relational capabilities interaction, we needed raw data on all possible variables because we could not test the interaction, or the relative effects of the interaction and first-order effects, using correlations from different studies that did not include the product term.

Second, we only included studies that measured capability using objective tests that assessed general capability in different fields or more specific abilities, such as supply chain relational capability, customer relationship quality, interfirm or intrafirm relational capacity. Most studies used established measures of specific relational capabilities to identify their effects on financial performance. If we had questions about a particular test, we contacted the authors and/or researched other information about the statistics methods before we included the study in the meta-analysis.

The third criterion pertained to how we conceptualized relational capabilities. Consistent with previous definitions (e.g., (Dyer & Singh, 1998; Tatiana Kostova & Roth, 2002; Levin & Cross, 2004; Renouard, 2011; Todorova & Durisin, 2007)) we defined RC as factors that support or moderate the value co creation and value capture in intrafirm and interfirm context. It is composed of interconnected and interdependent networked actors, which includes the local firm, parent firms, customers, suppliers, employees, partners, and other agents. It´s ability to collaborate and exchange information to promote flexibility, innovation, and competitive advantage. It can translate into long-term agreements, thereby promoting deeper relationships and trust, which facilitates knowledge transferring, product development for businesses performance and growth. We used this definition as a basis to determine which RC measures to include and exclude from the meta-analysis. Specifically, we focused on measures that reflect direction, intensity, and/or persistence of effort. We chose this approach because the "unobservable force" that initiates behavior is influenced by myriad factors and can vary greatly across people and situations. For example, certain job characteristics (e.g., autonomy, job pressure) may be motivating to some actors involved in a context but not to others.

We also reviewed studies that measured knowledge management and partner integration as a potential predictor to enhance financial performance through relational capabilities. If the measure included items or facets that were not related to these two moderators (e.g., partners integration and knowledge management), we excluded the study. Finally, we also included studies that measured relational capabilities goals in the participants set for performing tasks or their level of commitment to financial goals.

Our fourth criterion focused on the financial performance measures we included. First, we included studies in which the performance measure(s) reflected one or more of the following: profitability, sales growth, profit growth, financial growth, or overall financial performance. Second, we only included studies that measured financial performance using clear ratings, peer ratings, or some objective criterion (e.g., sales as mentioned). We excluded studies that used self-ratings of financial performance (e.g., perceptions). We also excluded studies that measured financial performance using salary increase, internal investments, acquisitions, or promotions because such criteria do not measure financial performance directly and can be influenced by factors other than performance (e.g., tenure and merger).

Finally, we only included studies that reported results for which we or the original authors could estimate effects for a model that included relational capabilities interaction with financial performance and the influence of two moderators, partners integration and knowledge management as predictors of this impact. We excluded studies that included other predictors in the model (e.g., market dynamism, stakeholders).

Appendix-B. Primary Studies.

Code	Author/s (publication year)	Source	DOI
1	Adams and Graham (2017)	Industrial Marketing Management	10.1016/j.indmarman.2016.10.009
2	Bonner et al. (2005)	Journal of Business Research	10.1016/j.jbusres.2004.07.002
3	Brinckmann and Hoegl (2011)	Strategic Intrepreneurship Journal	10.1002/sej.106
4	Cabrilo and Dahms (2018)	Journal of Knowledge Management	10.1108/JKM-07-2017-0309
5	Chen et al. (2013)	Industrial Marketing Management	10.1016/j.indmarman.2013.03.014
6	Chierici et al. (2019)	Management Decision	10.1108/MD-07-2018-0834
7	Choi and Hwang (2015)	Operations Management Research	10.1007/s12063-015-0100-x
8	Choi (2014)	Information Technology & Management	10.1007/s10799-014-0181-5
9	Choon Tan, Kannan, Hsu, and Keong Leong (2010)	International Journal of Physical Distribtion & Logistics Management	10.1108/09600031011052831
10	Chowdhury, Quaddus, and Agarwal (2019)	Supply Chain Management – An International Journal	10.1108/SCM-09-2018-0332
11	Claver-Cortés et al. (2018)	Journal of Knowledge Management	10.1108/JKM-07-2017-0305
12	Crick (2019)	Journal of Business & Industrial Marketing	10.1108/JBIM-01-2019-0057
13	Fosso and Akter (2019)	International Journal of Operations & Production Management	10.1108/IJOPM-01-2019-0025
14	Gao and Shi (2011)	Journal of International Marketing	10.1509/jimk.19.4.61
15	Garcia-Perez-de-Lema et al. (2017)	Technological Forecasting and Social Change	10.1016/j.techfore.2016.04.003
16	Garrido-Moreno et al. (2020)	Journal of Service Management	10.1108/JOSM-09-2018-0286
17	Gounaris and Tzempelikos (2013)	Journal of Business-To-Business Marketing	10.1080/1051712X.2012.690173
18	Grimmer et al. (2015)	International Entrepreneurship and Management Journal	10.1007/s11365-013-0279-y
19	Hensen and Dong (2020)	Information & Management	10.1016/j.im.2019.103209
20	Hofer et al. (2014)	International Journal of logistics Management	10.1108/IJLM-01-2014-0012
21	Hwang and Kim (2019)	Service Business	10.1007/s11628-018-00394-x
22	Kim et al. (2013)	International Journal of Comtemporary Hospitality Management	10.1108/IJCHM-Jan-2012-0010
23	Kohtamäki, Partanen, and Möller (2013)	Industrial Marketing Management	10.1016/j.indmarman.2012.11.001
24	Kyriakopoulos, Hughes, and Hughes (2016)	Journal of Product Innovation Management	10.1111/jpim.12285
25	Lado et al. (2012)	International Journal of logistics	10.1108/09574091111156550

		Management	
26	Lahiri, Kedia, and Mukherjee (2012)	Journal of World Business	10.1016/j.jwb.2011.02.001
27	R. P. Lee et al. (2008)	Journal of International Marketing	10.1509/jimk.16.2.1
28	Lee, Kim, and Choi (2012)	Industrial Management & Data Systemas	10.1108/02635571211264609
29	Lew, Sinkovics, and Kuivalainen (2013)	International Business Review	10.1016/j.ibusrev.2013.03.001
30	Loukis, Janssen, and Mintchev (2019)	Decision Support Systems	10.1016/j.dss.2018.12.005
31	Matikainen, Terho, Parvinen, and Juppo (2016)	Journal of Business & Industrial Marketing	10.1108/JBIM-12-2014-0250
32	Mitręga, Spáčil, and Pfajfar (2019)	Journal of East European Management Studies	10.5771/0949-6181-2019-1-155
33	Monteiro et al. (2017)	Journal for International Business and Entrepreneurship Development	10.1504/JIBED.2017.082749
34	Monteiro, Soares, and Rua (2019)	Journal of Innovation & Knowledge	10.1016/j.jik.2019.04.001
35	Ni and Sun (2018)	Supply Chain Management - An International Journal	10.1108/SCM-08-2017-0260
36	Paulraj (2011)	Journal of Supply Chain Management	10.1111/j.1745-493X.2010. 03212.x
37	Pfajfar and Mitrega (2014)	Transformation in Business & Economy	http://www.transformations.khf.vu.lt/)
38	Raman, Chadee, Roxas, and Michailova (2013)	Journal of International Management	10.1016/j.intman.2013.03.010
39	Rudy and Johnson (2019)	Business & Society	10.1177/0007650316675606
40	Saraf et al. (2007)	Information Systems Research	10.1287/isre.1070.0133
41	Shou, Shao, and Chen (2017)	International Journal of Physical Distribtion & Logistics Management	10.1108/IJPDLM-09-2016-0271
42	Smirnova, Rebiazina, and Khomich (2018)	Industrial Marketing Management	10.1016/j.indmarman.2017.11.001
43	Srivastava et al. (2017)	International Journal of Operations & Production Management	10.1108/IJOPM-09-2015-0586
44	Stanko and Bonner (2013)	Industrial Marketing Management	10.1016/j.indmarman.2013.05.016
45	Tasavori et al. (2018)	International Small Business Journal-Researching Entrepreneurship	10.1177/0266242618773145
46	Torkkeli et al. (2016)	Baltic Journal of Management	10.1108/BJM-02-2015-0032
47	Tzempelikos and Gounaris (2015)	Industrial Marketing Management	10.1016/j.indmarman.2015.02.018
48	Vela-Jiménez et al. (2014)	Personnel Review	10.1108/PR-01-2013-0014
49	Wang et al. (2015)	Journal of Business Research	10.1016/j.jbusres.2015.01.002
50	Wang et al. (2014)	Management Decision	10.1108/MD-02-2013-0064
51	Yi, Li, Hitt, Liu, and Wei (2016)	Asia Pacific Journal of Management	10.1007/s10490-016-9458-z
52	Zhao, Meng, He, and Gu (2019)	Sustainability	10.3390/su11010218
53	Zhu et al. (2017)	International Journal of logistics Management	10.1108/IJLM-02-2016-0028
54	Zollo and Reuer (2010)	Organizational Science	10.1287/orsc.1090.0474

Appendix-C. Data-Analytic Approach

We used Hunter and Schmidt (2004) psychometric meta-analysis to analyze the data. The analyses involved six main steps. First, we recorded zero-order correlations among supply chain relational capacity, customer relationship relational quality, interfirm and intrafirm relational capacity, and financial performance. We had this

information for all 54 samples. To estimate the model, we needed correlations between the financial performance interaction term and the other variables.

Second, we computed composite variables for primary studies that included multiple measures of relational capabilities, and financial performance. For studies that used multiple relational capabilities measures, we standardized the scores from each measure and created a composite that reflected the mean score across the measures. We adopted this approach because we wanted to incorporate as much of the original relational capabilities data as possible. In addition, because scores on different capability measures tended to be moderately lowly correlated (mean r = .282), combining multiple measures into a single ability composite would increase reliability and not greatly affect the meaning of the measure.

Some studies included multiple measures of relational capabilities (e.g., intra and interfirm relational capacity). Because these measures were not always highly correlated, we used the measure that appeared most proximal to effort in the overall analyses, rather than create an overall composite variable. However, we retained all relational capabilities measures for use in subsequent, measure-specific analyses. Finally, for studies that included multiple measures of the same financial performance construct (e.g., profit growth, sales growth), we used the same approach we used for studies that used multiple capability tests. Specifically, we standardized the scores from each performance measure and created a variable that reflected the mean of the measures.

Third, because we primarily were interested in relations at the construct level and not at the measure level (Le, Schmidt, & Putka, 2009) and to be consistent with Hunter and Schmidt (1990) psychometric meta-analytic procedures, we corrected the observed correlations for measurement error in all the variables. We also corrected relations for range restriction.

Fourth, we used the observed and corrected correlations among relational capabilities to estimate the additive effects on financial performance. These analyses yielded observed and corrected Rs, as well as observed and corrected coefficients for each study. We used the same observed and corrected correlations for the multiplicative model, but also included the correlations involving relational capabilities product term. However, we were able to assess the multiplicative model only for studies for which we had access to the raw data or for which the primary authors conducted the analyses and provide the output. Output from the regression analysis also provided intercorrelations (among partners integration, knowledge management and financial performance), which we used to estimate the corrected correlations and regression coefficients, as well as the observed and corrected relative weights.

There has been some discussion about the appropriateness of meta-analyzing regression coefficients compared to the typical approach based on correlation coefficients (e.g., (Aguinis, Culpepper, & Pierce, 2016; Becker & Wu, 2007; Peterson & Brown, 2005; Raju, Pappas, & Williams, 1989)). The main challenges with doing so are that (a) primary studies rarely include the exact same variables in the regression model and (b) studies use different scales to measure the variables. We were able to address the first challenge by ensuring the primary studies included the exact same constructs, so that the models were equivalent across studies. In addition, we addressed the concern about differing scales across studies by meta-analyzing the standardized regression coefficients rather than the unstandardized coefficients.

Fifth, we computed relative weight statistics for the model used by Prashar (2018) residualizing relative importance analysis. Relative weight analysis (Johnson, 2000) assesses the contribution each predictor makes to the regression model, considering both the predictor's individual effect and its effect when combined with the other predictors (Johnson & LeBreton, 2004). The relative weights indicate the percentage of variance in the criterion each predictor explains.

Finally, to examine the form of any relational capability's interactions, we used meta-essentials tools (Suurmond, van Rhee, & Hak, 2017) and Microsoft Excel to conduct a simple slopes analysis for 54 samples for which we had the raw data. This syntax calculates the standardized simple slopes for the relation between an independent variable

(relational capabilities) and dependent variable (financial performance) at levels of the moderator variable (partners integration and knowledge management). These analyses are conducted on the raw data and thus reflect the observed (i.e., uncorrected) relations among the variables.

Appendix-D. Sample-adjusted meta-analytic deviancy statistic results

Code Study	N	ES (r)	Var (i)	Var (r)	√ Var (i) – Var (r)	SAMD
1	630	0.250	1.000	– 0.023	1.011	0.201
1	630	0.154	1.000	– 0.023	1.011	0.202
2	184	0.341	1.000	– 0.019	1.010	0.201
2	184	0.370	1.000	– 0.019	1.010	0.201
3	212	0.060	1.000	– 0.019	1.010	0.202
3	212	0.250	1.000	– 0.019	1.010	0.202
4	88	0.602	1.000	– 0.019	1.009	0.200
4	88	0.474	1.000	– 0.019	1.009	0.201
5	167	0.400	1.000	– 0.019	1.010	0.201
5	167	0.580	1.000	– 0.019	1.010	0.200
6	418	0.662	1.000	– 0.021	1.010	0.200
6	418	0.238	1.000	– 0.021	1.010	0.201
7	230	–0.504	1.000	– 0.020	1.010	0.205
8	115	0.360	1.000	– 0.019	1.009	0.201
8	115	0.400	1.000	– 0.019	1.009	0.201
9	625	0.370	1.000	– 0.023	1.011	0.201
9	625	0.201	1.000	– 0.023	1.011	0.201
10	274	–0.670	1.000	– 0.020	1.010	0.205
10	274	0.451	1.000	– 0.020	1.010	0.201
11	102	0.489	1.000	– 0.019	1.009	0.201
12	102	0.341	1.000	– 0.019	1.009	0.201
12	101	0.040	1.000	– 0.019	1.009	0.203
13	281	0.520	1.000	– 0.020	1.010	0.200
13	281	0.507	1.000	– 0.020	1.010	0.200
14	85	0.430	1.000	– 0.019	1.009	0.201
14	85	0.490	1.000	– 0.019	1.009	0.201
15	600	0.480	1.000	– 0.023	1.011	0.200
15	600	0.107	1.000	– 0.023	1.011	0.202
16	212	0.640	1.000	– 0.019	1.010	0.200
16	212	0.420	1.000	– 0.019	1.010	0.201
17	304	0.190	1.000	– 0.020	1.010	0.202
17	304	0.180	1.000	– 0.020	1.010	0.202
18	384	0.020	1.000	– 0.021	1.010	0.202
18	384	0.010	1.000	– 0.021	1.010	0.202
19	708	0.100	1.000	– 0.024	1.012	0.202
19	708	0.280	1.000	– 0.024	1.012	0.201
20	61	0.560	1.000	– 0.018	1.009	0.200
20	61	0.220	1.000	– 0.018	1.009	0.202
21	279	0.398	1.000	– 0.020	1.010	0.201
21	279	0.485	1.000	– 0.020	1.010	0.201
22	486	0.582	1.000	– 0.022	1.011	0.200
22	486	0.694	1.000	– 0.022	1.011	0.200
23	91	0.400	1.000	– 0.019	1.009	0.201
23	91	–0.240	1.000	– 0.019	1.009	0.204
24	111	0.210	1.000	– 0.019	1.009	0.202
24	111	0.380	1.000	– 0.019	1.009	0.201
25	42	0.140	1.000	– 0.018	1.009	0.202
25	42	0.230	1.000	– 0.018	1.009	0.202
26	105	0.224	1.000	– 0.019	1.009	0.202
26	105	0.142	1.000	– 0.019	1.009	0.202
27	139	0.130	1.000	– 0.019	1.009	0.202
28	139	0.130	1.000	– 0.019	1.009	0.202

28	223	0.620	1.000	– 0.020	1.010	0.200
29	110	0.162	1.000	– 0.019	1.009	0.202
29	110	0.008	1.000	– 0.019	1.009	0.203
30	102	0.514	1.000	– 0.019	1.009	0.201
30	102	0.561	1.000	– 0.019	1.009	0.200
31	109	0.420	1.000	– 0.019	1.009	0.201
31	109	0.350	1.000	– 0.019	1.009	0.201
32	568	0.346	1.000	– 0.022	1.011	0.201
32	568	0.206	1.000	– 0.022	1.011	0.201
33	265	0.450	1.000	– 0.020	1.010	0.201
33	265	0.270	1.000	– 0.020	1.010	0.201
34	265	0.480	1.000	– 0.020	1.010	0.201
34	265	0.370	1.000	– 0.020	1.010	0.201
35	898	0.099	1.000	– 0.026	1.013	0.202
35	898	0.800	1.000	– 0.026	1.013	0.199
36	145	0.350	1.000	– 0.019	1.009	0.201
36	145	0.410	1.000	– 0.019	1.009	0.201
37	304	0.382	1.000	– 0.020	1.010	0.201
37	304	0.254	1.000	– 0.020	1.010	0.202
38	68	0.460	1.000	– 0.018	1.009	0.201
38	68	0.410	1.000	– 0.018	1.009	0.201
39	1.955	0.080	1.000	– 0.053	1.026	0.199
39	1.955	–0.100	1.000	– 0.053	1.026	0.200
40	63	0.294	1.000	– 0.018	1.009	0.202
40	63	0.285	1.000	– 0.018	1.009	0.202
41	203	0.250	1.000	– 0.019	1.010	0.202
41	203	0.470	1.000	– 0.019	1.010	0.201
42	155	0.154	1.000	– 0.019	1.009	0.202
42	155	0.149	1.000	– 0.019	1.009	0.202
43	115	0.275	1.000	– 0.019	1.009	0.202
43	115	0.282	1.000	– 0.019	1.009	0.202
44	128	0.350	1.000	– 0.019	1.009	0.201
44	128	0.268	1.000	– 0.019	1.009	0.202
45	192	0.110	1.000	– 0.019	1.010	0.202
45	192	0.270	1.000	– 0.019	1.010	0.202
46	298	0.230	1.000	– 0.020	1.010	0.202
46	298	0.130	1.000	– 0.020	1.010	0.202
47	304	0.110	1.000	– 0.020	1.010	0.202
47	304	0.265	1.000	– 0.020	1.010	0.201
48	156	0.490	1.000	– 0.019	1.009	0.201
48	156	0.360	1.000	– 0.019	1.009	0.201
49	235	0.290	1.000	– 0.020	1.010	0.201
49	235	0.250	1.000	– 0.020	1.010	0.202
50	57	0.120	1.000	– 0.018	1.009	0.202
50	57	0.130	1.000	– 0.018	1.009	0.202
51	508	0.158	1.000	– 0.022	1.011	0.202
51	508	0.348	1.000	– 0.022	1.011	0.201
52	269	0.374	1.000	– 0.020	1.010	0.201
52	269	0.483	1.000	– 0.020	1.010	0.201
53	366	0.120	1.000	– 0.021	1.010	0.202
54	150	0.140	1.000	– 0.019	1.009	0.202
54	150	0.110	1.000	– 0.019	1.009	0.202