

## The Effects of Firm Relational Capital on Export Performance: The Moderating Effects of Technological Turbulence

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### Abstract

*Recent studies recognize that relational capital helps manufacturing firms in Global value chains (GVCs) enhance their competitiveness in global markets. However, prior research does not provide a conclusive account of the impact of relational capital on export performance, particularly in developing countries. Drawing on a learning-based perspective and contingency approach, this study fills these gaps by linking relational capital and firm performance with a focus on manufacturing firms in developing countries that participate in GVCs. Specifically, we propose that the relational capital of these firms will have a stronger positive impact on their export performance when the technological turbulence is lower, and vice versa. Overall, this research extends the literature on knowledge transfer, interfirm relational capital, and business performance in a developing-country context.*

**Keywords:** Global value chain, Relational capital, Interfirm learning, Technological turbulence, Export performance

### 1. Theoretical framework

The role of relational capital in international business performance through information sharing and knowledge transfer has drawn substantial attention among researchers (Ryu, Baek, & Yoon, 2021; Whipple, Wiedmer, & Boyer, 2015). Martínez-Torres (2006) used the term “relational capital” to denote strong relationships among business firms. Researchers suggest that relational capital based on mutual trust, commitment, and shared goals helps companies generate common values and achieve safeguarding mechanisms that can reduce transaction costs (Zhang & Wang, 2018) enabling firms in global value chains (GVCs) to gain market share and perform successfully in the global arena (Giovannetti, Marvasi, & Sanfilippo, 2015). However, relational capital studies need more scholarly attention to clarify the mechanism of relational capital effects on business

performance, specifically export performance under different geographical and situational contexts.

From the resource-based view (RBV) of a firm, Barney (1991) argued that a firm’s relational capital creates an opportunity to access, from other firms, resources that are unique, costly, and not available to them. Solaz (2018) suggests that such strong interfirm relationships or relational capital can be an important predictor of the firm’s export performance. Although these insights are helpful, the RBV and interfirm learning perspective leave gaps in our understanding of the impact of relational capital on a firm’s export performance under different contextual settings. These gaps are problematic in GVCs where manufacturing firms in developing countries are involved in business relationships with partners from developed countries. In such relationships, firms in developing countries hold a weak position and comparatively weak bargaining power because of their limited resources and capabilities (Ramaswamy & Gereffi, 2000). Further, weak capabilities and limited resource endowment can undermine the capacity of firms in developing countries to acquire and use knowledge from their interfirm relationships (Inkpen & Pien, 2006). Thus, interfirm learning opportunities can be restricted and export performance of firms in developing countries might not benefit from their relational capital. On the other hand, the risk of disruptions caused by various environmental forces, such as unpredictable and frequent technological changes, might interrupt the flow of information leading to fewer learning opportunities from other firms (Calantone, Garcia, & Droge, 2003). Thus, previous studies have not adequately addressed the relational capital effects on export performance under technological turbulence in the context of a developing country.

Wu, Liu, and Zhang (2017) identified that technological turbulence arises when the underlying technologies of products or services change rapidly, and their rate of obsolescence is high. In an environment with high technological turbulence, a firm needs to cope with ongoing technological changes in the marketplace. Research has identified

that technological turbulence is an important contingent factor that might affect the performance of firms in developing countries. We expect the relationship between relational capital and export performance to be ambiguous when specific external factors (i.e., technological turbulence) are not considered. The key is that technological turbulence creates conditions that weaken the relationship and hamper the transfer and application of knowledge between parties. In this context, we investigate the impact of firms' relational capital on their export performance under the circumstances of technological turbulence. In addition, we explore the effects of relational capital from the perspective of manufacturing firms with their buyers and suppliers. In a GVC, a firm depends on its buyers and its suppliers (Del Prete, Giovannetti, & Marvasi, 2017). Collaboration can occur between a supplier firm and a manufacturing firm, or between a manufacturing firm and its clients' firms (Awan, 2019). Prior research suggests that analyzing both sides, that is from the perspective of the buyer relation and the perspective of the supplier relation, can provide helpful insights (Kim, Lee, & Lee, 2017). Therefore, exploring relational effects from both perspectives (forward and backward) is important but has not been adequately addressed in recent studies.

To address these issues, we ask these central questions: How does relational capital impact the export performance of firms in developing countries? How does technological turbulence influence the relationship between relational capital and export performance? Our hypotheses include:

**Hypothesis 1:** Firms' relational capital with buyers has a positive impact on their export performance.

**Hypothesis 2:** Firms' relational capital with suppliers has a positive impact on their export performance.

**Hypothesis 3a:** Technological turbulence negatively moderates the impacts of firms' relational capital with buyers on their export performance.

**Hypothesis 3b:** Technological turbulence negatively moderates the impacts of firms' relational capital with suppliers on their export performance.

Our research contributes to relational capital and export performance literature in the following ways. First, we examined learning perspectives and

contingency theory from the perspective of a developing country. We examined how the relational capital of a firm affected its export performance in a developing economy, which is where the manufacturers of GVCs are doing business (World Bank, 2017). Second, we extend the study by examining the perceived relational effects from the perspective of the buyer and the perspective of the supplier, a rational approach in a global value chain. Third, we contribute to the broader international business literature by advancing a nuanced theoretical view of the effect of relational capital on GVCs' export performance. We identified the moderating roles of technological turbulence on the link between relational capital and the export performance of firms. Consistent with previous studies that suggested the importance of examining technological turbulence on international business performance (Martin, Javalgi, & Ciravegna, 2020), our study focuses on determining the impact of relational capital on export performance in an environment characterized by highly changing technology. Overall, this research has the potential to help managers emphasize relational capital during technological turbulence and uncertainties in international business. The findings of our study encourage policymakers in developing economies to create import substitutes for raw materials needed by export-oriented industries, which would decrease lead time and increase the competitiveness of local firms in the international market. Our new insights and findings could guide future researchers to develop studies to investigate the performance improvement of manufacturing firms in developing countries and cross-national relational capital management.

## 2. Methodology

### 2.1 Context

The research sample for this study was selected from the Bangladeshi RMG industry because it plays a vital role in the global apparel value chain (Rahman & Sayeda, 2016). Manufacturers of RMG maintain strong relationships with their international buyers: large retailers and brand marketers (Nuruzzaman, Quaddus, Jeeva, & Khan, 2013). But they depend on their neighboring countries for the supply of raw materials and of finished goods such as textiles (Nuruzzaman, Haque, & Azad, 2016). Manufacturers of RMG act as critical players in the global apparel value chain by maintaining backward linkage with international suppliers and forward linkage with international buyers, simultaneously (Rahman & Sayeda, 2016). Thus, the Bangladeshi RMG industry offers an interesting developing-country context for this study.

## 2.2 Data collection

Qualtrics, an online survey tool, was used to collect responses. The lack of relevant data sources in developing countries and the need to maintain manufacturers' business secrecy meant we required data from a perception survey. This study used a self-completion questionnaire to collect quantitative data, a popular data collection method in management research (Sapsford, 1999).

Simple random sampling was employed to select 550 RMG manufacturing firms based on the directory of the Bangladesh Garment Manufacturers and Exporters Association (BGMEA). In September 2019, invitation emails with the survey link were sent to senior officials, managers, and owners of 550 RMG manufacturers in Bangladesh. Attention traps were used to check whether participants stayed focused while answering the survey. One item "choose somewhat agree for this item if you are paying attention" appears at about one-third of the way through the survey and, the other item "choose somewhat disagree for this item if you are paying attention" was added two-thirds of the way through it. If the participants clicked the wrong item for these two attention traps, they were taken directly to the end of the survey. One invitation was sent to each firm. Of the 550 invitations, 116 were accepted and those individuals participated in the survey. In total, responses from 95 firms were usable, representing a 17 percent response rate.

## 2.3 Development of construct measurements

Table 1 provides details of the measurements of the constructs, factor loadings, reliability tests, and fit statistics. Based on the theoretical domain, this study developed four constructs, which are relational capital with buyer, relational capital with supplier, export performance, and technological turbulence. We control for the firm age and the size of a firm, which is measured by its number of employees (Giovannetti et al., 2013; Jiang, 2008; Nuruzaman et al., 2016). Based on existing literature, relational capital operates using a six-item scale (Jean et al., 2016; Whipple et al., 2015). The present study uses the same items to measure the relational capital of both the supplier and the buyer simultaneously (Whipple et al., 2015). Technological turbulence comprises a four-items scale (Wong & Ellis, 2007; Jaworski & Kohli, 1993). The seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), was adopted to measure most constructs in this study. Regarding export performance (Sousa & Novello, 2012), a four-item scale was used to measure a respondent's the level of satisfaction about their organization's export performance for a specific period. We also collected

information such as the age and size of the firm, which was included in our analysis.

**Table 1. Details of measures of the constructs, factor loadings, reliability tests, and fit statistics**

| Item description   | FL         | CR  | AVE |
|--|------------|-----|-----|
| <b>Export performance (1 = "very dissatisfied" to 7 = "very satisfied")</b>                                  | .82<br>.83 | .85 | .59 |
| ➤ Export sales growth  | .62        |     |     |
| ➤ Export profitability   | .79        |     |     |
| ➤ Export market share  |            |     |     |
| ➤ Degree of meeting expectations   |            |     |     |
| <b>Relational capital with buyers (1= strongly disagree; 7= strongly agree)</b>                              | .75<br>.76 | .86 | .55 |
| ➤ Our key international buyers are trustworthy.  | .74        |     |     |
| ➤ These buyers are genuinely concerned that we succeed.  | .61        |     |     |
| ➤ These buyers keep the promises they make.  | .62        |     |     |
| ➤ We believe the information these buyers provide us.  |            |     |     |
| ➤ The goals and objectives of both parties in the relationship with our international buyers are compatible. |            |     |     |
| ➤ We expect the relationship with our major international buyers to continue for a long time.                |            |     |     |
| <b>Relational capital with suppliers (1= strongly disagree; 7= strongly agree)</b>                           | .83<br>.81 | .90 | .51 |
| ➤ Our key international suppliers are trustworthy.   | .74        |     |     |
| ➤ These suppliers are genuinely concerned that we succeed.   | .79        |     |     |
| ➤ These suppliers keep the promises they make.   | .69        |     |     |
| ➤ We believe the information these suppliers provide us.   | .81        |     |     |
| ➤ The goals and objectives of both parties in the relationship with our                                      |            |     |     |

|   |     |     |     |
|---|-----|-----|-----|
| international suppliers are compatible.<br>➤ We expect the relationship with our major international suppliers to continue for a long time. |     |     |     |
| <b>Technological turbulence</b><br>(1= strongly disagree; 7= strongly agree)  | .66 | .80 | .61 |
| ➤ The technology in our industry is changing rapidly.   | .78 |     |     |
| ➤ Technological changes provide big opportunities in our industry.  | .55 |     |     |
| ➤ It is very difficult to forecast where the technology in our industry will be in the next 2–3 years.                                      | .82 |     |     |
| ➤ A large number of new product ideas have been made possible through technological breakthroughs in our industry.                          |     |     |     |

## 2.4 Analysis

We followed Kline (2005), and deleted respondents who did not answer key questions. To assess unidimensionality, this study conducted confirmatory factor analysis (CFA) by using the statistical software SmartPLS 3. All items were loaded significantly on their corresponding factors ( $p < .05$ ); loadings were all  $> 0.6$ , and all absolute  $t$ -values were higher than 1.96. An adequate level of convergent validity was indicated by these loadings (Fornell & Larcker, 1981). To assess the internal consistency of the measurements, the composite reliability of each construct was calculated. All composite reliability was  $> 0.7$ , which was above the recognized acceptable level of 0.7 (Fornell & Larcker, 1981). The average variance extracted (AVE) was found to be above .5 for all constructs. Table 2 indicates a good level of discriminant validity among the constructs in this study, as their diagonal elements are greater than the off-diagonal elements in their corresponding rows and columns (Fornell & Larcker, 1981).

Multicollinearity is measured by variance inflation factors (VIF). In this study, the VIF values were found to range from 1 to 2.84, which means the data set does not have the issues of multicollinearity (Shumon, 2019). Cross-loadings are absent from the

CFA model. The final CFA model demonstrated that the model has a good fit with the data set: Chi-square equals 354.97, SRMR= .093, NFI= .64.

**Table 2. Discriminant validity**

|                                      | 1     | 2     | 3     | 4     |
|--------------------------------------|-------|-------|-------|-------|
| 1. Export performance                | .768  |       |       |       |
| 2. Relational capital with buyers    | .629  | .706  |       |       |
| 3. Relational capital with suppliers | .505  | .702  | .780  |       |
| 4. Technological turbulence          | .439  | .520  | .434  | .709  |
| Mean                                 | 5.920 | 5.809 | 5.587 | 6.079 |
| SD                                   | .600  | .669  | .728  | .542  |

## 3. Results

This study used Structural Equations Modeling (SEM) to determine the relationships among the variables in the study. To assess the structural model, scholars suggested looking at  $R^2$ , beta ( $\beta$ ), and corresponding  $t$ -values via the bootstrapping procedure with a resample of 5000 (Hair, Ringle, & Sarstedt, 2011). We found relational capital with buyers positively and significantly affects the export performance of the firm ( $\beta = 0.387$ ;  $p < 0.05$ ). Thus, Hypothesis 1 is supported. Hypothesis 2 proposes that firms' relational capital with suppliers has a positive impact on their export performance. Contrary to expectations, relational capital with suppliers has no significant impact on export performance ( $\beta = 0.032$ ;  $p > 0.05$ ). Thus, Hypothesis 2 is not supported.

**Table 3. Summary of the findings**

| Hypothesis | $\beta$ | $t$   | $P$  | Supposed? |
|------------|---------|-------|------|-----------|
| H1         | .387    | 2.886 | .004 | yes       |
| H2         | .032    | .307  | .759 | no        |
| H3a        | -.306   | 2.754 | .006 | yes       |
| H3b        | .204    | 1.855 | .064 | no        |

Hypothesis 3a posits that technological turbulence negatively moderates the impacts of firms' relational capital with buyers on their export performance. Here, the effect of technological turbulence on firms' relational capital with buyers and their export performance is negative and significant ( $\beta = -0.306$ ;  $p < 0.05$ ). Hence, Hypothesis 3a is supported. Hypothesis 3b examines the moderating effect of technological turbulence on the impact of firms' relational capital with suppliers on export performance. However, the coefficient of technological turbulence is not significant for the

supplier's relational capital and export performance ( $\beta = -0.204$ ;  $p < 0.05$ ). Thus, Hypothesis 3b is not supported. Table 3 presents the summary of our findings.

\*\*\*Table 3 insert about here\*\*\*

#### 4. Discussion and implications

Within the interfirm learning-based perspective, recent studies demonstrate that firms' relational capital with international buyers helps them learn from their partners, which enhances their export performance (Yu et al., 2021). In contrast, interfirm relational capital does not indicate that firms are learning from each other, especially in developing countries, where learning and adoption of knowledge depend on various strategic and contextual factors (Dutta, 2012; Lei, Slocum, & Pitts, 1997). Thus, the relationship between relational capital with buyers and export performance is dubious in the existing literature.

Empirical findings from our study suggest a positive relationship between firms' relational capital with buyers and their export performance. This result supports our notion that firms' relational capital with their international buyers is a significant predictor of their export performance in the developing-country context, which follows the existing literature. Interfirm relational capital enables a producer to create a safeguard from information misappropriation to reduce fear in the transaction and to uncover the emerging needs of the market (Jean et al., 2016). Relational capital with buyers brings competitive advantages for a manufacturer. Thus, this empirical finding supports the literature about value chains (Sousa & Novello, 2012), which demonstrates that the distribution link in the value chain has now become one of the critical elements of success abroad.

This finding is consistent with the practical scenario of the RMG industry in Bangladesh. Azmeh and Nadvi (2014) found that the GVC is buyer-driven, reflecting the power of branded marketers and large retailers. Most garment companies in Bangladesh are subcontractors that produce finished goods based on their buyers' specifications (Nuruzaman et al., 2016). Here, the production of RMG depends mostly on the buyer's order. International apparel brands and retailers have a dominant negotiating position with local RMG manufacturers (Uddin, 2019). Thus, buyers play a vital role in the RMG industry. Relational capital with buyers is the most crucial predictor of RMG manufacturers' export performance.

The findings of this study demonstrate that technological turbulence negatively moderates the impact of firms' relational capital with international buyers on their export performance, which aligns with our expectations and is consistent with the literature.

The positive effect of relational capital with international buyers on export performance is lower when technological turbulence is high, a result that is consistent with established research (Hanvanich, 2006). Although the RMG industry is not highly technology-driven, improved technology currently plays a vital role (Rahman & Sayeda, 2016). Thus, the labor-based production system is decreasing the competitive strength of Bangladeshi manufacturers in the international market. In a technologically turbulent environment, firms try to retain the flexibility to terminate network relationships and switch to business partners with appropriate technological competencies (Kandemir, 2006). The contingency perspective supports this scenario as business firms always try to formulate their policy and action in line with the environmental changes. As the benefits of technology transfer between business partners depend on long-standing relationships (Kotabe et al., 2003), technological turbulence reduces learning opportunities by shortening strong interfirm relationships. Further, a firm's interfirm learning capacity depends on the endowment of necessary technology-based capabilities (Mowery, Oxley, & Silverman, 1996). However, a small firm or a firm from a developing country cannot cope with the regular adoption of new technology.

Contrary to expectations, the findings of this study did not support a significant relationship between manufacturing firms' relational capital with international suppliers and their export performance. Possible explanations for the insignificant relationship might be the high lead time identified by studies. Nuruzaman et al. (2016) found that a high lead time is a problem in the Bangladeshi RMG sector mainly because of import dependency on raw materials. Importing raw materials from foreign suppliers needs extra time which increases lead time. Manufacturers who import raw materials lag behind the manufacturers who collect supplies from local sources. In a turbulent market situation, customers' choices and preferences change frequently. Consequently, foreign buyers want to select and place orders with those manufacturers who can make available the products to the selling point in a short time than their competitors.

Besides, a weak negotiating position in GVC and dependency on international suppliers reduce local manufacturers' learning opportunities and the relational impact on their export performance (Lei et al., 1997). Thus, the impact of relational capital with suppliers is not clear to us.

This study fills the knowledge gap to show how relational capital impacts the performance of manufacturing firms in a global value delivery network. Drawing from the learning-based view

(Huber, 1991), this research also provides new insights into a developing-country context. Supported by the interfirm learning perspective, this study contributes to the knowledge of global commodity chains by testing the dependency of low-end producers on large brand marketers and international distributors. This research added to the existing literature on relational capital by testing its impact on the export performance of firms from the perspectives of buyers and of suppliers, which is comprehensive from a GVC perspective. Observations from this study contribute to research on the global apparel value chain by identifying technological turbulence as a significant moderator.

Finally, our research may guide government agencies to reduce import dependency through domestic backward linkages. Importing substitutions of important raw materials for an export-oriented industry would help local firms achieve a minimum lead time to deliver their products to international buyers. Observations from this study will change the concept of labor-intensive RMG production and encourage business managers to adopt updated technology in their production systems. Policymakers around the world could emphasize new technology adoption to cope with market demand.

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