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## External relationships and entrepreneurial orientation of tea manufacturing firms in Sri Lanka

### RESEARCH ARTICLE

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### Abstract

The purpose of this study is to examine the relation of external relationships and entrepreneurial infrastructure on the entrepreneurial orientation (EO) of tea manufacturing firms. An empirical survey was conducted with tea manufacturing firms located in a low grown area in Sri Lanka. Primary data were collected by administering a structured questionnaire at 109 tea factories. The findings indicated the importance of external relationships; specifically, relationships with supply chain partners and relationships with government facilitating institutions enhance the EO of tea manufacturing firms. However, relationships with other tea factories and educational and research institutions are not significant influences on firms' EO in the context of the Sri Lankan tea industry. When considering the dimensions of EO, risk taking is influenced by external relationships and not innovativeness and proactiveness. Further, the entrepreneurial infrastructure provided by related institutions except other tea factories have positive links with EO. Such contributions are important to managers and policy makers to enhance the EO of tea manufacturing firms when facing competitiveness in the global market.

**Keywords:** entrepreneurial infrastructure, entrepreneurial orientation, external relationships, Sri Lanka, tea manufacturing firms

**JEL code:** M13

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## 1. Introduction

Searching for new opportunities to increase firms' competitiveness is necessary when facing fierce competition. The entrepreneurial literature argued that entrepreneurial firms display more innovative, risk taking, and proactive behavior than rival firms because of their entrepreneurial orientation (EO) (Covin and Slevin, 1991). This paper is to examine the role of external institutions related to improve the EO of firms and considers the case of the Sri Lankan tea industry.

This study raises two guiding firm-level theories: the EO of the firm and the relational dimension of social capital theory. Entrepreneurial firms have been conceptualized as seizing the three main uniqueness characteristics of innovativeness, risk taking, and proactiveness (Covin and Slevin, 1991; Miller and Friesen, 1982). EO reflects the organizational process, methods, and styles that firms use to act entrepreneurially (Lumpkin and Dess, 1996). The relational dimension of social capital concerns the types of relationships that individuals have developed through a history of interactions. Further, relational capital takes into custody the level at which an entrepreneur actually obtains informational, physical, and emotional support in the business process (Liao and Welsch, 2005). Entrepreneurial firms which are able to establish strong relationships with external parties may develop competitive advantages over competitors that are unable or unwilling to develop such relationships (Dyer and Singh, 1998).

Limited understanding exists about entrepreneurship in developing countries (Fairoz *et al.*, 2010). Furthermore, studies on entrepreneurship in the Sri Lankan tea industry are rare and still in the growth stage. Hence, more in-depth studies emphasizing external relationships and entrepreneurship would assist in enhancing EO toward global competition in the tea industry. Empirical evidence exists on the independent effect of EO on performance (e.g. Zahra and Covin, 1995) and its contingent relationship with the external environment (e.g. Covin and Slevin, 1989). However, only few studies have examined the extent to which a firm's embeddedness in inter-firm networks influences its EO (Simsek *et al.*, 2003). Therefore, identifying how particular relationships enhance entrepreneurial behavior represents an important research agenda (Lee *et al.*, 2001). According to Stam and Elfring (2008), studying the effect of different access to social capital on EO is worthwhile. This study seeks to fill this gap by examining the relationship of relational capital and EO dimensions of proactiveness, innovation, risk taking, and overall EO.

This study investigated the degree of EO of tea manufacturing firms, the strength of their relationships with supply chain partners, other tea factories (OTF), government facilitating institutes, and educational and research institutes and the level of entrepreneurial infrastructure received from each institution. Therefore, specific objectives are:

- To examine the relationship between external relationships and EO and its dimensions as related to tea manufacturing firms.
- To understand the relationship between entrepreneurial infrastructure and the EO of tea manufacturing firms.

## 2. Theoretical background and hypotheses

### *Sri Lankan tea industry*

The tea industry generates 60% of the country's export agriculture revenue and is recognized as an important sector in Sri Lanka for reducing unemployment and poverty. Approximately 10% of the Sri Lankan population is employed directly and indirectly in the tea industry. The tea grown in Sri Lanka is classified into three different elevation zones: high grown (above 1,200 m), low grown (below 600 m), and mid grown (600-1,200 m). The principal production method in Sri Lankan tea factories is orthodox production, which accounts for more than 90% of the total production, whereas cut, tear, and curl (CTC) and green tea account for 7 and 1%, respectively. Additionally, instant tea and bio tea production accounts for less than 1%. More than 90% of the tea produced in Sri Lanka goes to the export market and more than 50% of tea exports are still in the

form of traditional bulk tea, with value-added tea exports accounting for approximately 40% of total tea exports. The Colombo Tea Auction is the main marketing channel used by tea manufacturers and accounted for approximately 95% of total tea sales. Private sales and direct sales are other marketing channels used by tea manufacturers. Sri Lanka is the one and only tea exporting country that firmly adheres to ISO 3720 standards (minimum product quality) for each kilogram of tea exported. Additionally, demand for the 'Food Factory Concept' and certification systems such as Hazard Analysis and Critical Control Point (HACCP), ISO 22000, and ISO 9001:2000, among others, is increasing (Sri Lanka Tea Board, 2012). To meet this demand, factory modernization or process automation is imperative.

The following institutions are dedicated to improving the Sri Lankan tea industry: the Tea Research Institute (TRI), the Tea Small Holding Development Authority (TSHDA), the National Institute of Plantation Management (NIPM), and the Tea Board (TB). TRI is responsible for generating and transferring scientific knowledge and technologies appropriate for stakeholders to improve productivity and quality. Formal training programs are conducted by NIPM, adding to the accumulated knowledge available through work experience. TSHDA increases the productivity and quality of the tea smallholding sector by providing support services, thereby providing quality green leaf to manufacturers. As the apex authority of the tea industry, the TB is responsible for hygienic tea production and factory modernization.

Compared with other tea growing countries around the world, some challenges that the Sri Lankan tea industry face today include the high cost of production, low field and factory productivity, and competition from other emerging producer countries that produce similar types of teas at much lower costs (Mohamed and Zoysa, 2006). Furthermore, a continual focus on orthodox and bulk tea could affect the country's competitive position, as global consumption patterns increasingly turn toward more convenient types of this beverage. Accordingly, upgrading the EO of tea manufacturing firms is essential because doing so will reflect their innovativeness, proactiveness, and risk-taking qualities – predominant factors in mitigating the challenges arising in the competitive tea market.

### *Entrepreneurial orientation*

Entrepreneurial firms strive to acquire competitive advantages by typically developing innovations and taking demanding risks (Miller and Friesen, 1982). The concept of entrepreneurship described at the organizational level is called EO (Covin and Slevin, 1991; Lumpkin and Dess, 1996). In line with prior research, EO is defined as the process, structure, and behavior of firms characterized by innovativeness, proactiveness, and risk taking (Covin and Slevin, 1989). Further, from the theoretical viewpoint, scholars have suggested that the dimensions of EO should be viewed as separate but allied constructs rather than as a single unifying characteristic (Lumpkin and Dess, 1996; Lyon *et al.*, 2000). According to Naldi *et al.* (2007) firms can vary in their degrees of innovativeness, proactiveness, and risk taking, making them not equally entrepreneurial across all dimensions. Accordingly, this research employed both the one-dimensional and the multi-dimensional aspects of EO.

The organizational imperative to introduce newness by adding value is described as an attribute of innovativeness. According to Lumpkin and Dess (1996), innovativeness reveals a tendency of a firm to actively seek new ideas, novelty, experimentation, and inspired solutions in pursuit of a competitive advantage. The concept of risk taking is well associated with entrepreneurship and can be described as the willingness of entrepreneurs to engage in calculated business-related risk (Brockhaus, 1980). Typically, EO firms display risk-taking behavior for which its risk-taking propensity can be inferred from its willingness to incur large resource commitments for uncertain businesses (Lee *et al.*, 2001; Lumpkin and Dess, 1996) such as developing design teas. The tendency to take the initiative to compete aggressively with other firms is called proactiveness (Covin and Slevin, 1989). Proactiveness is an important organizational process because it entails a forward-looking perspective of the firm. Being a pioneer by anticipating and pursuing new opportunities and participating in emerging markets is a property of entrepreneurship (Lee *et al.*, 2001). Therefore, EO may contribute to stronger performance by assisting a firm's capability in identifying

innovative opportunities with potentially large returns and target market segments, and by obtaining first-mover advantages (Lumpkin and Dess, 1996).

### *External relationships and entrepreneurial orientation*

External relationships perform a vital role in identifying entrepreneurial opportunities. This identification encompasses relationships with various entities, such as customers, suppliers, competitors, or research institutions. Kale *et al.* (2000) used the notion of relational capital to express the quality of a network. Relationships obviously matter to entrepreneurs; however, to identify how they function requires an understanding of social capital (Cope *et al.*, 2007). Nahapiet and Ghoshal (1998: 244) viewed social capital as 'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social units.' Further, they proposed that social capital is comprised of three dimensions: the structural dimension, the relational dimension, and the cognitive dimension. This study refers to the relational dimension of social capital.

The nature of the relationships that develop between parties is referred to as the relational dimension. This dimension is manifested in strong versus weak relationships (Nahapiet and Ghoshal, 1998). Further, Tsai and Ghoshal (1998) argued that the relational dimension refers to firms' direct relationships with others and the assets rooted in these relationships, such as trust. In addition to trust, the strength of a relationship is an important element within the relational dimension (Nahapiet and Ghoshal, 1998), and is address in this study. The strength of a relationship is reflected in the combination of characteristics, such as frequency, emotional intensity, intimacy, and reciprocal services (Granovetter, 1985). Cooke and Wills (1999) argued that relational capital facilitates the tacit exchange of information. Further, Lechner and Dowling (2003) emphasized that increasing relational capital can greatly enhance an enterprise's opportunities.

According to Gumusluoglu and Ilsev (2009), firms develop a wide range of relationships with different parties, such as cooperating with universities and research institutions for technical assistance and consulting and with public and private organizations to receive financial and technical assistance for their innovative projects. Further, collaboration with universities and research institutes provides a means to develop technical knowledge (Santoro and Gopalakrishnan, 2000). According to Zimmerman and Zeitz (2002), external relationships facilitate access to valuable resources (e.g. information, knowledge, physical and emotional resources) that support business growth and survival. In this study, relationships with external institutions are categorized as those with supply chain partners, OTF, government facilitating institutes, and educational and research institutes. On the basis of previous research, this study proposes receiving either knowledge or resource-based support from external institutions to enable interaction with other EO factors.

### *Entrepreneurial infrastructure*

This study also focuses on the issue of entrepreneurial infrastructure for the entrepreneurial process. Covin and Slevin (1991) confirmed that entrepreneurial activities need to utilize large quantities of resources. Therefore, resources obtain from outside organizations are defined as the entrepreneurial infrastructure. Furthermore, Gumusluoglu and Ilsev (2009) argued that availability of slack resources improve firm's innovative performance. According to Suzuki *et al.* (2002), firms seek better and more professional services and financial and institutional support. Therefore, the infrastructure needs to be constructed to strengthen the technical and business expertise to help firms take advantage of continually emerging venture opportunities. Further, government and policy makers need to remove barriers that prevent firms from acquiring the needed management resources by creating or facilitating public and private institutions that support the business.

### Research hypotheses

The following research model (Figure 1) is proposed on the basis of the aforementioned theoretical background and that considers the objective of the research. This study attempted to examine the role of external institutions in improving EO of tea manufacturing firms in Sri Lanka. Thus, the following hypotheses are proposed:

**H<sub>1</sub>:** Strong external relationships may enhance EO and its dimensions of tea manufacturing firms.

**H<sub>2</sub>:** An entrepreneurial infrastructure has a positive influence on the EO of tea manufacturing firms.

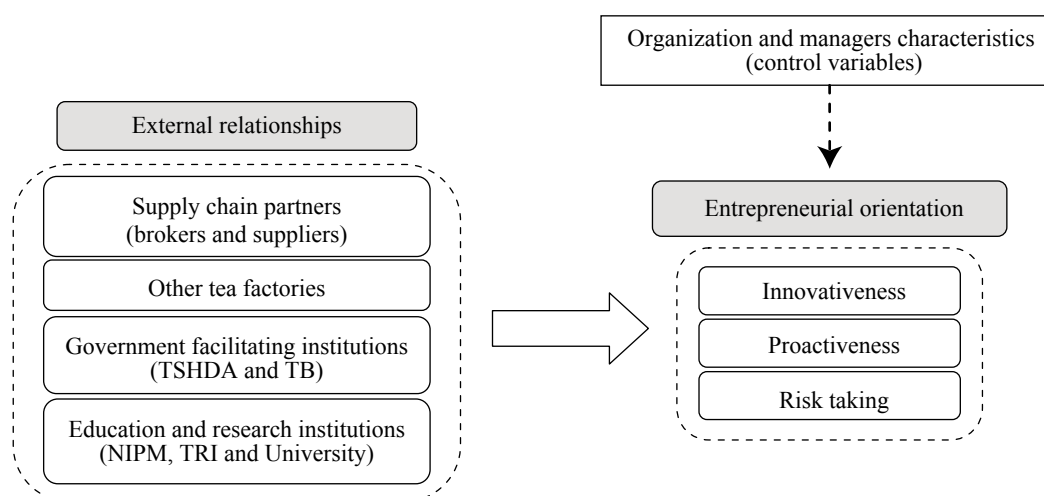
Figure 1 depicts the association between external relationships and EO. The entrepreneurial infrastructure, such as financial support, information sharing, education and training, innovation development, consultation, research and development support, and networking facilities, and except for suppliers, are provided by external institutions.

### 3. Materials and methods

#### Sample and data collection

In line with the research objectives, a tea manufacturing firm is considered to be the unit of analysis. The target population of the study was tea manufacturing firms located at low elevations with the highest contribution (60% in 2012) to total tea production of Sri Lanka, in contrast to high and middle elevations. In 2012, 425 tea factories were registered with the Sri Lankan Tea Board. First, this study selected four main districts – Rathnapura, Galle, Matara, and Kalutara – that make the highest contribution of low elevation production. A sample of 109 tea manufacturing firms were proportionately taken from each district depending on the number of tea manufacturing firms in each district and on the willingness of the owner or manager of the firm interviewed.

Empirical data were obtained through purposive sampling, which allowed the sample to fulfill two criteria. First, the firm should be a private sector tea manufacturing firm. Since based on their management structure, Sri Lanka Tea Board has categorized tea manufacturing firms as private sector, plantation companies and state sector. Second, the firm should have been established for more than five years. To analyze above



**Figure 1.** Model of associations between external relationships and the entrepreneurial orientation of the firm. TSHDA = Tea Small Holding Development Authority; TB = Tea Board; NIPM = National Institute of Plantation Management; TRI = Tea Research Institute.

proposed relationships it is important to obtain data from well established firms. The respondents involved in this research are comprised of 109 owners or managers who had good awareness about past and present organizational practices.

### *Instrument of measurement*

Primary data were collected during a survey using a pre-tested self-administered structured questionnaire (Supplementary Methods S1). Before data collection, we conducted a pilot study in which the owner/managers of four tea factories verified the understandability and content validity of the survey instrument.

This study defined external relationships through four variables, including relationships with supply chain partners, other tea factories, government facilitating institutions, and educational and research institutions. Green leaf suppliers and tea broker companies were categorized as supply chain partners. Government facilitating institutions have relationships with TSHDA and TB. The variable relationships with educational and research institutions consist of relationships with TRI, universities, and NIPM. Each relationship was operationalized as a compound of three measures: intensity, frequency, and reciprocal services (Granovetter, 1985). To measure the extent of the intensity, frequency, and reciprocal services of each institution, a Likert scale was used, where 1=no extent and 5=very high extent.

This study adopted the three dimensions of EO – innovativeness, proactiveness, and risk taking – to measure the EO that numerous studies documented as a high level of reliability and validity (e.g. Knight, 1997; Kreiser *et al.*, 2002). EO was measured using nine items, which were developed and tested for reliability by Covin and Slevin (1989) using a five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. This study used three items to measure innovativeness, three items to evaluate proactiveness, and three items to measure risk taking.

To measure the level of entrepreneurial infrastructure received from each institutional category, the infrastructure used by Suzuki *et al.* (2002) was adapted, including financial support, information sharing, education and training, innovation development, research and development, consultation, and networking facilities. A Likert scale, where 1=very little extent and 5=very high extent, was used to measure the level of benefits received from each institutional category.

### *Data analysis*

Regression analysis was used to test the hypothesized relationship in the research model. This analysis allows for an assessment of how well the dependent variable can be explained by the values of the independent variables. Hypothesis H<sub>1</sub> was tested using hierarchical regression analysis, which allows for an examination of the set of independent variables and the dependent variable after controlling for the effects of other independent variables on the dependent variable. In stage 1, the control variables were entered as predictors of EO. Then, the main effect predictor variables of relationships (supply chain partners, OTF, government facilitating institutions, and education and research institutions) were entered.

Before the proposed hypothesis was tested, regression analysis was performed to identify the control variables. Initially, organization and owners'/managers' characteristics, including size, availability of green leaf, stage of the firm, having other businesses, owners'/managers' education level, present age, training, and previous business experience were used as predictors of EO. Among them, the variables that significantly influenced EO and its dimensions were selected as controls in further analysis. Thereby, size, availability of green leaf, and owners'/managers' present age were used as control variables to test hypothesis H<sub>1</sub>. Further, correlation analysis was used to test hypothesis H<sub>2</sub> and, thereby, determine the relationship between entrepreneurial infrastructure and EO.

As previously declared, the scales used to measure all of the variables discussed in this study appear in the literature and were used in several studies. Therefore, the validity and reliability of the scales is not a main issue in this study. Before proceeding to the main hypotheses, this study assess whether the questionnaire yielded reliable results across populations. To assess the reliability of the scale items, this study used Cronbach's alpha, which is a widely used measure of internal consistency. Accordingly, the Cronbach's alpha coefficients for the variables were higher than or approaching the recommended level in Nunnally (1978) and indicated better internal consistency.

## 4. Results and discussion

### *Profile of tea manufacturing firms*

This section describes certain characteristics of tea manufacturing firms used in this research as shown in Table 1. Among them, 62% of the firms that engaged only in manufacturing bought green leaf, whereas the others use both own and bought green leaf. In compliance with the national situation, the tea produced in these manufacturing firms is principally the orthodox type, and only 10% of firms also produce CTC tea.

**Table 1.** Characteristics of tea manufacturing firms.

Characteristics	Frequency	Percentage
Category of tea manufacturing firm		
Both own leaf and bought leaf	41	37.61
Bought leaf only	68	62.39
Method of tea manufacturing		
Only orthodox	98	89.91
Both orthodox and CTC <sup>1</sup>	11	10.09
Marketing channels		
Auction	109	100.00
Direct export	5	4.59
Direct sales through sales outlet (local)	7	6.42
Through resellers (local)	9	8.26
Quality certificates <sup>2</sup>		
HACCP <sup>3</sup>	21	19.27
CQC and SLS <sup>4</sup>	38	34.86
ISO 22000	18	16.51
ISO 9001	8	7.34
Other	15	13.76
Total number of employees (size)		
30-149 (medium)	76	69.72
≥150 (large)	33	30.27
Types of products		
Black tea in bulk form	109	100.00
Special tea grades	25	22.94
Unique tea grades	2	1.83
Flavored teas	4	3.67
Green tea	2	1.83
Tea packets	17	15.60

<sup>1</sup> CTC = cut, tear and curl.

<sup>2</sup> Some factories have more than one certificate.

<sup>3</sup> HACCP = Hazard Analysis and Critical Control Point.

<sup>4</sup> Ceylon Quality Certificates and Sri Lanka Standards.



Their main product is black tea in bulk, whereas 15.6 and 2% of factories produce tea packets and green tea, respectively, as other products. Similar to the national situation, all tea manufacturing firms utilize the tea auction as their main marketing channel. In addition, 5% engage in direct export and 6 and 8% of firms utilize direct sales and resellers, respectively, as the mode of disposal in the local market. Sri Lanka is proud of its quality tea, and 43% of tea manufacturing firms have achieved some type of quality standard. Moreover, 19 and 17% of manufacturing firms have HACCP or ISO 22000 food safety certifications, respectively. In addition, 15% of firms are in the process of acquiring quality standards. With respect to ownership, 43% of firms are sole proprietorships, 21% are partnerships, and 36% are limited liability companies.

In terms of firm size, 70% of tea manufacturing firms are medium size in accordance with the definition of Small and medium-sized enterprises by the National Development Bank of Sri Lanka, indicating that they have between 30 and 149 employees. The figures imply that all of these tea manufacturing firms produce black tea in bulk form as their main product. Of the sampled firms, 50% have upgraded the quality of their tea grades and nearly 23% produce special tea grades such as silver tips, golden tips, special, and extra special tea grades. Two factories produce new tea grades – Jayachakra and Sun Pekoe – which are unique to them. A small minority of the firms produce tea packets, flavored tea, and green tea.

### *External relationships and entrepreneurial orientation*

This section describes the empirical evidence on external relationships and EO, and the dimensions of EO of tea manufacturing firms in Sri Lanka. Table 2 provides the descriptive statistics of the variables used in the analysis.

A two-stage hierarchical regression analysis was used to test hypothesis  $H_1$ . In stage 1, the control variables (size, availability of green leaf, and owner/managers present age) were entered as predictors of EO. Next, the main effect predictor variables were entered and results were presented in Table 3.

As model 1 illustrates, the coefficient for the relationship between supply chain partners' relation and EO is positive and significant. Similarly, the coefficient for the relationship between the relation with government facilitating institutions and EO is positive and significant. These findings indicate that relationships with supply chain partners and government facilitating institutions have a significant influence on the EO of

**Table 2.** Descriptive statistics of variables used for analysis.<sup>1</sup>

Variable	Mean	Standard deviation	Min	Max	Cronbach's alpha value	No. of items
EO <sup>2</sup>	32.94	6.890	16	45	0.833	9
Innovativeness	9.27	2.990	3	15	0.720	3
Proactiveness	12.14	2.481	6	15	0.783	3
Risk taking	11.54	2.949	3	15	0.682	3
Relationship with supply chain partners	26.74	2.675	20	30	0.780	6
Relationship with OTF <sup>3</sup>	6.49	1.956	3	12	0.752	3
Relationship with government facilitating institutions	17.19	3.560	7	27	0.806	6
Relationship with education and research institutions	18.92	4.186	9	31	0.834	9
Size (no. of employees)	124.35	96.772	40	500	n.a.	n.a.
Availability of GL <sup>4</sup>	258.19	14.464	238	277	n.a.	n.a.
Present age of owner/manager	46.66	11.334	25	85	n.a.	n.a.

<sup>1</sup> n.a. = not applicable.

<sup>2</sup> EO = entrepreneurial orientation.

<sup>3</sup> OTF = other tea factories.

<sup>4</sup> GL = Green Leaf, this is the extent of tea cultivation in district/number of tea factories in each district.

**Table 3.** Results of the analysis of external relationships and entrepreneurial orientation (EO).<sup>1,2</sup>

	EO Model 1	Dimensions of EO		
		Innovativeness Model 2	Proactiveness Model 3	Risk taking Model 4
Control variable				
Size (no. of employees)	0.048 (0.499)	0.134 (1.379)	-0.038 (-0.369)	-0.008 (-0.073)
Availability of green leaf	0.314*** (3.599)	0.317*** (3.570)	0.205** (2.177)	0.240** (2.564)
Owner/manager present age	-0.177** (-2.135)	-0.174** (-2.055)	-0.125 (-1.396)	-0.133 (-1.492)
External relationships				
Supply chain partners	0.265*** (3.220)	0.163* (1.939)	0.209** (2.349)	0.280*** (3.159)
OTF <sup>3</sup>	-0.110 (-1.244)	0.046 (0.507)	-0.014 (-0.148)	-0.291*** (-3.068)
Government facilitating institutions	0.379*** (3.681)	0.283*** (2.701)	0.347*** (3.126)	0.306*** (2.774)
Educational and research institutions	0.032 (0.282)	0.038 (0.330)	0.084 (0.669)	-0.039 (-0.316)
F-Statistic	7.781***	7.033***	4.678***	4.833***
R <sup>2</sup>	0.350	0.328	0.245	0.251
Adjusted R <sup>2</sup>	0.305	0.281	0.193	0.199
Change in R <sup>2a</sup>	0.177	0.095	0.161	0.163

<sup>1</sup> Standardized coefficients are displayed in the table and *t*-values are in parenthesis.

<sup>2</sup> Significance level: \**P*<0.1; \*\**P*<0.05; \*\*\**P*<0.01.

<sup>3</sup> OTF = other tea factories.

<sup>a</sup> Difference in adjusted R<sup>2</sup> with and without external relationships in the model.

the firm. Further, the results of model 1 illustrate that relationships with OTF and educational and research institutions are not tend to influence on EO of tea manufacturing firms. Normally, firms tend to build relationships with external parties for knowledge acquisition and resource acquisition. According to Brüderl and Preisendörfer (1998), social networks are supposed to be vital because they open up entrepreneurial possibilities by providing useful and reliable information. Therefore, by acquiring relational capital, firms tend to receive informational, physical, and emotional support for the business process. Although networks may facilitate the performance of entrepreneurial firms, not all relations do so equally (Peng and Luo, 2000), as revealed by the findings of this study.

This section would describe the relation of external relationships and EO of the tea manufacturing firms. As per model 1, the relationship with supply chain partners (coefficient=0.265, *P*<0.01) is positively and significantly related to the EO of tea manufacturing firms. Further, the results of models 2, 3, and 4 imply that the relationship with supply chain partners (the coefficients are 0.163, *P*<0.1; 0.209, *P*<0.05; and 0.280, *P*<0.01) is positively and significantly related to the firm's innovativeness, proactiveness, and risk taking. Tea manufacturing firms have strong relationships with supply chain partners because they are tea brokers and green leaf suppliers. Tea manufacturers use the auction as their main marketing channel through tea brokers. Therefore, they are able to obtain detailed information from tea brokers' companies through tea valuation reports, weekly and monthly average tea prices, and buyers' special requirements. Having this information enhances the competitive behavior directed toward rival firms. This concept is in line with Hitt *et al.* (2001), who noted that information received from external relationships helps identify potential entrepreneurial opportunities. Further, tea broker companies have the propensity to provide financial support whenever tea manufacturing firms undertake risky decisions, such as committing resources to ventures with uncertain outcomes or borrowing heavily, because doing so tends to increase the risk-taking behavior of the firm. Additionally, tea brokers facilitate the discovery of opportunities related to the tea industry and, thereby, enabling tea manufacturing firms to enhance their EO. Another supply chain partner concern in this study is green leaf suppliers who are primarily small tea holder farmers that provide green leaf, the main raw material in the tea manufacturing process. To ensure a continuous supply of good quality green leaf, tea manufacturing firms tend to develop their suppliers by providing financial support, fertilizer, transport

facilities, technical expertise, and welfare facilities, ultimately enhancing the EO of manufacturing firms. As revealed by the results indicated in Table 3, the availability of green leaf is positively and significantly related to EO and its dimensions of tea factories. Dyer and Singh (1998) argued that the ability to select the correct partners and maintain relationships with them is required to gain a competitive advantage through inter-firm relationships. Therefore, maintaining better relationships with supply chain partners is important because doing so tends to enhance the EO and its dimensions of firms.

As illustrated in model 4, the relationship with OTF (coefficients is  $-0.291$ ,  $P < 0.01$ ) is negatively and significantly related to the risk taking of tea manufacturing firms. Additionally, as revealed by models 1, 2, and 3 (respectively, the coefficients are  $-0.110$ ,  $P \geq 0.1$ ;  $0.046$ ,  $P \geq 0.1$ ; and  $-0.014$ ,  $P \geq 0.1$ ), the relationship with OTF does not significantly relate to the EO and dimensions of innovativeness and proactiveness. Results indicating that the relation with OTF not leads to risk-taking behavior of tea manufacturing firms. Because OTF are competitors, information that indirectly reaches them through such relationships may mislead and be distorted (Ingram and Roberts, 2000). In this context, tea manufacturing firms devote their resources to novel business such as producing designer teas individually. Furthermore, when considering the benefits received from OTF, Table 4 reveals that no benefit was significantly correlated with EO. Additionally, the findings of Nieto and Santamaria (2007) revealed that collaboration with a competitor negatively impacts the novelty of innovation.

When considering the relationship with government facilitating institutions, the direct actions or inactions of governments influence the level of firm's entrepreneurship, particularly as a result of the government's regulations and policies. Government facilitating institutions related to the tea industry in Sri Lanka execute several programs that were geared to its development, such as financial support for tea factory modernization and process improvement, enhancement of the quality of manufactured tea and green leaf, and others. As evident from models 1 to 4, the relationship with government facilitating institutions (the coefficients are, respectively,  $0.379$ ,  $P < 0.01$ ;  $0.283$ ,  $P < 0.01$ ;  $0.347$ ,  $P < 0.01$ ; and  $0.306$ ,  $P < 0.01$ ) is positively and significantly related to EO and its dimensions of tea manufacturing firms' innovativeness, proactiveness, and risk taking. Therefore, the relationship with government facilitating institutions has a significant influence on EO and its dimensions. This result is in line with the findings of Doloreux (2004), who stated that cooperation with the government has a significant influence on a firm's innovation.

The relationship between tea manufacturing firms and educational and research institutions typically occurs with TRI and NIPM. In addition, firms tend to also have relationships with universities. The results of models 1, 2, 3, and 4 illustrate (the coefficients are  $0.032$ ,  $P \geq 0.1$ ;  $0.038$ ,  $P \geq 0.1$ ;  $0.084$ ,  $P \geq 0.1$ ; and  $-0.039$ ,  $P \geq 0.1$ ) that relationships with educational and research institutions are not significantly related to overall EO and its dimensions of the firm. Santoro and Gopalakrishnan (2000) argued that collaboration with universities and research institutions is a way to develop technical knowledge, an objective that a firm cannot accomplish singlehandedly. However, in this context, the findings show that the relationship with educational and research institutions does not significantly influence EO.

### *Entrepreneurial infrastructure*

This section illustrates the level (mean values) of entrepreneurial infrastructure received by tea manufacturing firms from external institutions related to the tea industry in Sri Lanka. Correlation analysis was performed to identify the relationship between entrepreneurial infrastructures and a firm's EO (Table 4). Tea manufacturing firms received significant financial support from tea brokers (mean value=3.99); however, this fact does not significantly correlate with EO because its intention is not specified. Yet, the objective of government financial support (mean value=1.64) is clearly defined as enabling upgrades of the production processes of tea factories. The results revealed that financial support received from government institutions has a positive and significant relationship with EO.

**Table 4.** Level of benefits received and the correlation between entrepreneurial orientation and types of benefits.<sup>1,2,3</sup>

Types of benefits	Benefit provider			
	Brokers	OTF <sup>4</sup>	Government facilitating ins.	Educational and research ins.
Financial support	0.043 (3.99)	n.a.	0.407** (1.64)	n.a.
Information sharing	0.298** (4.02)	0.155 (2.74)	0.158 (3.30)	n.a.
Education and training	n.a.	n.a.	0.216* (2.80)	0.123 (3.16)
Innovation development support	0.220* (3.28)	0.047 (1.71)	0.306** (2.46)	0.137 (2.72)
Consultation	n.a.	n.a.	n.a.	0.095 (3.00)
Research and development	0.236* (2.20)	0.049 (1.23)	0.193* (1.47)	0.324** (2.05)
Networking facilities	n.a.	n.a.	0.321** (1.80)	0.127 (1.59)

<sup>1</sup> Mean values are in parenthesis.<sup>2</sup> Significance level of correlation: \* $P < 0.05$ ; \*\* $P < 0.01$ .<sup>3</sup> n.a. = not available.<sup>4</sup> OTF = other tea factories.

The results indicate that information shared by brokers has a positive and significant relationship with EO because the detailed information that they share helps improve forecasts of future demand and estimated customer preferences, as revealed by Uzzi (1997). Further, Shane and Venkataraman (2000) argued that social capital might make it possible to obtain information, which is an essential factor of entrepreneurial opportunities. However, information shared by OTF and government facilitating institutions is not significantly correlated with EO. Normally, education and training assists in enhancing the managerial and technical expertise of owners, managers, and other employees. This finding shows that education and training support received from government facilitating institutions is significantly correlated with EO.

The results illustrate that the innovation development support received from brokers and government facilitating institutions has a positive and significant relationship with EO. Government facilitating institutions launched several programs to upgrade the input (green leaf) quality and ensure the quality of manufactured tea as regulatory bodies. Research and development support received from tea brokers, government facilitating institutions, and educational and research institutions have a significant relationship with the EO of the firm. Obviously, research and development support will accumulate technical and managerial expertise, which helps to enhance EO. Likewise, networking facilities initiated by government facilitating institutions are significantly correlated with EO because they assist in enhancing the accessibility of information and resources. Additionally, note that the entrepreneurial infrastructure provided by educational and research institutions are not significantly correlated with EO, except for research and development support in this context. This lack of correlation might be the result of the entrepreneurial infrastructure provided by institutions that is not in line with the requirements of tea manufacturing firms.

## 5. Conclusion

This study addressed the external relationships and EO of tea manufacturing firms in low growing tea areas of Sri Lanka. The findings indicate the importance of external relationships; in particular, relationships with supply chain partners and government facilitating institutions enhance the EO of tea manufacturing firms. However, relationships with OTF and educational and research institutions do not significantly influence firms' EO in the context of the Sri Lankan tea industry. This study reveals a positive and insignificant influence of relational capital on the EO of firms. Therefore, these findings are partially in line with previous research (e.g. Lee *et al.*, 2001; Stam and Elering, 2008) that stated that social capital allows firms to enhance their EO. This phenomenon can be explained within the context of the Sri Lankan tea industry. At present, significant competition exists for green leaf among tea factories. Further, the findings indicate that the availability of

green leaf is a strong influence on EO and its dimensions of tea factories. According to Schmitz (1995), cooperation among firms depends on their perceived costs and benefits. Therefore, this study concludes that the relationship with supply chain partners and government facilitating institutions positively influence EO. In the Sri Lankan context, the relationship with competitors and educational research institutions does not significantly influence the EO of tea manufacturing firms.

When considering the dimensions of EO, innovativeness, proactiveness, and risk-taking behavior are significantly influenced by the relationship with supply chain partners and government facilitating institutions. Furthermore, risk-taking behavior is negatively influenced by the relationship with OTF. Therefore, among the dimensions of EO, risk taking is highly influenced by external relationships. With respect to entrepreneurial infrastructure, the benefits provided by tea brokers and government facilitating institutions are more likely to have positive relationships with EO, whereas the facilities provided by educational and research institutions are less likely to be significantly correlated with EO. Therefore, governmental and institutional policy makers should consider the fundamentals of entrepreneurship and ensure that infrastructure requirements are created to strengthen firms' technical and business expertise.

The findings of this study show that relational capital provides external networks for the discovery of opportunities to test new product ideas and to attain resources, similar to the prior study of Lee *et al.* (2001). Therefore, that relationships between firms and external institutions can also improve a platform to enhance a firm's EO under favorable industry context is concluded. Aloulou and Fayolle (2005) argued that strengthening entrepreneurship is essential to responding to a changing globalized environment.

This study indicates that external relationships are associated with higher EO, except in the case of relationships with OTF where the association with risk taking is negative. Further, the entrepreneurial infrastructure is positively linked with EO. Such empirical data make important contributions to the existing literature, particularly in explaining the role of external relationships with EO and its dimensions under a developing economic context. Another contribution is that research studies on entrepreneurship related to the tea industry in Sri Lanka are still rare. Such contributions are important to managers and policy makers to enhance the EO of tea manufacturing firms in Sri Lanka with respect to facing competitiveness in the global market.

This study has several limitations. It only examines the low country tea manufacturing firms; therefore, the results and recommendations are limited to within the industry context. Additional research that considers other industries would complement this study and enhance the generalizability of these findings. Further, the cross-sectional nature of this study may not have been the most appropriate approach because it fails to capture the dynamic interplay between relational capital and EO. Regarding the most advantageous external relationships, possibilities exist that institutions may want to have relationships with more entrepreneurial firms. Because this study did not analyze such trends, a longitudinal study may offer further remarkable insights.

Further, it is important to consider additional variables such as manager's competencies that touch on relation that emphasizes the impact external relations have on EO. Moreover, in this study, data were gathered from single source informants (owner/manager) in each firm. The underlying assumption behind this method is that such individuals are capable of providing opinions that reflect the company's behavior. According to Lyon *et al.* (2000), research using single-source self-reports – when carefully performed – are suitable and necessary means of operationalizing key constructs. However, a multiple informant approach could be adopted in future research.

## 6. Managerial and policy implications

The present study offers valuable insights for owner/managers and policy makers. The findings reveal that entrepreneurs can enhance their firms' EO by acquiring relational capital. To enhance the degree of EO of tea manufacturing firms in Sri Lanka, developing effective institutional support to obtain financial, human,

and information resources for use when initiating new business opportunities to develop their external environment is necessary. Doing so enables firms to overcome the obstacles they face in the entrepreneurial process. Further, the findings imply that some entrepreneurial infrastructures provided by external parties are positively correlated with firms' EO. Therefore, government and non-government sectors need to arrange their facilities in line with promoting the level of EO. At the same time, the findings reveal that external relationships with OTF have a negative influence on risk taking. Consequently, entrepreneurs need to fairly manage external relationships to minimize such effect.

Research institutions and universities are capable of sharing information and developing the technical knowledge that is important to enhance firms' EO strategies. However, the findings indicated that relationships with educational and research institutions are not significantly related to EO. Therefore, in the context of the Sri Lankan tea industry, the government needs to encourage research institutions and universities to assist tea manufacturing firms by focusing on their special requirements. Additionally, enhancing collaboration among government agencies and all stakeholders of the tea industry to enhance the productivity of tea lands and to ensure the quality of green leaf is needed because the availability of green leaf significantly influences the EO of firms and their dimensions.

## Supplementary material

Supplementary material can be found online at <https://doi.org/10.22434/IFAMR2015.0070>.

**Methods S1.** Questionnaire.

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