Reaping the Benefits of Long Term Relationship with Suppliers: An Evidence from the Saudi Chemical Industry

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Abstract

Long term relationship with suppliers is broadly considered a vital contributor to supply chain performance by both practitioners and researchers. This paper investigates the role of long term relationship in strategic supplier partnership and financial performance (SSP-LR-P model). Specifically, it has observed the role of long-term supplier relationship as the driver of integration. Using structural Equation modeling (SEM) to analyze the data from 401 Saudi chemical and petrochemical firms, it is found that strategic supplier partnership has a significant direct and indirect effect on firms' performance through the mediation of long term relationship.

Keywords: supply chain management, performance, long term relationship, supplier partnership, Saudi Arabia, chemical industry, SEM

1. Introduction

During the past two decades, there has been a growing interest among researchers in the Strategic supplier relationships (Adams et al., 2014; Cannon & Perreault, 1999; Deshpande, 2012; Li et al., 2006; Prajogo & Olhager, 2012; Zhang et al., 2015). Today, when the market has become more competitive the need for integration and partnership with suppliers and long term relationship is growing. Firms partnering with their suppliers have developed as an overwhelming topic in the literature on Supply Chain Management (SCM) (Handfield & Nichols, 2002; Holloway & Parmigiani, 2016; Laura Horvath, 2001). This diversion is keyed up by an emergent range of evidence that proposes that strategic supplier partnership (SSP) can create numerous valuable results. For instance, there are case studies and contextual analyses of prominent firms like Dell, HP and Wal-Mart (Hau, 1995; Magretta & Dell, 1998; Slater, 2003) that have close communitarian strategies with their Supply chain partners. Additionally, SSP has emerged to empower organizations to manage the negative effects of the "bullwhip impact" by diminishing fluctuations in inventory and turning out to be more receptive to the impulses and businesses instability (Holweg et al., 2005). Further, various studies using cross-sectional data demonstrate that SSP positively affects the financial performance (Tan et al., 2002; Vickery et al., 2003). Moreover, similar studies demonstrate that organizations with strong SSP have more significant returns than those in slighter relationships (Niklas Myhr & Robert, 2005; Themistocleous et al., 2004).

In order to counter these challenges, many firms have included their supplier function as an integral part of the corporate planning strategy. They do reap the benefits and advantages associated with integrating supply chain into strategic planning. This improved performance is caused by SSP. Long-term relationship (LR) of firms with suppliers is an important intervening variable behind the success of SSP. The LR with supplier firm lets organizations make more timely and effective delivery of goods and services to both their internal and external customers. In order to further explore this relationship, based on stakeholder theory and relational management approach, this paper has modeled the long term relationship as an important intervening variable which mediates the relationship between SSP and firm performance. This accounts as adopting a strategic approach for organizing different supply chain elements. For example, companies are structuring strategic alliances with suppliers and hence are often viewing them as partners and stakeholders instead of competitors.

The paper is organized as follows. Introduction section is followed by the conceptual framework and hypotheses. Then, the research methodology section describes measures, and sampling. Subsequently the findings are presented in data analysis section. Then discussion section is followed by future research directions and limitations.

2. Literature Review

This section discusses the literature review and conceptual development of research model and frame work used for hypothesis development.

2.1 Research Model

The study proposes that SSP practices effect organizational performance directly as well as indirectly through Long-term relationship. The constructs of SSP, LR and firm performance are operationalised as in existing literature (Li et al., 2006; Prajogo & Olhager, 2012). Using literature support, the expected relationships among SSP practices, LR, and performance are hypothesized to formulate a SSP-LR-P model. The Fig. 1 displays the schematic representation of this theoretical framework which summarizes the hypotheses.
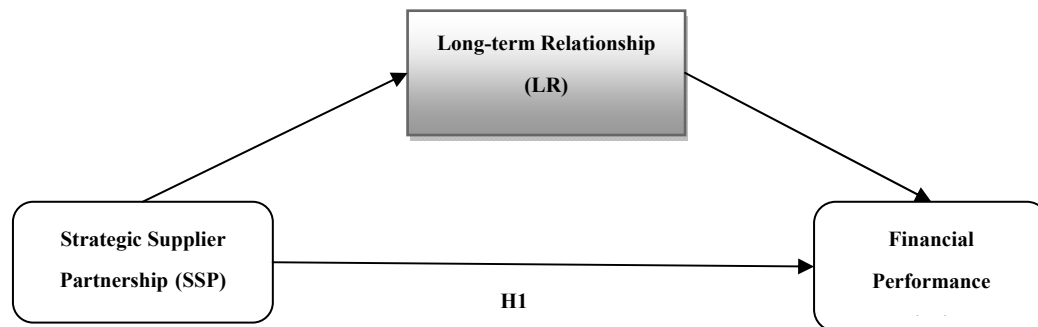
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                    ┌─────────────────────────┐
                    │  Long-term Relationship │
                    │          (LR)           │
                    └─────────────────────────┘
                   ↗                           ↘
┌──────────────────────┐                      ┌──────────────────┐
│ Strategic Supplier   │                      │   Financial      │
│ Partnership (SSP)     │─────────────────────→│  Performance     │
└──────────────────────┘         H1           └──────────────────┘
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Figure 1. SSP-LR-P model

2.2 Strategic Supplier Partnership (SSP) and Financial Performance (FP)

SSP is characterized as the relationship of organization with its suppliers. It is intended to influence the strategic and operational abilities of suppliers taking an interest to help them accomplish critical progressing returns (Balsmeier & Voisin, 1996; Deshpande, 2012; Droge et al., 2004; Li et al., 2006; Monczka et al., 1998; Nick Rich & Peter Hines, 1997; Prajogo & Olhager, 2012; Sheridan, 1998; Stuart, 1997; Zhang et al., 2015). A successful firm accentuates immediate, long term relationship and supports critical thinking endeavors (A. Gunasekaran et al., 2001). Such key relations result into higher mutual advantages among the groups and continuous cooperation in one or more critical territories (Yoshino & Rangan, 1995). The relationship with key supplier firms empower the managers to work viably with certain vital supplier entities, who might be willing to fulfill their commitments regarding the achievement of goals. Suppliers partaking ahead of schedule in the goods outline procedure can offer more financially savvy plan decisions, choose the best segments and innovations, and help in configuration evaluation (Tan et al., 2002). Deliberately adjusted firms be able to work firmly mutually and annihilate inefficient exertion and time (Balsmeier & Voisin, 1996). A powerful SSP can be a basic part of a main frame supply chain (Ghalayini et al., 1997).

Financial performance (FP) alludes to how well an organization accomplishes its business and money related objectives (Yamin et al., 1999). The ephemeral goals of SCM are mainly to raise efficiency and lessen cycle duration and inventory, while long-term goals are to increase profit for all stakeholders and higher market share (Tan et al., 2002). The financial measurements do serve the purpose of a device for looking at firms' and assessing their performance after some time (Holmberg, 2000; Li et al., 2006). Any organization initiative like supply chain management ought to at last prompt an improved organizational performance.

Therefore, the hypothesis framed is:

H1: There is a significant relationship between strategic supplier partnership (SSP) and financial performance (FP).

2.3 Long Term Relationship

In twenty-first century, the methods firms utilize to interface with suppliers are improved essentially. Since the organizations are getting increasingly centered around their core competencies, so their dependence on key suppliers increases (Hamel & Prahalad, 1990). The key issues in literature on supplier relations are discussed below.

To start with, the model currently is to create a long term relation with suppliers as opposed to transient contracts

(Helper, 1991; Monczka et al., 1998). Secondly, in concurrence with the principal point of view, firms now utilize less suppliers during a more extended timeframe as opposed to maintaining a substantial base of suppliers which permit them to change them for practically each agreement. The advantages of having low cost come about since competition between the suppliers is presently transformed into phenomenon of low total cost ownership because of longer term and extensive amount of purchases (Helper, 1991). Thirdly, the link with suppliers is improved into a such critical level that suppliers are presently deemed as the essential component of the operations of firm as stakeholders (Chen et al., 2004; Choi & Hartley, 1996; E. Cantor et al., 2014; Kotabe et al., 2003; Li et al., 2006; Prajogo & Olhager, 2012; Zhang et al., 2015). This change has prompted different boulevards of cooperation, including shared change program, the early supplier incorporation in product design, and sharing of profit and loss. One element of critical supplier relationship is extended and widened life span.

LR have a few ramifications, like firms might be prepared for placeing huge interests in relationship building (De Toni & Nassimbeni, 2003). It is found in another study that the more worth mentioning the common trust, the more prominent will be the adaptation and SSP as well as better performance (Klein, 2007). Further, LR introduction influences the Suppliers strategic networking with the organization and the firm performances (Sheu et al., 2006). Also there is found to be a significant relationship between LR with suppliers and associated benefits for firms (Paulraj et al., 2008).

In another study, Chen and Paulraj (2004) displayed a LR as a possible antecedent of the organization's performance. Similarly, Vickery et al. (2003) recommended that LR can bring about enhanced firm performance, and De Toni (1999) found that superior performing firms display a enhanced use of long term supply contracts with suppliers. Also, Singh and Power (2009), found that successful supplier collaboration directly affects firms' performance. Therefore, the hypothesis framed is:

H2: Long term relationship (LR) mediates the relationship between strategic supplier partnership (SSP) and financial performance (FP).

3. Research Methodology

3.1 Measures

This study has adopted a 7-point likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) to empirically examine the hypothesized SSP-LR-P model. SSP is measured using the instrument used by Li et al. (2006), while LR is measured using the measure proposed by Prajogo et al. (2012).

Various earlier studies have measured firm's financial performance (FP) using the measures of return on investment (ROI), return on Sales (ROS), profit margin, market share, the ROI growth, the sales growth, the market share growth, and overall competitive position (Al-Shuaibi et al., 2016; Prajogo & Olhager, 2012). Accordingly, in this study, the same items are adapted to measure organizational performance.

3.2 Sample and Data Collection

The sample of this study consists of all sizes of firms operating in the Chemical and petrochemical industry in three major regions of Saudi Arabia namely; Western, Eastern and Central Provinces. Firms in these three regions account for 89.9% of the total firms in the Chemical and petrochemical industry in Saudi Arabia (Business Directory, 2014). Saudi Arabia is a leading economy in Middle East and North Africa (MENA) region and is considered one of the most rapid developing GDPs among G-20 nations ("CIA Factbook," 2015), known for being highest on the "Ease of Doing Business index" in MENA region 2013 (World Bank, 2014).

The researcher contacted the CEOs of each of the total 606 Chemical and Petrochemical firms in these three regions to seek their participation in the study. In the wake of acquiring their affirmation, an electronic survey was sent to them. It allowed the respondents to reply with no social desire biasedness and to stay anonymous as guaranteed in the attached introductory letter (Chung & Monroe, 2003). Following a week, an update email was made to increase the response rate. Other than guaranteeing the confidentiality and privacy, it was underlined that there is no set in stone answer that may diminish further the social attractive quality predisposition (Randall & Gibson, 1990).

3.3 Survey and Response Rate

The achieved sample is 416 out of total 606 targeted firms, but, after missing data analysis, only 401 useable responses were left. It constitutes the good response rate of 66.17% which was accomplished because of individual update calls and messages. The non-response bias was tried by looking at both late and early respondent's information. The characteristics of the sample are shown in Table 1, demonstrating the equal distribution of the sample.

Table 1. Characteristics of sample

Variable	No. of firms	%
Type of Firm		
Wholly Saudi	83	20.70
Joint venture	318	79.30
No. of years in operations		
3-10	36	8.98
11- 20	93	23.19
>20	272	67.83
No. of Products		
1-2	31	7.73
3-6	164	40.90
12-7	187	46.63
> 12	19	4.74

4. Data analysis and Results

The study has analyzed the data stepwise in order to test the hypothesized relationships. Firstly, for Common Method Bias (CMB) as well as normality and multicollinearity were checked. Then, measurement validity and reliability were examined using Confirmatory Factor Analysis (CFA) (Anderson & Gerbing, 1988). The researcher performed CFA to observe the factorial validity of the factors and to assess the goodness of fit of the model. After determining the both convergent and discriminant validities, the hypothesized model was analyzed with the help of Structural Equation modeling (SEM). The main focus was on assessing the direct effects of Supplier partnership on firm performance and indirect effect through Long term relationship. SEM with bootstrapping was employed to assess the mediation (Anderson & Gerbing, 1988).

4.1 Preliminary Analysis

The data was verified for normality and multicollinearity and is found to be without any issue in this regard. As a rule of thumb, if tolerance is below 0.1; and Variance inflation factor (VIF) is higher than 10 or on an average much greater than 1, multicollinearity may exist (Hair et al., 2010). In this data the VIF values for both predictor variables of Strategic Supplier partnership (SSP) and Long-term Relationship (LR) were less than 3 and tolerance was also 0.34 showing multicollinearity is not an issue for this data.

4.2 Common Method Bias (CMB)

CMB could be potentially present (Podsakoff et al., 2003) due to inherent nature of study as the data was obtained through self-reported survey with a cross-sectional research design. Data was scrutinized through several tests like Harman's Single-factor, one-factor CFA, and Common Latent Factor in order to ensure the quality of data (Podsakoff et al., 2003). Consequently, CMB is found not to be a peril for this study.

4.3 Measurement of Reliability and Validity

The scores of Composite Reliability shows values above 0.8 and Cronbach alpha values higher than 0.8 thus showing high internal consistency and reliability (see Table 2). They were in line with the recommended thresholds (Hair et al., 2010; Shook et al., 2003).

The data was meticulously tested for measurement validity. The validity is measured using Average Variance Extracted (AVE), whose value must be larger than the recommended value of 0.50 for convergent validity (Fornell and Larcker, 1981). The Table 2 shows that the AVE for all the constructs is higher than the recommended value of 0.50, indicating satisfactory convergent validity (Hair et al., 2010). Additionally, Average Shared variance (ASV) found to be lesser than AVE, indicating good discriminant validity for the constructs (Hair et al., 2010). Thus, both convergent validity and discriminant validity are established. The results for reliability and both convergent and discriminant validity of the construct measures are documented in Table 2.

Table 2. CFA summary

Variables	Code	Item Details	Factor Loadings
Strategic Supplier Partnership α=0.81, CR=0.8, AVE=0.5, ASV=0.4	SSP1	We consider quality as our number one criterion in selecting suppliers.	0.63
	SSP2	We regularly solve problems jointly with our suppliers.	0.79
	SSP3	We have helped our suppliers to improve their product quality.	0.71
	SSP4	We have continuous improvement programs that include our key suppliers.	0.60
	SSP5	We include our key suppliers in our planning and goal-setting activities.	0.48
	SSP6	We actively involve our key suppliers in new product development processes.	0.64
Longterm Relation ship α=0.9, CR=0.91, AVE=0.72, ASV=0.4	LR1	We expect our relationship with key suppliers to last a long time.	0.85
	LR2	We collaborate with key suppliers to improve their quality in the long run.	0.84
	LR3	The suppliers see our relationship as a long-term alliance .	0.82
	LR4	37. We view our suppliers as an extension of our company.	0.87
Financial Performance α=0.86, CR=0.85, AVE=0.5, ASV=0.2	FP1	Relative to our competitors, Our Market Share has been	0.73
	FP2	Relative to our competitors, Our Return on investment has been	0.84
	FP3	Relative to our competitors, Our Growth of Market Share has been	0.78
	FP4	Relative to our competitors, Our Growth of Sales has been	0.64
	FP5	Relative to our competitors, Our Profit Margin on Sales has been	0.76
	FP6	Relative to our competitors, Our overall competitive position has been	0.38

α=Cronbach Alpha, CR=Composite Reliability, AVE = Average Variance Explained, ASV= Average Shared Variance

4.4 Confirmatory Factor Analysis (CFA)

Despite the fact that, this study has utilized certain previously established measures to gauge the develops of Strategic supplier Partnership, Long term relationship, and Financial Performance, however CFA was performed to test their dimensionality and validity in Saudi Arabia. Confirmatory Factor Analysis (CFA) utilizing maximum likelihood method was performed. Table 2 shows the variable loadings for items retained after CFA.

Post-CFA items organized in Table No 2 demonstrates the reasonably high variable loadings somewhere around 0.5 and 0.87 for the vast majority of the items (Kline, 2010). Just one item with loading of 0.4 was held because of its significance and validity scores stay adequate notwithstanding the inclusion. The fit indices for CFA were within good range *(Chi square= 160, df=92, p=0.00, CMIN=1.74, RMR=.04, GFI=0.912, CFI=0.959, TLI=0.946, RMSEA=0.06, PCLOSE=0.127)*. The factor structure has achieved reliability and the adequate convergent and discriminant validity (Hair et al., 2010). In the wake of achieving a factor structure, the estimation model was based on its premise and was tested in the AMOS utilizing SEM path analysis.

4.5 Hypothesized Model Testing

With a specific end goal to test the theory and to look at the presence of mediation by Long term relationship, the procedure suggested by Baron and Kenny (1986) is utilized. The researcher resorted to the method of Structural Equation Modeling (SEM), using maximum likelihood estimation, to test the hypothesized model.
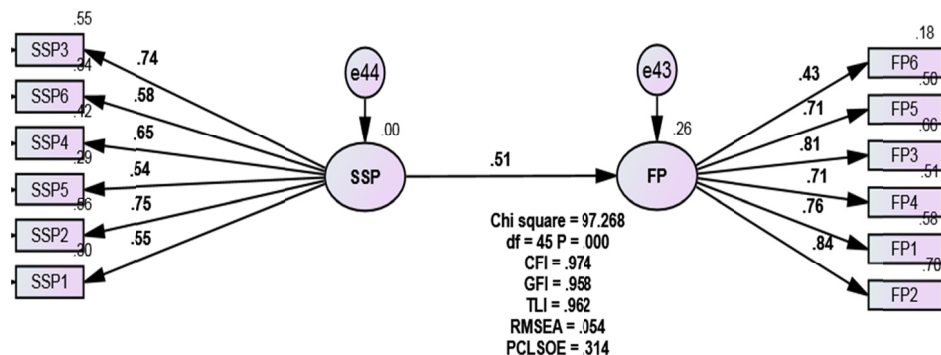

Figure 2. The basic model

Firstly, this study tested the hypothesized basic SSP-FP relationship (see Figure 2). The model fits are evaluated using the different indices including the *Goodness-of-fit index (GFI), Normed fit index (NFI), CMIN, chi-square (χ2), degree of freedom (df), Comparative fit index (CFI), and the Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR)* because of stability, robustness, and lower sensitivity to the size of sample (Hair et al., 2010). The findings signified a good fit to the data *(CMIN/df=2.1, CFI=0.974, GFI= 0.958, TLI= 0.962, CFI=0.974, RMSEA=0.054, PCLOSE=-0.314, RMR=0.036)* indicating a significantly positive SSP-FP relationship. Hence, it indicates the acceptance of the first hypothesis that strategic supplier partnership leads to financial performance.

In the next phase, the mediation effects in the hypothesized model are examined (Figure 3), using boot strapping method in AMOS (Bollen & Stine, 1990, 1992; Shrout & Bolger, 2002). The rules and procedure suggested by Hair et al. (2010) were followed in order to examine the hypothesized model, and estimated the goodness-of-fit. The SEM was employed because it gives statistical efficiency and its capacity to comprehensively analyze the relationships (Hair et al., 2010). Furthermore, it is predominantly suitable for investigating the multiple dependence relationships like the ones hypothesized in SSP-LR-P model. The results indicate the good fit of the data (see Table 3).
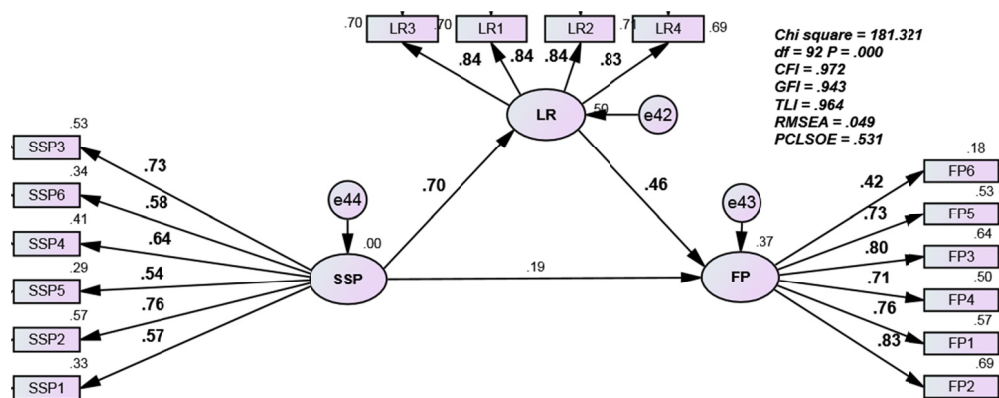

Figure 3. SEM model

The results in Table 3 indicates the presence of partial mediation as the formerly significant relationship of SSP-FP becomes less significant by introducing the mediating variable (Baron & Kenny, 1986). The findings reveal positive relationship between SSP, LR and FP (See Fig 3). Hence hypothesis No 2 is accepted. The model suggests that SSP is linked with the increased financial performance, though indirectly through LR. Given the results, SSP results in an increased FP, through the LR with the suppliers. Hence, both hypothesis are accepted including the partial mediation of innovation.

Table 3. Mediation summary results

Hypothesis	Direct Beta without Mediator	Direct Beta with Mediator	Indirect Beta	Mediation type observed
SSP-LR-FP	0.456***	0.192**	0.321***	Partial Mediation
Hypothesis I			Accepted	
Hypothesis II			Partially Accepted	

5. Discussion

This study adds to the empirical research stream on Supply Chain Management (SCM) by examining the associations amongst SSP, long-term relation, and performance as per the hypothesized SSP-LR-FP model. By and large, the consequences of this examination give empirical confirmation that successful SSP is induced by long term relationship. In particular, this study adds to SCM on with the following regards.

Firstly, the basic idea of this article is that organizations that seek after supply chain partnerships ought to compare at increasing long term relations with suppliers. If these cooperative endeavors be successful, then it is a sensible desire that enhancements in performance would come about. The researcher has described the way how

the Strategic supplier Partnership (SSP), long term relationship, and firm performance develops, and the resultant theoretical model that demonstrates the connections between these constructs.

Secondly, the deliberation further shows the immediate impact of long term relations on firm's performance which by intervening the SSP and FP relationship. This finding strengthens the significance of long term relationship with suppliers, while making any supply chain relationships of firms. As indicated by the Relational view Theory (RVT), firms require to supplement their in-house competencies with additional capabilities, that cannot be produced internally so as to attain a higher performance (Dyer & Singh, 1998; Dyer & Nobeoka, 2002). The successful approach to attain and endeavor such abilities is by constructing long term and firm relations with the suppliers who have these capabilities. These findings in this way recommend that while strategic supply partnerships as well as the long term relationship are critical yet as alone they won't maximize the advantages which firms can obtain from the suppliers.

Whilst at one level, the argument of firms to seek after long term relations with key suppliers is self‑evident, the literature gives firm grounds why some organizations probable careful regarding making such connections with suppliers (Adams et al., 2014; Chang-xin et al., 2014; Cruz, 2013; Deshpande, 2012; Liu et al., 2015; Singh & Power, 2009; Zhang & Wang, 2011). Further, since strategic partnership by definition includes plural parties, others perhaps not be as energetic on becoming partners to the beginning firm. Subsequently, organizations intrigued by growing such relations have to conclude and remain astute of all the critical variables that add to rewarding outcomes (Arora et al., 2016; Daniel Prajogo et al., 2016; Stadtler, 2015). Explaining and clarifying a few of these has been the focal idea of this article.

The appraisal which is based on SEM based shows the general fit between the theorized model (SSP-LR-P) and information demonstrated that there is a significant amount of empirical evidence. It can be seen that model fits well inside the threshold of good fits. Further, the second hypothesis of identifying of mediation by the long term relations proposed is also upheld. This experimental evidence authorizes the model to be manifested as a conceivable path for organizations, so as to use for creating collective strategies with their key Supply chain partners.

6. Limitations and Future Research Directions

Although this study has contributed to both theory and practice, yet there are certain limitations that might be considered while deciphering the findings of current study. At first, since the study has only 401Chemical and Petrochemical firms as the sample from the three big regions of Saudi Arabia, and subsequently sample power, region selection, and industry characteristics are constrained. In this manner, generalizability of study findings still need to be further confirmed.

Future examination ought to include sample limit and apply numerous strategies to acquire data. In future exploration, it will enthusiasm to research the relations at the sub-dimensional level between SSP, LR, and performance. Such study would give all the more interesting and valuable results for academics and practicing experts. The study has been obliged to utilize cross sectional information and single source of data that can be developed and approved by using the longitudinal and multisource information to evade the common method bias connected with such kind of studies. The financial performance was measured subjectively which can be approved by utilizing object measures to validate these findings. The hypothesized model is researched from a single country point of view, so the focus can be augmented in future by including more countries on worldwide level.

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