

The Relationship between Supply Chain Leadership and Suppliers' Performance in Manufacturing Industries

Ahmad Rais Mohamad Mokhtar
Sheffield University Management School
The University of Sheffield
Conduit Rd, Sheffield S10 1FL
Tel: +447761898567
Email: arbmohamadmokhtar1@sheffield.ac.uk

Andrea Genovese
Sheffield University Management School
The University of Sheffield
Conduit Rd, Sheffield S10 1FL
Tel: +441142223347
Email: a.genovese@sheffield.ac.uk

Andrew Brint
Sheffield University Management School
The University of Sheffield
Conduit Rd, Sheffield S10 1FL
Tel: +441142223470
Email: a.brint@sheffield.ac.uk

Niraj Kumar
Liverpool University Management School
The University of Liverpool
Chatham St, Liverpool L69 7ZH
Email: niraj.kumar@liverpool.ac.uk

The Relationship between Supply Chain Leadership and Suppliers' Performance in Manufacturing Industries

Drawing upon social exchange theory (SET), this paper investigates the role of buyer firm's leadership approaches toward supply chain performance. Moreover, this paper examines the mediating role of trust and power on the relationship between supply chain leadership and supply chain performance. By using a sample of 190 manufacturing companies, this paper employs a structural equation modelling technique for concluding that transformational and transactional leadership were significant contributors towards supply chain performance (suppliers' quality, cost, flexibility and reverse performance), while passive leadership negatively influenced suppliers' cost performance. This study also found that trust and power mediated the relationship between supply chain leadership and suppliers' cost performance. Overall, this study suggests that each buyer-supplier relationship is unique and the concept of relying only on single leadership approach can be misleading.

Keywords – Supply Chain Leadership, Performance Measurement, Buyer-Supplier Relationship, Social Exchange Theory

Introduction

It has been argued that strong commitment and excellent leadership are required to improve competitiveness and sustainability of supply chains (Defee et al., 2009; Gosling et al., 2017). In contrast to traditional leadership, SCL is concerned with the ability of an organization (for example, the buyer firm in a supply chain) to influence followers' (for example, suppliers) actions or behaviours (Defee et al., 2009; Gosling et al., 2017). Within this context, SCL has been identified as the antecedent towards supply chain performance including organizational learning (Hult et al., 2000a), purchasing cycle time (Hult et al., 2000b), supply chain efficiency (Defee et al., 2010), supply chain learning (Gosling et al., 2017), sustainability (Blome et al., 2017) and supply chain agility (Dubey et al., 2018). Unfortunately, the SCL concept explained in the literature is lacking of consistency in defining SCL dimensions and styles. Nevertheless, majority of the studies in supply chain and operations management domain were focusing on transformational leadership to define SCL without any consideration on transactional leadership. As of to date, less emphasize was given to transactional leadership, and no comparison has been made between leadership approach (transformational and transactional) and non-leadership approach (passive) to fully understand the role of buyer firms' leadership style. Moreover, there is a dearth of empirical studies devoted to the relationship between SCL and other antecedents toward supply chain performance (SCP), such as inter-organizational trust and power (Harland et al., 2007; Gosling et al., 2017). This study aims at filling these gaps providing an empirical investigation into the relationship between SCL and supply chain performance, also considering the mediating role of trust and power.

Background of the Study

The concept of SCL is derived from classical leadership theories. However, in contrast to the classical or traditional leadership theories (which focus on micro and inter-personal level), SCL focusses on macro and inter-organizational levels. Usually, in the supply chain management context, a distinction is operated between *transactional* and *transformational* leadership styles. *Transactional leadership* in SCM context is referring to the ability of the buyer firm to influence supply chain members' actions and behaviours by enforcing rewards and punishments (Birasnav et al., 2015). Birasnav et al. (2015) further deduce that buyer firms who are committed toward contract compliance such as defect inspection and quality monitoring are practising transactional leadership on their suppliers. On the other hand, *transformational leadership* in SCM context is referring to the ability of a buyer firm to motivate and stimulate

their supply chain members' actions and behaviours. By exhibiting transformational leadership, supply chain leaders can enhance communication and information sharing which is essential for supply chain collaboration (Birasnav, 2013). Moreover, Hult et al., (2000a) highlight that a buyer firm practising transformational leadership can execute its organizational learning to a higher level. Overstreet et al., (2013) claim that there is a positive relationship between transformational leadership approach exhibited by the buyer firm and their operational performance. Transformational leadership of the buyer firm expanded organizational innovativeness and led to a higher financial performance of the organization.

Theoretical Background: Social Exchange Theory

SET is grounded on the concept of interaction between one person and another which lead to interdependent transactions and contingency of actions. This theory was adopted from the perspective of reciprocity, which refers to the positive exchange behaviour of the actors and rewards. Theorists believe that a positive action exhibited by a person will be responded with another positive action from the other party (Blau, 1964; Tanskanen, 2015). In addition, individuals or groups are interacting for rewards or at least with the expectation to receive rewards from other parties. It is argued that the basic notion for interaction is to pursue rewards and avoid punishment. In SCM context, SET has been used extensively to understand supply chain relationships, particularly the buyer-supplier relationships. Global competition has forced organizations to focus their attention on building on-going supply chain relationship with their suppliers (Hult, 1998; Griffith et al., 2006). To date, several SCM studies have used SET in explaining supply chain relationships such as supplier's relationship orientation (Kingshott, 2006), supplier-buyer negotiation power (Narasimhan and Nair, 2005), and supply chain servitization (Bastl et al., 2012). The concept of SCL is related to the action of buyer organizations in influencing the action of supply chain members. Derived from SET lens, supply chain members' actions and behaviours are determined by the actions and behaviours (rewards or punishments) received from the buyer organizations. It is not necessarily extrinsic such as contract continuation or bonuses, but also can be intrinsic such as support and motivation.

The Role of Leadership in Supply Chain Context

Defee et al. (2010) deduce that SCL is an antecedent toward SCP by articulating vision for the future, communicating the vision and motivating supply chain members. To date, there has been a little agreement on SCL definitions and dimensions. A universally accepted definition of SCL is difficult to find, and differences of opinion exist in literature. However, there seems to be some agreement that SCL refers to:

...“a relational concept involving the supply chain leader and one or more supply chain follower organizations that interact in a dynamic, co-influencing process. The supply chain leader is characterized as the organization that demonstrates higher levels of the four elements of leadership in relation to other member organizations (i.e. the organization capable of greater influence, readily identifiable by its behaviours, creator of the vision, and that establishes a relationship with other supply chain organizations)” (Defee et al. 2010, pp. 766).

SCL has been identified as a vital contributor towards organizational performance in many ways. Hult et al. (2000a) outline the importance of leadership in global purchasing. Buyer organizations' leadership style has directly influenced organizational learning and reduced cycle time (Hult et al., 2000a). SCL has also been identified as a contributor towards supplier-buyer commitment. SCL is essential for coordination between business partners. SCL will enrich activities in the supply chain and improve contact with the external suppliers (Hult et al., 2000a). Moreover, Defee et al., (2010) state that the awareness of SCL has grown in importance

over the past 20 years. Transformational SCL (supply chain leader who exhibit transformational leadership) has been tested to have a significant positive influence on the communication between supply chain members. By having a greater communication across the supply chain, business partners will be able to disseminate information and articulate their vision to achieve supply chain efficiency (the utilization of organizational resources) and effectiveness (the accomplishment of organizational goals and objectives) (Defee et al., 2010; Mentzer & Konrad, 1991).

Moreover, there is an unambiguous relationship between leadership styles and organizational innovativeness (Dubey et al., 2018; Dubey et al., 2015; Hoch & Dulebohn, 2013). Transformational leadership allows organization to innovate and adapt to change, in which improve the organizational performance (Overstreet et al., 2013). On top of that, a supply chain leader has to be able to integrate organizational resources to address the rapid changes in business practices (Overstreet et al., 2013). In the same vein, Birasnav (2013) discusses the importance of SCL to improve product quality and customer service level across the supply chains. The role of SCL is considered as a fundamental to surge market share and return on investments which can boost firms' overall performance. In a recent study, (Birasnav et al., 2015) explore and compare between transformational and transactional leadership toward cycle time in the supply chain activities. The impact of transformational leadership on SCP, especially cycle time, has been found to be stronger than impact of transactional leadership.

The Role of Trust in Supply Chain Context

The studies on "trust" have a long history within the discipline of management and psychology (Sako and Helper, 1998). However, in SCM context, the focus on trust is deficient. As psychologists are more concerned toward inter-personal trust, scholars in SCM are more concerned towards inter-organizational trust. Inter-organizational trust in SCM context can be defined as:

...“one's belief that one's supply chain partner will act in a consistent manner and do what he / she says will do” (Spekman et al. 1998, pp. 56)

Inter-organizational trust has been revealed to have a significant influence on SCP. Inter-organizational trust enhances followers' commitment which leads to a higher performance and lower transaction costs (Kwon and Suh, 2004). Moreover, inter-organizational trust will promote cooperation and collaboration among supply chain members (Gualandris and Kalchschmidt, 2016; Fawcett et al., 2004). Collaboration between supply chain members is required to ensure that current practises are aligned with the pre-determined plan. Greater openness and transparency between supply chain members can be achieved with higher inter-organizational trust (Nyaga et al., 2010). Inter-organizational trust is vital to obtain mutual benefits and collaboration. Collaboration drives both parties (buyer organizations and suppliers) to achieve economic benefits as plans and practises are executed with mutual understanding and agreement (Nyaga et al., 2010). Commitment and satisfaction between supply chain members can only be attained by having collaboration and cooperation from both parties.

The Role of Power in Supply Chain Context

Power has been defined as a multi-dimensional constructs that are used to influence supply chain partners to adhere to the desired requests or actions from the other parties (Ireland and Webb, 2007). To date, most of the power research in supply chain devoted their attentions to the role of coercive and non-coercive power in influencing supply chain practices. Coercive power is mostly the act of getting agreement or improving the performance of the other parties by using punishments and sanctions, while non-coercive power is related to the act of

influencing other parties behaviours by providing rewards (Brito and Miguel, 2017; Meqdadi et al., 2017). Even though most of the power literature explained and discussed those concepts in term of control, coercion and legitimacy, the reward form of power seems to contribute significantly to SCP (Meqdadi et al., 2017; Ireland and Webb, 2007).

Recently, the role of trust and power has also been observed in sustainable supply chain practises. Scholars argued that in order to promote sustainability, both trust and power are equally important. Some studies focus on the use of power (mostly coercive) to force their suppliers toward sustainable practices (Touboulic et al., 2014), while other studies emphasize the importance of trust to enable sustainability implementation (Hoejmoose et al., 2012). Ireland and Webb (2007) discussed that even though trust and power seem to be opposing, it is actually complementary to each other. The ability of power to substitute trust (and vice versa) whenever trust fails to achieve pre-determined or desired outcomes explains the nature of complementary between both constructs. For example, a study of IKEA sustainability practises revealed that trust alone is insufficient and exhibiting power (coercive or non-coercive) may also significantly improve the outcomes (Meqdadi et al., 2017). In this study, coercive power (coercive and legitimate) was used.

Supply Chain Performance

Performance measurement refers to the procedure and process of quantifying actions and outcomes performed by a business unit (Neely et al., 1995). The traditional performance measurement systems are limited to quantitative financial outcomes such as profit margin, cash flow and revenue (Gunasekaran and Kobu, 2007). By using a financial benchmark, a significant positive outcome seems to be obtained whenever the financial outcomes are greater or improved, for example, profit margins increment. However, this conventional measure fails to measure and quantify intangible indicators. As the recent global economy is competitive, many activities and processes are not easily identified and measured by financial outcomes. Recent needs for sustainability are not solely based on financial performance but also environmental and social performance (Chan and Kumar, 2007; Seuring and Müller, 2008; Genovese et al., 2013). Thus, the needs to develop agile business processes and strategies have forced researchers to revisit the performance measurements and metrics.

A variety of measures found and categorized by the scholars lead to difficulty in defining and conceptualizing the performance metrics. In order to overcome the complexity, a few scholars have systematically reviewed the literature to find the best metrics for SCP measurement (Shepherd and Günter, 2006; Gunasekaran and Kobu, 2007). Shepherd and Günter (2006) found 132 measures for SCP metrics in the literature. Based on the review, 55 metrics are related to cost (cost saving, warehouse costs, disposal cost), 38 metrics to quality (rejection rate, defect percentage, accuracy), 25 metrics to time (lateness, cycle time, lead time) and 14 to flexibility (production flexibility, volume flexibility). This review is consistent with Gunasekaran and Kobu (2007), who also deduce that the performance metrics are mostly related to both financial (cost) and non-financial (time, quality and flexibility). It is justified that cost, time, quality and flexibility have been used extensively in measuring SCP. As the four measures have been validated by the scholars, this study will use those metrics to quantify suppliers' performance with one additional dimension, reverse performance.

Conceptual Framework and Research Hypotheses

A research framework (Figure 1) and a set of hypotheses were developed for this study: (1) to examine the relationship between SCL and SCP; and (2) to examine the mediating role of inter-organizational trust and power on the relationship between SCL and SCP.

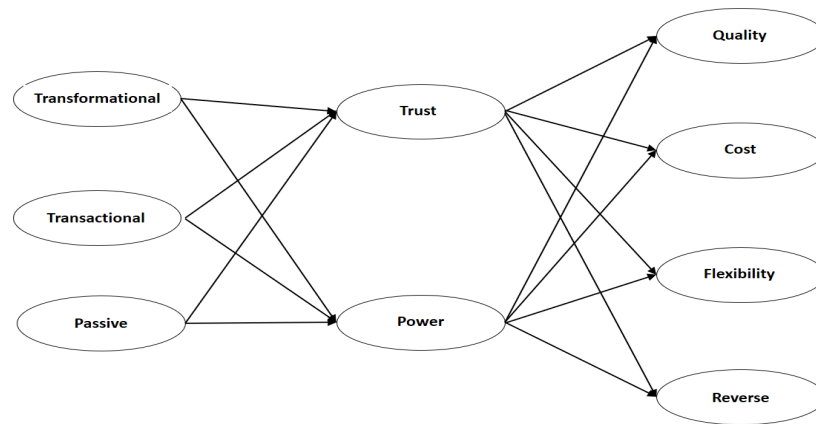


Figure 1: Conceptual Framework of the Study

The Relationship between Supply Chain Leadership and Supply Chain Performance

Transformational leadership exhibited by the buyer organizations is promoting organizational learning within the supply chain (Hult et al, 2000b). Moreover, by exhibiting transformational leadership, an organization will be able to reduce their cycle time which allows them to enjoy minimum lead time or production downtime (Hult, Ferrell, et al., 2000a). Nevertheless, transformational leadership has been identified as an antecedent towards supply chain cost improvement (such as manufacturing cost), flexibility (innovation and ability to change), quality (product quality) and sustainability (green manufacturing, green supply chain) (Blome et al., 2017; Dubey et al., 2015; Sharif and Irani, 2012). Two dimensions in transactional leadership also have been identified as antecedents in enhancing supply chain practises. In contrast with transformational leadership, transactional leadership is focusing on extrinsic rewards (such as long-term contract and investment) while transformational leadership is focusing on intrinsic needs of the supply chain members (such as motivation and commitment) (Blome et al., 2017; Birasnav et al., 2015). As the positive actions of an individual or groups are determined by the rewards or exchange means received over time, this study proposed that:

- H1: Transformational is positively related to SCP.
- H2: Transactional leadership is positively related to SCP.
- H3: Passive leadership has no significant relationship on SCP.

The Relationship between Supply Chain Leadership and, Trust and Power

The relationship between leadership and trust has been researched extensively in psychological and organizational behaviour fields. Transformational leadership has been identified as a strong predictor of employees' trust (Dirks and Ferrin, 2002). By exhibiting appropriate leadership approaches or styles, an organization will be able to enhance employees' trust and psychological well-being in which lead them to achieve job satisfaction and commitment. Even though there are limited studies on the relationship between SCL and trust, few scholars proposed that SCL can enhance trust between supply chain partners and lead to higher performance of the supply chain including reduction in cycle time and supply chain alliances (Birasnav et al., 2015). This phenomenon is also justified by the literature in which when a desirable action performed by a supply chain leader (motivation and intellectual stimulation), a supply chain member will respond with another positive action such as integrity and reliability of their actions, information or agreements. As mentioned previously, the concept of trust and power is co-exist and interdependent. Both trust and power shall exist in supply chain relationship as it provides relational exchange of supply chain partners. In this study, transformational leadership is seen as the contributor towards trust, while transactional

leadership is more towards power-based relationship which are coercive and legitimate power. Hence, this study proposed the second hypotheses:

H4: Transformational is positively related to trust.

H5: Transactional leadership is positively related to power.

H6: Passive leadership has no significant relationship on trust and power.

The Relationship between Trust and Power, and Supply Chain Performance

Trust and power are recently being identified as the main mechanisms that can be used simultaneously to influence supply chain partners. However, most of conventional literature has separated trust and power-based supply chain relationships in which they argued that trust and power are unable to be executed together. Even though trust and power exist in different constructs and dimensions, it is actually interdependent rather than independent (Pulles et al., 2014; Yeung et al., 2009). Yeung et al., (2009) address that both trust and power improved internal and supplier integration. Trust and power have also led to a positive outcome on supplier resource allocation in which by exhibiting higher trust and power, a buyer firm will be able to convince (trust) or force (power) their suppliers to invest on the physical and innovation resources (Pulles et al., 2014). The authors further deduce that a buyer firm with a higher share in the supplier can use power to influence or force the suppliers. However, a buyer firm with a lower share should only use trust to influence their suppliers. Hence, this study proposed the third and fourth hypotheses:

H7: Trust is positively related to SCP.

H8: Power is positively related to SCP.

H9: Trust mediates the relationship between transformational leadership and SCP.

H10: Power mediates the relationship between transactional leadership and SCP.

H11: Power and trust do not mediate the relationship between passive leadership and SCP.

Research Methodology

Construct Measurements

The main constructs in this research model are transformational, transactional and passive leadership as predictor variables; trust and power as mediators; and cost, quality, flexibility and reverse performance as the outcomes. The constructs were measured on a seven-point likert scale ranging from strongly disagree or poor for performance (1) and strongly agree or excellent for performance (7). The measures for transformational, transactional and passive leadership were adapted from Defee et al. (2010), Defee et al. (2009) and Avolio et al. (1999). The items in the questionnaire were designed to capture the leadership styles exhibited by the buyer firms toward their suppliers. Measures for trust were adapted from Liu et al. (2015), which designed to capture suppliers' trust towards their buyer firm. Measures for power were adapted from Nyaga et al. (2013). The questions for power were aimed to capture the exercise of reward, coercive and legal legitimate power by the buyer firms toward their suppliers. Finally, measures for suppliers' performance were adapted from multiple sources including Hazen et al. (2015), Olugu and Wong (2012), Kristal et al. (2010), Gunasekaran and Kobu (2007), Shepherd and Günter (2006). However, since the suppliers' performance might be interpreted differently in different industries, the items were modified based on the consultation with the panel of experts (academic and industry) during the pre-testing sessions. This study controlled for firms' size and their position in the supply chain (for example, tier 1 vs tier 2 suppliers). The unit of analysis was the senior level management in supplier firms (tier 1 onwards).

Survey Design and Sample Characteristics

The manufacturing companies surveyed for this study included top, middle and lower managers across various sectors including automotive, steel, oil and gas, fast moving consumer goods (FMCG), pharmaceutical, tobacco, rubber, chemicals, electronics and machinery. The survey sample was identified using Federation of Malaysian Manufacturer directory and the research team own industrial contacts. In total, 830 surveys questionnaire were distributed and 225 participants responded. However, the final responses were 190 as 35 responses were removed due to significant incomplete or missing data (23% or response rate). The respondents were working in 16 different sectors where the highest representatives were from automotive (22.1%), electrical and electronics (16.8%), and, metal and machinery (15.3%). Furthermore, 57.4% of the companies responded for the survey were privately owned. Half of the respondents were in middle management position (53.2%). 35% of the respondents were the senior management while 11.1% were lower management. The highest representative of the sample for this study was the respondents who worked in the firm for more than 10 years (43.2%), followed by 2-5 years (31.6%), 6-10 years (20.5%) and less than 1 year (only 4.7%). The details of respondents' experience distribution are shown in Table 5.8. Finally, majority of the respondents (63.2%) were working in Tier 1 firms while 23.7% in Tier 2 and 13.2% in Tier 3. However, 95.3% of the respondents stated that they were normally interacting with the focal firms.

Data Screening

The dataset used for this study was not suffering from extreme outlier and no response was removed, transformed or modified. Furthermore, the dataset did not contain extreme skewness and kurtosis based on the recommendation by Hair et al. (2014), which the value is within the range of -1 to +1. The multicollinearity test revealed that there was no multicollinearity between the independent variables as the tolerance value was more than .10 and the variance inflation factor (VIF) was less than 10.

Exploratory Factor Analysis

Prior to performing the EFA, it is necessary to measure the suitability of the data and its sampling adequacy. The Kaiser-Meyer-Olkin (KMO) test is useful to indicate whether the factor analysis is useful for the data (closer to 1.0 is better, with .6 is the minimum value for good factor analysis), while Bartlett's test of sphericity used to measure the significance p value which should be less than .001 (Pallant, 2016). As illustrated in Table 1, KMO and Bartlett's Test was used to measure the suitability and it reveals that the sample was adequate (range from .888 and above) and the significant values were .000 ($p < .001$).

Table 1: KMO and Bartlett's Test for Supply Chain Performance

Variable	KMO Value	Chi-Square	df	Sig.
Supply Chain Performance (Dependent)	.938	6309.922	496	.000
Trust and Power (Mediating)	.888	3515.263	210	.000
Supply Chain Leadership (Independent)	.906	3780.042	253	.000

A total of 30 items were used to measure SCP, 21 items for trust and power, and 23 items for SCL. EFA using Principal Axis Factoring (PAF) extraction and Promax rotation matrix revealed that only 4 factors can be extracted based on eigenvalue more than 1 for SCP. Based on EFA, only four factors were retained for further analysis which are cost performance, quality performance, flexibility performance and reverse performance. EFA revealed that 4 factors can be extracted based on eigenvalue more than 1 for trust and power. The screeplot was also suggesting that the trust and power variables could be explained from four-factor structure. However, after further investigation on the pattern matrix, the fourth factor should not be retained as the items were cross-loaded with the first factor. The third factor consisted of 2 trust

items and 1 power item, however, since there is no theoretical justification to explain those items in a single construct, all items were removed (Field, 2013). Hence, only two factors were retained to measure trust and power. Finally, EFA revealed that 3 factors can be extracted based on eigenvalue more than 1 for SCL. Those 3 factors are transformational leadership, transactional leadership, and passive leadership. This study decided to use only top three items based on their factor loading to represent each factors. The practise of using items with the highest loadings (also known as surrogate items) is common as those items are having a greater influence on their respective factor (Dubey et al., 2015; Hair et al., 2014). Three items were chosen as it suits the rules for standard confirmatory factor analysis models which a factor should has at least three indicators (items) (Kline, 2016). Hence, 27 items were retained for subsequent examination using confirmatory factor analysis.

Confirmatory Factor Analysis

By using nine-factor model identified during the EFA (4 factors for performance, 2 factors for trust and power, and 3 factors for SCL), the initial measurement model was created. The measurement model was statistically adequate: Chi-square (χ^2) = 459.633, degrees of freedom (df) = 288, chi-square goodness-of-fit (χ^2/df) = 1.596, comparative fit index (CFI) = 0.959, Tucker-Lewis index (TLI) = 0.950, Bollen's incremental fit index (IFI) = 0.959, standardized root mean squared residual (SRMR) = 0.051, and root mean squared error of approximation (RMSEA) = 0.056.

Model Reliability and Validity

Cronbach's alpha and composite reliability (CR) were used to check the reliability of the model, while average variance extracted (AVE) was used to estimate convergent and discriminant validity. The lowest alpha for the variable was 0.810 (transformational leadership), which is higher than the recommended cut-off alpha value (0.7) (Pallant, 2016). It indicated that each items in the variable or construct were measuring the same attribute. Similarly, the lowest CR value was 0.804 (passive leadership), higher than the cut-off value of 0.70 (Hair et al., 2011). The square root of AVE showed that the variables were more related to its own measure instead of other dimensions (based on cut-off value of 0.50 recommended by Hair et al., (2014)). In a simpler word, it can be concluded that the items in the variables were measuring at least 76.4% of their own variable rather than any other (the lowest AVE value was 0.764 for passive leadership). The tests confirmed that the variables used in the model were not having any reliability as well as convergent and discriminant validity issues.

Common Method Bias and Measurement Model Invariance Test

By using an approach proposed by Podsakoff et al. (2003), a common method bias test using common latent factor (CLF) was carried out. The test revealed that there was no significant difference on the standardized regression weight before and after the common latent factor was added. Thus it can be concluded that no common method bias was reported for this study. The measurement model invariance test was conducted in order to identify the consistency of the factor structure on different groups. Two group were tested which are (i) Tier 1 Firms vs Tier 2 and Tier 3 Firms, and (ii) Small and Medium Enterprises (SMEs) vs Large Corporations. The test showed insignificant difference for the chi-squared between unconstrained and fully constrained models across the 4 multi-groups, indicating that the factor structure was consistent across all groups in the dataset. These findings confirmed that the dataset met the condition for configural invariance (same structure across groups) (Dimitrov, 2010; Milfont and Fischer, 2010).

Findings and Discussions

The overall fit of the hypothesised structural model was adequate with the following fit indices: Chi-square (χ^2) = 616.582, degrees of freedom (df) = 341, chi-square goodness-of-fit (χ^2/df) = 1.808, comparative fit index (CFI) = 0.934, Tucker-Lewis index (TLI) = 0.922, Bollen's incremental fit index (IFI) = 0.935, standardized root mean squared residual (SRMR) = 0.08, and root mean squared error of approximation (RMSEA) = 0.065. All hypotheses were tested while controlling for firm's size and their supply chain position. The direct and mediation tests were conducted independently on the full model to ensure greater clarity and parsimony.

Direct Relationship Between Supply Chain Leadership and Supply Chain Performance

Table 2: The Relationship between SCL and SCP

Independent	Path	Dependent	Standardized Path Coefficient
Transformational	→	Quality	0.425***
Transformational	→	Cost	0.452***
Transformational	→	Flexibility	0.316***
Transformational	→	Reverse	0.350***
Transactional	→	Quality	0.293***
Transactional	→	Cost	0.320***
Transactional	→	Flexibility	0.389***
Transactional	→	Reverse	0.231**
Passive	→	Quality	-0.103 NS
Passive	→	Cost	-0.312***
Passive	→	Flexibility	0.047 NS
Passive	→	Reverse	-0.135 NS

*p < .05, ** p < .005, *** p < .001, NS – Not Significant

Table 3 shows that transformational and transactional-based SCL were equally contributing to 2SCP. Even though most of the literature in this domain argued that transformational leadership is the sole contributor towards SCP, this empirical study found that the role of transactional leadership is not supposed to be ignored by the scholars and practitioners. Both transformational and transactional leadership are highly influential in improving suppliers' quality, cost, flexibility and reverse performance. Nevertheless, exhibiting passive leadership approach had no significant effect on suppliers' quality, flexibility and reverse, which means it had no influence in improving suppliers' performance in that respective dimensions. However, this study noted that by exhibiting passive leadership, suppliers' cost performance had worsened, which could contribute to increment of their products' cost and price.

Direct Relationship Between Supply Chain Leadership, Trust and Power

Table 3: The Relationship between SCL, Trust and Power

Independent	Path	Mediator	Standardized Path Coefficient
Transformational	→	Trust	0.615***
Transformational	→	Power	0.061 NS
Transactional	→	Trust	0.069 NS
Transactional	→	Power	0.514***
Passive	→	Trust	-0.024NS

Passive → Power -0.205**

*p <.05, ** p <.005, *** p <.001, NS – Not Significant

Table 3 shows that transformational was a significant contributor towards trust, while transactional leadership was a significant contributor towards power. Moreover, this study found that passive leadership had a negative relationship towards power. By practising transformational leadership, buyer firms will be able to enhance suppliers' trust. On the other hand, by practising transactional leadership, the exercise of power tends to be higher as the buyer firm are more likely to monitor and control suppliers' performance by looking into suppliers' obedience to pre-determined rules or procedures. In opposition to transformational and transactional leadership, passive leadership had no influence on suppliers' trust, however it negatively effects the power exercise by the buyer firms.

Direct Relationship Between Trust, Power and Supply Chain Performance

Table 4: The Relationship between Trust, Power and Supply Chain Performance

Mediator	Path	Dependent	Standardized Path Coefficient
Trust	→	Quality	0.386***
Trust	→	Cost	0.471***
Trust	→	Flexibility	0.348***
Trust	→	Reverse	0.326***
Power	→	Quality	0.122 NS
Power	→	Cost	0.339***
Power	→	Flexibility	0.139NS
Power	→	Reverse	0.222***

*p <.05, ** p <.005, *** p <.001, NS – Not Significant

Table 4 presents the final direct relationship analysis between the variables, the mediator and independent variables. This study found that trust had a significant positive relationship towards all dimensions of suppliers' performance (quality, cost, flexibility and reverse). This study also found that power had a significant positive relationship towards suppliers' cost and reverse performance, but not towards quality and flexibility performance.

The Mediating Effects of Trust and Power

The second objectives of this study is to understand the underlying reasons for explaining the relationship between SCL and supplier's performance by testing the mediating role of trust and power. Even though the direct relationship between variables existed (i.e: transformational leadership to trust, trust to suppliers' performance), the structural model revealed that the relationship between SCL and suppliers' performance was not completely mediated by trust or power. The findings discovered that the role of trust and power were significant as the mediator on towards suppliers' cost performance. Trust partially mediated the relationship between transformational leadership and cost performance, while power partially mediated the relationship between transactional leadership and cost performance. Similarly, power partially mediated the relationship between passive leadership and cost performance. It can be concluded that the relationship between transformational leadership and cost performance was partially explained by trust. By exhibiting transformational leadership, buyer firms are able to enhance suppliers' trust on their firm, which at the end improve suppliers cost performance. As the buyer firm motivating, inspiring and stimulating suppliers' intellectual, the suppliers tend to believe that they buyer firms are transparent and honest with them. Due to that, they are

willing to innovate and invest more to improve their operations, which lead mostly to the improvement of the cost such as manufacturing and inventory costs.

Similarly, power has been found as the mediator between transactional leadership and cost performance. The relationship between transactional leadership was partially mediated by power as the nature of transactional leaders are to apply reward and punishment scheme, as well as highly monitoring and auditing approaches. This will lead them to exercise high power, in order to ensure suppliers' obligation and obedience towards their requirements. By exercising high power, suppliers will carefully monitor their own performance, so that they will not violate the contract which can cause them subsequent penalty including business termination. In contrast, by exhibiting passive leadership, the buyer firm will not demonstrate their power, in which has a negative impact towards suppliers' cost performance. For instance, a passive leadership firm will not make any decision and suggestion for their suppliers' in terms of suppliers' production plan or operations. Using this approach, the buyer firm indirectly uses less power as they do not monitor their suppliers and do not concern about their suppliers' compliance, which can lead to poor cost management. Table 5 shows the bootstrap results for assessing the significance of indirect effects of the mediators. Table 6 presents the summary of the hypotheses testing.

Table 5: The Relationship between Trust, Power and Supply Chain Performance

Relationship	Direct Effect Without Mediator	Direct Effect With Mediator	Indirect Effect (95% Bias-corrected CI)	Bootstrap CI		Remarks
				Lower	Upper	
Transformational→Trust→Quality	.425***	.309**	.085 NS	-0.089	0.266	No Mediation
Transformational →Trust→Cost	.452***	.233**	.189*	0.069	0.34	Partial
Transformational→Trust→Flexibility	.316***	.194*	.097 NS	-0.086	0.286	No Mediation
Transformational→Trust→Reverse	.350***	.210*	.112 NS	-0.036	0.255	No Mediation
Transactional→Power→Quality	.293***	.304***	-.017 NS	-.141	0.103	No Mediation
Transactional→Power→ Cost	.320***	.193*	.127*	0.027	0.281	Partial
Transactional→Power→Flexibility	.389***	.408***	-.021 NS	-.153	0.085	No Mediation
Transactional→Power→Reverse	.231**	.149***	.081 NS	-0.052	0.218	No Mediation
Passive→Power→Quality	-.103 NS	-.106 NS	.008 NS	-0.045	0.079	No Mediation
Passive→ Power→Cost	-.312***	-.257***	-.058*	-0.149	-0.007	Partial
Passive→Power→ Flexibility	.047 NS	.040 NS	.010 NS	-0.034	0.084	No Mediation
Passive→Power→Reverse	-.135 NS	-.093 NS	-.037 NS	-.123	0.019	No Mediation

*p <.05, ** p <.005, *** p <.001, NS – Not Significant

Table 6: Summary of Hypotheses Testing Results

Hypotheses	Result
H1: Transformational is positively related to SCP.	Accepted
H2: Transactional leadership is positively related to SCP.	Accepted
H3: Passive leadership has no significant relationship on SCP	Rejected
H4: Transformational is positively related to trust.	Accepted
H5: Transactional leadership is positively related to power.	Accepted
H6: Passive leadership has no significant relationship on trust and power.	Rejected
H7: Trust is positively related to SCP.	Accepted
H8: Power is positively related to SCP.	Accepted for Cost and Reverse
H9: Trust mediates the relationship between transformational leadership and SCP.	Accepted for Cost
H10: Power mediates the relationship between transactional leadership and SCP.	Accepted for Cost
H11: Power and trust do not mediate the relationship between passive leadership and SCP.	Rejected for Cost

Conclusion

Drawing upon social exchange theory, this study developed and tested a framework to examine the relationship between SCL and suppliers' performance. The findings offer guidance to the firms across the supply chain networks on the role of buyer firm's leadership approach and its influence towards suppliers' performance. This study also provides an avenue for both parties, buyer and supplier, to understand how the leadership of the buyer firms contributed to cost suppliers' performance via trust and power. Results of the study indicated that the direct relationship of SCL and suppliers' performance existed, which transformational and transactional leadership approaches led to higher quality, cost, flexibility and reverse performance. The study also found a new result where passive leadership (non-leadership approach) deteriorated the cost performance of the suppliers. The 'full-range' leadership approach (consisting of elements of both transformational and transactional leadership) should be considered by practitioners for improving their buyer-supplier relationships. As the relationship with each supplier is unique, different leadership approaches might be needed and the concept of relying only into one type of leadership (either just transformational or transactional) and generalizing it to all buyer-supplier relationships are extremely perilous.

Moreover, this study found that trust and power were significant mediators between SCL and suppliers' cost performance. The relationship between transformational leadership and suppliers' cost performance was partially explained by trust, while the relationship between transactional leadership and suppliers' cost performance was partially explained by power. It is apparent from this study that transformational leadership improved suppliers' trust on the buyer firm, while transactional leadership increased power exercised by the buyer firms. Both leadership approaches improved different mechanisms but led to a higher performance of suppliers' cost performance. It can be further explained by saying that transformational leadership used trust as the instruments to enhance suppliers' cost performance, whereas transactional leadership used power as the instruments to achieve the same goal. It is aligned with the result discovered for the passive leadership approach, in which it led to lack of power exercised by the buyer firm that negatively impacted suppliers' cost performance.

This study contributes directly to the leadership theory by expanding the classical intra-organizational leadership to inter-organizational leadership from the perspective of supply chain management environment. The result affirms that the role of buyer firms' leadership approach is significant towards suppliers' performance. Secondly, this study further validates social exchange theory by providing the empirical evidence of social exchange practises (leadership, trust and power) influence on suppliers' performance. The finding asserts that

leadership, trust and power are three important antecedents towards suppliers' performance, especially towards cost performance. Finally, this study further adds to operations and supply chain management literature by proposing the 'full-range' leadership approach that should be implemented in order to improve suppliers' performance, where the passive leadership approach is definitely should be reduced.

This study focussed on the leadership approach of the buyer firm towards suppliers' performance on a dyadic supplier-buyer relationship (based on immediate buyer-supplier). Accordingly, future studies could adopt a triadic approach to examine the buyer firms' leadership approach penetration beyond tier 1 suppliers. Moreover, the findings of 'full-range' leadership approach could improve in future study by examine whether a buyer firm exhibiting different kind of leadership approaches towards different suppliers.

References

- Avolio, B. J., Bass, B. M. & Jung, D. I. (1999). Re-Examining the Components of Transformational and Transactional Leadership Using the Multifactor Leadership. *Journal of Occupational and Organizational Psychology*, 72(4), 441–462.
- Bastl, M., Johnson, M., Lightfoot, H. & Evans, S. (2012). Buyer- supplier Relationships in a Servitized Environment. *International Journal of Operations & Production Management*, 32(6), 650–675.
- Birasnav, M. (2013). Implementation of Supply Chain Management Practices: The Role of Transformational Leadership. *Global Business Review*, 14(2), 329–342.
- Birasnav, M., Mittal, R. & Loughlin, S. (2015). Linking Leadership Behaviors and Information Exchange to Improve Supply Chain Performance: A Conceptual Model. *Global Journal of Flexible Systems Management*, 16(2), 205–217.
- Blau, P. M. (1964). *Exchange and Power in Social Life*. New York: John Wiley and Sons Inc.
- Blome, C., Foerstl, K. & Schleper, M. C. (2017). Antecedents of Green Supplier Championing and Greenwashing: An Empirical Study on Leadership and Ethical Incentives. *Journal of Cleaner Production*, 152, 339–350.
- Brito, R. P. & Miguel, P. L. S. (2017). Power, Governance, and Value in Collaboration: Differences between Buyer and Supplier Perspectives. *Journal of Supply Chain Management*, 53(2), 61–87.
- Cai, J. H., Han, Y., Huang, Z. Q. & Wang, R. (2011). Coordination Mechanism and Revenue-Sharing Contract Design Considering Customers' Strategic Behavior. *Shanghai Jiaotong Daxue Xuebao/Journal of Shanghai Jiaotong University*, 45(12).
- Chan, F. T. S. & Kumar, N. (2007). Global Supplier Development Considering Risk Factors Using Fuzzy Extended AHP-Based Approach. *Omega*, 35, 417–431.
- Defee, C. C., Esper, T. & Mollenkopf, D. (2009). Leveraging Closed-Loop Orientation and Leadership for Environmental Sustainability. *Supply Chain Management: An International Journal*, 14(2), 87–98.
- Defee, C. C., Stank, T. P. & Esper, T. (2010). Performance Implications of Transformational Supply Chain Leadership and Followership. *International Journal of Physical Distribution & Logistics Management*, 40(10), 763–791.
- Dimitrov, D. M. (2010). Testing for Factorial Invariance in the Context of Construct Validation. *Measurement and Evaluation in Counseling and Development*, 43(2), 121–149.
- Dirks, K. T. & Ferrin, D. L. (2002). Trust in Leadership: Meta-Analytic Findings and Implications for Research and Practice. *The Journal of Applied Psychology*, 87(4), 611–628.
- Dubey, R., Altay, N., Gunasekaran, A., Blome, C., Papadopoulos, T. & Childe, S. J. (2018). Supply Chain Agility, Adaptability and Alignment. *International Journal of Operations & Production Management*, 38(1), 129–148.
- Dubey, R., Gunasekaran, A. & Samar Ali, S. (2015). Exploring the Relationship between Leadership, Operational Practices, Institutional Pressures and Environmental Performance: A Framework for Green Supply Chain. *International Journal of Production Economics*, 160, 120–132.
- Dubey, R., Singh, T. & Gupta, O. K. (2015). Impact of Agility, Adaptability and Alignment on Humanitarian Logistics

- Performance: Mediating Effect of Leadership. *Global Business Review*, 16(5), 812–831.
- Fawcett, S. E., Magnan, G. M. & Williams, A. J. (2004). Supply Chain Trust Is Within Your Grasp. *Supply Chain Management Review*, 8(2), 20–26.
- Genovese, A., Lenny Koh, S. C., Bruno, G. & Esposito, E. (2013). Greener Supplier Selection: State of the Art and Some Empirical Evidence. *International Journal of Production Research*, 51(10), 2868–2886.
- Gosling, J., Jia, F., Gong, Y. & Brown, S. (2017). The Role of Supply Chain Leadership in the Learning of Sustainable Practice: Toward an Integrated Framework. *Journal of Cleaner Production*, 140, 239–250.
- Griffith, D. A., Harvey, M. G. & Lusch, R. F. (2006). Social Exchange in Supply Chain Relationships: The Resulting Benefits of Procedural and Distributive Justice. *Journal of Operations*, 24, 85–98.
- Gualandris, J. & Kalchschmidt, M. (2016). Developing Environmental and Social Performance: The Role of Suppliers' Sustainability and Buyer-Supplier Trust. *The International Journal of Production Research*, 54(15), 2470–2486.
- Gunasekaran, A. & Kobu, B. (2007). Performance Measures and Metrics in Logistics and Supply Chain Management: A Review of Recent Literature (1995–2004) for Research and Applications. *International Journal of Production Research*, 45(12), 2819–2840.
- Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2014). *Multivariate Data Analysis*. Essex: Pearson Education Limited.
- Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Los Angeles: Sage Publications Inc.
- Hair, J. F., Ringle, C. M. & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *The Journal of Marketing Theory and Practice*, 19(2), 139–152.
- Harland, C., Caldwell, N., Powell, P. & Zheng, J. (2007). Barriers to Supply Chain Information Integration: SMEs Adrift of eLands. *Journal of Operations Management*, 25(6), 1234–1254.
- Hazen, B. T., Overstreet, R. E., Hall, D. J., Huscroft, J. R. & Hanna, J. B. (2015). Antecedents to and Outcomes of Reverse Logistics Metrics. *Industrial Marketing Management*, 46, 160–170.
- Hoch, J. E. & Dulebohn, J. H. (2013). Shared Leadership in Enterprise Resource Planning and Human Resource Management System Implementation. *Human Resource Management Review*, 23(1), 114–125.
- Hoejmose, S., Brammer, S. & Millington, A. (2012). 'Green' supply Chain Management: The Role of Trust and Top Management in B2B and B2C Markets. *Industrial Marketing Management*, 41(4), 609–620.
- Hult, G. T. M. (1998). Managing the International Strategic Sourcing Process as a Market-Driven Organizational Learning System. *Decision Sciences*, 29(1), 193–216.
- Hult, G. T. M., Ferrell, O. C., Hurley, R. F. & Giunipero, L. C. (2000). Leadership and Relationship Commitment: A Focus on the Supplier-Buyer-User Linkage. *Industrial Marketing Management*, 29(2), 111–119.
- Hult, G. T. M., Hurley, R. F., Giunipero, L. C. & Nichols, E. L. (2000). Organizational Learning in Global Purchasing: A Model and Test of Internal Users and Corporate Buyers. *Decision Sciences*, 31(2), 293–322.
- Ireland, R. D. & Webb, J. W. (2007). A Multi-Theoretic Perspective on Trust and Power in Strategic Supply Chains. *Journal of Operations Management*, 25(2), 482–497.
- Kingshott, R. P. J. (2006). The Impact of Psychological Contracts upon Trust and Commitment within Supplier-Buyer Relationships: A Social Exchange View. *Industrial Marketing Management*, 35(6), 724–739.
- Kline, R. B. (2016). *Principles and Practice of Structural Equation Modeling*. New York: The Guilford Press.
- Kristal, M. M., Huang, X. & Roth, A. V. (2010). The Effect of an Ambidextrous Supply Chain Strategy on Combinative Competitive Capabilities and Business Performance. *Journal of Operations Management*, 28(5), 415–429.
- Kwon, I.-W. G. & Suh, T. (2004). Factors Affecting the Level of Trust and Commitment in Supply Chain Relationships. *The Journal of Supply Chain Management*, 40(2), 4–14.
- Liu, H., Ke, W., Wei, K. K. & Hua, Z. (2015). Influence of Power and Trust on the Intention to Adopt Electronic Supply Chain Management in China. *International Journal of Production Research*, 53(1), 70–87.

- Liu, Y., Li, Y., Tao, L. & Wang, Y. (2008). Relationship Stability, Trust and Relational Risk in Marketing Channels: Evidence from China. *Industrial Marketing Management*, 37(4), 432–446.
- Mentzer, J. T. & Konrad, B. P. (1991). An Efficiency/Effectiveness Approach to Logistics Performance Analysis. *Journal of Business Logistics*, 12(1), 33–62.
- Meqdadi, O., Johnsen, T. E. & Johnsen, R. E. (2017). The Role of Power and Trust in Spreading Sustainability Initiatives across Supply Networks: A Case Study in the Bio-Chemical Industry. *Industrial Marketing Management*, 62, 61–76.
- Milfont, T. L. & Fischer, R. (2010). Testing Measurement Invariance across Groups : Applications in Cross-. *International Journal of Psychological Research*, 3(1), 111–121.
- Narasimhan, R. & Nair, A. (2005). The Antecedent Role of Quality, Information Sharing and Supply Chain Proximity on Strategic Alliance Formation and Performance. *International Journal of Production Economics*, 96(3), 301–313.
- Neely, A., Gregory, M. & Platts, K. (1995). Performance Measurement System Design. *International Journal of Operations & Production Management*, 15(4), 80–116.
- Nyaga, G. N., Lynch, D. F., Marshall, D. & Ambrose, E. (2013). Power Asymmetry, Adaptation and Collaboration in Dyadic Relationships Involving a Powerful Partner. *Journal of Supply Chain Management*, 49(3), 42–65.
- Nyaga, G. N., Whipple, J. M. & Lynch, D. F. (2010). Examining Supply Chain Relationships: Do Buyer and Supplier Perspectives on Collaborative Relationships Differ? *Journal of Operations Management*, 28(2), 101–114.
- Olugu, E. U. & Wong, K. Y. (2012). An Expert Fuzzy Rule-Based System for Closed-Loop Supply Chain Performance Assessment in the Automotive Industry. *Expert Systems with Applications*, 39(1), 375–384.
- Overstreet, R. E., Hanna, J. B., Byrd, T. A., Cegielski, C. G. & Hazen, B. T. (2013). Leadership Style and Organizational Innovativeness Drive Motor Carriers toward Sustained Performance. *The International Journal of Logistics Management*, 24(2), 247–270.
- Pallant, J. (2016). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS*. Berkshire: Open University Press.
- Pulles, N. J., Veldman, J., Schiele, H. & Sierksma, H. (2014). Pressure or Pamper? The Effects of Power and Trust Dimensions on Supplier Resource Allocation. *Journal of Supply Chain Management*, 50(3), 16–36.
- Sako, M. & Helper, S. (1998). Determinants of Trust in Supplier Relations: Evidence from the Automotive Industry in Japan and the United States. *Journal of Economic Behavior and Organization*, 34(3), 387–417.
- Seuring, S. & Müller, M. (2008). From a Literature Review to a Conceptual Framework for Sustainable Supply Chain Management. *Journal of Cleaner Production*, 16, 1699–1710.
- Sharif, A. M. & Irani, Z. (2012). Supply Chain Leadership. *International Journal of Production Economics*, 140(1), 57–68.
- Shepherd, C. & Günter, H. (2006). Measuring Supply Chain Performance: Current Research and Future Directions. *International Journal of Productivity and Performance Management*, 55(3/4), 242–258.
- Spekman, R. E., Kamauff, J. W. & Myhr, N. (1998). An Empirical Investigation into Supply Chain Management: A Perspective on Partnerships. *Supply Chain Management*, 3(2), 53–67.
- Tanskanen, K. (2015). Who Wins in a Complex Buyer-Supplier Relationship? A Social Exchange Theory Based Dyadic Study. *International Journal of Operations & Production Management*, 35(4), 577–603.
- Touboulic, A., Chicksand, D. & Walker, H. (2014). Managing Imbalanced Supply Chain Relationships for Sustainability: A Power Perspective. *Decision Sciences*, 45(4), 577–619.
- Yeung, J. H. Y., Selen, W., Zhang, M. & Huo, B. (2009). The Effects of Trust and Coercive Power on Supplier Integration. *International Journal of Production Economics*, 120(1), 66–78.