Examining the Impact of Supply Chain Leadership on Governance Mechanisms and Suppliers' Performance in Manufacturing Industries

By:

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Abstract

Despite the growing body of literature recognising the influence of supply chain leadership and governance mechanisms on supply chain practices, studies on these two domains are currently disconnected. Furthermore, while the importance of supply chain leadership is mentioned and highlighted in the literature, less is known about the role of buying firms' leadership styles as the determinants of governance mechanisms and suppliers' performance. Drawing upon theories of stakeholder, institutional, transformational-transactional leadership, social exchange and transaction cost economics, this thesis fills some of the gaps in the current literature by examining the effects of supply chain leadership on governance mechanisms and suppliers' performance.

A number of hypotheses were developed and proposed, and a convergent parallel mixed methods research design was used to examine the effects of supply chain leadership on governance mechanisms and suppliers' performance in Malaysian manufacturing industries. 190 questionnaire survey responses were collected and analysed using structural equation modelling, while 25 semi-structured interviews were analysed using thematic analysis. The findings reveal that transformational and transactional leadership positively influenced different governance mechanisms with transformational leadership driving towards trust-based governance and transactional leadership pushing towards contract-based governance. The direct positive effects of transformational and transactional leadership towards suppliers' performance are also evident in this thesis. However, the findings reveal that laissez-faire leadership negatively influenced contract-based governance and suppliers' performance. Nonetheless, this thesis discovers that the indirect effects of supply chain leadership to suppliers' performance were partially mediated through governance mechanisms.

The findings provide insights on reconceptualising supply chain leadership. This thesis integrates supply chain leadership and governance mechanisms in one model and reconciles the role of both concepts towards suppliers' performance. Furthermore, this thesis provides an explanation of the relationships between supply chain leadership and suppliers' performance by looking into the mediating role of governance mechanisms. By integrating those concepts, the disengagement between supply chain

leadership, governance mechanism and suppliers' performance is minimised. Nonetheless, the findings offer guidance and suggestions to supply chain managers (in both buying firms and suppliers) on the role of buying firms' leadership styles and their influence towards suppliers' performance regardless of both parties' supply chain positions. Findings from this thesis can help the buying firms to re-evaluate their leadership styles as the relationship with each supplier is unique and the idea of relying on a single leadership style has a potential to disrupt the performance of both parties.

This thesis is dedicated to:

My mother Azrina,
who has always loved me unconditionally.

My late father Mokhtar (1945-2013),
who had never failed to inspire me.

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Research Dissemination

<u>Journal Articles</u>

1. Mokhtar A.R.M., Genovese, A., Brint, A. & Kumar, N. (2019). Improving Reverse Supply Chain Performance: The Role of Supply Chain Leadership and Governance Mechanisms. *Journal of Cleaner Production*, Vol. 216, pp. 42-55.

2. Mokhtar A.R.M., Genovese, A., Kumar, N. & Brint, A. (2019). Supply Chain Leadership: A Systematic Review and Research Agenda. *International Journal of Production Economics*, Vol 21, pp. 255-273.

3. Mokhtar A.R.M., Genovese, A., Brint, A. & Kumar, N. (In Review). Supply Chain Leadership, Governance Mechanisms and Suppliers' Performance: An Empirical Investigation". *Production Planning and Control*. Paper has been submitted and invited for resubmission.

<u>Conference Presentations and Proceedings</u>

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2. Mokhtar A.R.M., Genovese, A., Kumar, N. & Brint, A. (2017). Supply Chain Leadership, Governance Mechanisms and Suppliers' Performance. *2nd Doctoral Conference in Sustainable Operations, Logistics and Supply Chain Management*, University of Sheffield, 10 March 2017

3. Mokhtar A.R.M., Genovese, A., Kumar, N. & Brint, A. (2017). Supply Chain Leadership: A Systematic Review and Research Agenda. *International Purchasing and Supply Education Research (IPSERA) Conference 2017*, Balatonfüred, 10-12 April 2017

4. Mokhtar A.R.M., Genovese, A., Kumar, N. & Brint, A. (2016). Supply Chain Leadership. *British Academy of Management (BAM) Conference 2016*, Newcastle University, 5-9 September 2016

5. Mokhtar A.R.M., Genovese, A., Kumar, N. & Brint, A. (2016). Supply Chain Leadership and Suppliers' Performance. *Doctoral Academy Conference 2016*, University of Sheffield, 21 June 2016

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List of Abbreviations

AHP	Analytical Hierarchical Process
ASV	Average Shared Variance
AVE	Average Variance Extracted
CB-SEM	Co-Variance Based Structural Equation Modelling
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Confidence Interval
CON	Contract
CP	Cost Performance
CR	Composite Reliability
EFA	Exploratory Factor Analysis
FP	Flexibility Performance
IFI	Bollen's Incremental Fit Index
KMO	Kaiser-Mayer-Olkin
LF	Laissez-Faire SCL
LSP	Logistic Service Provider
OEM	Original Equipment Manufacturer
OP	Operational Performance
PLS-SEM	Partial Least Square Structural Equation Modelling
RMSEA	Root Mean Squared Error of Approximation
RSC	Reverse Supply Chain
RSCP	Reverse Supply Chain Performance
SCL	Supply Chain Leadership
SEM	Structural Equation Modelling
SP	Suppliers' Performance
SRMR	Standardised Root Mean Squared Residual
TFL	Transformational SCL
TLI	Tucker-Lewis Index
TR	Trust
TSL	Transactional SCL

CHAPTER 1

INTRODUCTION

In the contemporary global market, the locus of competition has shifted from single companies to entire supply chains. The success of a firm is no longer solely based on its own performance, but it is closely related to the performance of its supply chain members. Over the last decades, several studies have indicated that suppliers' performance (SP) is crucial to buying firms' success and competitiveness (Maestrini et al., 2018a; Meisel and Glock, 2018). As the current business environment is characterised by demand uncertainty and intense competition, the importance of close collaboration and relationship with supply chain members, particularly upstream suppliers, has become crucial. As such, selecting and developing suppliers, along with coordination efforts, are crucial processes for enhancing competitiveness and rapidly reacting to market and innovation requirements (Lawson et al., 2015; Terpend and Krause, 2015). Close collaboration between buying and supplier firms is required across various functions such as product development, operations, quality, and purchasing, in such a way to improve the performance of both parties.

Within this context, recent literature suggests that leadership from the buying firms is also required in order to improve the competitiveness of supply chains (Gong et al., 2018; Jia et al., 2018; Gosling et al., 2017; Birasnav et al., 2015; Lockström et al., 2010; Defee et al., 2009; Hult et al., 2007). At the same time, the need for inter-organisational collaboration and management in supply chain environments has led to extensive studies emphasising the role of the buying firms in orchestrating activities and relationships among their supply chain members (Wilhelm et al., 2016; Silvestre, 2015). This proposition of one firm orchestrating and supervising supply chain activities and relationships is not a new notion in the supply chain context. Previous studies highlighted the role of buying firms in supply chains from various domains including channel leadership (manufacturer-retailer or downstream relationship management), governance mechanisms (supply chain relational-based concepts such as inter-organisational trust and power), institutional pressures (the concept of isomorphism in influencing the decisions and actions of the stakeholders) and supply

chain leadership (leadership styles of the buying firm) (see Gölgeci et al., 2018; Akhtar et al., 2016; Goffnett and Goswami, 2016; Cao and Lumineau, 2015; Zhu and Sarkis, 2007; Poppo and Zenger, 2002; DiMaggio and Powell, 1983; Etgar, 1978).

The latter concept, supply chain leadership (SCL), is an extension of the classical leadership theory that emphasises the behaviour of buying firms (Roy, 2018; Jia et al., 2018; Birasnav et al., 2015). As with traditional leadership, SCL is concerned with the ability of a firm (for example, the buying firm in a supply chain) to influence followers' (for example, suppliers) actions or behaviours (Roy, 2018; Goffnett, 2018; Gosling et al., 2017; Defee et al., 2009). Within this context, SCL has been identified as the antecedent for the improvement of supply chain practices including supply chain coordination (Akhtar et al., 2017), quality management (Teoman and Ulengin, 2017), supply chain integration (Yuen and Thai, 2017) and logistics operations (L'Hermitte et al., 2016). Recently, investigations about the role of SCL towards the implementation of sustainability practices in a supply chain environment have been undertaken (Jia et al., 2018; Kurucz et al., 2017; Roman, 2017; Szekely and Strebel, 2013). Defee et al. (2010, p. 766) defined SCL as:

> … *"a relational concept involving the supply chain leader and one or more supply chain follower organisations that interact in a dynamic, co-influencing process. The supply chain leader is characterised as the organisation that demonstrates higher levels of the four elements of leadership in relation to other member organisations (i.e. the organisation capable of greater influence, readily identifiable by its behaviours, creator of the vision, and that establishes a relationship with other supply chain organisations)".*

In the same vein, Lockström et al. (2010, p. 251) defined SCL as the ability of the buying firm:

> … *"to influence a supplier to achieve a common goal within the supplier's organisation".*

Lockström et al. (2010) further explained that the leadership style of a buying firm is pivotal as it has the ability to improve a firm's relational capital including suppliers' commitment and supply chain relationships. Drawing upon these two definitions, this thesis considers SCL as *a set of behaviours exhibited by one (or more) firm(s) in influencing and orchestrating the actions and behaviours of supply chain members*. It is worth noting that even though focal firms could be acting as a supply chain leader (in the following, also defined as *leading firm*), they always encounter difficulties in

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managing sub-suppliers (tier-2 supplier onwards) due to limited control, information and contractual relationships (Wilhelm et al., 2016a). Hence, multiple organisations might be taking up leadership roles within the same supply chain (particularly the direct or immediate buying firms) (Wilhelm et al., 2016a;2016b). Also, it should be highlighted that the leadership behaviours are aimed at the whole supply chain, including the influence of SCL on both upstream and downstream partners, and on both traditional (forward) and reverse supply chain practices.

However, recent studies in the SCL domain argued that there is a dearth of empirical studies devoted to the relationship between SCL and other antecedents towards SP such as governance mechanisms, including suppliers' trust and contractual governance (Gong et al., 2018; Jia et al., 2018; Gosling et al., 2017). Even though classical leadership studies and theories provide evidence on the effects of leadership styles on governance mechanisms (such as followers' trust and performance) (Judge and Piccolo, 2004; Bass et al., 2003; Avolio at al., 1999), a similar analysis is currently absent in supply chain management literature. To date, little attention has been paid towards examining the role of SCL as a determinant of governance mechanisms and SP.

Nevertheless, despite the recent emerging interest in the SCL concept, the majority of the studies mainly focus on the buying firm's performance rather than SP. The only notable study that discusses the role of SCL on SP is by Blome et al. (2014); in this study, the authors found that the buying firm's leadership behaviours have a significant positive effect on green procurement and green supplier development. Subsequently, green procurement and green supplier development have a positive effect on SP including dimensions such as innovativeness, lead-time, quality and service, and responsiveness. Moreover, most of the studies in the supply chain and operations management domain have not attempted to perform a comparison between alternative leadership styles (transformational, transactional and laissez-faire) in order to provide a holistic understanding of the role of buying firms' leadership styles on the performance of a supply chain.

Given the importance of the concept of SCL in the supply chain literature, this thesis aims at filling these gaps by providing an empirical investigation into the effects of SCL on governance mechanisms and SP from the perspective of stakeholder,

institutional, transformational-transactional leadership, social exchange and transaction cost economics theories. Moreover, this thesis also addresses the potential underlying constructs that explain the relationship between SCL and SP by examining the mediating role of two governance mechanisms, namely suppliers' trust and contractual governance. This is the first study that combines different SCL styles, governance mechanisms and SP in one study.

1.1 Context of the Study

This thesis is motivated by the need to examine the influence of SCL in enhancing SP in Malaysian manufacturing industries. Malaysia is currently one of the fastest growing and developing countries (Ooi et al., 2012). Malaysia's economy was previously based on agro-based production. However, the trend has changed drastically in the past few years. In 2017, Malaysia's gross domestic production (GDP) was recorded at RM1,174.3 billion (USD285.13 billion), where 23% was contributed by the manufacturing industries (Malaysia Department of Statistics, 2019). As of November 2018, the industries employed approximately 1 million workers (Malaysia Department of Statistics, 2019).

As the manufacturing industries make a significant contribution towards Malaysia's economic growth, various studies have been conducted to improve manufacturing companies' performance. One of the areas that scholars have predominantly focused on is how to improve supply chain performance (Flynn et al., 2010; Hazen et al., 2015). The phenomenon is not surprising as manufacturing industries are renowned for complex supply chains as it consists of various interactions between multiple partners. Likewise, the same phenomenon is observed in Malaysian manufacturing supply chain research. Scholars are trying to improve Malaysian manufacturing supply chain practices including quality innovation (Ooi et al., 2012), lean production (Agus and Hajinoor, 2012), strategic alliance (Sambasivan et al., 2013) and green supply chain (Wooi and Zailani, 2010).

The development of manufacturing industries in developing countries and emerging economies should not be ignored as they serve domestic as well as global supplies (Katiyar et al., 2018). To date, Malaysia has been identified as the hub for some reputable and large manufacturing companies who supply to the United States and

Japan (Hsu, 2013). Furthermore, Malaysia has also been recognised as one of the *MITI-V* countries. Alongside India, Thailand, Indonesia and Vietnam, it is expected that Malaysia will be in the top 15 manufacturing countries by the year 2020 (Deloitte, 2016). Due to the ability of Malaysian manufacturing industries to offer low-cost labour, good infrastructures and support for high-tech sectors, the development of the industries is also prevalent towards global manufacturing productions. However, it should also be noted that the rapid development of manufacturing industries is always associated with environmental pollution and sustainability issues (Eltayeb and Zailani, 2009).

The Malaysian government has introduced various policies and measures to encourage a proactive role in sustaining and protecting the environment (Zailani et al., 2017; Hsu et al., 2013). For example, the government has announced that sustainable production and consumption practices represent one of the main items in the Malaysian Eleventh Economic Plan for the year 2016 until 2020 (Shaharudin et al., 2019). Unfortunately, the implementation has received little attention from the manufacturing companies. To date, the practice of green manufacturing, green supply chain, closed-loop supply chain or reverse supply chain (RSC) is virtually non-existent in Malaysian manufacturing industries (Shaharudin et al., 2019; Eltayeb et al., 2011). A little understanding of those concepts leads the manufacturers to apply only ad-hoc sustainability practices. Moreover, RSCs in Malaysia have received little attention due to a lack of implementation and infrastructure developments such as waste management policies (Hsu et al., 2013; Eltayeb and Zailani, 2009).

In addition, the rationale for selecting Malaysian manufacturing industries as the context of this thesis can further be supported by three reasons. First, manufacturing is one of the leading industries in Malaysia and contributes to the economy (gross domestic production) and social (employment) growth. The improvement of entire supply chain practices and understanding will lead to higher industry sustainability across economic, environment and social dimensions including the development of small medium enterprises (especially for local suppliers or vendors) and higher employment opportunities. Second, manufacturing industries are renowned for their heterogeneous and complex relationships. In order to ensure robustness in examining SCL and governance mechanisms, considering this industry is required as it involves

holistic inter-organisational relationships. Third, as mentioned earlier, the role of SCL is crucial in promoting higher inter-organisational relationships and SP. A lack of understanding on supply chain practices, particularly for RSCs, requires full commitment and dedication from the leading firms (especially focal firms or buying firms in direct buyer-supplier relationships). Hence, it is useful and crucial to examine the role of SCL in enhancing SP in both orientations, forward (for example cost, quality, delivery and flexibility) and reverse.

1.2 Research Gaps in Existing Knowledge and Research Objective

Based on the systematic literature review on SCL performed in this thesis, several research gaps were identified. First, although most of the SCL studies suggest that transformational leadership leads to a higher performance of the supply chain (such as improving the purchasing process, order fulfilment and cycle time), the dimensions of SCL are not properly defined and researched. Most of the authors claim that the only contributor towards supply chain practices is transformational leadership without considering any dimensions from other leadership styles such as transactional and laissez-faire (for example, Goffnett, 2018; Teoman and Ulengin, 2018; Roman, 2017; Goffnett and Goswami, 2016; Mzembe et al., 2016; Lambrechts et al., 2010). This phenomenon is in contrast with suggestions from classical leadership theory about adopting a combination of both transformational and transactional leadership styles for improved followers' and firms' performance. For instance, Judge and Piccolo (2004) inferred that transformational, transactional and laissez-faire leadership should be tested together in order to examine the full spectrum of leadership.

In addition, Bass (1985; 1990) deduced that the ideal and best leader is the one who can exhibit both transformational and transactional leadership. Hence, drawing upon these insights from classical leadership theory (particularly transformational-transactional leadership theory), similar processes of combining the dimensions of transformational, transactional and laissez-faire leadership should be adopted in developing the SCL concept. For instance, a firm could utilise transformational or transactional leadership alternatively, or even both styles simultaneously towards different suppliers. It should always be noted that:

> *"transformational leadership does not substitute for transactional leadership"*
> *(Bass 1998, p. 21)*

By comparing different leadership styles, the impact of SCL on the performance of the supply chains as a whole can be understood. Nonetheless, transformational-transactional leadership theory suggested that laissez-faire leadership is negatively associated with followers' performance (Judge and Piccolo, 2004; Avolio et al., 1999). This phenomenon is yet to be examined in supply chain research.

Second, as mentioned previously, even though classical leadership studies provide evidence on the effects of leadership behaviours on governance mechanisms, the relationships between both concepts are rarely studied in a supply chain context (Gong et al., 2018; Jia et al., 2018). To date, only a few studies examine SCL as the determinants of governance mechanisms (see Akhtar et al., 2017; Akhtar et al., 2016; Birasnav et al., 2015; Venselaar et al., 2015). Unfortunately, those studies solely focus on relational governance such as trust and cooperation without consideration of contractual governance. Recent studies in the governance mechanisms domain argue that both relational governance and contractual governance are complementary, which signals the need for both mechanisms in managing supply chain relationships (Shahzad et al., 2018; Cao and Lumineau, 2015; Abdi and Aulakh, 2012; Poppo and Zenger, 2002). For example, suppliers' trust, which is a relational governance mechanism, acts as a *glue* in supply chain relationships, helping to foster collaboration between supply chain members. On the other hand, contractual governance acts as a *safeguard* to protect a firm from the opportunistic behaviours of the other parties.

Third, the majority of the SCL literature demonstrates the importance of an effective leadership style in enhancing the performance of traditional forward supply chains. For example, recent studies in the SCL domain are concerned with the improvement of supply chain cycle times (Birasnav et al., 2015), sales and operations planning (Tuomikangas and Kaipia, 2014), environmental sustainability (Roman, 2017) and quality performance (Hu and Zhao, 2018). As the current supply chain environment and business practices require the integration between forward and RSCs, empirical studies addressing both the orientations should be promoted. Nonetheless, the role of SCL seems prevalent in fostering the implementation of RSCs, which is currently limited in Malaysia (Shaharudin et al., 2019; Eltayeb et al., 2011). This allows Malaysia to be prepared in becoming one of the MITI-V countries. To date, only three

papers related to this concept (reverse or closed-loop supply chain) have been found (see Vivaldini and Pires, 2016; Szekely and Strebel, 2013; Defee et al., 2009).

Finally, the most important research gap that should be addressed is to understand the role of SCL in enhancing SP. In recent years, there has been an increased interest in SCL and its contribution in improving buying firms' performance. Attention has been devoted to situations in which the buying firms assist in enhancing the performance of suppliers in order to gain a competitive edge by improving supply chain practices. Today's supply chain environment requires an organisation to achieve a competitive advantage by improving their entire supply chain process. Reputable firms such as Honda and Toyota have invested heavily in suppliers' development initiatives in order to improve suppliers' quality, delivery and cost performance (Wu et al., 2014). SP and ongoing improvement are crucial as they lead to the improved performance of the buying firms. It is worth noting that the performance of the suppliers will directly influence the performance of the whole supply chain (Maestrini et al., 2017; Caniato et al., 2014; Luzzini et al., 2014; Chan and Kumar, 2007). Given the importance of SP and of the coordination between buying firms and suppliers, several techniques have been introduced to enhance suppliers' development, selection and evaluation (Genovese et al., 2013; Chan and Kumar, 2007). Moreover, the recent growth in interest in the implementation of sustainable supply chain practices requires a high level of coordination between buying firms and suppliers (Genovese et al., 2014). Surprisingly, very little attention has been paid to understand the role of SCL in affecting SP.

The gaps identified in the current literature highlight the opportunities sought by this thesis. The transformational-transactional view of SCL is used to describe leadership styles exhibited by the buying firms and its effects towards governance mechanisms adopted by the buying firms and SP. Furthermore, this thesis attempts to explain the potential enabler of the relationships between SCL and SP. This is done by examining the mediating role of governance mechanisms on those relationships. In specific, the four objectives of this thesis are:

i) To examine the relationships between SCL and governance mechanisms.
ii) To examine the relationships between governance mechanisms and SP.
iii) To examine the relationships between SCL and SP.

iv) To examine the mediating role of governance mechanisms on the relationships between SCL and SP.

1.3 Significance of the Study and Research Contributions

There are at least four main contributions of this thesis. The first contribution relies on the systematic literature review of SCL performed in this thesis. The systematic literature review provides an original and updated review of studies in SCL domain[1]. Furthermore, in contrast to the existing review by Gosling et al. (2017), the systematic literature review in this thesis goes beyond the concept of SCL in the context of supply chain sustainability. The main purpose of the systematic literature review is to improve the understanding and comprehension of the SCL concept. It systematically reviews and synthesises literature in this emerging field, unveiling current research gaps and discussing a future research agenda. Nonetheless, the systematic literature review in this thesis analyses the body of literature from the perspective of different types and dimensions of SCL, employed research methodologies, location of the study and supply chain orientation. Finally, it provides a thematic analysis of SCL styles and their influence on supply chain practices. The analysis has helped to discover the emerging trends and relevant research gaps. This provides a rigorous approach in determining the SCL styles and the research gaps.

Second, this thesis contributes to the current literature by reconceptualising SCL. Based on the stakeholder and institutional theories, this thesis provides a new definition of SCL and operationalises the concept based on a dyadic perspective of buyer-supplier relationship. This is due to the capacity of a buying firm as a stakeholder or customer in influencing the actions and behaviours of the suppliers (Touboulic and Walker, 2015; Sarkis et al., 2011; Freeman, 2010). At the same time, while the current studies in the SCL domain place heavy emphasis on transformational leadership, this thesis embraces transformational-transactional leadership theory. In other words, this thesis utilises three types of leadership (transformational, transactional and laissez-faire) in conceptualising SCL and examines its impact towards governance mechanisms and SP. This is in line with transformational-

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[1] The findings related to the systematic literature review from this thesis have been published -
Mokhtar A.R.M., Genovese, A., Brint, A. & Kumar, N. (2019). Supply Chain Leadership: A Systematic Literature Review. *International Journal of Production Economics*, Vol 21, pp. 255-273.

transactional leadership theory as it postulates that transactional leadership acts as the fundamental for transformational leadership (Judge and Piccolo, 2004; Bass et al., 2003; Avolio et al., 1999; Bass, 1990). Furthermore, this thesis argues that relying on a single leadership style can be risky for buying firms, as well as their suppliers. It is evident from the findings of this thesis that transformational and transactional SCL contributed positively to SP, the findings also reveal that both SCL styles positively contributed to different governance mechanisms. This implies that both leadership styles are crucial in managing supply chain relationships.

Third, this thesis reconciles SCL, governance mechanisms and SP in one model. Despite extensive evidence on the role of SCL and governance mechanisms in improving supply chain practices, both concepts are rarely examined together in a single study. Moreover, this thesis offers a justification for the relationships between SCL and SP by examining the mediating role of governance mechanisms. The integration between SCL and governance mechanisms allows this thesis to address the gap due to the disengagement between both concepts (Gong et al., 2018; Jia et al., 2018). Nonetheless, this thesis is among the first that studies SCL as the determinants of governance mechanisms. This provides an avenue for future research aimed at investigating the antecedents of governance mechanisms based on behavioural perspectives.

Fourth, this thesis integrates metrics from the 'conventional' forward supply chains (such as cost, quality, flexibility and delivery) and RSCs to measure SP. This thesis argues that the role of SCL is crucial towards the improvement of forward supply chain performance, and critical towards the realisation of RSC practices. Moreover, due to the relatively new concept of RSCs, buying firms should be able to orchestrate and supervise its implementation throughout the supply chains[2]. The integration of these concepts allows this thesis to extend the past studies on SCL, environmental

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[2] The findings related to RSCP from this thesis have been published - Mokhtar A.R.M., Genovese, A., Brint, A. & Kumar, N. (2019). Improving Reverse Supply Chain Performance: The Role of Supply Chain Leadership and Governance Mechanisms. *Journal of Cleaner Production*, vol. 216, pp. 42-55.

sustainability and supply chain performance such as the studies of Vivaldini and Pires (2016), Szekely and Strebel (2013) and Defee et al. (2009).

Finally, this thesis adopted a mixed method research design. The research design of this thesis offers a more comprehensive approach to understanding and conceptualising the SCL concept. For example, without qualitative data, it is not possible to see how the leadership behaviours of the buying firms negatively influenced RSC practices in Malaysian manufacturing industries. Nonetheless, without qualitative data, it is difficult to see how different SCL approaches were used in different sectors. For example, most of the firms in the automotive sector were using transformational SCL, while for the firms dealing with commodities products, tended to experience a laissez-faire SCL behaviour of their buying firms. Hence, the adopted research design helps this thesis in advancing the current concept of SCL.

1.4 Thesis Structure

Chapter 1 has provided an overview of the research aimed at proposing the rationale and significance of the thesis. This chapter identifies the context of the study, the research gaps, along with aims and objectives of the study. This chapter also summarises the main content of each chapter in the thesis.

Chapter 2 provides a review of the existing literature related to the thesis. In the first section, an overview of leadership theories is provided. In the second section, an overview of the SCL concept including definitions, background and generalities is illustrated. In the third section, the systematic literature review of SCL is presented to identify current research trends, dimensions and outcomes of SCL. The concept and recent studies of governance mechanisms are provided in the fourth section, followed by the review of SP literature.

Chapter 3 provides a theoretical framework and discusses the development of the research hypotheses of the thesis. Overall, a total of 17 research hypotheses have been proposed in order to meet the four research objectives. This chapter also pulls together all the relevant literature prior to proposing the respective research hypotheses.

Chapter 4 presents the overall methodology adopted by the thesis. The chapter first discusses the research philosophy and research design including research process and

procedures. Then the chapter provides an explanation of the data collection procedures and data analysis for quantitative (survey) and qualitative (interview) data.

Chapter 5 provides the analysis and findings for the quantitative data. This chapter starts with data cleaning procedures including missing data and outlier detection, normality test and multi-collinearity test. It is followed by demographic analysis and exploratory factor analysis. The final sections of the chapter provide the results of confirmatory factor analysis (measurement and structural models) and proceed with the hypotheses testing using latent variables path analysis.

Chapter 6 presents the analysis and findings of the qualitative data. First, the demographic and descriptive analyses are discussed. These are followed by saliency and thematic analyses. The results and findings of the relationships between the themes are presented in the final section of the chapter.

Chapter 7 begins with a discussion of the main findings of the quantitative data in combination with the qualitative data. The chapter is divided into four sections with each section discussing the findings related to each research objective. The theoretical reflections of the findings are discussed in the final section of the chapter.

Chapter 8 summarises the findings of the thesis. This chapter also provides the evaluation of the theoretical, methodological and practical contributions of the thesis. Research limitations and future research directions are discussed in the final section of the chapter.

1.5   Chapter Summary

This chapter provided an overview of the study. The background of the study, research gaps, research objectives, and significance of the study have been discussed. In the next chapter, the relevant literature is reviewed starting with the overview of classical leadership theories, SCL, governance mechanisms and SP. The final section of the next chapter will provide an overview of the research gaps.

CHAPTER 2

LITERATURE REVIEW

The previous chapter has provided an overview of this thesis. This chapter will provide a brief review of the classical leadership theories, organisational theories and proceed with the literature review. Specifically, the findings of a systematic literature review on SCL are provided, followed by a brief review of governance mechanisms and suppliers' performance (SP). The gaps in the literature will be summarised in the final section of this chapter.

2.1 An Overview of Classical Leadership Theories

Over the past decades, leadership has been studied extensively and several theories have been introduced to define and explain leadership antecedents, traits or outcomes (Waters, 2013; Bass and Bass, 2008). Studies on leadership can be traced back to classical Western and Eastern writings, in which the contribution of leadership towards organisational and societal functioning is evaluated (Day and Antonakis, 2012). To conceptualise and define leadership, several dimensions and attributes have been examined including power distribution, skills, personality traits and situation-based factors (Waters, 2013). However, Day and Antonakis (2012) argued that as leadership is complex in nature, a specific definition can never be found. Even though an agreement on a definition of leadership is hard to be attained, a working definition of leadership is required to enable the foundation of leadership studies and identify the constructs or domains of leadership.

Leadership is typically characterised and defined by leaders' traits, qualities, personalities and behaviours. Scholars have agreed that leadership principles can be defined in terms of the influencing process initiated by the leaders to change followers' actions and behaviours to achieve desired goals and objectives (Day et al., 2014; Uhl-Bien et al., 2014; Bolden et al., 2003; Yukl, 1989). Leadership should be focused on group activity that is based on social influence and revolves around common goals, objectives, visions or missions. Leadership is a process of social influence in which

leaders should guide and motivate followers to reach a goal (Day and Antonakis, 2012). In general, Northouse (2004, p. 3) summarised and defined leadership as:

> *… "a process whereby an individual influences a group of individuals to achieve a common goal."*

Often, the term leadership is misinterpreted and confused as power and management. Power refers to the means or instruments possessed by the leaders (such as referent, expertise, reward, punishment or formal power) to potentially influence and control their followers (Day and Antonakis, 2012). Furthermore, Day and Antonakis (2012) elucidated power as being required by the leaders to improve their ability to lead others.

Leadership is also distinct from management in that leadership is a purpose-driven action that leads to organisational change or transformation. Leadership allows organisations to change and transform by altering values, ideals, vision, symbols, perceptions, attitudes, mentality and emotions (Dinh et al., 2014; Gardner et al., 2010; Avolio et al., 2009; Chemers, 1997; Lowe et al., 1996; Hersey and Blanchard, 1969). Meanwhile, management is objective-driven being based on rationality, bureaucratic and contractual obligations. Leadership goes beyond the management concept with leadership being needed to meet a higher expectation or goal (Harms et al., 2018; Riggs and Porter, 2017; Judge and Piccolo, 2004; Yammarino et al., 1993; Bass, 1990; Podsakoff et al., 1990). In addition to definitional disputes, it is worth discussing the nature of leadership and the origins of leadership theories prior to defining and conceptualising SCL. To date, leadership theories have been evolving from the seminal *great man theory* to the *transformational-transactional leadership theory*.

2.1.1 Great Man and Trait Theories

The Great Man theory is one of the earliest theories in the leadership literature (Bolden et al., 2003). This leadership theory infers that a leader is an exceptional person who is born with innate qualities (Day et al., 2014). Similarly, the trait theory of leadership argues that leaders were born with certain traits and only certain people possess those traits (Northouse, 2004). However, there is no clear answer on what traits are consistently associated with great leaders and how these are relevant to specific situations or functions (Horner, 1997). Nevertheless, leadership studies have also been formulated based on the behaviour approach of the leader. However, this individually-

focused theory was shut down for over 30 years (1960s-1980s) due to pessimistic interpretations by the scholars and researchers. Most of the scholars implied that personality trait is not the only antecedents towards effective leadership as they believed leadership skills can be learned, shared and expanded. Gardner et al. (2010) reported that the publications related to "great-man" and trait theory have been in decline in the *Leadership Quarterly*, the renowned journal dedicated for leadership studies. Nevertheless, as the current business environment is globalised, it might be useful to test this theory towards gender and cultural diversity (Day and Antonakis, 2012).

2.1.2 Behaviour Theory of Leadership

In the 1950s, as opposed to the trait theory, scholars and researchers were shifting their focus towards behavioural styles of leaders. The democratic and autocratic leadership styles proposed by Lewin et al. (1939) have been evaluated and extended into additional factors or styles such as supportive and person-oriented (Stogdill and Coons, 1957), directive and task-oriented (Katz et al., 1951) and organisational level (Blake and Mouton, 1964). Compared to the trait theory, behavioural approaches to leadership are more concerned with the actions of leaders rather than their personality traits (Day et al., 2014; Dinh et al., 2014; Gardner et al., 2010; Yukl, 1989). Under this approach, several leadership theories such as the McGregor's Theory X and Y and the Blake and Mouton's Managerial Grid were introduced (Bolden et al., 2003; Horner, 1997; Yukl, 1989). Drawing upon these theories, several leadership styles including democratic, autocratic and participative ones have been discussed in the literature (Harms et al., 2018; De Hoogh et al., 2015; Gastil, 1994; Lewin et al., 1939). McGregor (1960) in his classic book, The Human Side of Enterprise, elucidated human relationships in leadership approach. The author differentiated between theory X's managers (who are likely belong to autocratic leadership style) and theory Y's managers (who are likely belong to participative leadership style). Theory X implies that the average human is trying to avoid work if possible and they must be controlled and monitored to ensure that they are able to achieve desirable outcomes or performances. In contrast, theory Y proposes that people tend to exercise self-direction and control to attain their objectives and this requires leaders who are participative in nature to enhance employees' sense of responsibility.

On the other hand, Blake et al. (1964) deduced that leaders exhibit their leadership behaviours based on two primary categories, which are concern for people (people-oriented) or concern for task production (task-oriented). Based on the Managerial Grid (Figure 2.1), leaders are able to identify their styles of leadership or leadership behaviours such as impoverished management (low concern for task production and low concern for people), authority obedience (high concern for production, low concern for people), organisation man management (average concern for task production, average concern for people), and country club management or team management (low concern for production, high concern for people). The combination of high concern for people and high concern for production, which is defined as team management, has been identified as the most effective leadership behaviour (Bolden et al., 2003; Yukl, 1989; Blake & Mouton, 1964). However, in the real-world, there has always been inconsistency in deciding on the leadership styles or behaviours to be implemented in different tasks or situations, which triggered the development of leadership contingency approach (Day and Antonakis, 2012; Gardner et al., 2010).

Figure 2.1: The Managerial Grid
Source: Blake and Mouton (1964)

2.1.3   Contingency Theory of Leadership

In the 1960s, in order to address the inconsistencies in the behavioural theory of leadership, scholars and researchers began to focus on and study the contingency

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approach. The leadership theories in the contingency movement are credited to several scholars including leader-member relations (Fiedler, 1964, 1971), leader-follower approach (House, 1971), substitutes-for-leadership (Kerr and Jermier, 1978) and leader decision-making styles (Vroom and Jago, 1988; Vroom and Yetton, 1973). The contingency theory of leadership posited that there is no universal leadership approach that is suitable in all circumstances (Dinh et al., 2014; Gardner et al., 2010; Fiedler, 1964). Leadership should be directive or supportive and applied to certain or particular situations appropriately; leaders shall re-evaluate and refine their leadership style based on their followers' competence and commitment.

Nevertheless, Fiedler (1971) suggested that leadership approaches should be based on specific situations including leader-follower relationships, task structure and power position. A different situation might force a leader to use different styles in order to influence and control their followers. Despite numerous studies in leadership contingency theory, the overall interest in researching and investigating the approach has tapered off dramatically (Day et al., 2014). Moreover, in the last decade, only 1% of the literature and articles that focused on contingency theory have been published in the *Leadership Quarterly* (Gardner et al., 2010). It seems that scholars and practitioners are aware about the theory, however, the adaptation into business practices and real-world application are not fully utilised (Lord et al., 2017).

2.1.4   Relational Theories of Leadership

A new theory known as the relational theory of leadership, was introduced in the 1970s, devoting substantial attention and focus to the relationship between leaders and followers. The evolution of relational theory led to several developments, such as the vertical dyad linkage theory and the leader-member exchange (LMX) theory (Graen and Uhl-Bien, 1995; Dansereau et al., 1975). Both theories focus on the relationship between leaders and followers, suggesting that a high-quality relationship generates positive interactions between both parties. Furthermore, relational theories of leadership posit that leaders and followers reciprocate the exchange in the relationships (Riggs and Porter, 2017).

In general, both theories in the relational approach are focusing on the relationship between a leader and his or her followers with the suggestion that high-quality

relations generate a positive leader. Gardner et al. (2010) acknowledged that overall interest in this approach is relatively strong based on the number of publications in the *Leadership Quarter* between 2000-2009. 40 articles (representing 6%) focusing on the leader-follower relationships have been published between 2000-2009. The findings are further supported by Dinh et al. (2014), where the authors found that 156 articles (21% of total articles) have been published in ten top-tier journals between 2000-2012.

2.1.5 *Transformational-transactional Leadership Theory*

The most recent major leadership approach is the one of transformational-transactional leadership theory. This leadership approach has been identified as the most popular approach and research focus since the early 1980s (Day et al., 2014; Gardner et al., 2010; Northouse, 2004). Between 2000-2012, 294 articles (39% of total articles) based on transformational-transactional leadership or neo-charismatic theory have been published in ten top-tier journals (Dinh et al., 2014). To date, transformational-transactional leadership theory ranked first in leadership-related publications and it is expected that the theory will continue to grow (Lord et al., 2017; Dinh et al., 2014; Gardner et al., 2010).

Prior to the introduction of the transformational leadership concept, transactional leadership was the foundation for an effective leadership behaviour in organisations (Bass et al., 2003). Bass (1985), who expanded Weber's (1947) charismatic leadership theory and Burns' (1978) transactional leadership theory, deduced that transactional leaders clarify the expectation they demand from their followers and offer recognition when goals or objectives are attained. On the other hand, transformational leadership style refers to a superior leadership performance that occurs when a leader expands the interests of their followers, generating acceptance and awareness of organisational visions and missions, and setting the followers' sense of belonging towards groups or organisations. (Bass et al., 2003; Hartog et al., 1997; Bass and Avolio, 1990).

The work of Bass (1985) reignited interest in the area of leadership study which had previously appeared to be dull and lack of theoretical advancement (Day and Antonakis, 2012). Bass and his associates had introduced a new leadership theory (which is also known as neo-charismatic, transformational or visionary perspective of leadership). Again, the work built on Weber's (1947), Burns' (1978) and House's

(1977), and assumed that the paradigm of leadership relies on social exchange or transactional obligation. Bass (1985) elucidated that there is a different approach to leadership that centred on defined purpose and idealised mission. The author believed that transformational leadership approach, which consists of idealised and inspiring leaders' behaviours enhance followers' commitment and interest to achieve organisational mission and vision. Today, even though there is an increasing focus in "new direction" approaches of leadership such as contextual approaches and authentic leadership, transformational-transactional leadership theory holds the top place in leadership related publications (Dinh et al., 2014).
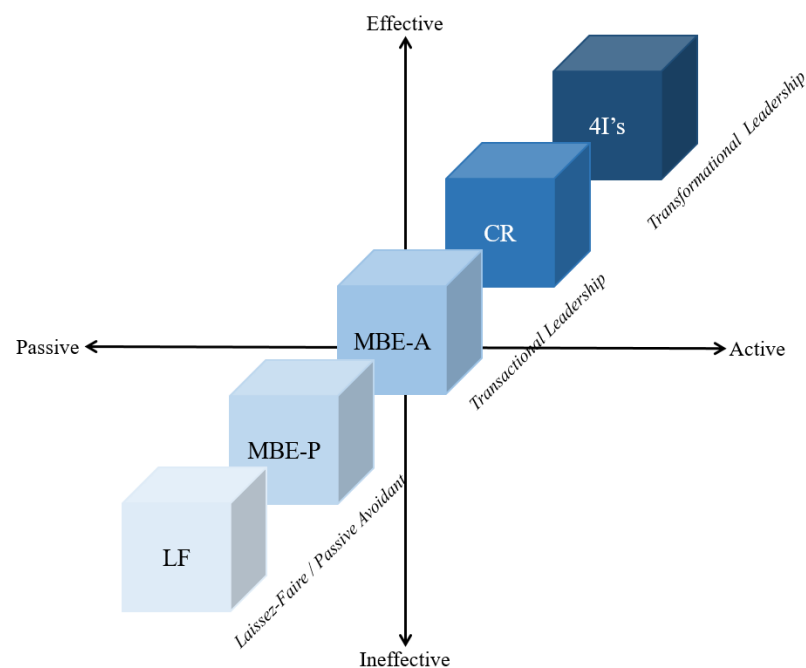
Figure 2.2: Full-Range Leadership Model
Source: Bass and Avolio (1994)

As illustrated in Figure 2.2, transformational and transactional leadership styles have to be integrated to form a full-range leadership model as both of them are interrelated (Bass and Bass, 2008; Judge and Piccolo, 2004; Antonakis et al., 2003; Avolio et al., 1999). Furthermore, for a comprehensive and holistic understanding of leadership styles, the laissez-faire leadership style is also included in the full-range leadership model. The model was developed based on three higher order factors which are transformational leadership (idealised influence, inspirational motivation, intellectual stimulation and individualised consideration), transactional leadership (contingent reward and management-by-exception active) and laissez-faire leadership or passive

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avoidant (management-by-exception passive and laissez-faire) (Antonakis et al., 2003; Avolio et al., 1999).

The transformational-transactional leadership theory and full-range leadership model depict that transformational and transactional leadership styles are the most effective and active behaviours of a leader. On the other hand, laissez-faire leadership style portrays less effective and less active behaviours of a leader. Previous research has shown that transactional leadership has a significant positive relationship towards followers' commitment, employees' satisfaction and organisational performance (Burns, 1978; Bass, 1985; Kuhnert and Lewis, 1987). Goodwin et al. (2001) argued that transactional leadership positively influences organisational citizenship behaviours, which lead to an increase in employees' loyalty to the organisation. However, there are also a few scholars who have found several shortcomings with transactional leadership when compared with transformational leadership. Bass (1985) found numerous shortcomings of transactional leadership such as appraisal-oriented, high monitoring and pressure, and lack of feedback from the leader (manager or supervisor). Furthermore, laissez-faire leadership is typically associated with the poor performance of the follower due to lack of guidance and support from the leader (Bass et al., 2003). The brief descriptions of transformational, transactional and laissez-faire leadership are provided in the next sub-sections.

2.1.5.1 Transformational Leadership

As defined earlier, transformational leadership refers to a superior leadership behaviours that occurs when a leader expands the interests of their followers, generates acceptance and awareness of organisational vision and missions, and sets the followers' sense of belonging towards groups or organisations (Whittington et al., 2009; Bass and Bass, 2008; Avolio et al., 1999; Hartog et al., 1997; Podsakoff et al., 1990; Bass and Avolio, 1990; Yukl, 1989). The concept of transformational leadership places emphasis on the needs for a charismatic attribute in the leader, so that the followers will emulate their decisions and directions. The transformational leaders must also be able to inspire the followers, stimulate their intellectual capabilities and provide the followers with support, coaching or mentoring based on their individual needs or considerations (Whittington et al., 2009; Bass and Bass, 2008; Judge and

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Piccolo, 2004; Antonakis et al., 2003; Bass, 1998; Podsakoff et al., 1990). Bass and Avolio (1990, p. 22) defined transformational leadership as the ability of a leader to:

> … *"elevate the desires of followers for achievement and self-development, while also promoting the development of groups and organisations. Instead of responding to the immediate self-interest of followers with either a carrot or a stick, transformational leaders arouse in the individual a heightened awareness to key issues, to the group and organisation, while increasing the confidence of followers, and gradually moving them from concerns for existence to concerns for achievement, growth and development."*

More simply, Bass (1990, p. 19) defined that:

> … *"transformational leaders inspire, energise and intellectually stimulate their employees."*

Transformational leadership was introduced by Burns in 1978, where he addressed the importance of the relationship between leaders and followers to pursue a higher level of morale and motivation in order to achieve organisational goals and objectives (Judge and Piccolo, 2004; Avolio et al., 1999; Bass, 1990; Kuhnert and Lewis, 1987). Transformational leadership has been identified as the significant contributor towards the process of changing organisational culture by focusing on the leaders' personality, traits and ability to exhibit *'role model'* or *'moral exemplar'* and articulate vision and challenging goals (Lord et al., 2017; Dionne et al., 2014; Bass and Bass, 2008; Burns, 1978).

Burns (1978) claimed that transformational and transactional leadership were distinct to each other. In 1985, Bass extended the Burns' theory of transformational leadership by explaining and illustrating the psychological mechanism underlying the leadership style, and suggesting a mechanism to benchmark and measure transformational leadership. Transformational leadership exhibited by the leader will improve followers' trust, admiration, loyalty and respect. The leader who is practising transformational leadership style will also transform and motivate the followers by encouraging the followers to innovate and cope with new challenges or opportunities. Surprisingly, in contrast to Burns' theory, Bass (1985) elucidated that a leader can simultaneously exhibit transformational and transactional leadership styles.

2.1.5.2   Transactional Leadership

Transactional leadership refers to a leadership style that clarifies and defines followers' roles and requirements to be implemented throughout an organisation's activities, procedures or policies. Transactional leaders will identify followers' needs and requirements, and figure out how they will be satisfied if they achieve the necessary objectives or accomplishments (Avolio et al., 2009; Whittington et al., 2009; Bass and Bass, 2008; Judge and Piccolo, 2004; Avolio et al., 1999; Hartog et al., 1997; Bass, 1985). Burns (1978, p. 3) was the first scholar who introduced the concept of transactional leadership, in which he stated that transactional leaders:

> … *"approach followers with an eye to exchanging one thing for another, jobs for votes, or subsidies for campaign contributions. Such transactions comprise the bulk of the relationships among leaders and followers, especially in groups, legislatures and parties."*

As noted earlier, prior to the introduction of the transformational leadership concept, most scholars and practitioners referred to the concept of transactional leadership as fundamental for their effective leadership style in organisations (Bass et al., 2003; Avolio et al., 1999). Bass (1985), who expanded the Burns' transactional leadership theory, deduced that transactional leadership occurs when the followers' performance is monitored, measured and quantified, and is then rewarded or punished by their leaders. In other words, followers are aware, accept and comply with their leaders in exchange for promotion, praise, rewards, and resources or to avoid disciplinary actions.

Transactional leaders will normally clarify the expectation they demand from followers or subordinates and offer recognition when goals or objectives are attained. In a simpler thought, transactional leadership represents an exchange between leaders and followers so that each of them derives something of value (Whittington et al., 2009; Judge and Piccolo, 2004; Hartog et al., 1997; Lowe et al., 1996; Kuhnert and Lewis, 1987). Burns (1978) mentioned that the exchanged values might range from tangible forms (such as promotion) to intangible forms (such as trust and respect).

2.1.5.3   Laissez-Faire Leadership

Laissez-faire leadership is a type of leadership style in which leaders offer neither feedback nor support to the followers. The leaders normally allow their followers to

make decisions (Bass and Bass, 2008; Judge and Piccolo, 2004; Northouse, 2004; Avolio et al., 1999; Hartog et al., 1997). Laissez-faire leadership is also another term for the non-leadership style in which a leader avoids accepting responsibility, provides no assistance and resists making any decisions. A leader who is exhibiting this leadership style gives full control of the decision-making process to their followers as he or she believes that the respective followers are intrinsically motivated to achieve the organisational goals and objectives (Bass and Bass, 2008). Thus, no direction or guidance is needed from the leaders to the followers. In general, laissez-faire leadership can be defined as:

> .. *"the leader abdicates responsibility, delays decisions, gives no feedback, and makes little effort to help followers satisfy their needs." (Northouse 2004, p. 141)*

In the same vein, Gillespie and Mann (2004, p. 593) considered that laissez-faire leader:

> ... *"avoids getting involved when important issues arise".*

Laissez-faire leaders rely on a non-transactional relationship (either using transformational approach such as motivation or transactional approach such as reward) with the followers, where no exchange or attempt provided to help them to develop (Northouse, 2004). Laissez-faire leadership is always positively associated with the management-by-exception (passive) approach. Scholars argued that laissez-faire and management-by-exception (passive) share similar attributes and the distinction between both constructs are unclear (Bass and Bass, 2008; Muenjohn and Armstrong, 2008; Gillespie and Mann, 2004; Judge and Piccolo, 2004; Avolio et al, 1999; Hartog et al., 1997). Laissez-faire and management-by-exception (passive) are both inactive, and the only superficial distinction between both approaches is the latter waits for the deviances to occur and take the necessary action (Hinkin and Schriesheim, 2008; Avolio et al., 1999). Laissez-faire and management-by-exception (passive) are always negatively associated with transformational and transactional leadership (Bass and Bass, 2008; Hinkin and Schriesheim, 2008; Judge and Piccolo, 2004; Antonakis et al., 2003; Yammarino et al., 1993). Laissez-faire and management-by-exception (passive) are typically grouped together to represent the higher order factor namely either laissez-faire or passive-avoidant (Kelloway et al., 2012; Hinkin

and Schriesheim, 2008; Judge and Piccolo, 2004; Avolio et al., 1999; Hartog et al., 1997). In this thesis, the term laissez-faire is used.

Based on this brief overview, historical evolution and critique on the leadership theories or school of thought, it has been found that the recent and prevalent theory of leadership is transformational-transactional leadership. This is consistent with the application of leadership theories in SCL studies; where the majority of the studies adopt transformational-transactional leadership as the underpinning theoretical lens (this will be discussed comprehensively in section 2.3). Unfortunately, current SCL studies place emphasis only on transformational leadership rather than full-range leadership model (transformational, transactional and laissez-faire leadership styles). This thesis adopted transformational-transactional leadership theory to explain SCL styles by examining different leadership styles and its effects on governance mechanisms and SP.

2.2 Supply Chain Leadership: Overview and Related Theories

The previous section provided an overview of classical leadership theories and discussed the transformational-transactional leadership theory, which is adopted in the thesis to conceptualise SCL. It is apparent that for centuries, leadership studies have been engaged in micro and inter-personal levels, dealing with interactions between individuals (Lord et al., 2017; Dinh et al., 2014; Dionne et al., 2014; Antonakis et al., 2003; Avolio et al., 1999; Yammarino et al., 1993; Podsakoff et al., 1990; Bass, 1985; Burns, 1978; Weber, 1947). In other words, over the past decades, leadership studies have represented a prolific research stream in the fields of management and organisational behaviour. It can be argued that the classical leadership theories and studies emphasise the role of an individual leader (a supervisor) in influencing the behaviour of followers (in this case, employees) based upon an intra-organisational perspective (Avolio et al., 2009; Bass and Bass, 2008; Northouse, 2004).

Recently, research on leadership has been extended to the inter-organisational setting (Roy, 2018; Goffnett, 2018; Hu and Zhao, 2018; Jia et al., 2018; Birasnav et al., 2015; Müller-Seitz and Sydow, 2012; Defee et al., 2010; Williams et al., 2002); notably, the concept of supply chain leadership (SCL) has been emerging. Similar to classical leadership theories, the concept of SCL postulates that the actions and behaviours of

the followers are determined by the actions and behaviours of the leaders. However, instead of focusing on the role of an individual leader in a single firm (intra-organisational), SCL emphasises the role of the organisational leadership concept. In other words, SCL concentrates on the role of a firm in influencing another firm (inter-organisational level).

In general, SCL focuses on firms' leadership behaviours and has been formulated by scholars based upon the classical leadership theories (Jia et al., 2018; Gosling et al., 2017; Birasnav et al., 2015; Hult et al., 2000). SCL is concerned with the ability of a firm to influence the actions, behaviours and performance of supply chain members (Ojha et al., 2018; Akhtar et al., 2017; Lockström et al., 2010; Defee et al., 2009). The SCL concept extends across the boundaries of one firm in order to propagate across entire supply networks (Gong et al., 2018; Jia et al., 2018; Lockström and Lei, 2013). It requires the leading firms to exhibit its leadership style towards supply chain members including upstream suppliers and downstream service providers. The SCL concept proposes that a firm is responsible for being a *supervisor* or *orchestrator* of its supply chain.

SCL has also been identified as the antecedent of strategic supply chain decisions and can contribute to improving supply chain performance in terms of organisational learning (Gosling et al., 2017; Hult et al., 2000b), financial sustainability (Akhtar et al., 2017; Akhtar et al., 2016), buyer-supplier relationships (Goffnett and Goswami, 2016; Lockström and Lei, 2013; Lockström et al., 2010), and environmental sustainability (Jia et al., 2018; Blome et al., 2017; Roman, 2017). Also, contemporary literature suggests that strong commitment and leadership are required in order to improve the competitiveness of supply chains (Gosling et al., 2017; Gong et al., 2018); in other words, leading firms should move from organisation-centric towards inter-organisational network management to address and cultivate supply chain members needs and requirements.

The ability of a firm to develop lower tier suppliers and encourage them towards environmental sustainability practices is determined by their own leadership behaviours. The role of SCL is not limited to dyadic supply chain relationships (for example, the relationship between a buying firm and a tier-1 supplier), but can also be significant in multi-tier or myriad-based supply chain relationships (Jia et al., 2018;

Meinlschmidt et al., 2018). This indicates that the influence of firms' leadership behaviours can penetrate beyond tier-1 suppliers. However, as noted earlier in Chapter 1 (Introduction), very often, the responsibility to manage the suppliers relies on direct buying firms rather than on focal firms, as in most of the cases, the focal firm does not have any contractual relationship with suppliers beyond the first tier (Wilhelm et al., 2016a).

Nonetheless, leadership styles chosen by the leading firms can differ significantly from time to time and from one supplier to another based on contextual and socio-economic factors. Leadership styles of the leading firms are also influenced by the extent of suppliers' dependency on them. In order for a leading firm to cater for the specific needs of different suppliers and orchestrate the whole supply chain activities efficiently (for example, knowledge and information sharing), they should rely on a multi-faceted and adaptive leadership style (Agi and Nishant, 2017; Gosling et al., 2017; Birasnav et al., 2015; Lockström et al., 2010).

Furthermore, recent calls for environmental, social and sustainability practices require a visible leadership portrayed by the leading firms, where they can assist multiple stakeholders (particularly the suppliers) to implement environmental sustainability plans (Gabler et al., 2017). In other words, a firm is responsible to enforce sustainability initiatives and exhibit necessary leadership behaviours (such as motivation, control, audit and reward) in order to ensure that the suppliers adhere to its sustainability plan (Kurucz et al., 2017; Dubey et al., 2015). To date, even similar dynamics have also been observed in relation to the implementation of sustainability initiatives by third-party logistics providers, highlighting the need for leading firm leadership and coordination (Centobelli et al., 2017). In addition to the classical leadership theories, the emergence of the SCL concept into supply chain research can be explained by several organisational theories, particularly stakeholder and institutional theories.

2.2.1   Stakeholder Theory

Stakeholder theory postulates that a firm is an open system, that can be influenced by the expectations of its stakeholders including customers, suppliers, governments,

investors and society (Touboulic and Walker, 2015; Freeman, 2010; Freeman et al., 2010; Donaldson and Preston, 1995). Stakeholder can be defined as:

... "any group or individual who can affect or is affected by the achievement of the organisation's objectives" (Freeman 1984, p. 46).
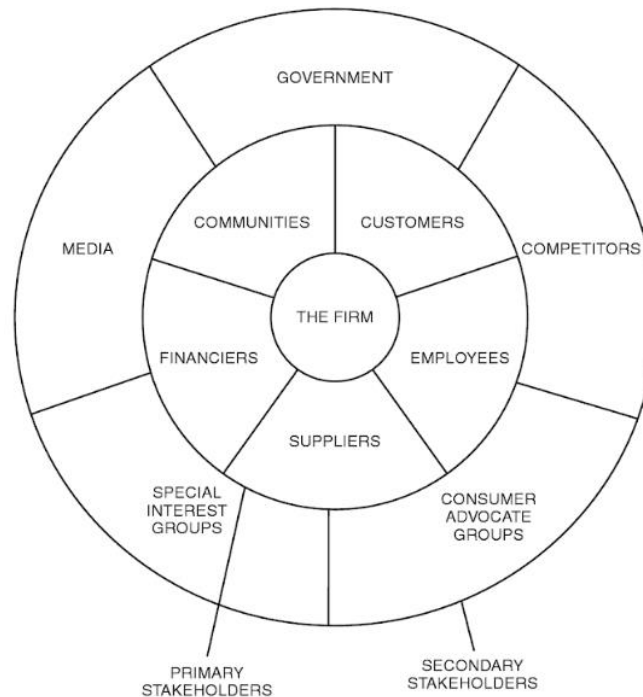
Figure 2.3: Stakeholder Model
Source: Freeman et al. (2010)

In general, stakeholder theory posits that a firm is embedded in a network of various parties in a supply chain, where the firm's activities and decisions are shaped and influenced by the pressures of the stakeholders (Figure 2.3) (Freeman et al., 2010). In order to remain competitive and survive in the industry, a firm should take into account the expectation of their stakeholders in their strategy. Furthermore, for any firm to be successful, it has to create values for their stakeholders. It is the responsibility of any firm to figure out how their interests are going into the same direction with their stakeholders.

In the supply chain context, the role of the stakeholders has been constantly identified as a contributor towards financial, operational and sustainability performance of the entire supply networks (Maestrini et al., 2017; Birasnav, 2013; Hult et al., 2007; Gunasekaran et al., 2004). Among all stakeholders, customers (including the buying firms) represent the larger influence on firms' practices (Gabler et al., 2017; Roman,

2017; Freeman, 2010). By holding the power as a customer, a firm is able to *lead* or *force* the suppliers to pursue mutual goals especially towards economic, social and environmental sustainability (Mani and Gunasekaran, 2018; Sarkis et al., 2011; Zhu et al., 2008a). Stakeholder theory is always concerned with how a firm can create value and trade with their stakeholders (Freeman et al., 2010).

However, it should be noted that in the process of value creation, no stakeholder stands alone as they are connected to each other (Freeman et al., 2010). In the SCL context, leading firms should be responsible in supporting and monitoring the suppliers, which in return means the suppliers are able to work efficiently in accomplishing leading firms' requests (Jia et al., 2018; Birasnav et al., 2015). On the other hand, suppliers are responsible to develop and improve their performance to cater for the needs and demands of the stakeholders, particularly the customers (buying firms), so that they can survive in the industry (Goffnett and Goswami, 2016). These activities promote value creation and trading among the supply chain members. Nonetheless, this situation implies that the actions and behaviours of the suppliers are determined by the approach of their customers (such as the focal or buying firms).

2.2.2 *Institutional Theory*

Following a similar line of argument, institutional theory suggests that firms are striving towards enhancing their legitimacy by adopting or imitating the best practices of other firms in the industry including their buying firms or competitors. In other words, similar to stakeholder theory, institutional theory contends that the behaviours, actions, activities or practices taken by a firm are determined by the external actors or stakeholders (Hazen et al., 2016; Blome et al., 2014; Zhu and Sarkis, 2007; Zsidisin et al., 2005). While stakeholder theory is concerned with value creation and trading among stakeholders, institutional theory relies on the concept of isomorphism (mimetic, coercive and normative). This concept emphasises the similarity of the processes and structures of one firm to other stakeholders, supply chain members or even competitors (Touboulic and Walker, 2015; Ketchen and Hult, 2007; DiMaggio and Powell, 1983).

Mimetic isomorphism involves replicating or imitating other firms' practices or activities for improvement (Dubey et al., 2015; Zsidisin et al., 2005; DiMaggio and

Powell, 1983). For example, in the supply chain context, a firm tends to mimic each other in the industry in order to improve conformance of certain standards such as products' quality and recycling activities. A firm is willing to mimic other firms when they believe that similar process or practices could be beneficial to them (Ketchen and Hult, 2007). Moreover, a firm tends to imitate others when there is uncertainty about the firm's goals, environment or technology (Dubey et al., 2017; Zsidisin et al., 2005).

On the other hand, coercive isomorphism involves the influence or pressure from other institutions which a firm is dependent upon such as customers, suppliers and governments (Sarkis et al., 2011; Zsidisin et al., 2005; DiMaggio and Powell, 1983). Normative isomorphism occurs when the members of an occupation or industry, preferably professional bodies, define their 'best' working culture and patterns (Hazen et al., 2016; Zsidisin et al., 2005). The accepted cultures and patterns then becoming the norms in the society or industry, and exercised by all members. For example, the professional bodies in supply chain field include the Chartered Institute of Purchasing and Supply (CIPS), the Institute for Supply Management (ISM) and the International Purchasing and Supply Education and Research Association (IPSERA) (Zsidisin et al. 2005). These professional bodies are able to create normative pressure to the members by providing avenues for the discussions towards the implementation and research on environmental and social responsibility in supply chain environment. Nevertheless, customers (buying firms) can also exert normative pressure towards a firm (supplier) (Zhu and Sarkis, 2007). Normative isomorphism is not empirically distinct with coercive ones, as it implies that external actors may induce the way a firm operates and works. However, it can be enlightened that coercive isomorphism is usually exerted by those in power while normative isomorphism by social influences (Hazen et al., 2016).

In the supply chain context, institutional theory postulates that external pressures (mimetic, coercive and normative) influence firm's behaviours and practices, where the firm has to respond to regulations (for example, government's policy) and imitating their industry benchmark (for example, buying firms or competitors) to gain legitimacy. Furthermore, similar to stakeholder theory, the main tenet of institutional theory suggests that the strategy, action, behaviour and activities considered by a firm are determined by its external environment. This includes several activities in supply

chains such as the adoption of new technology and the execution of sustainability practices (social, environmental and economic) (Esfahbodi et al., 2017; Hazen et al., 2016; Touboulic and Walker, 2015; Blome et al., 2014). For example, a recent study by Mani and Gunasekaran (2018) discovered that buying firms' pressure significantly influence suppliers' social sustainability adoption, which contributes towards suppliers' social performance and buying firms' operational performance. The ability of the buying firm to assure suppliers' compliance on the pre-determined standards and be the *exemplar* towards sustainability practices can pressure the suppliers to align their practices with the buying firm. This is consistent with the concept of SCL, which it proposes that the performance, behaviours and actions of the suppliers is highly dependent on the behaviour of the leading firms.

Stakeholder and institutional theories posit the role of *external enablers* in determining firms' activities and practices in the supply chains. Both theories suggest that the stakeholder, particularly the buying firms, has the ability to influence the actions, behaviours and performance of the other firms. While both theories provide the rationale of embracing SCL in supply chain environment, both theories provide a little guidance on how a buying firm can lead their suppliers. Obviously, the conceptualisation of SCL is largely influenced by classical leadership theory, in particular transformational-transactional leadership theory (Jia et al., 2018; Gosling et al., 2017). In addition to stakeholder and institutional theories, transformational-transactional leadership theory suggests specific behaviours of a leader that can influence the performance of the followers (suppliers). Detailed explanations of SCL concept including publication history, theories, dimensions and practices are systematically reviewed in the next section.

2.3 Supply Chain Leadership: A Systematic Literature Review

In the previous section, the overview and background of the SCL concept, together with the underpinning theories were discussed. A greater comprehension of SCL mechanisms is therefore crucial, as SCL-related concepts have the potential for developing new theories that might improve supply chain practices. Such in-depth understanding is necessary for two main reasons. Firstly, despite the growing attention and studies on SCL, the term is characterised by a rather inconsistent usage, including its constructs and dimensions. Given that several leadership styles exist in the classical

leadership literature, this thesis attempts a systematic literature review to gain a detailed understanding of the leadership styles that have been adopted in the supply chain context and to acquire a detailed comprehension of the dimensions of SCL. Moreover, SCL-focused contributions towards supply chain practices are reviewed. Findings derived from this systematic literature review are useful as a foundation for establishing a workable SCL theory.

Secondly, while comprehensive literature reviews on channel leadership, supply chain governance and institutional pressures are available (for example: Delbufalo, 2012; Pilbeam et al., 2012; Guo et al., 2017), none of these explicitly mention the SCL concept. Also, an equivalent review on the SCL concept is currently absent; the only notable systematic literature review on SCL was published by Gosling et al. (2017). Unfortunately, the focus of this systematic literature review is limited to the role of SCL in promoting sustainability across supply chains. Therefore, there is a need to holistically review the current understanding and usage of the SCL concept at a more general level, and identify the gaps in the current literature. This is a crucial step in order to identify research gaps that could be potentially filled by this thesis. In general, the main and ultimate objective of the systematic literature review conducted in this thesis is to reflect on the current state-of-the-art and highlight key research gaps which could be the subject of future studies.

2.3.1   Systematic Review Methodology

A systematic literature review is useful for locating, selecting, analysing, appraising and evaluating the literature that is relevant to a particular research question (Denyer and Tranfield, 2009). The review was performed through the web-based tools SCOPUS and Web of Science. SCOPUS and Web of Science were used as both databases have been considered as the largest databases of peer-reviewed journals and store a broad range of scientific papers (Centobelli et al., 2018). Furthermore, both databases have been used extensively in producing systematic literature review papers in the fields of operations management and supply chain (Shashi et al., 2018; Govindan and Hasanagic, 2018; Centobelli et al., 2017; Chen et al., 2017; Maestrini et al., 2017; Cerchione and Esposito, 2016). The main purpose of using two different databases was to provide a high level of rigour in searching and selecting the papers to be included in the subsequent analysis (Shashi et al., 2018; Centobelli et al., 2017). The review

consisted of the four main steps suggested by Maestrini et al. (2017): (i) source identification, (ii) source selection, (iii) source evaluation, and (iv) data analysis. The overview of the article search process is presented in Figure 2.4 and explained in the following subsections. It is worth noting that all articles were selected based on the result from the databases and snowballing technique was not executed.

Source Identification / Paper Extraction

- Scopus (N =562)
- WOS (N=734)
- Total number of articles: 1296

Duplication Removed

- Duplication of articles were manually checked and using Endnote V9.
- Remaining articles: 950

Excluded Articles

- Articles focus on channel leadership.
- Articles focus on game theory (i.e: Stackelberg leadership, Nash game theory).
- Articles focus on price, cost and industry leadership.
- *All articles in this category have not mentioned anything about leadership styles and irrelevant to SCL concept.*

Preliminary Selection Process

- Based on abstract.
- 830 papers were excluded.
- Remaining papers: 120

Excluded Articles

- Articles mention general leadership issues or concerns without explicit applications of leadership into supply chain context.

Final Evaluation Process

- Based on the content of the papers.
- 69 papers were excluded.
- Remaining papers: 51

Data Analysis

Figure 2.4: Article Search and Evaluation Process

2.3.1.1   *Source Identification*

The first step in the systematic literature review was a keyword-based search using the SCOPUS and Web of Science databases. In order to maximise the number of available resources, the following generic keywords combination was used:

leader* AND "supply chain*"

This very generic keywords combination allowed this thesis to retrieve as many SCL related articles as possible. These generic keywords were also used to overcome the limitations of having too specific and rigid keywords which could lead to exclusion of potential SCL related articles. During multiple stages of paper retrieval, alongside "leader*" and "supply chain*" keywords, several potential keywords such as "top management", "inter-organisational leader* and "inter-organisation*" were considered. Unfortunately, most of the related resulting articles appear to be concerned with intra-organisational leadership. This would have affected the focus of the paper, as the main objective was considered SCL as an inter-organisational concept. Furthermore, the usage of "leader*" as the keyword is consistent with a similar appraisal of SCL literature (which is focusing only on SCL and sustainability learning) provided by Gosling et al. (2017). However, the study used more specific leadership styles related keywords such as "supply chain leadership", "transformational leadership", "transactional leadership", "group leadership" and "focal firm leadership".

A total of 562 and 734 potentially relevant articles were retrieved from SCOPUS and Web of Science respectively. The details of the search protocols are provided in Table 2.1. A cross-checking process was conducted manually and using Endnote V9 in order to eliminate duplicated results between the databases, reducing the total number of articles to 950. Several meetings with the supervisory team were held to discuss the findings, starting from the article searching process until the selection of the reviewed articles.

Table 2.1: Articles Searching Protocols

Database	Field	Subject Area / Research Domain	Document Types	Language	Total	Total Both	Duplicate	Remaining
Scopus	Article title, Abstract, Keywords	Business, Management and Accounting; Social Sciences	Article; Review	English	562	1296	346	950
WOS	Topic	Social Sciences	Article; Review	English	734			

2.3.1.2   Source Selection

After the retrieval of the relevant articles from the databases, the next fundamental step was concerned with drawing the boundaries of the analysis (Denyer and Tranfield, 2009; Maestrini et al., 2017). In line with the SCL concept, only articles discussing leadership issues in a supply chain context were used in the subsequent analysis. Therefore, the abstracts of the 950 articles were read carefully. A large number of articles discussing concepts related to channel leadership (see Genc and De Giovanni, 2017) along with those presenting mathematical modelling approaches (see Yan et al. (2016) and his application of Stackelberg leadership; Hou et al., 2017) were excluded.

The SCL concept is much broader than a power or dominating-based concept of channel leadership as it focuses on the collaborative behaviours of a firm which seeks to improve the performance of the entire supply chain (Defee et al., 2009; Defee, 2007). Nonetheless, it should be noted that channel leadership concept focuses very much on the downstream element in a supply chain, with particular emphasis on the marketing and distribution functions (Fang et al., 2018; Genc and Giovanni, 2017; Guo et al., 2017). As such, it can be seen as operating on a 'subset' of the whole spectrum of action of SCL as per our definition; thus, the channel leadership concept lacks the *holistic* perspective which is intrinsic to the SCL concept. In addition, the channel leadership concept in marketing literature emphasises the role of a single focal firm (typically a manufacturer) in maximising their performance regardless of the negative impacts on other channel members (Defee et al. 2009; Defee, 2007). Furthermore, equating the channel leadership concept with SCL is not appropriate as studies on channel leadership or channel captain are focused around the concept of dominating the channel members so as to improve the focal firms' performance, where the channel captain is characterised by the most powerful and dominant member in the supply chain (Gölgeci et al., 2018; Kozlenkova et al., 2015; Choi et al., 2013; Barnett and Arnold, 1989; Etgar, 1978). Furthermore, articles referring to price, industry or cost leadership were excluded. This process resulted in the reduction in the number of the articles to be considered to 120.

2.3.1.3   Source Evaluation

The remaining 120 articles were further analysed in relation to their relevance based on the inclusion and exclusion criteria in Table 2.2. This was to ensure that all

dimensions discussed by previous scholars were properly captured and reviewed in this thesis. The selection was based on three main criteria:

i) Studies defining specific styles, types and dimensions of leadership in supply chain management (35 articles) were *included* in the analysis. The specific leadership styles were classified based on the existing and established leadership theories and styles in the literature (Day et al., 2014; Gardner et al., 2010; Judge and Piccolo, 2004; Northouse, 2004; Wong, 2001; Avolio et al., 1999). Specific leadership styles include autocratic, democratic, participative, integrative, transformational and transactional leadership. For example, Roman (2017) employed a transformational leadership style to discuss the role of SCL on sustainable procurement, while Akhtar et al. (2017) explained the influence of autocratic and participative leadership styles towards buying firms' financial performance within buyer-supplier relationships.

ii) Studies dealing with general leadership constructs and dimensions in supply chain management (16 articles) were also *included* in this systematic literature review analysis. Papers in this category utilise a general concept of leadership, without mentioning or adopting specific leadership styles that have been introduced or discussed in the literature of leadership studies. Furthermore, articles in this category do not link leadership styles with existing leadership theories literature (such as theory X and Y, transformational-transactional leadership, or leader and member exchange (LMX) theory). For example, L'Hermitte et al., (2016) did not mention any specific leadership style but used generic characteristics to measure SCL including leading firms' purposefulness, action-focused approach, collaborative strategies and learning environment.

iii) Studies mentioning leadership without clear applications to supply chain management (69 articles) were *excluded* from the analysis. For example, the study by Smith et al. (2016) was excluded as it discusses the role of political will and leadership on sustainable public sector food procurement. There is no discussion of leadership styles of focal or even of buying firms (within direct buyer-supplier relationships) in this paper. Similarly, Ambe and Maleka (2016) mentioned in the introduction section of their paper that

supply chain malfunctioning can be caused by lack of a leadership and governance. However, the discussion of leadership stops there without any further explanation in the paper.

Table 2.2: Criteria for Selecting Studies / Papers

No	Criteria	Number of Study	Relevancy
1	Studies defining *specific types and dimension* of leadership in a supply chain context	35	Included
2	Studies dealing with *general leadership constructs and dimensions* in a supply chain context	16	Included
3	Studies just mentioning general leadership issues or concerns *without* explicit applications of leadership to supply chains	69	Excluded

2.3.1.4   Data Analysis

The final step of the systematic literature review was the critical analysis of the articles. The data analysis was performed using Microsoft Excel to identify trends, themes and relevant findings. These include the historical series of SCL publications, academic journals publishing SCL studies, countries where SCL studies are taking place, employed research methodologies, supply chain orientations and supply chain relationships. Details of the reviewed papers are presented in Appendix A.

2.3.2   Publications of SCL Studies (2000-2017)

Figure 2.5 depicts that 51 papers related to SCL were retrieved and considered relevant. Most of the 51 papers have been published in recent years (from 2015 – 2017). The chart shows the distribution of publications per year across the period of study. The first paper on SCL retrieved in this study is the one from Hult et al. (2000b); this is consistent with the argument provided by Williams et al. (2002) that SCL research takes off after year 2000. Though there were no papers in 2003, 2005, 2006 and 2008, there has been a gradual increase in the number of studies on SCL from 2009-2017. Based on the recent trend, it is expected that more SCL studies will be published in upcoming years especially on the role of SCL styles in promoting supply chain sustainability practices (Gong et al., 2018; Jia, Zuluaga-Cardona, et al., 2018).
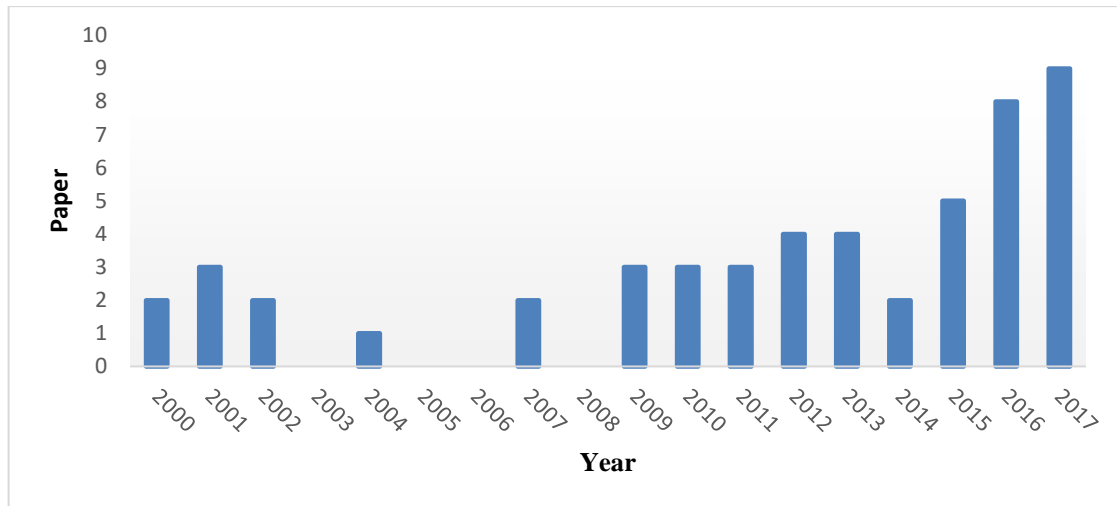
Figure 2.5: Historical Series of SCL Literature

Figure 2.6 shows the journals that published SCL-related articles from 2000 to 2017. The figure only reports journals publishing at least two papers. The top contributor is the International Journal of Production Economics (8 papers), followed by the International Journal of Physical Distribution and Logistics Management (4 papers), the Journal of Cleaner Production (4 papers), the International Journal of Production Research (3 papers) and Supply Chain Management: An International Journal (3 papers). Looking at rankings provided by SCImago in order to measure the scientific influence of journals, all the mentioned journals in the table are in the Quartile 1 (Q1) group except for the Global Business Review (Q2) and the International Journal of Logistics Systems and Management (Q3).

Figure 2.6: Journals Publishing SCL Articles

Figure 2.7 classifies the papers according to the country where the data was collected or the research related to the presented empirical cases was conducted. In other words,

the categorisation of the papers is based on the country where the research takes place, not the country of the author. The top contributing countries are the United States of America (12 papers), followed by China (4 papers), India (4 papers), Brazil (3 papers), the United Kingdom (3 papers) and Germany (2 papers). Three further papers report multi-country case studies. Based on the review, it can be concluded that the concept of SCL is extensively researched in developed rather than emerging countries. In particular, SCL seems to be quite USA-centric at the moment. The 'no country' category is devoted to conceptual papers which do not show any geographical focus.
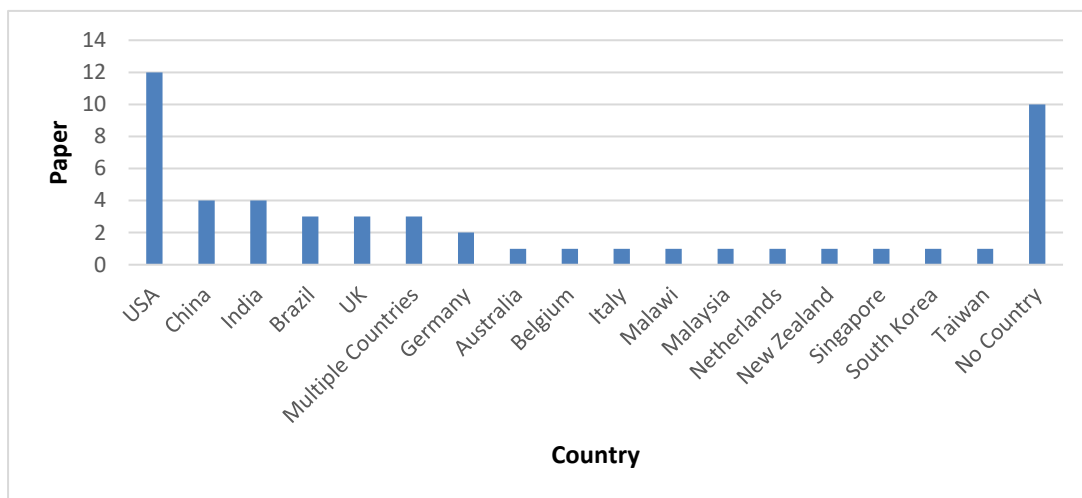
Figure 2.7: Papers Classified by Country of Research

Figure 2.8 provides an overview of the research methodologies employed in SCL papers (see Appendix A for a detailed classification of each paper). Four different categories of research methodologies are found:

i) Quantitative research (47%) – this category is characterised by studies that use a quantitative research method and data analysis. All papers in this category used survey research. Several techniques such as co-variance based structural equation modelling (CB-SEM), partial least square structural equation modelling (PLS-SEM), multiple regression, correlations study, analytical hierarchical process (AHP) and simulation are used. For example, Roman (2017) used a survey method and CB-SEM to examine the causal relationship between SCL and organisational sustainable procurement practises. On the other hand, Kuei et al. (2011) used a survey method – also involving AHP – in order to propose the highest priority factor in enhancing supply chain quality management.

Defee et al. (2010) used interactive simulation to observe the role of several firms in their supply chain functions including raw material procurement, logistics, production, manufacturing, warehousing and customer service. Defee et al., (2010) argued that this is a robust technique to observe the real phenomenon of SCL and supply chain practises.

ii)   Qualitative research (29%) – This category is characterised by studies employing qualitative research methods and data analysis. All papers in this category used a case study method and interviews for data collection. The analysis was done using several techniques such as content and thematic analysis. For example, Gabler (2017) used a case study method and interviewed 15 experts in manufacturing industry to propose and develop an environmental sustainability plan. Lockström et al. (2010) used the China automotive industry as a case study and interviewed 30 participants to determine the antecedents of supplier integration.

iii)   Mixed method research (4%) – this category is characterised by the studies that use both quantitative and qualitative research methods in one study. For example, Melnyk et al. (2009) used literature review content analysis and a Delphi study, while (McAdam and Brown, 2001) used survey research (questionnaires) and case study (semi-structured interviews).

iv)   Conceptual papers (20%) – this category is characterised by conceptual papers. Papers in this category provide no empirical data but discuss potential research focuses or topics related to SCL. Also the paper from Gosling et al. (2017), providing a systematic literature review on SCL in sustainability learning, was included in this category.
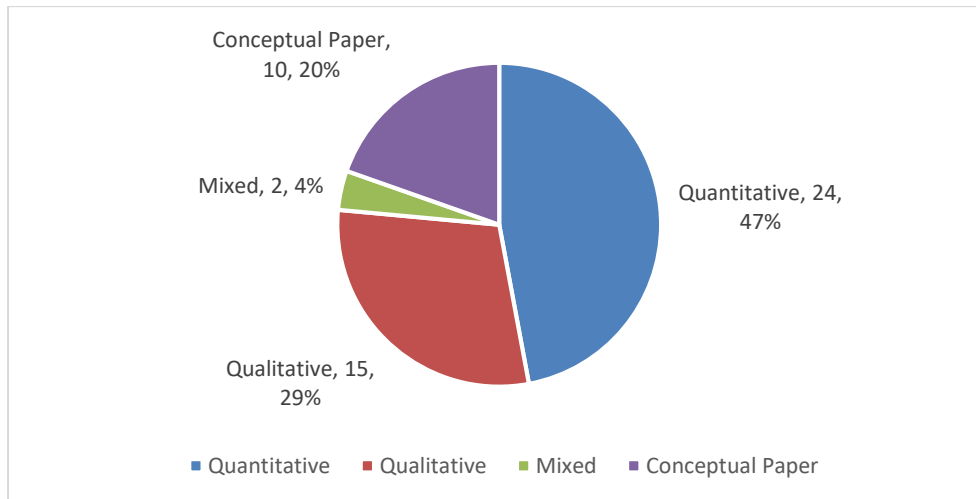
Figure 2.8: Employed Research Methodologies

As shown in Figure 2.9, relationships between supply chain members in supply networks can be categorised into three main orientations: (i) dyadic relationship, (ii) triadic relationship and (iii) myriad or multi-level relationship. The retrieved SCL papers were classified into their respective categories so that the extent to which a multi-tier perspective is being addressed in the current characterisation of the SCL concept can be assessed.
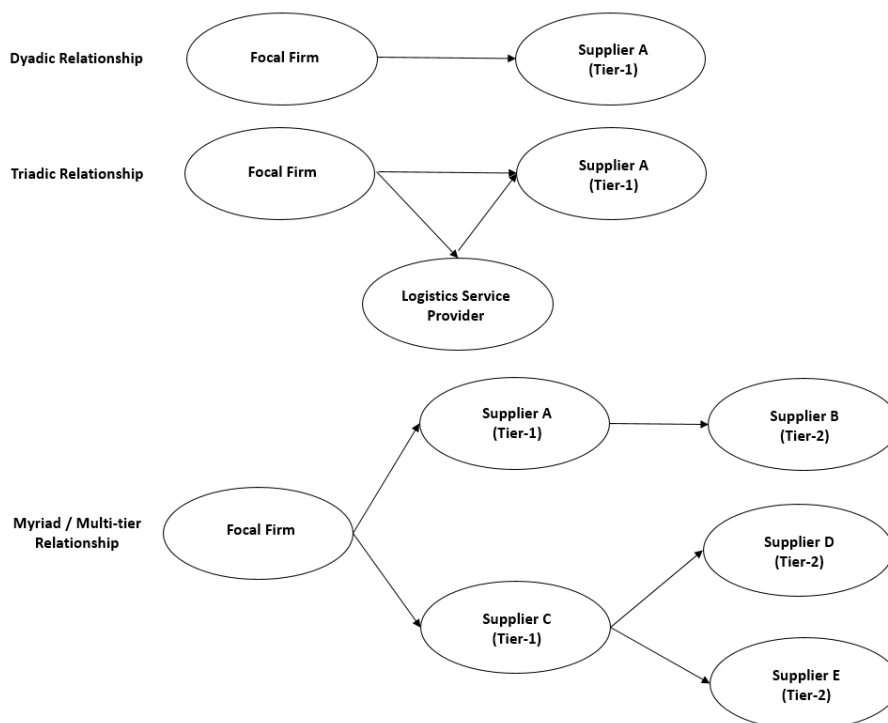
Figure 2.9: Supply Chain Relationships Types

Figure 2.10 shows that the role of SCL has been extensively studied based on dyadic (one-to-one) relationships, either between buyer-supplier or between buyer-

retailer/distributor/logistics service providers (LSPs). Birasnav et al. (2015) proposed the influence of SCL on immediate upstream suppliers, looking at phenomena like information exchange and knowledge sharing. Sinha et al. (2016) investigated the concept of SCL based on the relationship between the original equipment manufacturers (OEMs) and their tier-1 suppliers, and its influence on quality improvement, suppliers' motivation and change management. The concept of SCL in dyadic relationships is also observed in supply chain integration issues such as supply chain partnering (Venselaar et al., 2015), alliancing (Tamburro and Wood, 2014) and strategic planning (Lockström et al., 2010).
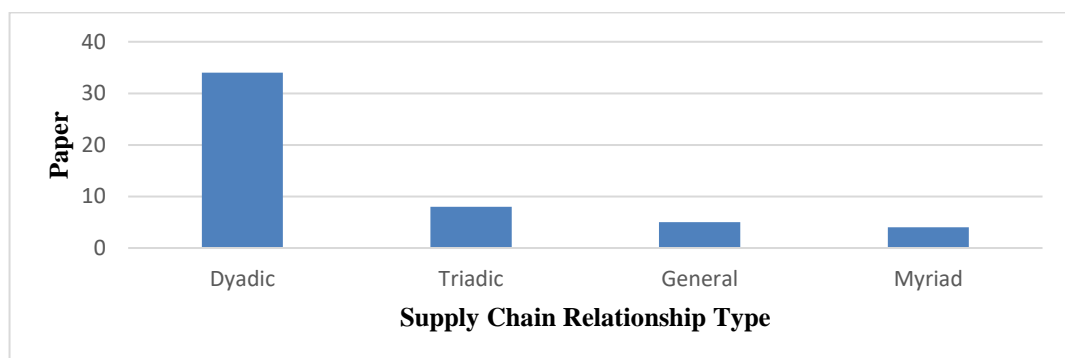
Figure 2.10: Papers' classification based on type of studied Supply Chain Relationship

The analysis also revealed that the role of SCL has been examined beyond the dyadic relationship; specifically, the ability of buying firms' leadership styles in coordinating supply chain activities based on triadic (9 papers) or myriad relationships (4 papers) has been investigated. In triadic relationships, buying firms are responsible for integrating processes and activities between their upstream partners (such as raw materials suppliers) and LSPs in order to improve quality and delivery performance (Kuei et al., 2011), sales and operations planning (Tuomikangas and Kaipia, 2014), and supply chain learning (Wamba and Chatfield, 2009). In papers investigating myriad-based relationships, the concept of SCL has been extended beyond tier-1 suppliers. In these papers, buying firms are seen as responsible for ensuring close partnerships with and among their suppliers in all tiers to improve supply chain coordination (Sharif and Irani, 2012; Müller-Seitz and Sydow, 2012; Da Cruz and Paulillo, 2016) as well as environmental and social sustainability (Mzembe et al., 2016). Finally, the general category includes a few papers (6) that do not provide a clear relationship discussion in their papers (see Gosling et al., 2017; Melnyk et al., 2009). Most of these papers provide a discussion on the role of SCL in improving

supply chain practices but do not explain whether it should be a dyadic, triadic or multi-tier concept.

Such findings show how the SCL concept can be extended beyond a dyadic relationship, to describe the process through which a leading firm (for instance, the focal firm) orchestrates the whole supply chain by influencing supply chain members' actions and behaviours. The classification of each retrieved paper based on the type of relationship studied is shown in Appendix A.

2.3.3 Leadership Theories in SCL Studies

Table 2.3 shows the leadership theories used to explain the SCL styles that appeared in the reviewed articles. There are three main leadership theories that have been utilised in the supply chain domain, namely (i) transformational and transactional leadership (ii) general leadership and (iii) behaviourist leadership. The classification of each retrieved paper based on the adopted leadership theory is shown in Appendix A.

Table 2.3: SCL Theories in the Literature

SCL Theories	Paper
Transformational and transactional leadership	24
General leadership	22
Behaviourist leadership	5

2.3.3.1 Transformational and Transactional SCL

The most dominant leadership theory used in dealing with SCL is the one based on transformational and transactional leadership theory (24 articles; see Appendix 1 for a full classification). This approach emphasises the relationship between the supply chain leader(s) and supply chain members based on two approaches which are (i) reward, recognition, punishment, monitoring and auditing schemes (transactional) and (ii) envisioning organisational transformation and performance (transformational) (Agi and Nishant, 2017; Gosling et al., 2017; Roman, 2017; Dubey et al., 2015; Birasnav et al., 2015; Defee et al., 2010; Lockström et al., 2010; Defee et al., 2009). It has to be highlighted that, within this theoretical domain, SCL scholars tend to focus much more on the application of transformational leadership in a supply chain setting (17 papers), with only 7 dealing at the same time with a simultaneous application of transformational and transactional leadership in their SCL dimensions and discussions

(see Appendix 1). For example, Mzembe et al. (2016) examined the role of transformational SCL styles towards the implementation of corporate social responsibility in Malawi's agricultural supply chains. On the other hand, Hult et al. (2000a) investigated the impact of firms' transformational and transactional SCL on the partnership and commitment of the suppliers.

In general, transactional leadership refers to the leadership style that clarifies and defines supply chain members' role and requirements to be implemented throughout the supply chain's activities. Furthermore, transactional SCL identifies supply chain members' needs and requirements, and figures out how they could be satisfied if they achieved the necessary efforts or accomplishment (Hult et al., 2000b; Birasnav et al., 2015). Transactional SCL occurs when the supply chain members' actions, behaviours or performance are evaluated, and then rewarded or punished by the leading firm (for instance, the focal firm or the buying firm in a dyadic supplier-buyer relationship) in order to improve adherence and compliance. Transactional SCL represents an exchange between the leading firm and its supply chain members so that each of them derives something of value for their organisation (Gosling et al., 2017). The exchange values might range from tangible forms (quality award) to intangible ones (commitment or respect). By exhibiting this approach, a firm is able to influence supply chain members as they are trying to secure and sustain their future business opportunities and relationships (Dubey et al., 2015a). In addition, a firm which is practising transactional SCL is highly likely to be committed toward controlling and monitoring their supply chain members, for example, by holding frequent inspections and auditing of suppliers' production activities (Birasnav et al., 2015) or sustainability practices (Agi and Nishant, 2017).

The concept of transformational SCL emphasises the need for charismatic attributes in the leadership approach of a firm, in such a way that supply chain members can emulate their decisions (Roman, 2017; Hult et al., 2000a; Hult et al., 2000b). Transformational SCL requires a firm to influence their supply chain members' actions and behaviours through the necessary support and motivation. Transformational SCL has been characterised as the ability of a firm to act as an inspirational behaviour role model to their supply chain members. The ability of a leading firm to exhibit transformational SCL will enhance the supply chain members' compliance and imitation of the firm's initiatives such as corporate social responsibility (Mzembe et

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al., 2016) and technology adoption (Wamba and Chatfield, 2009). Moreover, a firm that exhibits transformational SCL is focusing on articulating its missions across the supply chain and on stimulating innovation in its supply chain members (Defee et al., 2010). In contrast to transactional SCL, a firm that implements this leadership style tends to rely on long-term relationships and the development of its suppliers while using less control mechanisms (Birasnav et al., 2015).

2.3.3.1.1 *Dimensions of Transformational, Transactional and Laissez-faire Supply Chain Leadership*

In the supply chain management context, a distinction is made between *transformational* and *transactional* leadership styles (see Jia et al., 2018; Teoman and Ulengin, 2018; Agi and Nishant, 2017; Roman, 2017; Goffnett and Goswami, 2016; Dubey et al., 2015; Birasnav et al., 2015; Lockström et al., 2010; Defee, 2007). However, the concept of transformational and transactional leadership should be tested together as they are inter-related and both contribute to supply chain performance (Hult et al., 2007; Birasnav et al., 2015). Moreover, in intra-organisational leadership studies, both leadership styles have been tested together by numerous scholars who have used several quantitative methods (such as factor analysis and structural equation modelling) in order to ensure the reliability and validity of the constructs (Bass and Bass, 2008; Judge and Piccolo, 2004; Avolio et al., 1999; Lowe et al., 1996; Yammarino et al., 1993; Podsakoff et al., 1990).

The analysis of SCL trends also revealed that the attention on transactional leadership in supply chain context has recently increased (since 2015). Hence, as illustrated in Table 2.4, this thesis supports and extends Hult et al. (2007) and Birasnav et al., (2015) ideas by proposing that the SCL dimensions shall include both transformational and transactional leadership to measure the SCL constructs.

Transformational leadership is characterised by four main dimensions, which are idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. When adopting a transformational style, a leader is acting as a role model to the followers, motivating followers towards better performance and generating awareness regarding visions and missions of the group (Bass and Avolio, 1990; Yammarino et al., 1993; Judge and Piccolo, 2004; Bass and

Bass, 2008). Drawing upon this concept, transformational SCL refers to the ability of a firm to motivate and stimulate their supply chain members' actions and behaviours.

Transactional leadership is characterised by two dimensions, namely contingent reward and management-by-exception (active). Transactional leaders clarify followers' roles and requirements, then providing rewards for those who meet the expectations (Bass, 1990; Judge and Piccolo, 2004; Whittington et al., 2009). Drawing upon this tenet, transactional SCL is conceptualised as the behaviour of a firm in: clarifying suppliers' expectations and roles; rewarding, monitoring and auditing suppliers (Birasnav et al., 2015; Agi and Nishant, 2017; Blome et al., 2017; Gosling et al., 2017).

Furthermore, in order to evaluate the full-spectrum of leadership styles exhibited by the leaders (in this case, the buying firms), the laissez-faire style shall be examined (Muenjohn and Armstrong, 2008; Judge and Piccolo, 2004; Antonakis et al., 2003; Avolio et al., 1999). Laissez-faire leadership is represented by management-by-exception (passive) and total laissez-faire approach. As mentioned earlier, both dimensions are overlapped and the distinction between each other is unclear (Kelloway et al., 2012; Judge and Piccolo, 2004; Avolio et al., 1999; Hartog et al., 1997). Hence, laissez-faire SCL refers to a firm who avoids making decisions, ignores responsibilities or prefers a reactive approach of managing supply chain activities and relationships (Ciardiello et al., 2018). The reactive approach includes leading firms (focal or buying firms) tendency to passively wait for faults, mistakes, deviances or inefficiency before proceeding with corrective actions.

Table 2.4: The Dimensions of SCL

Style	Dimension	Description
Transformational	Idealised Influence (II)	A leading firm acts and behaves in ways that their followers will see them as a role model. A leading firm is required to lead by example, which results in their being admired, respected and trusted by their supply chain followers.
	Inspirational Motivation (IM)	A leading firm should be able to motivate and inspire their supply chain members by providing meaning and suggestion. By demonstrating motivational and inspirational concepts in the leader's management style, a leading firm will be able to generate team spirit, enthusiasm and optimism among their suppliers.
	Intellectual Stimulation (IS)	A leading firm should be able to stimulate followers' intellectual capacity to be more innovative and creative. There are a few ways of stimulating supply chain members' intellectual capacity including questioning assumptions, reframing and redefining problems or issues, and providing new ways of approaching old practices.

	Individualised Consideration (IC)	A leading firm also focus on followers' individual needs, particularly for achievement and growth. Followers' individual needs can be achieved in several ways including the leader acting as a coach or mentor. Individualised consideration is important in promoting new learning opportunities for the suppliers.
Transactional	Contingent Reward (CR)	The contingent reward has been identified as a reasonably effective construct in motivating followers to achieve higher levels of performance and development that can contribute to organisational growth and competencies. By using this method, a leading firm will assign suppliers, and agree on goals and objectives with potential rewards or actual rewards in exchange for attaining the assigned levels.
	Management-by-Exception (Active)	In an active management-by-exception practice, a leading firm tends to actively monitor deviances in members' assignment and take corrective action if necessary.
Laissez-Faire	Management-by-Exception (Passive)	A leading firm who uses passive management-by-exception, they tend to passively wait for deviances to occur and then proceed with corrective action.
	Laissez-Faire	A leading firm that avoids making decisions and ignores their responsibility in supply chain activities or relationships.

Note: The dimensions of transformational and transactional SCL are adopted from Birasnav et al. (2015), Hult et al. (2007) and Hult et al. (2000a). The dimensions of laissez-faire SCL are adopted from Bass and Bass (2008) and Avolio et al. (1999).

2.3.3.2   General SCL

A total of 22 papers use generic leadership attributes rather than specific leadership styles to explain the SCL concept. Papers in this category utilise a general concept of leadership, without mentioning or adopting specific leadership styles that have been introduced or discussed in the literature of leadership studies. Furthermore, articles in this category do not link leadership styles with existing leadership theories in the literature (such as the theories of transformational-transactional leadership or leader and member exchange (LMX)). A likely explanation for this approach is that leadership styles are a contextual or situational-based concept (Northouse, 2004). In a supply chain context, environment and relationships can be highly dynamic. Different situations might force a firm to use different SCL styles in order to influence and control different suppliers. Gabler et al. (2017) used normative, strategic and operational factors to measure SCL and its influence on the environmental sustainability business plan. In the same vein, Yuen and Thai (2017) measured SCL using coordination and strategic capacities of leading firms towards supply chain integration and partnership. Leading firms' collaborative principles have also being used by Vivaldini and Pires (2016) to characterise SCL and examine its effects toward closed-loop supply chain performance.

The review discovered that papers in this category tend to discuss SCL as a concept that similar to other constructs which have been around for a long time in supply chain research such as collaboration, integration, top management commitment, empowerment and coordination (see L'Hermitte et al., 2016; Sinha et al., 2016; Silvestre, 2015; Blome et al., 2014). For example, Silvestre (2015) conceptualised SCL based on the ability of the focal firm to be active and constructive in managing supply chain uncertainty, stimulating knowledge sharing between supply chain members and enhancing sustainability performance. While these concepts can be seen as part of a leadership approach in the supply chain context, holistic perspectives and views of the SCL concept seem to be missing in these papers. Nonetheless, a coherent definition of SCL is not apparent in these papers. As such, the theoretical contribution of the papers in this category is on the low side. First, these papers do not utilise any background leadership theories, nor they adapt classical leadership theories to the supply chain management domain. Second, as argued before, these papers seem more as a rebranding exercise of existing concepts under the SCL umbrella. Most importantly, the use of such generic SCL styles produces a highly inconsistent and non-homogeneous characterisation of the leadership concept from one study to another. This leads to difficulties in generalising constructs and dimensions. Nonetheless, this thesis adopts transformational-transactional leadership theory as the foundation for SCL concept in order to address the gaps in the current literature, including: (i) the limited exploration and discussion on transactional SCL; (ii) the absence of laissez-faire SCL. By adopting transformational-transactional leadership theory, the concept of SCL can be holistically examined through different established and validated leadership styles, contributing towards the enhancement of the current SCL theory.

2.3.3.3   Behaviourist Leadership (Autocratic, Participative, Directive SCL styles)

The final domain in SCL studies is represented by the behaviourist leadership school of thought. This leadership domain is based on two influential theories in the leadership school which are McGregor's Theory X and Y (Bolden et al., 2003) and Blake and Mouton's Managerial Grid (Horner, 1997). Based on the Managerial Grid, leaders are able to identify their styles of leadership or leadership behaviours such as impoverished management, authority obedience, organisation man management,

country club management or team management. The high concern for people and high concern for production, which is team management, has been identified as the most effective leadership behaviour (Bolden et al., 2003; Yukl, 1989; Blake and Mouton, 1964). All SCL papers that characterise SCL using a behaviourist leadership paradigm are drawing upon McGregor's Theory X and Y. Theory X is for those who are likely to fall under autocratic or directive leadership, whereas theory Y for those who are likely to fall under participative leadership (Bolden et al., 2003). Theory X implies that supply chain members must be coerced and directed to get them to achieve desirable outcomes or performance required by the leading firm such as financial growth (Akhtar et al., 2017) and supply chain coordination (Da Cruz and Paulillo, 2016). In contrast, theory Y proposes that supply chain members have a tendency to exercise self-direction to accomplish their mission and objectives. This requires a leading firm who is participative in nature to enhance members' sense of responsibility (Venselaar et al., 2015; Harland et al., 2007).

2.3.4 SCL and Supply Chain Practices

Finally, this thesis analysed the impact of SCL on supply chain practices in the reviewed papers. The analysis revealed that SCL contributes to the improvement of operational performance, buyer-supplier relationships and sustainability (Table 2.5). The classification of each retrieved paper based on the type of supply chain outcome studied is shown in Appendix A.

Table 2.5: Supply Chain Practices from SCL Studies

Supply Chain Practices	Paper
Operational performance	19
Buyer-supplier relationships	19
Sustainability	13

2.3.4.1 Operational Performance

The contribution of SCL is prominent in improving operational performance. A firm that exhibits transformational SCL will constantly train and coach their suppliers. These approaches will help suppliers to properly understand the needs and requirements of the leading firm, and hence improve their operational performance including product quality (Sinha et al., 2016; Kuei et al., 2011). Similarly, suppliers' delivery performance is affected by the leadership behaviours or styles of the leading

firms. By exhibiting transactional SCL, the performance of the suppliers is closely monitored and audited by a certain set of rules and regulations (Birasnav et al., 2015). Suppliers will try to avoid potential losses and complications by adhering to the rules and regulations stipulated by direct buying firms such as delivery time and quality standards.

The ability and style of the leading firms can influence the level of operational performance of the entire supply networks including products' quality, time and delivery issues, sales growth and financial sustainability (Gosling et al., 2017). Nevertheless, a firm that promotes openness and participation among its supply chain members will create a learning culture. This will improve supply chain members' understanding of the processes and activities in the supply chains, and thus lead to better time management for the productions and operations (Birasnav et al., 2015). Moreover, a leading firm that promotes and encourages data sharing and the usage of analytics across the supply chain will help supply chain members to have real-time performance monitoring which will help them to produce the expected product quality, and at the end it will lead to the financial sustainability of the leading firm (Akhtar et al., 2016; 2017).

In addition, the contribution of SCL is observed in enhancing information sharing across supply networks. The styles exercised by the leading firms have an influence on supply chain policies, guidelines and procedures applied in the supply networks. By having a greater influence on these matters, a leading firm is able to orchestrate the entire network and articulate its vision. In a global purchasing context, a leading firm should be able to have a good level of communication among its domestic and global supply chain members. Better communication across the supply networks allows supply chain members to disseminate information and vision so as to improve supply chain efficiency (the utilisation of organisational resources) and effectiveness (the accomplishment of organisational goals and objectives) (Defee et al., 2010). Furthermore, a firm that is willing to inspire and motivate their supply chain members, will be able to cultivate the information exchange between partners themselves. The ability to cultivate information exchange will lead to higher strategic and tactical planning, including sales and operations forecasting (Thomas et al., 2011).

The role of SCL is also prevalent in the logistics performance and customer service of the supply chain. SCL is not only applied to partners from the upstream channel but

also to members of the downstream channel, such as LSPs. A leading firm must ensure that their monitoring, quality control and auditing should be extended to LSPs (Kuei et al., 2011). Similarly, through support and participation, leading firms will be able to foster supply chain members' involvement in improving the agility of logistics practises including warehousing, shipping and fleet management (L'Hermitte et al., 2016). Birasnav (2013) proposed that SCL is crucial to improving product quality and customer service level, with information being shared across the supply networks so that the right products and services can be provided to the right customer at the right time. Without close coordination by the leading firm, the suppliers are unable to innovate and adapt to rapid changes in customers' demand.

2.3.4.2 Buyer-Supplier Relationships

The second theme that is extensively covered in the SCL literature is the direct relationship between buyers and suppliers. This theme is related to 'soft' dimensions (including trust, commitment, joint planning, communication and active participation) which can influence the relationship between a buying firm and its supplier. Specifically, the role of SCL in improving coordination and partnerships between suppliers and their direct buying firm is investigated. Within this context, SCL requires a buying firm to provide care and development to its suppliers, which in return improve members' satisfaction and supply chain relationships (Goffnett and Goswami, 2016). Once a firm is able to control and centralise supply chain activities, the partnership with their suppliers can be enhanced and consensus can be improved (Müller-Seitz and Sydow, 2012). By exhibiting certain leadership styles such as participative and transformational, a buying firm tends to provide coaching, consultation and motivation to its suppliers. These approaches lead to proper strategic planning such as joint product development, design and production between the firm and its upstream suppliers, which enhance the trust and commitment of both parties (Lockström and Lei, 2013).

The ability of a firm to integrate suppliers, processes and activities is crucial as a supply network will involve several stakeholders with different goals and objectives. Being passive and showing no close interaction with suppliers, means that a firm could experience supply chain disruptions such as communication breakdowns (Harland et al., 2007) and missing information (Thornton et al., 2016). Moreover, an inactive

leadership behaviour exhibited by a buying firm, will sequentially influence buyer-supplier integration as it needs collaborative supplier involvement and continuous supplier development (Lockström and Lei, 2013) – activities that need the active participation and initiative of the buying firms. By supporting and monitoring the suppliers, a buying firm will be able to improve suppliers satisfaction and their trust of the relationship, thus helping them to sustain their business and improving their sense of belonging (Goffnett and Goswami, 2016). This situation happens as they believe the buying firm has an interest in working together with them and striving towards excellent business performance. In the same vein, partnerships and strategic alliances between the buying firm and its upstream suppliers are highly influenced by the social attributes in the relationship, such as the leadership styles of the buying firm (Venselaar et al., 2015).

2.3.4.3   Sustainability

Recently, the urge to manage supply chain members has increased dramatically in order to rationalise the adoption of environmental sustainability in supply chain practises. The responsibility of focal and direct buying firms has now broadened as stakeholders might hold them responsible for any environmental sustainability issues (Wilhelm et al., 2016a). SCL behaviours are significant in promoting environmental sustainability practices amongst supply chain members and help focal or direct buying firms to evaluate, select and govern them towards environmental sustainability (Roman, 2017). A firm might use different leadership styles such as becoming proactive and transactional in enforcing environmental sustainable practises to their suppliers, or proactive and transformational to promote suppliers' full involvement and innovation towards sustainability. Leadership styles may differ based on context, culture and the suppliers' dependency level of leading firms. The different needs of the suppliers can be tailored and the adoption of environmental sustainability practises by the suppliers can be maximised (Agi and Nishant, 2017; Gosling et al., 2017).

Similarly, Gabler et al. (2017) deduced that active SCL allows firms to develop and enforce environmentally sustainable business plans. Furthermore, visible SCL will help firms to encourage their supply chain members (both upstream and downstream) to innovate and to implement the necessary environmental sustainability practises. In other words, a supply chain leader can be an orchestrator between its upstream and

downstream supply chain members towards the implementation of environmental sustainability. The ability of a firm to exhibit the necessary leadership styles to motivate and control their suppliers will improve the buyer-supplier relationship. In return, this can boost supplier adherence towards the environmental sustainability needs requested by the supply chain leader (Kurucz et al., 2017; Dubey et al., 2015).

To date, only a few empirical studies and conceptual papers have addressed the needs of SCL towards reverse and closed-loop supply chains. Vivaldini and Pires (2016) found that the role of SCL is crucial in improving the relationship between focal firms and LSPs. Based on the fast-food retail industry, the study revealed that closed-loop initiatives and implementations are only successful when the relationships between focal firms and the LSPs are based on collaborative principles. A focal firm must involve the LSP in planning and implementing recycling processes so that such processes (especially retrieving and transferring waste) will be more coordinated, while at the same time improving the sense of responsibility of the LSPs. SCL are also significant in improving closed-loop innovation by coordinating both upstream and downstream stakeholders in the supply chain including suppliers and retailers or distributors (Szekely and Strebel, 2013). As closed-loop initiatives are relatively new, a leading firm should be able to engage with upstream and downstream stakeholders and address the needs of closed-loop or reverse orientation in the entire supply chain. A leading firm who adopts a closed-loop and reverse supply chain (RSC) orientation should attempt to establish shared goals with supply chain members, so that mutual benefit can be attained across the supply chain (Vivaldini and Pires, 2016). A leading firm should create a vision to improve sustainability and inspire the supply chain members to work together to achieve the new supply chain orientation (Defee et al., 2009).

2.3.5 *Summary of the Systematic Literature Review on SCL*

The systematic literature review provides a holistic review of the SCL concept by synthesising the current literature in order to understand the phenomenon including its definitions, dimensions and constructs. It reviews all the literature in the SCL domain and analyses its role towards the potential outcomes of supply chain performance. Furthermore, the findings discover that the examination of the SCL concept is currently focused towards operational performance (such as financial, cost, delivery

and sales performance) and buyer-supplier relationships (such as suppliers' commitment, satisfaction and trust). However, the recent trend discloses growing interest in investigating the SCL concept towards sustainability practices in the supply chain context (for example, green manufacturing and green procurement).

The major findings of this review are on the identification of the dominant leadership theories and styles used to explain the SCL concept and its influence towards supply chain practices. In summary, the findings reveal that the current concept of SCL in the literature is dominated by transformational-transactional leadership theory, with the concentration of leadership styles being more on transformational leadership. A firm that is practising transformational SCL tends to provide constant training and coaching towards their suppliers. Moreover, this firm is willing to share information, give constructive feedback and communicate frequently with its suppliers. This happens as the nature of transformational SCL is focused on stimulating suppliers' capabilities and considering suppliers' individual needs, as well as providing inspiration and motivation to suppliers.

Nevertheless, supply chain practices can be improved by using transactional SCL. Using a transactional approach, a firm monitors and keeps track of the performance by comparing it to a certain set of pre-determined rules or agreements. At the same time, in order to promote compliance, rewards can be offered to supply chain members. A firm is also able to use certain punishment schemes, such as downtime penalty for late delivery. By enforcing the close tracking of performance (including that of their suppliers), immediate feedback on improvement and potential corrective actions can be shared with the suppliers. Suppliers tend to adhere to rules and regulations so that they are able to reduce the risk of potential losses or complications such as business termination.

2.4 Governance Mechanisms

Governance mechanisms have been considered as one of the most widely studied topics in supply chain management field (Um and Kim, 2018; Dolci et al., 2017; Cao and Lumineau, 2015; Lumineau and Henderson, 2012). Past studies have extensively explored and recognised the role of governance mechanisms in a supply chain context including conflict and opportunism mitigation, information and knowledge sharing,

supply chain agility and flexibility, financial and non-financial performance, as well as environmental sustainability (Kim et al., 2018; Um and Kim, 2018; Sancha et al., 2016; Wacker et al., 2016; Bai et al., 2016; Blome et al., 2013; Zhang et al., 2012; Inkpen, 2008; Wang and Wei, 2007; Inkpen and Tsang, 2005; Poppo and Zenger, 2002; Heide, 1994; Williamson, 1985).

In the supply chain context, governance can be identified with the interaction principles between a firm and its suppliers. These interaction principles specify the manners and tasks that should be performed by the buying firms and suppliers in order to achieve mutual goals and objectives (Um and Kim, 2018; Fawcett et al., 2017). In general, governance is the means of organising transactions between two (or more) parties. Governance can be defined as:

> ... *"a multidimensional phenomenon, encompassing the initiation, termination and on-going relationship maintenance between a set of parties" (Heide 1994, p. 72)*

Heide (1994) further described that any type of governance should place emphasis on organising, monitoring and enforcing exchange rules between parties. In the same vein, Jap and Ganesan (2000, p. 230) defined governance mechanisms as:

> ... *"safeguards that firms put in place to govern inter-organisational exchange, minimise exposure to opportunism and protect transaction specific investments."*

In can be further argued that governance acts as an *instrument* in regulating inter-firm exchange, reducing opportunistic behaviour from exchange partners, safeguarding and protecting transaction cost investment, as well as strengthening buyer-supplier relationships (Cao and Lumineau, 2015; Burkert et al., 2012; Jap and Ganesan, 2000). Nonetheless, governance has been identified as a central notion towards the stability of the relationships between buying firms and suppliers, as it clarifies and specifies the expected actions and behaviours of both parties which lead to the completion or achievement of mutual goals and objectives (Shahzad et al., 2018; Brito and Miguel, 2017; Wacker et al., 2016; Liu et al., 2009). For buying firms, governance mechanisms are considered as a source of competitive advantage and play a vital role in managing their suppliers (Dolci et al., 2017; Cao and Lumineau, 2015; Huang et al., 2014). Nevertheless, supply chain members will employ one or more governance mechanisms

in managing the relationship with their partners to avoid various exchange hazards (Yu et al., 2006; Wathne and Heide, 2000).

Predominantly, the classical governance mechanisms notions were designed to reduce the opportunistic behaviours of exchange parties mainly through contractual governance (Lumineau and Henderson, 2012). This involves detailing in the formal contract of the responsibilities of the supply chain members and specifying the penalties of non-compliance as well as output or deliverables (Bai et al., 2016; Wang et al., 2016; Poppo and Zenger, 2002; Williamson, 1985, 1991). More simply, a firm intends to rule the relationships with supply chain members through formal means of control such as a legal contract. Due to that, formal contracts or official agreements are written in such a way that one will behave as expected by the other party (Burkert et al., 2012; Lumineau and Henderson, 2012; Liu et al., 2009; Williamson, 2008).

However, the advancement of governance theory suggests that the role of governance mechanisms is also prevalent in mitigating conflicts and promoting cooperation between supply chain members. This phenomenon addresses the needs of relational governance alongside the contractual governance (Shahzad et al., 2018; Cao and Lumineau, 2015). While the contractual governance is referring to the extent that the responsibilities of the supply chain members are stipulated in the formal agreements or contracts, relational governance is focusing on the extent of the relationships between supply chain members who are governed by informal rules such as trust, flexibility, solidarity and fairness (Abdi and Aulakh, 2012; Poppo and Zenger, 2002).

2.4.1 Contractual Governance

In supply chain relationships, the interactions normally occur between two or more parties who have different interests and objectives. Opportunism, disagreement and conflict might arise as each party strives towards their own benefits and goals, thus signalling the need for contractual governance (Bai et al., 2016). Contractual governance has been identified as the principal instrument in facilitating and monitoring supply chain relationships and performance (Yang and Lien, 2018). Contractual governance relies on the use of formal contracts, legal contracts, explicit contracts or legal safeguards to manage the relationship between buying firms and suppliers (Wang et al., 2016; Cao and Lumineau, 2015; Carey and Lawson, 2011; Liu

et al., 2009; Williamson, 2008). Formal contracts or legal agreements (hereafter contracts) which are considered as *instruments of control* are the official written documents specifying supply chain members' obligations and expectations (Lumineau and Henderson, 2012; Williamson, 1985, 1991).

One of the main purpose of having contracts is to exert control or influence the supply chain members with the assistance, enforcement or involvement of other parties including the legal system (Lumineau and Henderson, 2012). Usually, *ex ante* details are outlined in the contracts to facilitate monitoring process of supply chain members (Carey and Lawson, 2011). Moreover, contracts are designed to plan for unforeseen circumstances or contingencies, and to ensure that the buying firms agree with the arrangements, requirements and standards such as quality, price, quantity and specifications of the products (Carey and Lawson, 2011). A contract might consist of a number of clauses, requirements, obligations and non-compliance settlements (such as penalties) (Carey and Lawson, 2011; Yu et al., 2006; Williamson, 1985). In other words, contracts are crafted as the representation of promises to minimise the extent of cost and performance losses caused by the exchange relationships between buying firms and suppliers (Poppo and Zenger, 2002).

2.4.1.1   *Determinants of Contractual Governance*

Williamson (1985, 1991) is among the first to explain contractual governance in the literature where he proposed that governance mechanisms or instruments used in inter-organisational relationships depend on several factors including transaction cost investment and uncertainty. Similarly, Yang and Lien (2018) explored the relationships between asset specificity, environmental uncertainty and governance mechanisms. The study revealed that the asset specificity and investment by the suppliers triggered more detailed, comprehensive and specific contractual clauses. This is to reduce the risk of the buying firm paying more and at the same time to protecting the suppliers from the buying firms leveraging their assets at the unfair prices (Paulraj et al., 2008). Moreover, the use of contractual governance is increased if the environmental uncertainty such as technology and market uncertainty is higher. In order to mitigate the potential negative effects of environmental uncertainty, supply chain members are more likely to govern their relationships with each other based on a contractual basis (Yang and Lien, 2018; Wacker et al., 2016).

The literature provides evidence of contractual governance's contributions towards supply chain practices including SP, supply chain relationships management as well as knowledge and information sharing among supply chain members (Um and Kim, 2018; Yang and Lien, 2018; Wacker et al., 2016; Blome et al., 2013; Cai et al., 2009; Poppo and Zenger, 2002; Cannon et al., 2000; Heide and John, 1992). However, it should be noted that most of the studies in the governance mechanisms domain have rarely investigated only the role of contractual governance. Most of the studies combined contractual and relational governance and tried to comprehend the complementary nature of contractual and relational mechanisms (Burkert et al., 2012; Lumineau and Henderson, 2012; Poppo and Zenger, 2002).

2.4.1.2 *Contractual Governance and Suppliers' Performance*

In a SP context, Cai et al. (2009) explored the relationships between contractual and relational governance mechanisms on buying firms' commitment and SP. The study revealed that contractual and relational governance (joint planning and collaborative communication) affected SP positively. The authors suggested that both contractual and relational governance are needed in maintaining the relationship between buying firms and suppliers as weak legal enforcement in China required manufacturers to rely on relational governance. These findings are consistent with the studies by Cannon et al. (2000) and Heide and John (1992), where the authors noted that contracts and legal agreements are sometimes costly and not be able to cover all the contingencies that might occur in the future.

In the same vein, Blome et al. (2013) introduced the concept of ambidextrous governance (interplay between relational and contractual governance) in supply chains based on the perspective of the buying firms in manufacturing industries from Germany, Austria and Switzerland. Treating contractual and relational governance as the first-order constructs to ambidextrous governance, the study found that both governance mechanisms led to higher innovation and cost performance. By having formal written agreements and suppliers' joint involvement in the new product development, the suppliers are able to improve buying firms' product design, quality and cost efficiencies (Blome et al., 2013). This is due to the ability of ambidextrous governance to provide assurance for both parties to strive towards innovation and cost reduction through a formal contract so that the issue of opportunism can be minimised

(Blome et al., 2013; Lee and Cavusgil, 2006). At the same time, relational governance mechanisms act as relationship stabilisers (Blome et al., 2013; Lee and Cavusgil, 2006).

From a broader perspective, the role of governance mechanisms is also examined towards buying firms' and suppliers' performance. Wacker et al. (2016) discovered that contractual governance and relational governance (in this case negotiation efficiency, problem solving relations and information sharing) determined firms' manufacturing competitiveness, financial returns and performance ambiguity. The study concluded that the effects of governance mechanisms on firms' performance were higher when they combined both contractual and relational governance. While contract governance leads buying firms to control SP, relational governance increase suppliers' understanding of the buying firms' requirement and request, which reduces performance ambiguity (Wacker et al., 2016; Heide and John, 1992).

2.4.1.3   *Contractual Governance and Supply Chain Relationships*

As mentioned earlier, contractual governance also helps towards the enhancement of supply chain collaboration, cooperation and relationships. Lee and Cavusgil (2006) investigated the role of contractual and relational governance mechanisms on the alliance performance between supply chain members. The study measured contractual governance based on the use of formal contracts to govern the relationships in the supply chains. The relational governance was measured using the mutual trust and commitment between the supply chain members. The study revealed that contractual and relational governance are complementary and have a significant positive effect on alliances between supply chain members. Contractual governance is needed to provide the remedies and rules of resolving disputes among supply chain members, while relational governance encourages trust, flexibility, solidarity and bilateralism (Lee and Cavusgil, 2006; Poppo and Zenger, 2002).

Huang et al. (2014) explored the effects of trust and contract on the cooperation between buying firms and their suppliers. Trust has a consistent positive effect on cooperative performance as both parties assumed that each other will perform positive actions and avoid negative outcomes (Huang et al., 2014; Kwon and Suh, 2004). For example, suppliers rely on the expectations that buying firms will behave in a

reasonable manner. Furthermore, trust is an inexpensive safeguard in governing supply chain relationships compared to a contractual governance mechanism (Huang et al., 2014; Poppo and Zenger, 2002). Trust among supply chain members resulted in a greater commitment among them due to the improved flexibility and efficiency in resolving relationships conflicts and disputes. Huang et al. (2014) also found that under the moderate usage of contractual governance, the joint use of contract and trust could improve the cooperation between buying firms and their suppliers.

Sancha et al. (2016) examined the effects of governance mechanisms on buyer-supplier relationships. The study discovered that contractual governance and mutual understanding (relational governance) had a positive impact on supplier commitment towards environmental sustainability. Contracts allow buying firms to explicitly specify environmental requirements and expectations from the suppliers that the suppliers are required to meet in order to avoid legal disputes. Suppliers' long-term commitment and willingness to fulfil buying firms' requests can be enhanced if the buying firms are able to foster mutual understanding between them (Sancha et al. 2016).

In a recent study, Um and Kim (2018) explored the role of governance mechanisms as moderators on the relationships between supply chain collaboration and firm performance; and firm performance and transaction cost advantage. The authors argued that contract is the driver towards joint relationships among supply chain members. Supply chain members will try to avoid breaching the contracts as that can lead to financial (such as order or payment delay) and non-financial (such as loss of future business) losses. While a contract acts as the driver and guidance towards the actual collaborative process, trust acts as the catalyst for shaping norms and values of collaboration (relational-based) between supply chain members. Um and Kim (2018) further deduced that even though contract and relational governance mechanisms serve different objectives, the combination of both can improve the transaction cost advantage of the buying firms through collaboration between supply chain members. In the same vein, Yang and Lien (2018) deduced that contractual governance promotes buyer-supplier cooperation and assures the successful implementation of sustainability activities.

2.4.1.4   Contractual Governance and Knowledge Sharing

Nonetheless, contractual governance also contributes to knowledge and information sharing practices throughout the supply chain. Bstieler and Hemmert (2015) found that joint collaboration strongly affects knowledge acquisition and collaboration satisfaction compared with contractual governance. In East Asian countries such as South Korea, joint collaboration between supply chain members is pivotal towards sustaining the satisfaction of supply chain relationships as it enhances mutual trust throughout the supply networks (Bstieler and Hemmert, 2015; Nguyen and Rose, 2009). However, it should be noted that the study also deduced that contractual governance was required to establish mutual expectation and obligations towards new product development collaboration.

Liu et al. (2017) posited that contract and trust play pivotal roles towards knowledge transfer between the buying firms and suppliers. Contracts not only act as legal and formal governance instruments to encourage obligation but also act as a central point in increasing the frequency of communication between supply chain members (Liu et al., 2017). Due to increased contact and communication, quantity and credibility (in this case accuracy of information) of the knowledge transfer including products materials, market competitiveness, marketing concerns and logistics issues are enhanced. Nevertheless, trust acts as the foundation towards knowledge transfer where whenever one side of the exchange parties (either buying firms or suppliers) trusts the other side, they will care about the relationships between each other (Muthusamy and White, 2005). This will avoid them from sharing false and inaccurate information that can damage their relationship in the future (Liu et al., 2017; Muthusamy and White, 2005).

2.4.2   Relational Governance

A relational governance mechanism is considered as a self-enforcement safeguard that addresses the issues of controlling opportunism and improving supply chain relationships through encouraging appropriate behaviours among supply chain members (Lumineau and Henderson, 2012; Heide and John, 1992). Nonetheless, relational governance is also considered as a social-embedded organisational measure in governing relationship exchange among supply chain members (Shahzad et al.,

2018). In other words, relational governance focuses on the informal means and instruments in managing supply chain relationships.

Several informal instruments have been considered and examined in relation to relational governance such as trust (Shahzad et al., 2018; Liu et al., 2017; Ghosh and Fedorowicz, 2008; Yu et al., 2006; Poppo and Zenger, 2002; Nooteboom et al., 1997), communication and information exchange (Bstieler and Hemmert, 2015; Cao and Zhang, 2011; Poppo and Zenger, 2002), as well as collaboration (Dong et al., 2017; Hernández-Espallardo et al., 2013; Cai et al., 2009) between buying firms and suppliers. For example, Wang and Wei (2007) elucidated that relational governance have a significant positive effect on information visibility and supply chain flexibility in Taiwan manufacturing industries. The authors revealed that greater information visibility could be attained by supply chain members if the buying firms apply a higher level of relational governance including trust, collaboration and mutual problem solving.

Moreover, the study also found that due to the high relational governance practiced by the buying firms, the suppliers are willing to adjust their resources, business processes and structures, which results in a more flexible supply chain. This is due to the improvement in confidence between both parties and reduction of relational risk (Nooteboom et al., 1997). Bstieler and Hemmert (2015) found that the relationships history between buying firms and suppliers determined the governance mechanisms adopted in the current relationships. The study discovered that strong relationships of prior business positively affected relational governance (joint collaboration), but was not related to contractual governance. This is due to the repeated interactions among supply chain members that act as the foundation of relational governance.

However, trust is regarded as the most discussed and examined relational governance mechanisms compared to the other as it has a significant role in improving supply chain performance (Liu et al., 2017; Cao and Lumineau, 2015; Burkert et al., 2012; Ghosh and Fedorowicz, 2008; Poppo and Zenger, 2002). Trust has been extensively considered as the central attention in facilitating inter-firm relationships, particularly between buying firms and suppliers (Shahzad et al., 2018; Capaldo and Giannoccaro, 2015; Panayides and Lun, 2009; Seppänen et al., 2007; Ireland and Webb, 2007; Sako

and Helper, 1998; Zaheer et al., 1998). Alongside contracts, trust has been considered as one of the best mechanisms for organisational control (Dyer and Chu, 2000).

2.4.2.1   Trust: Definitions and General Overview

The studies on trust have a long history within the discipline of management and psychology (Sako and Helper, 1998). Whereas psychologists are more concerned with inter-personal trust, scholars in supply chain and operations management domains are more concerned with inter-organisational trust. In the supply chain management context, trust can be defined as:

> …*"the firm's belief that another company will perform actions that will result in positive outcomes for the firm, as well as not take unexpected actions that would result in negative outcomes for the firm" (Anderson and Narus 1990, p. 45).*

Moreover, trust can also be briefly defined as:

> …*"one party's confidence in the goodwill of an exchange partner" (Lado et al 2008, p. 403)*

Trust can be considered as the confidence that a party has on its supply chain members and its willingness to rely on them (Panayides and Lun, 2009; Carson et al., 2003; Coote et al., 2003; Ganesan, 1994). Trust is developed based on the expectations of the supply chain members' behaviours, motives and actions (Ryu et al., 2009; Doney and Cannon, 1997; Nooteboom et al., 1997). While no consensus has been reach in defining trust, most scholars have conceptualised and operationalised trust based on one party's belief in the honesty, credibility, sincerity, goodwill and benevolence of their exchange partners (see Chalker and Loosemore, 2016; Asare et al., 2016; Venselaar et al., 2015; Yeung et al., 2009; Lado et al., 2008; Kwon and Suh, 2004; Johnston et al., 2004; Doney and Cannon, 1997; Geyskens et al., 1996; Andaleeb, 1996; Ganesan, 1994).

A supplier's trust towards its buying firms plays a pivotal role in supply chain practices. Unfortunately, there is a lack of empirical research investigating the antecedents and determinants of suppliers' trust reported in the current supply chain literature (Hemmert et al., 2016). Suppliers' trust leads to numerous benefits in supply chain activities such as encouraging suppliers' involvement, investment, collaboration, information sharing, sustainability practices and improving SP (Kim et al., 2018; Zhao

et al., 2018; Ramon-Jeronimo et al., 2017; Zaefarian et al., 2016; Li et al., 2015; Nyaga et al., 2010; Laaksonen et al., 2008). Furthermore, suppliers' trust towards their buying firms has been seen as a unique governance mechanism as the investment spent on trust often creates parallel economic benefits and reduces transaction costs in supply chain relationships (Dyer and Chu, 2003).

Nevertheless, suppliers' trust is a vital governance mechanism as it can minimise opportunistic behaviours by reducing the perception of risk and uncertainty between buying firms and suppliers (Chen et al., 2011). Suppliers' trust towards buying firms is extremely prevalent especially when the buying firms' dependency on suppliers is high. If the dependency on the suppliers is high but the buying firms failed to foster suppliers' trust on them, there is high possibility for the suppliers to develop opportunistic behaviours (Zhao et al., 2018; Zhang and Huo, 2013; Laaksonen et al., 2008).

2.4.2.2   Determinants of Suppliers' Trust

The study by Sako and Helper (1998), which is among the first that examined the determinants of suppliers' trust on buying firms, discovered that suppliers' trust towards their buying firms are highly associated with the buying firms' supplier management practices. Suppliers' trust is enhanced whenever the suppliers feel welcomed to share their ideas and suggestions. Furthermore, buying firms' initiatives to provide assistance (such as technical assistance on total quality management and just-in-time practices) and continue business with the suppliers rather than switching to their competitors will improve their suppliers' trust (Hemmert et al., 2016; Gao et al., 2005; Sako and Helper, 1998). Huang et al. (2014) inferred that the mutual interests and behaviours of the supply chain members promote trust that triggers commitment in improving performance among them.

Dyer and Chu (2000) found that the duration of relationships, the assistance provided and continuous business between buying firms and suppliers affected suppliers' trust. Long-term relationships between supply chain members contribute to lower the uncertainty of each other's behaviours. Thus, the longer the relationship between the buying firm and the suppliers is, the higher the suppliers' trust on their buying firms. Suppliers' trust towards their buying firms is also higher whenever the buying firms

repeatedly continue to offer business contracts. Repeated exchange between supply chain members indicates that buying firms actions and behaviours are predictable and consistent which in turn enhances suppliers' trust (Dyer and Chu, 2000). Moreover, the greater assistance (for example solving technical and operational issues) provided by buying firms, the higher suppliers' trust on them as it signals the buying firms' benevolence and non-opportunistic behaviours (Nyaga et al., 2010; Dyer and Chu, 2000).

Liao et al. (2012) inferred that the long-term relationships and autonomy practiced by the buying firms positively influence suppliers' trust. Long-term relationships between supply chain members allow them to strategically work together to address any issues in their supply chains. By working together for a long time, strategic alignment between supply chain members is reinforced thus leading to higher trust among them. Nevertheless, the level of autonomy practised by the buying firms indicates the suppliers' freedom. This practice loosens the buying firms' control which then improves supply chain relationships and suppliers' trust towards them (Liao et al., 2012).

Moreover, suppliers' trust towards buying firms is also determined by the strategic communication effectiveness of the purchasing agent. As a boundary spanner, a purchasing agent is considered as the representative of the buying firm (Zhang et al., 2011; Ireland and Webb, 2007). A purchasing agent should be able to disseminate his or her firm's long-term visions, information and strategic planning, so that the suppliers are certain of and confident on their relationship with their buying firms. Furthermore, by sharing information and communicating effectively, the suppliers assume that the relationships between them and their buying firms are less risky and trustworthy (Zhang et al., 2011; Perrone et al., 2003). Ramon-Jeronimo et al. (2017) inferred that trust can be enhanced through information sharing. Sharing information across the supply chain and between supply chain members allows uncertainty to be minimised and signals the benevolence of the exchange parties. Nevertheless, timely and accurate information exchange between supply chain members indicates that they are willing to cooperate and are trustworthy (Ramon-Jeronimo et al., 2017).

On the other hand, unfair treatment by the buying firms contributes to suppliers' distrust and uncommitted supply chain relationships. Suppliers' trust is affected

whenever they feel that they are mistreated such as not being sufficiently rewarded or mistakenly punished. Moreover, suppliers assume fairness in terms of distributive justice (such as risk sharing and equality) and interactional justice (such as honesty, empathy, courtesy and respect) (Zaefarian et al., 2016; Yi and Gong, 2008; Patterson et al., 2006). Similarly, procedural justice is also affecting suppliers' trust where suppliers expect that buying firms will seek outcomes with fair procedures in their business dealings such as fairness during conflict resolution (Hemmert et al., 2016).

Institutional forces also contribute towards suppliers' trust. Strong legal protection is signalling the certainty and integrity of transactions in supply chain activities thus it facilitates trustworthy relationships among supply chain members (Hemmert et al., 2016). This relies on the strength of the legal systems which the suppliers expect protection from legal institutions. Nonetheless, government also plays a crucial role as an institutional force towards fostering suppliers' trust in buying firms through government policies (such as financial aid and local suppliers' support) as the government is responsible for reducing industrial uncertainty in the country (Hemmert et al., 2016).

The dependency of buying firms on their suppliers has been identified as one of the antecedents towards suppliers' trust. A recent study by Zhao et al. (2018) discovered that firms who depend on their suppliers should develop their suppliers' trust on them. Suppliers' trust is considered as a mechanism to reduce or minimise the possibility of suppliers' opportunistic behaviours due to the dependency on them. Thus, it is crucial for the buying firm to mitigate the potential negative occurrences and risk of opportunisms by improving suppliers' trust (Zhao et al., 2018; Laaksonen et al., 2008).

2.4.2.3   Suppliers' Trust and Supply Chain Practices

Trust has been revealed to have a significant influence on supply chain practices and activities. Trust between supply chain members enhances followers' commitment which leads to a higher performance and lower transaction costs (Kwon and Suh, 2004). Moreover, trust promotes cooperation and collaboration among supply chain members (Fawcett et al., 2004; Gualandris and Kalchschmidt, 2016). Collaboration between supply chain members is required to ensure that current practices are aligned with the pre-determined plan. Nonetheless, greater openness and transparency between

supply chain members can be achieved with higher inter-organisational trust (Nyaga et al., 2010).

Furthermore, trust among buying firms and suppliers is vital in obtaining mutual benefits and collaboration. Collaboration drives both parties to achieve economic benefits as plans and practices 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. On the other hand, a lack of trust directly affects the behaviours and relationships among supply chain members (Su et al., 2008). A low level of trust between buying firms and suppliers leads to low productivity and poor quality of outputs. Lack of trust increases complexity and reduces the cooperation in supply chains which leads to excessive expenses incurred from finding new partners, higher operational costs and additional expenses on the monitoring of contracts (Laaksonen et al., 2008).

Suppliers' trust towards their buying firms is crucial as it lowers the perceived risks between them and encourages suppliers' involvement in new product development (Liao et al., 2012). Moreover, by lowering perceived risks through trust, suppliers are more comfortable and convinced to share their information, expertise and technology with the buying firms. Without trust, suppliers may be reluctant to share their knowledge as they are afraid that the buying firms will switch or leak information to their competitors (Liao et al., 2012).

In the same vein, the role of relational governance mechanisms is prevalent towards suppliers' involvement in supply chain activities and practices. Li et al. (2015) inferred that trust influences suppliers' commitment and involvement. In this study, the authors found that trust positively influenced transaction-specific investment, which also correlated positively to suppliers' commitment. In other words, the willingness of the supplier to invest in equipment, facilities or manufacturing processes is highly dependent on their trust towards the buying firms. As the suppliers' trust towards the buying firms increases, the suppliers are willing to invest in improving their performance which signals towards their commitment to the supply chain relationships (Li et al., 2015). Fostering trust in supply chain relationships reduces conflicts and enables information exchange as well as value co-creation among its members (Feng and Zhao, 2014).

Recently, Kim et al. (2018) investigated the relationship between trust and virtual inter-firm integration. Suppliers' trust on their multinational enterprises' buying firms enhances virtual inter-firm integration among themselves as it reduces the uncertainty of cultural diversity and the risk of information leakage. Moreover, the higher trust level of the suppliers towards their buying firms will lead them to collaborate more and increasingly share confidential information including product price, market information, production plan and inventory level with them (Kim et al., 2018). A lack of trust towards the buying firms results in the suppliers being sceptical on their relationships. Similarly, Zhang et al. (2012) found that relational governance mechanisms of shared goals and trust positively influence knowledge sharing between supply chain members. The authors inferred that supply chain members are willing to share knowledge and ideas when trust between them is at the highest level. Moreover, shared goals between suppliers and the buying firms will lead them to engage in joint problem solving, which contributes towards the opportunity for knowledge sharing (Zhang et al., 2012; Inkpen, 2008). The tensions related to cooperation and competition in supply chains can be mitigated and minimised whenever the goals are shared among supply chain members (Inkpen and Tsang, 2005).

Suppliers' trust also contributes towards suppliers' sales performance. As trust decreases, opportunistic behaviours and conflicts between supply chain members increases, and the quality of the relationship between buying firms and suppliers deteriorates (Zaefarian et al., 2016). As a consequence of a quality relationship, the suppliers are willing to do business and commit with the buying firms, as well as keeping close interaction with them. Over time, this phenomenon allows suppliers to develop and invest in new infrastructure and technology so as to remain competitive, indirectly influencing their sales growth (Zaefarian et al., 2016). Ramon-Jeronimo et al. (2017) argued that trust reinforces relationship continuity in supply chains. Trust leads to satisfaction among supply chain members who consider the relationship less risky than the untrustworthy alternative. Once trust between supply chain members is enhanced, both parties will strive to sustain the relationship (Ramon-Jeronimo et al., 2017; Ganesan, 1994). In the same vein, suppliers' trust has been identified as an important mechanism in facilitating collaboration between buying firms and suppliers and contributing towards green supplier integration including green production and operational activities in supply chains (Zhao et al., 2018).

2.5   Suppliers' Performance

One of the most important resources that provides a significant impact towards the success of a firm is the performance of its upstream suppliers (Yawar and Seuring, 2018; Krause et al., 2000). In manufacturing industries, suppliers' performance (SP) is regarded as an essential element of buying firms' operations and activities (Dey et al., 2015; Terpend and Krause, 2015). Buying firms and their suppliers have to work closely to each other to consolidate and strategise their production activities to achieve common goals such as the improvement of product quality and customer service levels (Luzzini et al., 2014; Chan and Qi, 2003). However, in order to ensure that a firm's objectives are fulfilled, the performance measurement needs to be extended beyond its boundaries, ideally including the performance of the suppliers (Maestrini et al., 2017; Lawson et al., 2015; Prahinski and Benton, 2004). This notion suggests that performance measurement in a supply chain environment should entail inter-organisational collaboration and cooperation.

As SP plays a prominent role in determining the performance of the buying firms, it must be properly monitored (Maestrini et al., 2018b, 2017; Blome et al., 2014; Krause, 1997). In a supply chain context, several measures have been proposed in order to keep track and improve the performance of the supply chain. In general, 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. Furthermore, 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. Nonetheless, Bhagwat and Sharma (2007) elucidated the supply chain as a complex and wide

network of activities, and those performance measurements systems should consider any intangible activities and outcomes.

To date, disputes upon performance measurement metrics are still ongoing. Scholars and practitioners are still trying to validate the most feasible method to quantify performance measurement. Some have classified performance measurement based on major metrics such as cost, quality, delivery and flexibility (Caniato et al., 2014; Landeghem and Persoons, 2001; Beamon, 1999). There are also a few scholars who measure performance by using a balanced scorecard approach; based on five perspectives which are financial, customers, process, innovation and human resource (Kaplan and Norton, 1993). Another classification of performance measurement system is based on production stages including plan, source, make and deliver. However, this method has been criticised by De Toni and Tonchia (2001) as it separates between cost and non-cost (quality, delivery, flexibility) measures.

As argued earlier, supply chains are complex and consist of a wide network of activities; as such their management requires the performance measurement systems to quantify intangible activities and outcomes too (Maestrini et al., 2017). To date, most of the organisations tend to have an unbalanced approach to performance measures (financial versus non-financial) and lack of understanding on the performance metrics (Luzzini et al., 2014). The separation between financial and non-financial measures should be minimised as many activities and processes in a supply chain environment are not easily identified and measured by financial outcomes. Due to this issue, several scholars have systematically reviewed the literature to find the best metrics to measure firms' performance in supply chain context. Shepherd and Günter (2006) found 132 performance 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 or delivery (lateness, cycle time, lead time) and 14 to flexibility (production flexibility, volume flexibility). This review is consistent with the one from Gunasekaran and Kobu (2007) and Maestrini et al. (2017), who also deduced that the performance metrics are mostly related to both financial (cost) and non-financial (delivery, quality and flexibility) measures.

The recent needs and pressures from the stakeholders on environmental sustainability have also moulded the performance measurement metrics (Seuring and Müller, 2008). The new environmental preservation concepts have been introduced to embrace sustainability into the traditional linear supply chain practices. One of the emerging notions related to the environmental sustainability paradigm is the concept of reverse supply chains (RSCs). While traditional performance measurement metrics are concerned with the performance of forward flows in manufacturing processes such as procurement, production and inbound or outbound logistics, RSCs are concerned with restorative industrial systems (Genovese et al., 2017). Such systems include activities related to the retrieval of products from end consumers and the return of such products to the original equipment manufacturers for recycling or refurbishment (Genovese et al., 2017). Similar to the traditional linear and forward flows in supply chain, these activities clearly need more coordination among supply chain members and tighter governance (Neutzling et al., 2018). Thus, in order to holistically and comprehensively measure SP, this thesis combines forward (cost, quality, delivery and flexibility) and reverse supply chain performance (RSCP) metrics.

2.5.1   Cost Performance

The review of recently published articles that focused on performance measurements revealed that mainstream attention has been focused on cost metrics and stipulated that cost efficiency has become a central focus in supply chain environment (Gopal and Thakkar, 2012; Sellitto et al., 2015). Cost efficiency is important in a supply chain environment as most of the organisations are striving to achieve higher productivity which leads to a higher profit margin and financial sustainability. Bhagwat and Sharma (2007) outlined metrics that have been used in measuring cost efficiencies such as net profit, productivity ratio and return of investment. Moreover, Shepherd and Günter (2006) identified 55 metrics related to cost efficiency in performance measurement that have been previously tested and validated by scholars including cost-saving, resource cost and inventory turnover. Beamon (1999) found that 42% of the performance measurement metrics were focusing on cost factors. Similarly, a recent study by Gopal and Thakkar (2012) discovered that cost performance is still the dominant focus in performance measurement. Cost metrics are also observed in RSCP measurement. Capital investment, disposal costs, fines and penalty cost on

environmental actions, the transportation cost for handling product returns, and segregation of recyclable products costs are the metrics that are commonly used to measure the cost efficiency of RSCP (Mondragon et al., 2011; Olugu and Wong, 2012; Hassini et al., 2012; Hazen et al., 2015).

2.5.2   Quality Performance

The second main focus in performance measurement is quality. According to Beamon (1999), 28% of performance metrics in supply chains are measured by quality. Numerous empirical studies have found a significant and positive association between quality and performance in supply chains (Gopal and Thakkar, 2012; Sellitto et al., 2015). Quality concerns are not solely tilted towards the end products or services but also related to the whole supply chain's processes and activities. For example, the quality of communication is crucial to ensure that the suppliers are receiving accurate information such as production forecasting or production downtime. The quality concerns are not necessarily relying on product quality but also the quality of supplier-buyer relationships and customers' complaints. There are a few metrics that have been used to quantify supply chain quality including defect-free rate, rejection rate, complaint rate and product quality (Gunasekaran and Kobu, 2007; Shepherd and Günter, 2006). Similarly, quality metrics are also playing an important role in RSCP measurement including the quality of recalled products, the percentage of recyclable and reusable product materials and purity of recyclable product or material recovered (Mondragon et al., 2011; Beamon, 1999). Quality management is vital in ensuring the performance of supply chain effectively and efficiently managed, which lead to the higher level of productivity and sustainability.

2.5.3   Delivery Performance

Delivery is also considered as vital in supply chain performance measurement. Scholars and researchers have found that the delivery and time element (especially delivery and lead-time) has a significant role towards supply chain practices. Recently, most firms are focusing on delivery and time efficiency as it has been identified as an antecedent towards customer satisfaction and operation costs (Deshpande, 2012; Droge et al., 2012; Sellitto et al., 2015). Proper time management is important to ensure organisations are able to sustain their competitive advantage. Shepherd and

Günter (2006) outlined several metrics in measuring delivery and time efficiency which are lead time, delivery time and product lateness. Nevertheless, the delivery and time elements are also measured in RSCP including the measurement of the recycling time and the time required for product recovery or replenishment (Olugu and Wong, 2012; Beamon, 1999). These arguments have been supported by Gunasekaran and Kobu (2007) and Gunasekaran et al. (2001), where the authors deduced that delivery efficiency is not only prevalent in operational performance of the supply chain, but also contributes to the higher level of performance such as at the tactical and strategic level. Moreover, delivery and time efficiency is required in RSCP to ensure that the products are properly retrieved and remanufactured within the pre-determined time limit.

2.5.4   *Flexibility Performance*

Due to global markets and competition, the desire for agile supply chains is getting more attention from the researchers and practitioners. The need of having flexibility in supply chains has been extensively acknowledged in business strategy reports and academic publications (Sellitto et al., 2015; Flynn et al., 2010). Flexibility has gained a lot of attention in the supply chain environment as it refers to the ability of an organisation to reassess and relocate their scope, process, resource and capability to meet uncertain customers' demand and business competition. Competitive markets have driven organisations to revisit their main processes from planning, sourcing, making and delivering, and to make sure those processes are flexible to cater for uncertainty such as new product development, supplier selection, production quantity, delivery approach and customer service (Deshpande, 2012; Gunasekaran et al., 2001). Manufacturers must be flexible to ensure that their current supply chain processes are able to address RSCs such as changes in production materials and operational activities. For example, production materials might be revised or redesigned to increase their reusability and remanufacturing capability of the products (Hazen et al., 2015; Olugu and Wong, 2012). By maintaining and monitoring flexibility, organisations are able to restructure their processes to adapt to new products or developments, which can lead to a larger market segment and meet customers' preferences.

2.5.5   Reverse Supply Chain Performance

Due to pressures from stakeholders, firms' focus on economic performance needs also to be accompanied by care about environmental and social performance (Chan and Kumar, 2007; Seuring and Müller, 2008; Genovese et al., 2013). At the same time, alternative economic paradigms are shaping the development of new forms of supply chains; this is the case for the Circular Economy (CE) paradigm, which is embracing the notion of restorative industrial systems (Genovese et al., 2017). The CE paradigm pushes the frontiers of environmental sustainability by emphasising the idea of transforming products in such a way that there are workable relationships between ecological systems and economic activities. This is achieved by creating a paradigm shift in the design of material flows, fostering the notion of waste and by-products as a resource in manufacturing processes. CE has been increasingly integrated into supply chain research and practice through concepts such as circular business models and circular product design (Geissdoerfer et al., 2017).

The main notion of CE is not only to improve environmental sustainability by enhancing traditional performance measures, but also by taking care of RSCP by improving the management of end-of-life products and intermediate by-products through reusing, recycling, refurbishment and replenishment options. As such, RSCs are at the backbone of operationalising CE concepts at a micro-level (Lieder and Rashid, 2016). The management of RSCs carries a number of economic, social and environmental issues and implications. These issues and implications are further complicated by the involvement of multiple actors in RSC activities, which drive the complexity of RSC operations.

The implementation of RSCs carries a number of implications for risk management. This includes, for example the availability of stable and predictable streams of products to be recovered, where the environmental benefit depends on reducing the risk of the non-availability of related resources. Relationships among different stakeholders at multiple tiers of RSC are often less stable and more challenging to establish than in forward supply chains, as product returns are dependent on their life-cycle and the marginal value-of-time. Additionally, social aspects must be taken into account, such as the potential of stable job creation within such systems. To ensure a successful implementation of RSCs, buying firms within supply chains should be able

to orchestrate production processes and activities across the supply chain by playing a *leadership* role.

2.6   Conclusion of Literature Review and Research Gaps

Despite claims for the role of leadership in improving supply chain performance, the corresponding literature discussing SCL, governance mechanisms and SP remains very fragmented. As mentioned earlier in Chapter 1 (introduction), this thesis attempts to fill at least four research gaps in the existing knowledge.

First, SCL literature is currently dominated by transformational leadership style. As presented in the systematic literature review section, 24 SCL-related studies examine the role of SCL based on transformational-transactional leadership theory, however 17 out of the 24 studies focus only on transformational SCL and ignore the role of transactional SCL (see Roman, 2017; Goffnett and Goswami, 2016; Mzembe et al., 2016; Szekely and Strebel, 2013; Birasnav, 2013; Lockström and Lei, 2013). Moreover, current literature fails to examine the role of laissez-faire SCL, which can provide insights on how the inactive behaviours of the leading firms could affect supply chain activities and practices. Drawing upon transformational-transactional leadership theory and full-range leadership model, this thesis attempts to conceptualise SCL from a holistic view by comparing different leadership styles of the buying firms towards their upstream suppliers. This thesis focuses on the dyadic perspective of buyer-supplier relationships (between direct or immediate buying firm and their suppliers) as in most of the cases, the focal firm lacks interactions and contractual relationships with suppliers beyond the first tier (Wilhelm et al., 2016a). It is worth to recall that, as emerged from the systematic literature review, this is the most common level at which the SCL concept has been operationalised so far; nevertheless, empirical work testing the impact of SCL on SP is still absent, even in dyadic settings. This thesis aims at filling this gap.

Second, despite extensive evidence on the relationship between leadership style and governance mechanisms, both constructs are rarely studied together in supply chain research (Gong et al., 2018; Jia et al., 2018). To date, the studies on SCL and governance mechanisms are solely focused on relational governance (see Akhtar et al., 2017; Akhtar et al., 2016; Venselaar et al., 2015; Birasnav et al., 2015). However, in

the supply chain context, relational and contractual governance are equally critical towards the sustainability of supply chain relationships (Shahzad et al., 2018; Cao and Lumineau, 2015; Abdi and Aulakh, 2012; Poppo and Zenger, 2002). Given the importance of relational and contractual governance, this thesis examines the role of SCL as the determinants of governance mechanisms. Furthermore, based on the past studies on leadership styles (intra-organisational studies) and governance mechanisms, the mediating role of governance mechanisms is also proposed and examined.

Third, the majority of studies in SCL domain focus on the conventional or traditional forward supply chain performance. This includes cycle times, operational performance, quality performance, financial performance and recently, green manufacturing (Hu and Zhao, 2018; Roman, 2017; Birasnav et al., 2015; Tuomikangas and Kaipia, 2014). The concepts of closed-loop and RSC are currently ignored with only three papers address these concept (Shahzad et al., 2018; Cao and Lumineau, 2015; Abdi and Aulakh, 2012; Poppo and Zenger, 2002). As it is expected that Malaysia to be in top 15 manufacturing countries by year 2020 and has been considered as one of MITI-V countries, it is vital to improve Malaysian manufacturing industries as it serves global supplies and productions (Katiyar et al., 2018; Deloitte, 2016). Moreover, the current implementation of RSC is currently poor in Malaysia, which could be due to the absence of pressure, guidance or enforcement by the stakeholders, including the buying firms (Shaharudin et al., 2019). Hence, this thesis examines the role of SCL as the antecedents of suppliers' RSC practices.

Finally, in the same vein, the current studies in SCL domain examine the role of SCL towards focal or buying firms' performance. Less attention has been devoted towards the role of SCL on SP. This trend is surprising and alarming as SP has been identified as a prominent resource that determines the success of the buying firms (Yawar and Seuring, 2018; Maestrini et al., 2017; Dey et al., 2015; Caniato et al., 2014; Luzzini et al., 2014; Chan and Kumar, 2007). Hence, given the importance of SP towards the performance of the entire supply chains, this thesis examines the role of SCL towards SP (in both orientations, forward and reverse supply chains).

2.7   Chapter Summary

This chapter provided an overview of classical leadership theories and theoretical background of SCL. After providing the theoretical background of this thesis, the findings of the systematic review on SCL have been provided and discussed. The relevant literature for governance mechanisms and SP has also been reviewed prior to explaining the relevance of this thesis and the rationale for selecting those constructs. In general, an on-going interest in enhancing supply chain performance has been observed in the supply chain literature. The theoretical framework and research hypotheses will be discussed and presented in the next chapter.

CHAPTER 3

THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

This chapter will discuss the theoretical framework and research hypotheses of this thesis. Based on the extensive literature review pertaining to the importance of supply chain leadership (SCL), this thesis examines its effects on governance mechanisms and suppliers' performance (SP). As mentioned in the previous chapter (Chapter 2), it is worth noting that this thesis focuses on the dyadic perspective of buyer-supplier relationships (between direct or immediate buying firm and their suppliers).

The framework is developed based on the theories of stakeholder, institutional and transformational-transactional leadership. As discussed in the previous chapter (Chapter 2), the stakeholder and institutional theories postulate that a firm's strategies, practices, behaviours and actions are highly influenced by the external actors, particularly the customers (Touboulic and Walker, 2015; Sarkis et al., 2011; Freeman, 2010; Freeman et al., 2010; Ketchen and Hult, 2007; Zsidisin et al., 2005; Donaldson and Preston, 1995; DiMaggio and Powell, 1983). This notion serves as a *general ground* in justifying the role of SCL in improving the performance of the suppliers.

However, transformational-transactional leadership theory provides clearer explanations of SCL's role from the perspective of the leader (buying firm) and the follower (supplier) (Agi and Nishant, 2017; Gosling et al., 2017; Roman, 2017; Dubey et al., 2015; Birasnav et al., 2015; Defee et al., 2010; Lockström et al., 2010; Defee et al., 2009). Hence, transformational-transactional leadership theory will be used in justifying the specific relationships between SCL, governance mechanisms and SP.

In addition, the theories of social exchange and transaction cost economics will be utilised in a complementary way in the theoretical framework to support the proposed relationships between governance mechanisms and SP. Specifically, the theories of social exchange and transaction cost economics will be used to develop the hypotheses concerning the relationships between governance mechanisms and SP. Both theories were considered vital in proposing and developing the hypotheses as they were

extensively used in supply chain research to explain and explore the needs for governance mechanisms in managing the relationships between buying firms and their suppliers (Shahzad et al., 2018; Cao and Lumineau, 2015; Wu et al., 2014; Pulles et al., 2014; Hernández-Espallardo et al., 2013; Nyaga et al., 2013; Ireland and Webb, 2007; Kwon and Suh, 2004).

In general, this thesis proposes that the leadership styles of the buying firms determine their supply chain governance mechanisms and subsequently, the performance of their suppliers. A set of hypotheses (logical speculation and proposition of research on the association between variables) have been developed to interpret the findings (Cavana et al., 2001). Detailed explanations for each hypotheses and its theoretical justification are provided in the following subsections.

3.1 Supply Chain Leadership and Governance Mechanisms

From the perspective of the intra-organisational leadership concept, the relationship between leadership styles and followers' trust has been researched extensively in the fields of psychology and organisational behaviour (Bass and Bass, 2008; Judge and Piccolo, 2004; Bass et al., 2003; Avolio et al., 1999). Transformational-transactional leadership theory posits that by exhibiting transformational and transactional leadership styles, followers' trust can be enhanced and lead to relationship satisfaction and commitment. Today, transformational-transactional leadership theory has been adopted and extended into supply chain studies to conceptualise SCL (Goffnett, 2018; Jia et al., 2018; Gosling et al., 2017; Birasnav et al., 2015; Defee et al., 2010; Defee, 2007). Even though there are limited studies on the relationship between SCL and suppliers' trust, prior studies have proposed that transformational and transactional SCL can improve trust between supply chain members (Agi and Nishant, 2017; Birasnav et al., 2015).

A buying firm will be able to enhance suppliers' trust and lead them to work collaboratively with each other through a transformational SCL style. By *leading* suppliers and providing them with the necessary support and motivation, suppliers will assume that the buying firm is concerned about their success (Ojha et al., 2018; Akhtar et al., 2017). Nevertheless, the nature of transformational SCL drives the buying firms to encourage suppliers in expressing their ideas and improving their strengths, as well

as coaching and mentoring the suppliers (Teoman and Ulengin, 2018; Roman, 2017). By being actively involved in the discussion with suppliers, providing feedback and suggestions, as well as providing rewards when necessary, the value of buyer-supplier relationships can be optimised (Akhtar et al., 2016; Delbufalo, 2012). At the same time, as a great amount of information will be shared across the supply network and assistance as well as support (including training) provided to the suppliers by the buying firms, suppliers will be confident with the relationship and assume that the buying firm will not be opportunistic when they are able to be so (Hemmert et al., 2016; Dyer and Chu, 2000; Sako and Helper, 1998). This leads to a higher extent of trust between suppliers and the buying firms. Hence, this thesis proposes the first hypothesis:

H1: Transformational SCL is positively related to suppliers' trust.

Based on transformational-transactional leadership theory, transactional leaders clarify followers' roles and requirements, and then provide rewards for those who meet the expectations (Whittington et al., 2009; Judge and Piccolo, 2004; Bass, 1990). Such a theory suggests that transactional leadership is based on a proper exchange of resources in which the leader gives the follower something they require in exchange for completing what the leader wants them to achieve (Bass and Bass, 2008; Judge and Piccolo, 2004). Transformational-transactional leadership theory further posits that transactional leadership is the platform to develop followers' trust. Drawing upon this theory, transactional SCL is conceptualised and characterised by the behaviours of the buying firms in clarifying expectations and suppliers' roles, rewarding, monitoring and auditing their suppliers (Agi and Nishant, 2017; Blome et al., 2017; Gosling et al., 2017; Birasnav et al., 2015). By clarifying and specifying the suppliers' role and buying firms' expectations, the needs of the buying firms can be properly understood and accomplished by the suppliers.

The practice of monitoring and auditing the suppliers leads to the buying firm to have close communications with the suppliers and allows them to work collaboratively with each other (Jia et al., 2018). The uncertainty of supply chain members' behaviour can be reduced by having close communications and contact, which increases the suppliers' trust towards them (Ramon-Jeronimo et al., 2017). Furthermore, the behaviour of the buying firm in rewarding the suppliers leads the suppliers to be treated

accordingly, which reduces the feelings of injustice among them. Whenever the supplier feels that the buying firms are fair and not mistreating them, their reliance and trust towards the buying firms increases (Hemmert et al., 2016; Zaefarian et al., 2016). Hence, this thesis proposes the second hypothesis:

H2: Transactional SCL is positively related to suppliers' trust.

The role of laissez-faire leadership towards followers' performance is also extensively mentioned and researched in the fields of psychology and organisational behaviour. Laissez-faire leadership is characterised by the most passive behaviours of the leader in managing followers (Bass and Bass, 2008; Judge and Piccolo, 2004; Avolio et al., 1999). This approach includes the complete laissez-faire style or management-by-exception (passive). Transformational-transactional leadership theory postulates that laissez-faire leaders tend to ignore their responsibility, avoid making decisions or wait until the deviance becomes serious before proceeding with corrective actions (Kelloway et al., 2012; Harms and Credé, 2010; Antonakis et al., 2003). In other words, a laissez-faire leader exerts passive and reactive behaviours.

Prior studies discovered that laissez-faire leadership is always negatively associated with other dimensions of transformational and transactional leadership (Kelloway et al., 2012; Bass and Bass, 2008; Muenjohn and Armstrong, 2008; Judge and Piccolo, 2004; Antonakis et al., 2003; Avolio et al., 1999; Hartog et al., 1997; Bass, 1990). Trust towards the leaders is strongly related to leaders' behaviour and the level of interaction with the followers (Barbuto, 2005). Unfortunately, a laissez-faire leader tends to have a less interaction and communication with the followers (Kelloway et al., 2012; Muenjohn and Armstrong, 2008; Bass et al., 2003). Furthermore, any reactive and corrective approach of the leaders is always negatively associated with follower trust as it signals that the leader is not reliable or competent (Gillespie and Mann, 2004). At the same time, if the trust between leader and follower already existed, a passive behaviour from the leader could deteriorate the trust between them (Gillespie and Mann, 2004).

Despite the consistent interest in transformational SCL and emerging attention on transactional SCL, research on laissez-faire SCL is currently absent. Drawing upon the transformational-transactional leadership theory, laissez-faire SCL refers to a buying

firm who avoids making decisions, ignores responsibilities or prefers a reactive approach in managing supply chain activities and relationships. (Bass and Bass, 2008; Judge and Piccolo, 2004; Avolio et al., 1999). Using this approach, a buying firm expects that their suppliers are capable of solving the problem on their own with very little guidance from the buying firm. However, in the supply chain context, this approach is always associated with poor performance from suppliers (Maestrini et al., 2018a; Lawson et al., 2015; Terpend and Krause, 2015; Luzzini et al., 2014). Furthermore, by using this leadership style, buying firms tend not to interfere with suppliers' issues. This could lead to a lack of interaction and information sharing between the suppliers and their buying firms, resulting in a lack of trust among them (Ramon-Jeronimo et al., 2017; Zhang et al., 2011; Perrone e a., 2003). Hence, this thesis proposes:

H3: Laissez-faire SCL is negatively related to suppliers' trust

Transformational leadership is characterised by four main dimensions which are idealised influence, inspirational motivation, intellectual stimulation and individualised consideration (Bass et al., 2003; Avolio et al., 1999). Transformational-transactional leadership theory postulates that transformational leaders are the ones who are acting as a role model to their followers, rely on motivating followers towards better performance and generates awareness to the followers regarding the visions or missions of the groups (Bass and Bass, 2008; Judge and Piccolo, 2004; Yammarino et al., 1993; Bass and Avolio, 1990). Furthermore, the central idea of transformational leadership is the ability of the leader to inspire followers, so that they will transcend the expectations or normal performance, and at the same time develop their followers' self-interest to excel and commit to the leaders' plan.

Nevertheless, the main tenet of transformational-transactional leadership theory on transformational leadership style is that a leader should inspire the follower to do more than expected (Bass et al., 2003; Hartog et al., 1997). On the other hand, a leader who adopts transactional leadership style strives to ensure that the followers do exactly as expected (Bass et al., 2003; Hartog et al., 1997). Thus, in order to ensure that the followers can perform better, they are expected to be given certain freedom and support for them to think 'outside of the box' (Whittington et al., 2009). Transformational leaders tend to foster followers' commitment and cooperation

through social exchange, support, motivation and encouragement (Dinh et al., 2014; Kelloway et al., 2012; Whittington et al., 2009). Furthermore, transformational-transactional leadership theory suggests that the main motive of leading the followers (or suppliers) through transformational approach is basically to ensure that the suppliers feel motivated and excited to work with the buying firms (Judge and Piccolo, 2004). This indicates that the ultimate objective of leading, supervising and supporting the suppliers is to ensure that they comply to the pre-determined agreements without being pressured with the contracts (Jia et al., 2018; Bass and Bass, 2008; Antonakis et al., 2003). In other words, this approach leads to less reliance on formal agreements or contracts.

Drawing upon this principle, transformational SCL (for example, through individualised consideration behaviour) allows the buying firms to understand the needs of the suppliers and work together with them to ensure that the needs of both parties are fulfilled (Birasnav, 2013). At the same time, transformational SCL-based firms utilise less contractual governance as they tend to be more considerate in dealing with the suppliers as the buying firms strive towards the improvement of team spirit, enthusiasm and optimism among their suppliers (Jia et al., 2018; Hult et al., 2007). Hence, this thesis proposes the fourth hypothesis:

> *H4: Transformational SCL is negatively related to a higher contractual governance exercised by the buying firms.*

Transformational-transactional leadership theory provides a clear explanation of the association between transactional leadership style and formal agreements or contracts with the followers. The nature of transactional leaders is to identify performance requirements and ensure that their followers adhere to the agreement related to the performance expectations of the leader (Whittington et al., 2009; Bass and Bass, 2008; Hartog et al., 1997). The central tenet of transactional leadership is drawing upon an exchange model, where it suggests that a leader should clarify performance criteria and direct their followers to achieve the goals (Whittington et al., 2009; Judge and Piccolo, 2004). If the followers achieve the pre-determined criteria or expectation, it is expected that the leader will provide them with the agreed reward. Otherwise, if the expectation is not met, then the followers could be penalised. In order to have proper transactions, expectations and exchange between the leader and followers, a formal

agreement is needed to ensure that roles and responsibilities are clear, explicit and agreed upon (Whittington et al., 2009).

Thus, it is expected that transactional-based SCL buying firms are relying on a high level of contractual governance (Jia et al., 2018; Reimann and Ketchen, 2017). Rewards, penalties, requirements and expectations (such as products quality and delivery time) are clearly stipulated in the contracts with the suppliers. By exhibiting transactional SCL, the buying firms closely monitor suppliers for deviances from and compliance with the contracts' terms (Birasnav et al., 2015). High contractual governance is exhibited by the transactional-based SCL buying firms as the more transactional a firm is, the more it is focusing on compliance and adherence (Maloni and Benton, 2000; Terpend and Ashenbaum, 2012). Hence, to ensure compliance a buying firm might choose to force or use legal terms and agreements on their suppliers (Lockström et al., 2010). Thus, the fifth hypothesis is:

> *H5: Transactional SCL is positively related to a higher contractual governance exercised by the buying firms.*

According to transformational-transactional leadership theory, laissez-faire leadership is always associated with the absence of leadership and avoidance of intervention (Bass and Bass, 2008; Hinkin and Schriesheim, 2008; Gillespie and Mann, 2004). A laissez-faire leadership is characterised by a leader that lacks monitoring and controlling over his or her followers (Antonakis et al., 2003; Avolio et al., 1999). A laissez-faire leader hesitates in taking actions or making decisions (Judge and Piccolo, 2004). In addition, a laissez-faire leader resists in expressing views or sharing feedback, as well as delays in responding to the followers (Kelloway et al., 2012; Harms and Credé, 2010). A leader who exhibits a laissez-faire style, tends to ignore followers' commitment, satisfaction and performance (Bass and Bass, 2008). At the same time, this type of leader has no interest in ensuring that followers meet pre-determined standards or agreements, signalling a low level of contractual governance. Due to this, laissez-faire leadership is always considered as a destructive leadership behaviour (Hinkin and Schriesheim, 2008).

In the supply chain context, while transactional and transformational SCL can be considered as a proactive leadership style, laissez-faire SCL is characterised by the

tendency of a buying firm to be reactive and intervene only if certain criteria or pre-determined agreements are not successfully implemented (Birasnav et al., 2015). This specific style also refers to a buying firm that avoids making decisions and ignores their responsibility in supply chain activities or relationships. In contrast to transformational and transactional SCL, the buying firm remains inactive or reactive when using this specific SCL style. Furthermore, as mentioned previously in the literature review chapter (Chapter 2), several factors have been identified as the determinants of higher contractual governance. The factors include transaction cost investment, assets specificity and environmental uncertainty (Yang and Lien, 2018; Paulraj et al., 2008; Williamson, 1985, 2008). For example, the contractual governance is highly exercised when there is high investment and collaboration (such as technology and information transfer) between buying firms and suppliers (Yang and Lien, 2018). The contracts act as the safeguard and control instruments (Burkert et al., 2012; Lumineau and Henderson, 2012; Poppo and Zenger, 2002). However, since a buying firm practices laissez-faire SCL, it has limited interaction with the suppliers. Thus, neither control nor feedback is provided to supply chain members. Hence, this thesis hypothesises that:

> *H6: Laissez-faire SCL is negatively related to a higher contractual governance exercised by the buying firms.*

3.2 Governance Mechanisms and Suppliers' Performance

As discussed in the literature review chapter (Chapter 2), suppliers' trust towards the buying firms and contract are two prominent governance mechanisms in the literature. While suppliers' trust plays a pivotal role as the relational governance, contracts and formal agreements also act as the central focus of contractual governance. It is evident from prior research that both governance mechanisms contribute to SP (Kim et al., 2018; Wacker et al., 2016; Zaefarian et al., 2016; Blome et al., 2013; Cai et al., 2009). There are two main theories to explain this phenomenon, namely social exchange theory (SET) and transaction cost economics (TCE).

SET is extensively used to explain trust in supply chain literature (Wu et al., 2014; Pulles et al., 2014; Nyaga et al., 2013; Ireland and Webb, 2007; Kwon and Suh, 2004). SET is based on the concept of interaction between one party and another which lead

to interdependent transactions and contingency of actions. This theory was grounded on the perspective of reciprocity or repayment, which refers to the positive exchange behaviour of the actors and rewards (Cropanzano and Mitchell, 2005). Theorists believe that a positive action exhibited by a party will be responded with another positive action from the other party (Blau, 1964; Tanskanen, 2015). SET posits that in a relationship, each party interacts with each other because of a specific reward or based on the expectation that they will be rewarded (Tanskanen, 2015; Cropanzano and Mitchell, 2005; Blau, 1964). Furthermore, SET postulates that attitudes and behaviours of the exchange parties are based on the rewards or values received throughout the interaction in the relationships (Cropanzano et al., 2017). SET is based on three fundamental propositions (Griffith et al., 2006). First, the more often the actions or behaviours are being rewarded or valued, the more likely they will be repeated. Second, the more valuable the rewards received or offered in the interactions, the more attractive to the exchange party to perform the actions or behaviours again. The exchange party will avoid further interaction if they do not receive their expected reward. Third, an exchange partner prefers to interact with the partners who offer them rationale proposition (high possibility of receiving the rewards).

In the context of supply chain relationships, trust shapes the actions and behaviours of the supply chain members (Kim et al., 2018; Liao et al., 2012). In other words, the actions and behaviours of the suppliers are determined by the level of trust they have towards their buying firms. The more the suppliers trust their buying firms, the more confident they are to participate in supply chain relationships and activities (Li et al., 2015; Inkpen, 2008). From the governance perspective, buying firms' investments in improving suppliers' trust are also contributing towards the minimisation of transaction costs and the reduction of suppliers' opportunistic behaviours (Laaksonen et al., 2008). On the other hand, distrust towards the buying firms will reduce suppliers' participation, involvement and cooperation with the buying firms, resulting in the poor performance of the suppliers (Zaefarian et al., 2016).

Prior studies have discovered that the ability of the buying firms to promote trust among their suppliers has been beneficial to both parties in several ways including information transparency and sharing, suppliers' involvement and commitment, as well as conflict resolution (Ramon-Jeronimo et al., 2017; Gualandris and

Kalchschmidt, 2016; Feng and Zhao, 2014; Liao et al., 2012; Laaksonen et al., 2008). Whenever a supplier trusts that the buying firms are honest and will not take advantage of them, for example, the buying firms keep their promises, provide accurate and transparent information and will not exploit suppliers' vulnerabilities, the suppliers feel assured to share information with the buying firms. Furthermore, they are willing to be involved more deeply in supply chain activities including new product development (Li et al., 2015; Liao et al., 2012). At the same time, trust towards buying firms fosters the suppliers' willingness to embark on continuous improvement initiatives and invest further in developing their capabilities (Zaefarian et al., 2016; Birasnav et al., 2015; Feng and Zhao, 2014; Wu et al., 2014). The more buying firms invest and succeed in enhancing suppliers' trust, the better the performance of the suppliers. Based on these arguments and drawing upon SET, the following hypothesis is proposed:

> *H7: Suppliers' trust in buying firms is positively related to suppliers' performance.*

While SET is best used to frame the relationships between trust and SP, TCE is always the main tenet in explaining the role of contractual governance in supply chain literature. TCE has been considered as one of the most influential theoretical lenses to explain inter-organisational relationships (Lumineau and Henderson, 2012; Williamson, 1985, 2008). Inter-organisational relationships involve different parties with different objectives and plans, leading to a potential for opportunistic behaviours. Furthermore, TCE posits that the relationships between exchange parties are affected by uncertainty, asset specificity and transaction cost investment (Cao and Lumineau, 2015; Carey and Lawson, 2011; Williamson, 1985). TCE suggests that in order to reduce the risk of opportunism, proper governance mechanisms should be adopted by exchange parties. One of the best instruments to govern the inter-organisational relationships as proposed by TCE is contractual governance (Shahzad et al., 2018; Cao and Lumineau, 2015; Hernández-Espallardo et al., 2013). According to TCE, a decent governance mechanism or instrument should be able to control potential opportunism by specifying the roles and responsibilities of each party, normally through referring to a contract.

Prior studies have provided extensive evidence of the benefits of governing supply chain relationships through contracts or legal-legitimate power including improving SP, enhancing buyer-supplier relationships, and fostering knowledge sharing (Um and Kim, 2018; Sancha et al., 2016; Wacker et al., 2016; Huang et al., 2014; Lee and Cavusgil, 2006; Poppo and Zenger, 2002; Heide and John, 1992). Contractual governance plays a vital role in influencing SP as the contracts act as the monitoring and controlling instrument (Wacker et al., 2016). While acting as a safeguard, contracts are also primarily designed to ensure that the requirements of the buying firms are properly fulfilled such as the product's quality, price, quantity and specifications (Carey and Lawson, 2011). Suppliers' efforts to fulfil buying firms' requirements and avoid legal disputes, will directly influence their performance.

Nonetheless, by having formal written agreements (contracts), suppliers are able to understand and be aware of their responsibilities and expected performance (Wacker et al., 2016; Heide and John, 1992). By having a contract and exercising legal-legitimate power, a buying firm is able to stipulate the responsibility of the suppliers, and use that written agreement as a performance indicator to properly monitor their suppliers (Sancha et al., 2016). At the same time, contracts act as instruments to nurture communication between buying firms and their suppliers (Liu et al., 2017). They will allow frequent contact and information sharing which leads to improvement of suppliers' production and manufacturing activities. Based on these arguments, the following hypothesis is proposed:

> *H8: High contractual governance exercised by the buying firms is positively related to suppliers' performance.*

3.3 Supply Chain Leadership and Suppliers' Performance

The contribution of SCL is prominent in improving supply chain performance. A buying firm has an ability to influence the operational performance of the entire supply chain (Gosling et al., 2017). This includes the improvement of financial and non-financial measures such as product quality, delivery accuracy and sales growth. While the arguments related to SCL were mainly driven by transformational-transactional leadership theory, those can be further supported and justified by stakeholder and institutional theories. As posited by stakeholder theory, a firm's strategies and

decisions are highly influenced by the stakeholders such as the suppliers and customers (Touboulic and Walker, 2015; Freeman, 2010). Furthermore, stakeholder theory postulates that customers (or in this case, the buying firms) play a significant role in influencing the activities and performance of the suppliers (Gabler et al., 2017; Roman, 2017). As mentioned earlier in the literature review chapter (Chapter 2), this is due to the ability of the buying firms to exert their power as a customer in *leading* (transformational-based approach) or *forcing* (transactional-based approach) the suppliers to accomplish certain goals (Mani and Gunasekaran, 2018).

Similarly, institutional theory suggests that pressures from external actors or sources such as the governments, customers and competitors shape the behaviours and actions of a firm, which directly influence their performance (Esfahbodi et al., 2017; Hazen et al., 2016; Sarkis et al., 2011). A buying firm should be able to be an exemplar so that their practices can be imitated by the suppliers for the improvement of the entire supply chain (Touboulic and Walker, 2015; Blome et al., 2014). Furthermore, a buying firm is also responsible to pressure the suppliers in adopting certain activities and practices especially towards the recent concerns for environmental, social and economic sustainability (Mani and Gunasekaran, 2018).

In general, a firm who is practicing transformational SCL has a tendency to provide constant training and coaching towards their suppliers (Birasnav et al., 2015). Furthermore, 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. (2000b) highlighted that a buying firm practising transformational SCL can enhance its organisational learning. Overstreet et al. (2013) claimed that there is a positive relationship between transformational SCL approaches exhibited by the buying firm and their operational performance. Transformational SCL of the buying firm can expand organisational innovativeness and lead to a higher financial performance of the organisation. Moreover, transformational SCL by the buying firm can enable it to manage organisational change, articulate vision, and develop suppliers' commitment (Defee et al., 2010; Overstreet et al., 2013).

Nonetheless, Vivaldini and Pires (2016) found that closed-loop practices in the fast-food retail industry could only be implemented in presence of a collaborative

relationship between buying firms and their logistics service providers (LSPs). The planning and implementation phases of recycling should involve both parties in order to ensure that waste collection and transfer activities are more coordinated, and at the same time improve the LSPs sense of responsibility. Moreover, the success of closed-loop supply chain practices is based on the ability of the buying firm to coordinate upstream and downstream supply chain members including suppliers, retailers and distributors (Szekely and Strebel, 2013). Given the dynamic nature of the supply chain environment, a buying firm should be able to engage with supply chain members in all tiers and orientations (upstream or downstream) to ensure that the needs of RSC practices are well addressed. A buying firm should establish shared goals with supply chain members, so that the implementation of RSC practices will benefit all of them. A buying firm should inspire supply chain members to work collaboratively to ensure the new supply chain orientation towards a RSC can be implemented (Defee et al., 2009).

The ability to coach and mentor the suppliers foster suppliers' willingness to work collaboratively with the buying firms in realising the buying firms' goals (Vachon and Klassen, 2006). Furthermore, acting as the role model, coach or mentor, buying firms will allow suppliers to learn about "best practices" which are currently being implemented (Kocabasoglu et al., 2007; Dubey et al., 2018). Thus, this will directly influence suppliers' ability to learn, replicate and imitate buying firms' practices which will lead them to improve their own activities (Defee et al., 2009). It can be summarised that the central idea of transformational SCL is the ability of buying firms to inspire suppliers, so that they will transcend their normal performance, and at the same time develop suppliers' self-interest to excel and commit to the buying firms' plans. Hence, the following hypothesis is proposed:

H9: Transformational SCL is positively related to suppliers' performance.

In contrast with transformational leadership, transactional leadership is focused on extrinsic rewards (such as long-term contracts and investment) while transformational leadership is focused on the intrinsic needs of the supply chain members (such as motivation and commitment) (Birasnav et al., 2015). Similar to transformational SCL, the performance of suppliers can be maximised by using transactional SCL. Using a transactional approach, a buying firm will monitor and keep track of SP by comparing

it to a certain set of pre-determined rules or agreements (Jia et al., 2018; Birasnav et al., 2015; Defee, 2007). Gosling et al. (2017) deduced that buying firms who are committed towards contract compliance (such as defect inspection and quality monitoring) are practising transactional SCL. Moreover, by exhibiting transactional SCL, a buying firm can initiate rewarding behaviours that trigger information sharing between both parties (Birasnav et al. 2015). While through transformational SCL, a buying firm inspires the supplier to do more than contracted, transactional leaders strive to ensure that suppliers do exactly as expected (Hartog et al., 1997; Bass et al., 2003; Birasnav et al., 2015).

At the same time, in order to promote compliance, rewards can be offered to supply chain members. A buying firm is also able to use certain punishment schemes, such as a downtime penalty for late delivery (Jia et al., 2018). By enforcing the close tracking of SP, immediate feedback on improvement and potential corrective actions can be shared with the suppliers (Maestrini et al., 2018a, 2018b; Birasnav, 2014; Hult et al., 2007). Moreover, suppliers' adoption of RSC practices can also be maximised by using transactional SCL. By actively monitoring suppliers' RSC practices, they buying firms are able to foster suppliers' understanding on RSCs and ensure that the suppliers are taking initiatives in adopting the new supply chain orientation (Liao et al., 2012). This practice is crucial as suppliers tend to adhere to rules and regulations so that they are able to reduce the risk of potential losses or complications such as business termination (Blome et al., 2017). Obviously, the main reason for monitoring, rewarding and punishing suppliers is to ensure that their practices, products or parts are aligned to the requirements of the buying firm (Maestrini et al., 2018a); this approach indirectly influences and improves SP. In view of these considerations, this thesis hypothesises that:

H10: Transactional SCL is positively related to suppliers' performance.

As mentioned earlier, the role of laissez-faire is rarely examined in supply chain research. However, past studies related to laissez-faire in intra-organisational context discovered extensive evidence on the relationship between laissez-faire leadership and poor followers' performance (Kelloway et al., 2012; Bass and Bass, 2008; Muenjohn and Armstrong, 2008; Judge and Piccolo, 2004; Antonakis et al., 2003; Avolio et al., 1999; Hartog et al., 1997; Bass, 1990). Laissez-faire leadership is always associated

with lack of intervention in addressing followers' needs and performance (Hinkin and Schriesheim, 2008). A laissez-faire leader is unresponsive, leading to the difficulty of the followers in getting feedback to improve their current performance or practices (Harms and Credé, 2010; Bass and Bass, 2008; Gillespie and Mann, 2004).

In contrast to transformational and transactional SCL, laissez-faire SCL is representative of an inactive or a reactive behaviour of the buying firm. Thus, by practising less communication, feedback and monitoring of their suppliers, a buying firm who exhibits laissez-faire leadership might be degrading SP (Goffnett, 2018; Hu and Zhao, 2018; Lawson et al.2015; Krause et al., 2000). This happens as suppliers do not receive any suggestion for improvement; also, the buying firm might not work together with suppliers in order to improve their products, parts or production plans (Agi and Nishant, 2017). Being inactive in monitoring suppliers' adoption of RSC practices often means that there is less communication, feedback and monitoring of the suppliers, pointing towards a lack of collaborative activities between buying firms and suppliers in the realisation of environmental sustainability in supply chains (Agi and Nishant, 2017; Blome et al., 2017; Gosling et al., 2017). Furthermore, a buying firm exhibits laissez-faire SCL due to the belief that the suppliers are competent and resourceful enough (Bass and Bass, 2008). Thus, the buying firms prefer to be reactive and intervene only when the nonconformities occurred. However, this reactive approach could lead to delays in detecting initial issues, which could then contribute to massive disruptions of supply chain activities. Hence, this thesis hypothesises that:

H11: Laissez-faire SCL is negatively related to suppliers' performance.

Overall, 11 hypotheses are proposed to examine the effects of SCL on governance mechanisms and SP. The direct relationships between variables and their associated hypotheses are illustrated in Figure 3.1.

Figure 3.1: Theoretical Framework with Associated Hypotheses (Direct Relationships)

3.4   The Indirect Effects of Supply Chain Leadership

It is notable that the transformational-transactional leadership theory that has been used to frame the direct relationships between SCL, governance mechanisms and SP, is also suggestive of the potential of indirect effects through those factors (trust and contract). Furthermore, given the hypothesised direct relationships between (i) SCL and governance mechanisms; and (ii) governance mechanisms and SP, the existence of some indirect effects of SCL onto SP through governance mechanisms is expected (Baron and Kenny, 1986). As these factors have not been examined in the prior studies, this represents a new direction for SCL research.

It is hypothesised that both transformational and transactional SCL have a positive influence on suppliers' trust. As discussed earlier, transformational-transactional leadership theory suggests that followers' trust is determined by the behaviours of the leader. Portraying transformational SCL, buying firms are able to enhance suppliers' trust as the suppliers tend to believe the buying firms are honest and will not exploit their vulnerabilities (Ojha et al., 2018; Teoman and Ulengin, 2018; Akhtar et al., 2017). On the other hand, transactional SCL-based buying firms tend to keep their promises (reward and even punishment), and have a frequent contact with the suppliers (due to monitoring and auditing procedures). This will reduce uncertainty and increase suppliers' feeling of justice, which leads to improvement in their trust towards their

buying firms (Hemmert et al., 2016; Zaefarian et al., 2016; Yi and Gong, 2008; Patterson et al., 2006).

Based on the perspective of SET and studies on the role of suppliers' trust and their performance, this thesis also hypothesises that suppliers' trust towards buying firms will influence their performance. The more trust they have on their buying firms due to the leadership behaviour of the buying firms, the more they are committed, willing to invest and transcending towards better performance (Zhao et al., 2018; Gualandris and Kalchschmidt, 2016; Zhang et al., 2012; Inkpen, 2008; Fawcett et al., 2004; Ganesan, 1994). On the other hand, as laissez-faire SCL does not show any active attempt to lead suppliers, this thesis proposes that its relationship towards SP is negatively mediated by trust. A laissez-faire buying firm will not be able to gain trust from their suppliers as they do not show explicit concern about these suppliers. A buying firm practising laissez-faire SCL tends to change suppliers frequently; this also reduces buyer-supplier trust (Hemmert et al., 2016; Gao et al., 2005; Sako and Helper, 1998). Thus, this thesis hypothesises that:

> *H12: Suppliers' trust mediates the positive relationship between transformational SCL and suppliers' performance.*

> *H13: Suppliers' trust mediates the positive relationship between transactional SCL and suppliers' performance.*

> *H14: Suppliers' trust mediates the negative relationship between laissez-faire SCL and suppliers' performance.*

This thesis also hypothesises that leadership styles of buying firms influence their adoption of contractual governance. Based on transformational-transactional leadership theory, the relationships between leader and follower are based on exchange and strive towards better performance and mission accomplishment (Bass and Bass, 2008; Antonakis et al., 2003; Avolio et al., 1999). In order to ensure the mission and plan are well and properly executed, the leader will refer to the agreements and exercise their contractual or legal-legitimate power so that followers will adhere to these agreements. Similarly, from the supply chain management perspective, buying firms strive towards their own betterment by leading the suppliers to achieve a set of performance indicators, which are normally stipulated in the contract (Yang and Lien,

2018; Lumineau and Henderson, 2012; Williamson, 1985, 2008). This leads the buying firms to exercise high contractual governance in managing their relationships with the suppliers.

On the other hand, the direct relationship between contractual governance and SP is hypothesised. Based on TCE, the buying firm will use contractual governance as the safeguard (Cao and Lumineau, 2015; Lockström et al., 2010; Williamson, 2008). At the same time, contracts improve SP due to the clear roles and responsibilities stated in the contract, leading to less buyer-supplier conflicts while maintaining high contact and information sharing between them (Carey and Lawson, 2011). The contracts are used to ensure that suppliers meet their performance, while suppliers will try to achieve pre-determined agreement levels to avoid breaching the contracts (Um and Kim, 2018; Sancha et al., 2016; Wacker et al., 2016). In contrast, a laissez-faire buying firm is not exercising high contractual governance as they have no interest in leading and developing their suppliers. Their relationships with suppliers are for short-term purposes and focused on profit maximisation. Thus, this thesis proposes the final hypotheses as:

> *H15: Contractual governance mediates the positive relationship between transformational SCL and suppliers' performance.*

> *H16: Contractual governance mediates the positive relationship between transactional SCL and suppliers' performance.*

> *H17: Contractual governance mediates the negative relationship between transactional SCL and suppliers' performance.*

Overall, six hypotheses are proposed to examine the indirect effects of SCL on SP through governance mechanisms. The indirect relationships between variables and its associated hypotheses are illustrated in Figure 3.2.
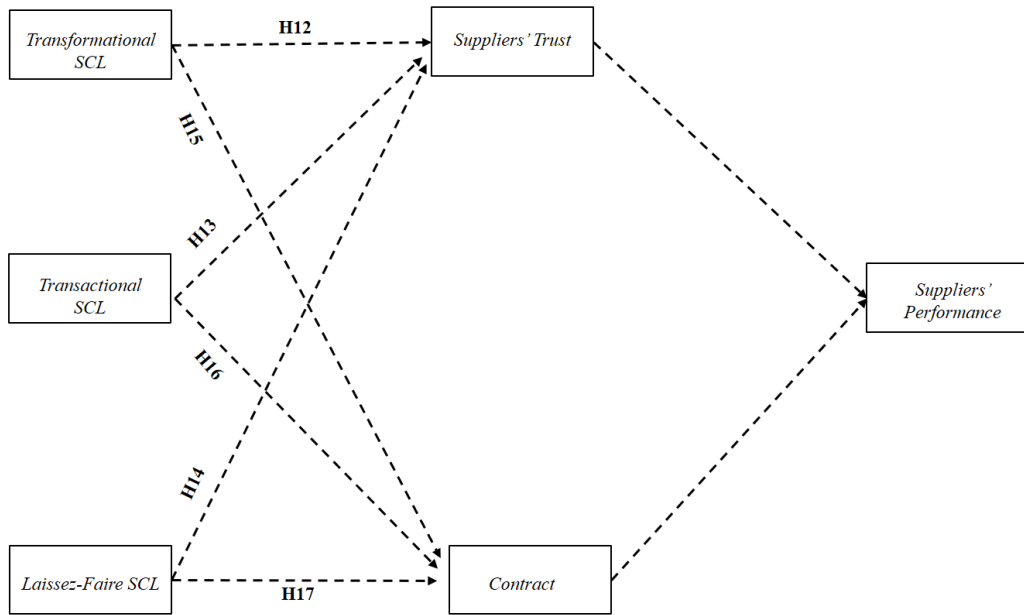
Figure 3.2: Theoretical Framework with Associated Hypotheses (Indirect Relationships)

The full theoretical framework of this thesis is presented in Figure 3.3. As discussed earlier, the figure illustrates that this thesis proposes direct relationships (i) between SCL and governance mechanisms, (ii) between governance mechanisms and SP, and (iii) between SCL and SP. In addition, this thesis also suggests indirect relationships between SCL and SP through governance mechanisms.
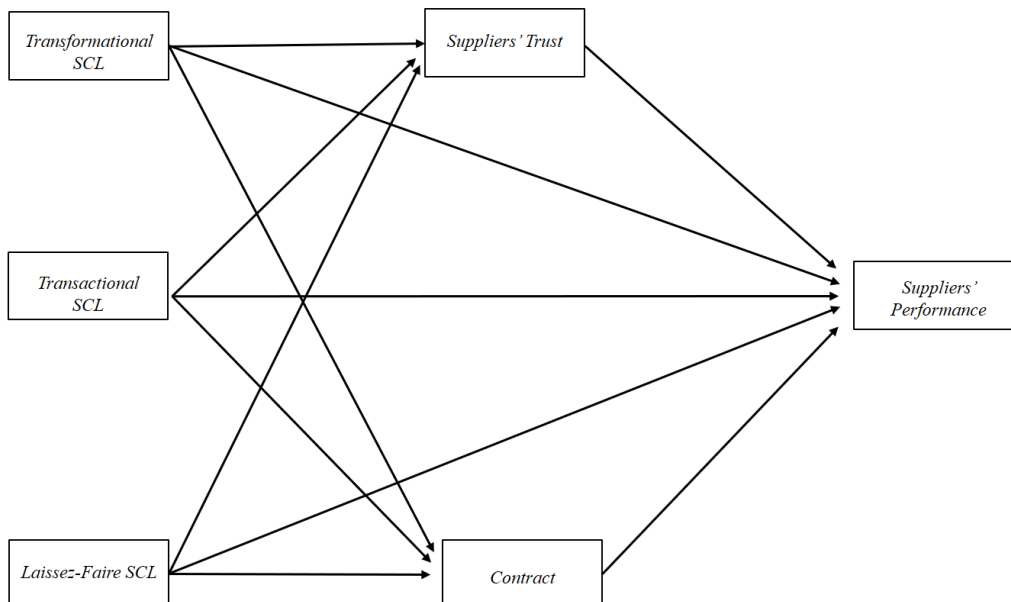
Figure 3.3: Full Theoretical Framework

3.5   Chapter Summary

In general, the main objectives of this thesis are to examine the relationships between SCL, governance mechanisms and SP; and the role of governance mechanisms in mediating the relationships between SCL and SP. This chapter has presented the theoretical framework and research hypotheses of this thesis. Drawing upon theories of stakeholder, institutional, transformational-transactional leadership, social exchange and transaction cost economics, the theoretical framework has been developed and the hypotheses have been posited. Overall, a set of 17 hypotheses are proposed in relation to the effects of SCL on governance mechanisms and SP.

More specifically, in order to examine the first research objective of this thesis, six hypotheses have been postulated, suggesting that SCL has significant relationships on governance mechanisms adopted by the buying firms. Based on the past studies, this thesis predicts that transformational and transactional SCL is positively related to governance mechanisms (suppliers' trust and contractual governance), while laissez-faire SCL is negatively related to the same outcomes.

Two hypotheses have been suggested to examine the relationships between governance mechanisms and SP. These hypotheses have been developed to meet the second research objective of this thesis, where it suggests that suppliers' trust and contractual governance are positively related to SP.

The third research objective of this thesis is to examine the direct relationships between SCL and SP. Three hypotheses have been developed, suggesting that transformational and transactional SCL are positively related to SP, while laissez-faire SCL is negatively related to SP.

The final set of hypotheses in this thesis consist of six propositions. All six hypotheses have been developed to examine the mediating role of governance mechanisms on the relationships between SCL and SP. Based on past studies, this thesis postulates that suppliers' trust and contractual governance mediate the relationships between SCL and SP. The summary of research objectives and hypotheses is illustrated in Table 3.1. The research methodology adopted for this research will discussed in the next chapter.

Table 3.1: Summary of Research Objectives and Hypotheses

	Research Objectives	Hypotheses
Direct Relationships	To examine the relationships between SCL and governance mechanisms.	H1: Transformational SCL is positively related to suppliers' trust.
		H2: Transactional SCL is positively related to suppliers' trust.
		H3: Laissez-faire SCL is negatively related to suppliers' trust
		H4: Transformational SCL is negatively related to a higher contractual governance exercised by the buying firms.
		H5: Transactional SCL is positively related to a higher contractual governance exercised by the buying firms.
		H6: Laissez-faire SCL is negatively related to a higher contractual governance exercised by the buying firms.
	To examine the relationships between governance mechanisms and SP.	H7: Suppliers' trust in buying firms is positively related to SP.
		H8: High contractual governance exercised by the buying firms is positively related to SP.
	To examine the relationships between SCL and SP.	H9: Transformational SCL is positively related to SP.
		H10: Transactional SCL is positively related to SP.
		H11: Laissez-faire SCL is negatively related to SP.
Indirect Relationships	To examine the mediating role of governance mechanisms on the relationships between SCL and SP.	H12: Suppliers' trust mediates the positive relationship between transformational SCL and SP.
		H13: Suppliers' trust mediates the positive relationship between transactional SCL and SP.
		H14: Suppliers' trust mediates the negative relationship between laissez-faire SCL and SP.
		H15: Contractual governance mediates the positive relationship between transformational SCL and SP.
		H16: Contractual governance mediates the positive relationship between transactional SCL and SP.
		H17: Contractual governance mediates the negative relationship between laissez-faire SCL and SP.

CHAPTER 4

METHODOLOGY

In the previous chapter, the research's theoretical framework for the direct and indirect relationships among supply chain leadership (SCL), governance mechanisms and suppliers' performance (SP) was presented. A set of hypotheses were proposed to test the impact of SCL on governance mechanisms and SP; and the mediating role of governance mechanisms on the relationships between SCL and SP. This chapter provides a brief overview of the research philosophy and methods adopted for this thesis. Furthermore, this chapter provides detailed descriptions of the research process adopted in this thesis including constructs operationalisation, interview protocol development, pre-testing and pilot test, sampling, data collection and finally, data analysis process.

4.1 Research Philosophy

The term research philosophy refers to the beliefs and assumptions about the way a certain phenomenon should be studied in order for a knowledge to be developed (Saunders et al., 2012). Identifying the research paradigms helps researchers in selecting a robust methodological approach that is in line with their research objectives and aims (Benton and Craib, 2001). In business and social science research, it is important to identify epistemological and ontological stances prior to selecting the methodological approach.

4.1.1 An Overview of Epistemology, Ontology and Research Approach

Epistemology is concerned about understanding what knowledge is. The central issue of epistemology in business and social science research is whether the same principles and procedures of conducting research in natural science research can be adopted (Bryman and Bell, 2015). To be more specific, epistemology concerns about

> *"what is or (should be) regarded as acceptable knowledge in a discipline"*
> *(Bryman and Bell 2015, p. 26).*

There are four main epistemological stances that usually adopted by business and social science researchers, namely positivism, interpretivism, realism and pragmatism (Figure 4.1). A *Positivist* is a researcher who is adopting the philosophical and epistemological stances that are similar to natural scientist. Positivists are guided by the belief that firms or social entities can be observed and measured (Bryman and Bell, 2015; Saunders et al., 2012). In business and social science research, a positivist believes that the society can be studied based on scientific evidence, through experiments or statistics, from which the true nature of how society works or operates can be revealed (Ransome, 2010; Johnson and Onwuegbuzie, 2004). In other words, a positivist believes that the social world can be explained through predicted regularities and expected causal relationships among components, for example through prior theories (Fraser, 2014). Using a positivist stance, a researcher tends to review existing theories, propose hypotheses and quantify the data to provide findings (acceptance or rejection of the hypotheses) of the study (Benton and Craib, 2001).
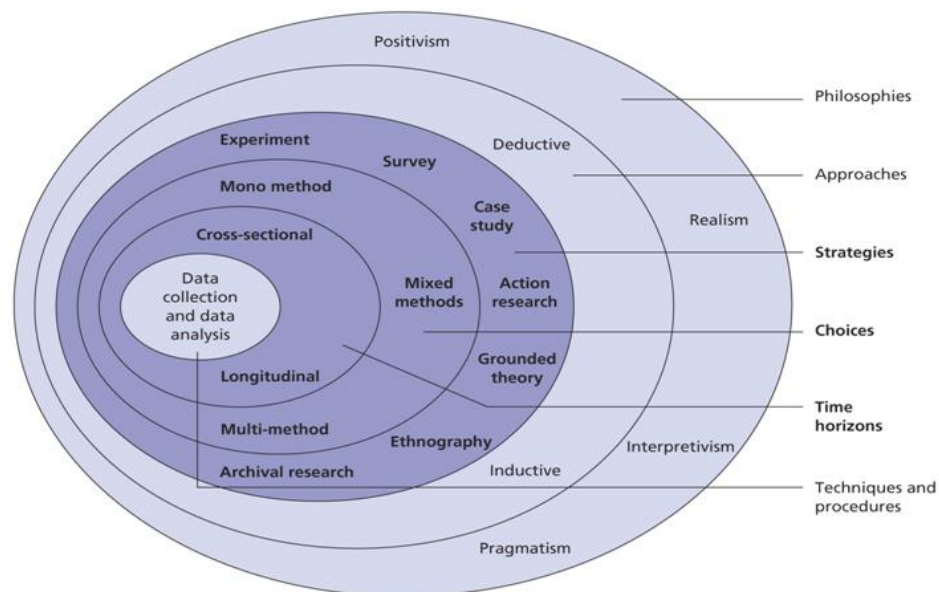
Figure 4.1: The Research Onion
Source: Saunders et al. (2012)

A further epistemological stance is represented by *interpretivism*. In contrast to positivists, interpretivists have been critical of applying the scientific model to study social interactions and social sciences. They believe that social sciences are fundamentally different from natural sciences and thus require different research approach (Bryman and Bell, 2015). This stance is an alternative to the positivism and

assumes that social sciences should also examine the subjective meaning of social actions. Interpretivists are also concerned about how organisations or individuals are making sense about social interaction and world around them (Bryman and Bell, 2015; Fraser, 2014; Johnson and Onwuegbuzie, 2004). Furthermore, an interpretivist relies on the assumption that knowledge is based on the *meaning* shared by the subjects (participants, informants or respondents).

A further epistemological stance is *realism*. There are two types of realism, which are empirical realism and critical realism. Empirical realists argue that what is happening is the reality and can be portrayed accurately as ones' experience (Saunders et al., 2012). On the other hand, critical realists focus on the underlying structure of the reality, and believe that reality is external and independent (Bryman and Bell, 2015). Furthermore, critical realists argue that reality is not directly accessible through observation (Saunders et al., 2012).

A final epistemological stance is *pragmatism*. Pragmatists focus on the practical meaning of the knowledge. Pragmatists argue that any research strategies should be practical and able to answer the research questions (Saunders et al., 2012). Pragmatists are problem-centred and focus on the outcomes of the research (Creswell and Clark, 2011). In other words, pragmatism refers to the approach of using any reasonable and practical methods that work in addressing research objectives.

While epistemology is concerned about the nature of knowledge, *ontology* is concerned about the nature of reality or social entities (Bryman and Bell, 2015; Fraser, 2014). In general, there are two main ontological stances namely objectivism and constructivism. *Objectivism* implies that social phenomena (or reality) and social actors are independent to each other, while *constructivism* posits that the reality is based on the perceptions of the social actors (Bryman and Bell, 2015; Fraser, 2014). Objectivists rely on the assumption that the social world is hard, external and objective reality. The objectivist ontological stance is often associated with the positivist and realist paradigms. On the other hand, constructivists assume that social phenomena is subjective, socially constructed and depends on the interpretation of the social actors, often associated with interpretivist paradigm. Pragmatism is often associated with a pluralistic view, where research adopts different methods and approaches (combining deductive and inductive) in one study (Creswell and Clark, 2011).

Most of the time, the research epistemology and ontology stances shape the research approach taken by any empirical study. The deductive approach tilts towards the positivist approach, while the inductive approach tends more towards interpretivism. The deductive approach allows researchers to develop hypotheses based on existing theories or concepts, and design a method to verify and validate the hypotheses (Bryman and Bell, 2015; Fraser, 2014; Johnson and Onwuegbuzie, 2004). On the other hand, the inductive approach allows researchers to collect information and data, and develop theories based on the findings (Bryman and Bell, 2015; Fraser, 2014; Johnson and Onwuegbuzie, 2004). The deductive approach is highly associated to theory testing research, while the inductive approach is more towards theory building. The next section discusses the epistemology, ontology and research approach adopted by this thesis.

4.1.2 *Epistemology, Ontology and Research Approach Adopted*

A researcher could easily fall into confusion and the trap of thinking a philosophical position or stance is better than another. The main point of reviewing philosophical positions and stances is to understand what they are doing and how it suits the research questions one is seeking to answer (Saunders et al., 2012). To recap, the main objectives of this thesis are:

i)   To examine the relationships between SCL and governance mechanisms.
ii) To examine the relationships between governance mechanisms and SP.
iii) To examine the relationships between SCL and SP.
iv) To examine the mediating role of governance mechanisms on the relationships between SCL and SP.

This thesis has taken mainly a positivist and objectivist philosophical stance. Based on the key tenet of positivism, this thesis is constructed upon the assumption that reality can be examined objectively. Furthermore, positivism postulates that the regularities and norms in the social world can be examined and discovered using constructs proposed by the researchers (Fraser, 2014; Shanks, 2002; Darke et al., 1998). The adoption of positivism as the philosophical stance is consistent with the aims of the thesis, which is more towards theory testing (Bryman and Bell, 2015; Saunders et al., 2012). As discussed in Chapter 3 (Theoretical Model and Research Hypotheses), several theories have been proposed to support the hypotheses. Based on prior studies

and theories, this thesis predicts the effects of SCL on governance mechanisms and SP. For example, based on transformational-transactional leadership theory, it is expected that SCL styles will positively influence SP. Similarly, based on SET and TCE, it is hypothesised that governance mechanisms are positively related to better SP. In line with the positivism and objectivism paradigm, this thesis adopted a deductive research approach (Bryman and Bell, 2015; Fraser, 2014).

Figure 4.2: The Process of Deductive Theory Testing

Figure 4.2 shows the process of the deductive research approach used in this thesis. Firstly, the concepts of SCL, governance mechanisms and SP were reviewed. Based on the current theories (stakeholder, institutional, transformational-transactional leadership, SET and TCE) and constructs (SCL, governance mechanisms and SP), a set of hypotheses were developed. After a set of hypotheses have been decided upon, this thesis proceeded with determining and deciding the research design and then the data collection approach, before proceeding with the actual data collection. The data was analysed and the hypotheses were reviewed. Finally, the results were compared with prior studies and theories, and a discussion was provided. The next section provides the discussion on the research design adopted in this thesis.

4.2 Research Design: Mixed Methods Research

This thesis adopted a mixed method research design. Recently, there has been an increased use and interest in using mixed methods as a research design in several fields including education, medicine, physics, psychology and marketing (Creswell and Clark, 2011). However, the exercise of using mixed methods research in the supply chain management field is still rare (Golicic and Davis, 2012). In general, mixed methods research design can be defined as:

> … *"research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry"* (Tashakkori and Creswell 2007, p. 4)

To date, research in the supply chain management field is highly dominated by survey research and the positivist paradigm. Recent studies by Flynn et al. (2018), Krause et al. (2018) and Montabon et al. (2018) discovered that generalisation, replicability and theory testing are the central focus of most of the studies in the supply chain management field, where survey research method is dominant in this field. However, as supply chain research is mostly related to inter-organisational concepts, for example buyer-supplier relationships, survey research leads to the issue of common method bias, single respondents or key informants (Krause et al., 2018; Montabon et al., 2018).

4.2.1 Convergent Parallel Mixed Methods Design

This thesis adopted the *convergent parallel* mixed methods design. Convergent parallel mixed methods refers to a research design that collects both data (quantitative and qualitative) concurrently, prioritises both methods equally, analyses the data independently and mixes the results during the discussion or interpretation (Creswell and Clark, 2011). The main purpose of using convergent parallel mixed methods is to study a topic or phenomenon using different but complementary data (Creswell and Clark, 2011; Morse, 1991). Furthermore, it is useful when the researcher wants to validate findings arising from the usage of quantitative methods with qualitative data (comparing between both datasets). This process is considered as *triangulation*. Figure 4.3 shows the basic process of convergent parallel mixed methods.
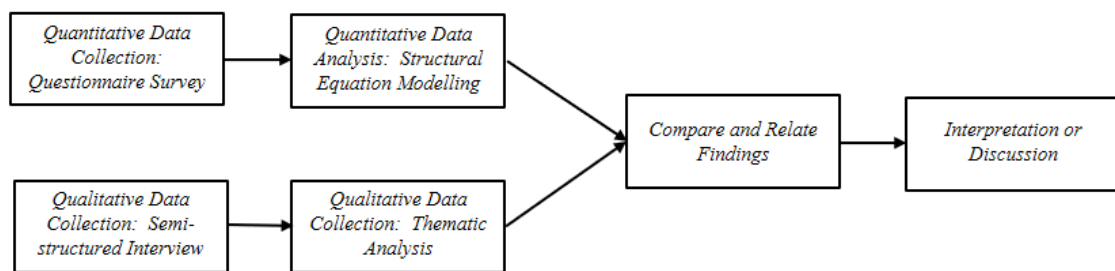
Figure 4.3: Basic Process of Convergent Parallel Mixed Methods

The term triangulation refers to the combination of methodologies to study a phenomenon (Creswell and Clark, 2011). According to Johnson et al. (2007), there are four types of triangulation:

i)   Data triangulation: Utilise two or more datasets (variety of data sources).

ii)   Investigator or researcher triangulation: Utilise several researchers in a same study.

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iii) Theory triangulation: Utilise two or more theories to understand or justify the findings of a study.

iv) Methodological triangulation: Utilise two or more methods to examine a single study.

Among those four types of triangulation, methodological triangulation provides the foundation of mixed methods research design by postulating that the bias of using particular data sources, researchers and theories can be minimised (Johnson et al., 2007). However, this applies to *between methods* triangulation and not to *within method* triangulation. The within method triangulation refers to qualitative method triangulation. For example, the result of a qualitative interview is triangulated with observation. The combination of different methods in a single study provides a more rigorous, valid and reliable research design compared to a single method (Cameron and Molina-Azorin, 2011; Creswell and Clark, 2011; Tashakkori and Creswell, 2007; Johnson and Onwuegbuzie, 2004). Furthermore, triangulation offered by using different methods in one study strengthens the findings and value of the research (Krause et al., 2018; Jogulu and Pansiri, 2011). Drawing upon these arguments, this thesis adopted a convergent parallel mixed method as the research design to triangulate the findings from quantitative and qualitative data.

Even though quantitative methods are always associated with positivism, qualitative methods can also be driven using a positivist and objective paradigm. For example, case study research has been conducted based on both positivist and constructivist paradigms (Yin, 2014; Shanks, 2002; Darke et al., 1998). Interviews can also be conducted and analysed using the positivist perspective through the deductive approach, for example using content or thematic analysis (Braun and Clarke, 2006; Boyatzis, 1998). It should be noted that this thesis is not combining research paradigms (positivism and constructivism). This thesis is also not combining research approaches (deductive and inductive). This thesis is purely based on a positivist paradigm and deductive approach, where the quantitative data (questionnaire survey) and qualitative data (interview) were analysed to confirm or reject the hypotheses.

In other words, mixed method research is the practice of using quantitative (for example questionnaire survey) and qualitative (for example semi-structured interview) methods in the same study. The main tenet of mixed methods development and

evolution is to minimise the flaws of using single research method by combining it with another compatible method in a same study (Creswell and Clark, 2011). For example, the quantitative method is lacking in-depth explanation of the phenomenon, which can be better explained by complementing it with interview data. On the other hand, the qualitative method (such as in-depth interview or case study) always struggles with generalisation and replicability, which can be minimised if the same study complements their data with a questionnaire survey.

4.2.2   Research Process and Procedures

Figure 4.4 shows the flowchart of the process which has been followed in implementing the convergent parallel mixed methods used in this thesis. The first phase involves the preliminary steps which were undertaken. The potential research topic was identified, and the relevant literature and theories were reviewed. This process involves systematically reviewing the body of knowledge concerning SCL, governance mechanisms and SP. The research gaps were identified during this phase and research hypotheses were formulated.

The second phase is concerned with deciding the research methods and data collection procedures. As this thesis is based on a convergent parallel mixed methods design, quantitative and qualitative data were collected. A questionnaire survey was used to collect the quantitative data, while semi-structured interviews were used to collect qualitative data. This phase involves creating, adapting and modifying scales and instruments for the questionnaire survey. Furthermore, the survey was pre-tested with industry experts and academics before proceeding with the actual data collection. Similarly, the protocols (interview questions and procedures) were pre-tested before the actual data collection. Data were collected independently at the same time (concurrently).

The third phase is data analysis. During this phase, data were analysed independently. For the quantitative data, the data analysis included descriptive analysis, normality checking, outliers' detection, factor analysis and hypotheses testing using structural equation modelling. For the qualitative data, descriptive analysis, saliency and thematic analysis were used to assist the hypotheses testing. The results from the qualitative data were used as the complement to validate or confirm the quantitative.

The results were compared in the final phase, to see any divergence between both datasets. The results were also interpreted and discussed in the final phase. The details for the steps involve in designing the survey and interview as well as the data analysis process are discussed in next sections.
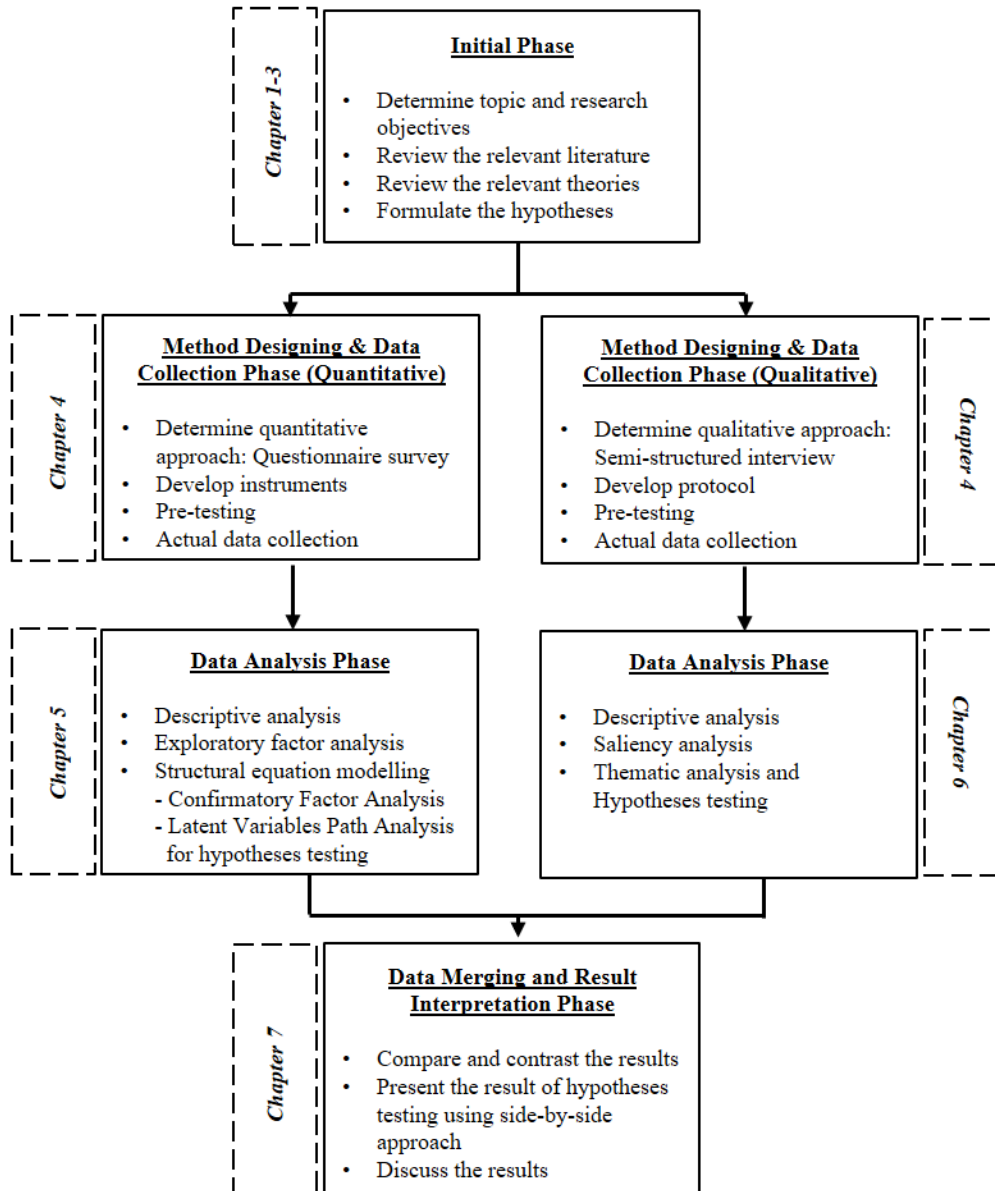
Figure 4.4: Flowchart of Research Process

4.3   Questionnaire Survey

As mentioned in the previous section, this thesis adopted a mixed methods research design combining quantitative and qualitative methods. For collecting quantitative data, this thesis relied on a questionnaire survey. In general, a survey method is a

systematic approach of collecting responses from specific samples or representatives of a population (Bryman and Bell, 2015). A survey can be defined as:

> *… "a specific research method distinguished by the structured form of the data collection and by a case-comparative method of analysis" (Walter 2010, p. 152).*

A survey method is as a quantitative method that focuses on a large number of respondents and aims to obtain a snapshot of the events in a given population. Two main characteristics of survey methods are the ability to enhance generalisation and systematically gathering responses through organised instruments such as a structured questionnaire or interview (Krause et al., 2018; Bryman and Bell, 2015). A survey method is useful to collect the 'three A's': attributes, attitudes and actions (Buckingham and Saunders, 2004).

A survey method typically relies on questionnaires as the data collection method. A questionnaire is a set of questions, distributed to the targeted respondents to gather information and statistically analyse the responses (Bryman and Bell, 2015). In the supply chain management field, a questionnaire survey has been identified as one of the most common methods of data collection (Golicic and Davis, 2012). It is expected that survey method will continue to be an essential research method in developing supply chain theories and practices (Flynn et al., 2018).

The emergence of the Internet has significantly improved the usage of the questionnaire survey method. Web-based surveys have been considered as a useful instrument in data collection due to its ability to save time, reduce cost (for example, travelling cost) and target large population (Sills and Song, 2002). This allows any studies to minimise the issue of geographical boundaries and improve generalisability of the results (Bryman and Bell, 2015). Web-based surveys also offer an interactive and dynamic questionnaire form that are useful to improve the response rate. Nonetheless, the responses retrieved from the web-based survey can be simply downloaded and analysed, leading to an efficient way of data collection such as free from common data entry errors (Schmidt, 1997).

However, it should be noted that survey research is also associated with several disadvantages. A survey method is typically characterised by a lack of direct contact

between the researchers and the respondents, resulting in limited explanation and discussion (Bryman and Bell, 2015; Buckingham and Saunders, 2004). Nonetheless, a questionnaire should be designed to be as brief as possible to improve the response rate. This situation leads to limited coverage of the research questions and objectives (lack of in-depth explanations of the phenomenon) (Walter, 2010).

This thesis used a questionnaire survey as the first method to collect data for the statistical testing of the 17 hypotheses. The general population of this thesis was represented by companies from Malaysian manufacturing industries. Moreover, this thesis aimed to get responses from the management level respondents (such as operations managers, supply chain managers, CEOs or Directors) who were directly involved in firms' supply chain or operations management. The questionnaire survey was also aimed to be distributed to suppliers regardless of their size and position in the supply chain (Tier-1, Tier-2 and Tier-3). Questionnaires were handed to the respondents (suppliers) to rate (i) their buying firms' leadership style, (ii) the level of their trust towards their buying firms, (iii) the level of contractual governance exercised by their buying firms, and finally (iv) their firms' performance (cost, quality, delivery, flexibility and reverse supply chain performance). It should be noted that the unit of analysis of this thesis was based on the dyadic context, where the suppliers rated the leadership styles, trust towards and contractual governance exhibited by their *direct* or *immediate* buying firms. A copy of the questionnaire is provided in Appendix B.

4.3.1   *Research Constructs Operationalisation*

Following the literature review and development of the conceptual framework, a total of 12 hypotheses were proposed to examine the effects of SCL on governance mechanisms and SP, as well as the mediating role of governance mechanisms. In order to ensure that variables are measurable, it is vital to operationalise the constructs, which is the process of defining key attributes of the given concepts (Cavana et al., 2001). The best way to identify previous operationalised constructs including its measurement scales and items, is by reviewing the literature. Once the operationalised concepts have been identified, the measures can be adopted or adapted. Adopted measures mean that the questionnaire items are retrieved directly from other studies without any modification. On the other hand, adapted measures mean that the

questionnaire items are modified to suit (i) the new context, (ii) the new scales or metrics, (iii) enhance comprehension and (iv) improve conceptual coverage or insights. As this thesis was based on a different context and a combination of different constructs that were not previously examined, the adaptation strategy has been used (Flynn et al., 1990). Figure 4.5 illustrates the process of selecting the questionnaire items.
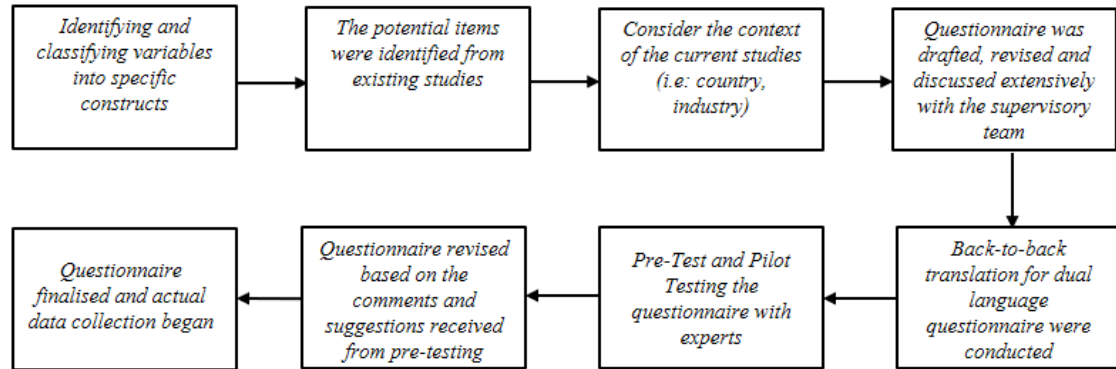
Figure 4.5: Questionnaire Development Process

4.3.1.1   *Questionnaire Items for Supply Chain Leadership*

Based on the systematic review of SCL conducted in this thesis, three main dimensions of SCL have been identified, namely *transformational leadership*, *transactional leadership* and *laissez-faire leadership*. However, since laissez-faire had been barely examined in SCL domain, the adaption from classical leadership questionnaire was necessary. The modifications were made to reflect the laissez-faire leadership from the context of SCL styles such as "Buying firm believes in "if not broken, don't fix it". The items used to measure SCL were selected by combining the most prominent SCL literature by Defee et al. (2010), Hult et al., (2007), Hult et al. (2000a) and classical leadership literature by Avolio et al. (1999). Using a 7-point Likert scale (1-strongly disagree to 7-strongly agree), respondents were asked to rate their immediate buying firms' leadership behaviours. Table 4.1 shows the questionnaire items used to measure SCL. A 7-point Likert scale was used as it provides more variability of the responses while maintains the same reliability as a 5-point Likert scale (Krosnick and Presser, 2010).

Table 4.1: Questionnaire Items for SCL constructs

Constructs	Code	Items	Sources
Transformational SCL	TFL1	Buying firm goes beyond its self-interest for the good of the supply chain.	Defee et al. (2010); Hult et al. (2007); Hult et al. (2000a); Avolio et al. (1999)
	TFL2	Buying firm talks enthusiastically about what needs to be accomplished in the supply chain.	
	TFL3	Buying firm clarifies the central purpose underlying their supply chain actions.	
	TFL4	Buying firm displays power and confidence.	
	TFL5	Buying firm seeks different views when solving supply chain issues.	
	TFL6	Buying firm suggests new ways in solving supply chain issues.	
	TFL7	Our company is encouraged to express ideas.	
	TFL8	Buying firm spends time teaching and coaching us.	
	TFL9	Our company gets individual consideration.	
	TFL10	Buying firm encourages us to improve our strengths.	
Transactional SCL	TSL1	Buying firm lets us know what is expected of us in the supply chain process	Hult et al. (2007); Hult et al., (2000a); Avolio et al. (1999)
	TSL2	Buying firm encourages the use of uniform procedures in the supply chain process	
	TSL3	Buying firm decides what shall be done and how it will be done in the supply chain process	
	TSL4	Buying firm maintains definite standards of performance in the supply chain process	
	TSL5	Buying firm asks that we follow established purchasing rules and procedures	
	TSL6	Buying firm rewards our company for achievement	
	TSL7	Our company is punished for fault and misconduct such as late delivery	
	TSL8	Buying firm tracks our company mistakes	
	TSL9	Buying firm concentrates their full attention on dealing with our mistakes	
	TSL10	Buying firm concentrates on our failures	
Laissez-Faire SCL	TSL11	Buying firm believes in "if not broken, don't fix it"	Avolio et al. (1999)
	TSL12	Buying firm does not interfere in our company production problems	
	TSL13	Buying firm avoids making decisions	

4.3.1.2 Questionnaire Items for Governance Mechanisms

Suppliers' trust and contractual governance were used as the mediating variables in this thesis. As both constructs have been extensively researched in the operations and supply chain management field, the items were adapted from previously published literature. A minor modification was made on trust items where 'supply chain partners' was changed to 'buying firm'. For example, in the earlier version the first item for suppliers' trust was "This supplier keeps their promises to our company". The modification was made to ensure that the respondents rate their trust level towards their immediate buying firms. Items for contract were operationalised to measure the extent of the contractual governance or legal-legitimate power exercised by the buying

firms towards their suppliers. All items were operationalised using a 7-point Likert scale (1-strongly disagree to 7-strongly agree). Table 4.2 shows the questionnaire items used to measure governance mechanisms.

Table 4.2: Questionnaire Items for SCL constructs

Constructs	Code	Items	Sources
Suppliers' Trust	TR1	Buying firm keeps their promises to our company.	Doney and Cannon, (1997)
	TR2	We believe in the information provided by the buying firm.	
	TR3	Buying firm is concerned about our business success.	
	TR4	When making important decisions, the buying firm considers our welfare as well as its own.	
	TR5	We find it is necessary to be cautious with the buying firm.	
	TR6	Buying firm keeps our best interests in mind.	
	TR7	Buying firm is honest with our company.	
	TR8	Buying firm is transparent with our company.	
	TR9	Buying firm will exploit our vulnerabilities.	
	TR10	Buying firm will not expose our production planning and drawings to other parties.	
	TR11	We are willing to invest in new infrastructure or facilities to fulfil buying firm's needs.	
	TR13	Buying firm is trustworthy.	
Contractual Governance	CON1	Buying firm often refers to a portion of an agreement to gain our compliance on a particular request.	Maloni and Benton, (2000)
	CON2	Buying firm makes a point to refer to any legal agreement when attempting to influence us.	
	CON3	Buying firm uses sections of our sales agreement as a "tool" to get us to agree to their demands.	

4.3.1.3   Questionnaire Items for Suppliers Performance

Suppliers' performance (SP) shaped the dependent variable of this thesis. Five variables were initially identified and adapted from the existing literature to measure SP including cost, quality, delivery, flexibility and reverse. However, since the SP 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. All items were operationalised using a 7-point Likert scale (1-poor to 7-excellent). The items used to measure SP are presented in Table 4.3.

Table 4.3: Questionnaire Items for SP constructs

Constructs	Code	Items	Sources
Cost Performance	CP1	Manufacturing costs	Kristal et al. (2010); Gunasekaran and Kobu (2007); Shepherd and Günter (2006)
	CP2	Inventory costs	
	CP3	Overhead costs	
	CP4	Price competitiveness	
Quality Performance	QP1	Products conformance (meet established standards / customers' requirements)	
	QP2	Products quality consistency	
	QP3	Products reliability (probability of a product malfunctioning/failing within a specified time period)	
	QP4	Products overall quality (products' primary operating characteristics)	
Delivery Performance	TP1	Accuracy of product delivery (correct quantity and products)	
	TP2	Product delivery time	
	TP3	Order fulfilment lead time	
	TP4	Supply chain throughput time	
	TP5	Manufacturing lead-time	
Flexibility Performance	FP1	Ability to rapidly change production volume	
	FP2	Ability to produce customized product features	
	FP3	Ability to produce broad product specifications within same facility	
	FP4	Capability to make rapid product mix changes	
Reverse Performance	RP1	Cost of processing recyclable products	Hazen et al. (2015); Olugu and Wong (2012)
	RP2	Cost of retrieving returned products	
	RP3	Cost of storing returned products	
	RP4	Cost of remanufacturing, replenishment and reproduction of returned products	
	RP5	Availability of recyclable / reusable materials in products	
	RP6	Availability of material recovery plan and warranty returns	
	RP7	Ability to remanufacture and refurbish returned products	
	RP8	Lead-time for unsold products to be remanufactured / refurbished	
	RP9	Lead-time for warranty returns products to be remanufactured/refurbished	
	RP10	Lead-time product recycling and reuse	
	RP11	Ability to incorporate traditional practices with reverse supply chain practices i.e: dismantling parts and recycle	
	RP12	Ability to provide new infrastructure for new products research and development	
	RP13	Ability to produce products with high reusable and recyclable materials	

4.3.2   Revision and Translation of the Questionnaire Drafts

Once the questionnaire items were identified, the draft of the questionnaire was developed and discussed with the supervisory team. Several modifications and

improvements were carried out between August 2016 and May 2017. The draft of the questionnaire was also sent to two Malaysian native speakers for back-to-back translations. Back-to-back translation is useful for dual language questionnaires to ensure consistency between both languages.

4.3.3   Questionnaire Pre-Testing

Prior to data collection, two phases of content validity were executed. Pre-testing sessions with three experienced researchers were conducted to get feedback on the validity of the constructs. The questionnaire items were modified and emailed to 17 experts: statisticians (3), academics with expertise in supply chain management practices (6) and industry experts (8) for their feedback on the questionnaire structure and its readability, resulting in a more complete and clear instruments in the final version of the survey questionnaire. In addition, face-to-face and telephone interviews were conducted with the experts to discuss further their suggestion for improvement. The complete set of questions asked to the experts during the pre-testing is provided in Appendix C. The main reason for the pre-testing was to get feedback from the experts (both from academia and industry) on the structure and content of the questionnaire. Furthermore, the respondents were asked to pilot the online version of the questionnaire. Based on the pre-testing, the critical issues addressed by the experts were:

i)   The mobile version of the questionnaire was totally unstable and its layout was poor.

ii) The differences between inter-organisational trust and interpersonal trust were not clear in the draft questionnaire (the instruction should mention 'buying firm' instead of 'buyer').

iii) The differences between inter-organisational leadership and interpersonal leadership were not clear in the questionnaire draft (the instruction should mention 'buying firm' instead of 'buyer').

iv) More explanation is needed on the 'focal firm', 'tier 1', 'tier 2' and 'tier 3' as not every respondent understands the term.

v)   All instructions in the earlier versions of the questionnaire were asking the suppliers to rate their 'buying firms'. For example, one of the instructions in the earlier versions asked the supplier:

> *"In this section, please indicate the extent of leadership approaches exhibited by your buying firms"*

However, in a supply chain, a supplier might have more than one buying firm. Thus, based on the comments and insights from the expert, the instructions were changed to *'immediate buying firm'*. This suggestion is aligned and consistent with the previous study conducted by Wilhelm et al. (2016a), where the authors deduced that supply chain relationships are often relied on the actions or behaviours of direct or immediate partners (buying firms or suppliers) due to lack of interactions and contractual relationships between parties beyond the first tier. This was also to ensure that the responses received from the respondents are accurate and reliable due to their ability to rate their immediate buying firms rather than assuming that all suppliers have direct contact with the focal firms.

At the same time, positive feedback was also received from the experts. The experts felt that the questions reflected the research objectives and were well-structured, easy to understand, used simple English for the Malaysian context, the flow was logical and smooth, it was free from jargon, straight forward to understand, of an appropriate length and there was sufficient time to answer it, and there were no sensitive questions. The feedback received was used to improve the final version of questionnaire.

4.3.4   Sampling and Data Collection

This thesis adopted the purposive sampling which targeted operations or supply chain managers and above in Malaysian manufacturing industries. The details of the respondents were retrieved from the Federation of Malaysian Manufacturers (FMM) directory. The list of potential respondents in the FMM directory was reviewed manually. Only respondents included in the following criteria were contacted:

i) Only top or middle management level (such as Chief Executive Officer, Managing Director, Director, or Manager) should be selected.

ii) The respondent's position in the firm must be related to production, manufacturing, or the firms' overall operations (such as Director of Operations, Director of Supply Chain, Head of Supply Chain, Production Manager, or Operations Manager). It is expected that respondents in this position have

sufficient knowledge on buyer-supplier relationships and be able to rate the relationships between their firms and their buying firms.

The criteria are deemed appropriate as selected informants appear to have high positions in their firms along with knowledge on production and operations activities, and most importantly, can act as the *individual boundary spanner* to explain the situations and relationships between two firms (Seppanen et al., 2007). Furthermore, as the study requires respondents with a high rank or position, the researcher attempted to contact the respondents and introduce the study prior to sending invitation emails. The process of selecting the respondents was deemed appropriate to minimise the issue of *key informant* or *single response* in cross-sectional survey research (Flynn et al., 2018; Krause et al., 2018).

As presented in Figure 4.3, the survey was launched on the 5th June 2017 and ended on the 6th October 2017. The questionnaires were distributed through two mediums which were online platform and during suppliers' events. The online survey was launched on 5th June 2017. Customised and personalised emails were sent out to 830 companies, inviting the targeted respondents to participate in the online survey. The first reminder was sent out to the targeted respondents on 18th July 2017, and the second reminder was sent out on 7th August 2017. However, by knowing that the response rate for supply chain research might be low in developing countries including Malaysia (Eltayeb et al., 2011), an initiative was made by attending supplier events to improve the response rate. By using the researcher's position as an academic in a Malaysian public university, and his former industry experience, the access to two supplier events for data collection was granted. After four months of actively conducting the field work, a total of 225 (110 through online, 115 through events) responses out of 830 targeted respondents were collected, giving a response rate of 27%. The response rate is considered acceptable and aligned with the studies in supply chain management research (Ebrahimi et al., 2018; Obayi et al., 2017). Furthermore, the response rate for survey research in Malaysian manufacturing industries is relatively low (less than 20%) (Yong et al., 2019).

4.3.5   Quantitative Data Analysis

As illustrated in Figure 4.6, data collection and entry were the first step in the data analysis process flow for this thesis. Questionnaires were handed out to the respondents in two forms: hardcopy or online (using Qualtrics software) and transferred into IBM SPSS V24. As mentioned previously, a 7-point Likert scale was used for each question and the response was restricted to one answer per question. During the second step (data editing and clean-up), the stored data was reviewed individually to remove missing or incomplete data. Furthermore, the normality of the data was checked during this phase based on skewness and kurtosis value. The third step consists of demographic and descriptive analysis. This process allowed the researcher to summarise the firms' and respondents' backgrounds. Descriptive analysis is useful to provide preliminary data exploration by summarising the data in order to analyse potential patterns (Bryman and Bell, 2015).
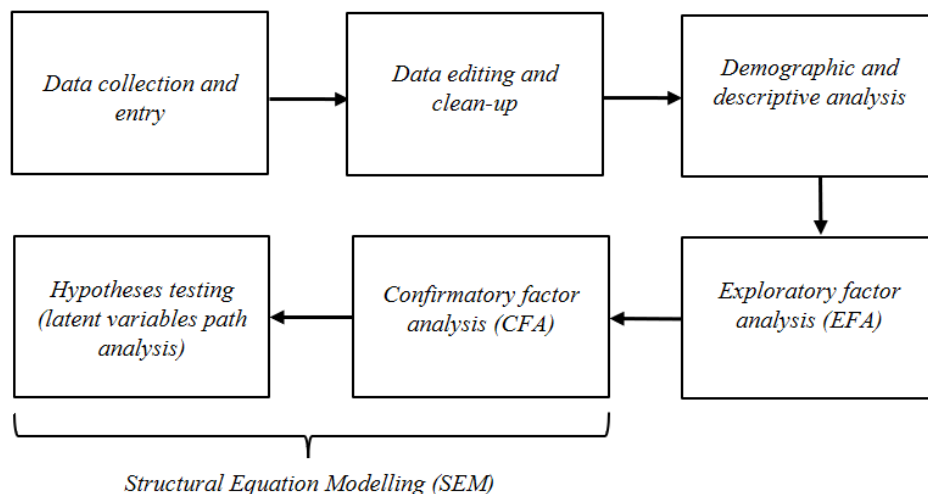
Figure 4.6: Quantitative Data Analysis Process

The fourth step of data analysis was exploratory factor analysis (EFA). The ultimate reason of adopting EFA was to ensure that the items or indicators are measuring the constructs. Given the high number of modifications of the original measurement items, it was essential to perform EFA to evaluate the underlying structure of the data (Tabachnick and Fidell, 2007; Hurley et al., 1997; Kelloway, 1995). Based on the factor loading and structure, the indicators or items were dropped if they loaded into more than one constructs (Zhao et al., 2008). In other words, EFA was performed to ensure that the uni-dimensionality of the indicator or item is guaranteed (Field, 2013).

The main analysis technique used in this thesis was structural equation modelling (SEM). During phase five and six, two phases of SEM were conducted. The first phase was confirmatory factor analysis (CFA). CFA was used to validate and confirm the *factor structure* and analyse whether the model is acceptable (Zhao et al., 2008). CFA is vital in order to confirm the model and its adequacy for subsequent analysis (path analysis). Finally, the direct relationships between SCL and SP, direct relationship between governance mechanisms and SP, and the mediation effect of governance mechanisms were analysed using the fittest model confirmed during the CFA. This phase is also known as latent variable path analysis.

It should be noted that EFA and CFA are not associated to one another and they are analysing different areas. EFA is an exploratory technique, where data is collected and potential underlying factors are suggested (Kline, 2016; Field, 2013; Kelloway, 1995). On the other hand, CFA is a confirmatory technique, where it requires *a priori* theory, construct or factor (Hurley et al., 1997; Kelloway, 1995). As this thesis used several non-validated measures, ignoring EFA could lead to misspecification of the number of factors as CFA is not featured to detect this issue (Kelloway, 1995). It can be summarised that EFA was used to *identify* the items and related factors, while CFA was performed to *confirm* the items and related factors (for example, ensuring validity and reliability). The detailed process of conducting EFA and SEM are provided in the next sub-sections.

4.3.5.1 Exploratory Factor Analysis

Researchers in social sciences are often trying to study the phenomenon or things that are not possible to be measured directly. Things or variables that cannot be directly measured are considered as latent variables (Field, 2013). For example, a psychologist is interested to study job burnout, which is to see how long periods of working time leads to a reduction of motivation and inspiration. However, burnout cannot be directly measured. In order to measure burnout, a set of questions (items) that measure different aspects of burnout will be developed such as stress level and nature of the job. Similarly, leadership, governance and performance cannot be directly measured. Thus, a set of questions has been developed in order to measure those terms. However, once the items have been developed, it is crucial to examine whether different groups of indicators map onto different latent variables. One way to do this is by using EFA. In

general, factor analysis provides a statistic method to understand and assess the variability among the items. In this case, questionnaire items are also known as observed variables. According to Field (2013), the main reasons for conducting EFA can be explained in threefold:

i) In order to understand the structure of a set of variables;

ii) In order to develop a questionnaire;

iii) In order to perform a data reduction effort, which allows a researcher to reduce the dataset while retaining original information, for example combining collinear variables.

More simply, EFA allows a researcher to identify the relationship among items, explore the number of factors or latent variables and remove unnecessary items that are not measuring any factors. There are three main steps in conducting EFA: assessment of data suitability, factor extraction and factor rotation.

4.3.5.1.1 *Assessing Data Suitability for Factor Analysis*

The most common statistical test in determining data suitability for factor analysis are the Kaiser-Mayer-Olkin (KMO) index and Bartlett's Test of Sphericity. It is crucial to test data suitability prior conducting the analysis so that the results can be reliable and as accurate as possible (Field, 2013; Byrne, 2000). The KMO values are ranged from 0 to 1, with the closer to 1 indicating greater suitability or sample adequacy. A value of 0 indicates that the factor analysis is most likely not to be appropriate as the sum of the partial correlation is larger compared to the sum of correlation (Field, 2013). It specifies that the form of correlation of the dataset is diffused and not concentrated (Field, 2013). On the other hand, a value closer to 1 is desirable as it indicates that the correlation pattern is compact and the results of the subsequent factor analysis will be reliable (Field, 2013). Kaiser (1974) suggests that a KMO value above 0.5 can be deemed as acceptable. In particular, a value from 0.5 to 0.7 can be considered as mediocre; 0.7 to 0.8 as good; 0.8 to 0.9 as great; above 0.9 as excellent.

In contrast, Bartlett's Test of Sphericity examines whether the population correlation matrix resembles an identity matrix (Field, 2013). If the population correlation matrix resembles an identity matrix, it indicates that every variable correlate to each other.

However, it is an identity matrix if all variables are independent from each other. Hence, if the value is less than .05 ($p < .05$), it indicates that the value is significant (there is correlations between variables) which means that the factor analysis is suitable for the dataset.

4.3.5.1.2 Factor Extraction

The second step in EFA is factor extraction, the process of deciding or assessing the number of factors associated with the questionnaire items (Pallant, 2016; Field, 2013). This process includes evaluating the factors that will be retained which best represent the interrelations among the items. There are several extraction techniques offered by IBM SPSS including principal component analysis, principal axis factoring, maximum likelihood, alpha factoring, unweighted least squares, image factoring and general least squares. The most commonly used factor extraction techniques are maximum likelihood and principal axis factoring. Even though both techniques provide equally good results, this thesis adopted principal axis factoring techniques as the data was skewed (Schmidt et al., 2011; Costello and Osborne, 2005). At the same time, three main criteria were used in deciding the number of factors to be retained in this thesis:

i) Kaiser's Criterion

This is the most common extraction criteria used in EFA which is also known as the eigenvalue rule. Based on Kaiser's criterion, in order for a factor to be retained, its eigenvalue must be more than 1 (Pallant, 2016; Field, 2013). Once the eigenvalue is more than 1, the factor can be considered for further analysis or investigation.

ii) Variance Percentage

This approach suggests that the number of factors should be based on the specific percentage of the variance extracted or explained. It is recommended that the cumulative variance of extracted factors is not less than 60% (Hair et al., 2011).

iii) Scree Test

The final approach is by using a graphical representation of the scree plot. It involves examining the scree plot to identify a point at which the direction of a curve becomes a straight line (Pallant, 2016). The result can then be

compared to the first and second approaches, and the number of factors can be decided.

4.3.5.1.3   Factor Rotation

The final step in EFA is deciding the factor rotation technique that will be used. The main purpose of the factor rotation technique is to ease the process of interpreting the extraction solution, but not to change the result (Pallant, 2016). It allows the researcher to interpret the factor loading based on the easiest pattern. More simply, it illustrates what items 'clump together' to form a factor with their factor loading. Two main factor rotation techniques are available in IBM SPSS: orthogonal and oblique. Orthogonal results are easier to interpret, however it is based on the assumption that the underlying constructs are not correlated and independent to each other (Pallant, 2016; Tabachnick and Fidell, 2007). Even though oblique results are difficult to interpret and report, it is more suitable for social sciences research as the factors or constructs in social sciences are normally correlated to each other (Pallant, 2016; Tabachnick and Fidell, 2007). In this thesis, oblique rotation with Promax was used as the rotation technique. Moreover, the cut-off value of 0.4 was used as the significant value for factor loading based on the recommendation by Tabachnick and Fidell (2007).

4.3.5.2   Structural Equation Modelling

As noted previously, this thesis used the structural equation modelling (SEM) technique to examine the impact of SCL on governance mechanisms and SP. Nevertheless, the mediating role of governance mechanisms on the relationships between SCL and SP was also examined. SEM is a collection of statistical procedures used to test the hypotheses or the relationships among latent variables. In general, the rationale for using SEM as the main analysis technique can be explained in threefold. First, SEM is a confirmatory approach in nature. SEM is able to run confirmatory and path analysis which allows accurate hypotheses testing (Byrne, 2000). Furthermore, the SEM technique is able to identify a specific indicator and suggest whether that indicator is purely measuring the constructs or variables (Byrne, 2000). Secondly, SEM is able to deal with complex hypotheses testing. SEM is particularly useful in studies where the variables are to be tested independently and simultaneously. In a

simpler word, SEM is an extension of the traditional linear regression and allows a researcher to regress multiple variables simultaneously (Hair et al. , 2011).

Thirdly, SEM has become one of the most widely used analysis technique in the supply chain management field. In recent years, there is an increasing trend of empirical research and theory testing in the supply chain management research (Forza, 2002). In the same vein, recent studies revealed that theory testing and deductive research approaches through survey research are the most demanding research method in the supply chain management field; with most of the survey research adopting SEM as the analysis technique to confirm the pre-determined hypotheses and theory (Flynn et al., 2018; Krause et al., 2018; Montabon et al., 2018).

However, SEM is not an analysis tool, but a technique. It can be argued that SEM combines factor analysis and multiple regression analysis (Tabachnick and Fidell, 2007). For example, a researcher could perform CFA, and run the path analysis to find the relationship between variables. In this thesis, two CFAs were performed and the relationship between the variables was tested based on the best fitting structural model (latent variables path analysis). The next section will provide a brief description of the steps taken for confirmatory factor analysis.

4.3.5.2.1   *Confirmatory Factor Analysis*

The second form of factor analysis is confirmatory factor analysis (CFA). CFA is the process of testing the hypotheses about structure or relationships of the latent variables (Field, 2013; Byrne, 2000). Moreover, CFA is carried out to confirm that the developed models (*measurement* and *structural* model) provide a good fit, which is the prerequisite for the validity of the hypotheses testing result. The overall fit of the model can be examined by referring to a single fit index or number of fit indices. However, scholars have argued that a researcher should not rely solely on a single fit index, but compare several fit indices (Byrne, 2000). The most widely used fit index for identifying model fit is the Chi-Square (χ^2). The test indicates that a non-significant value (p>.000) signifies that the model fits the data. However, this approach has been criticised by the scholars as it is sensitive to sample size.

To overcome this issue, Byrne (2000) suggested that several model fit indices should be considered together, preferably the combination of *absolute fit* and *incremental fit indices*. Absolute fit indices measure how well the model or theory explains the data (Kline, 2016; Kelloway, 2015). These fit indices presume that the fittest model has a fit of zero, implying that the closer to zero the fitter a model. The indices in the absolute fit category are classified as 'absolute' because they do not make any attempt to compare the value with any alternative model (Byrne, 2000).

On the other hand, increment fit indices are concerned with the improvement in fit of the current model with a baseline model (Kline, 2016; Kelloway, 2015). The most common baseline model specifies no relationships between the variables (and is known as the null model). For example, if a model achieved the comparative fit index (CFI) of .90, the result implies that the current model is 90% better fitting than the null model (Kelloway, 2015). Table 4.1 summarises the model fit indices used for this thesis.

Table 4.1: Model Fit Indices

Fit Index	Description	Acceptable Value
Absolute Fit Indices		
CMIN/DF χ^2/degrees of freedom	The value of Chi-square index divided by the degrees of freedom. Smaller value indicating a better fit to the data.	<3 Good Fit <5 Adequate Fit
Standardised Root Mean Squared Residual (SRMR)	Standardised summary of the average covariance residual. Smaller value indicating a better fit to the data.	<.05 Good Fit <.08 Adequate Fit
Root Mean Squared Error of Approximation (RMSEA)	Interpretation of the Chi-square value adjusted for the sample size. Smaller value indicating a better fit to data.	<.05 Good Fit <.08 Adequate Fit
PClose	The significance test of the RMSEA value by examining the differences between the obtained value from 0.05.	$p > .05$ = Good fit, $p < .05$ = No fit
Incremental Fit Indices		
Comparative Fit Index (CFI)	Compares the fit of the current model to the fit of a baseline or null model. Larger value indicating better fit of data.	>.90 Good Fit >.80 Adequate Fit
Tucker-Lewis Index *(TLI)*	Capture the percentage of improvement of the current model over the baseline model. This index recognises that improvement of a model can be achieved by adding parameter, however it penalises complex model. Larger value indicating better fit of data.	>.90 Good Fit >.80 Adequate Fit
Bollen's Incremental Fit Index (IFI)	Consistent with CFI and IFI. Larger value indicating better fit of data.	>.90 Good Fit >.80 Adequate Fit

4.3.5.2.2 Model Reliability and Validity

The final stage before the hypotheses testing is to measure the validity and reliability of the model. The reliability and validity of the model and constructs were tested based on four statistical tests: Cronbach's alpha (α), composite reliability (CR), average variance extracted (AVE) and average shared variance (ASV). Typically, the internal consistency is measured using Cronbach's Alpha, while CR is computed to evaluate the reliability of the latent variable while considering the score variances and co-variances (including measurement errors). The suggested cut-off for Cronbach's alpha is 0.7, while the suggested cut-off for CR is 0.8 (Hair et al., 2014b; Field, 2013). AVE is tested to evaluate the *convergent validity,* or the extent to which the items (observed variables) correlated with other items within a common or same factor, while ASV is tested to estimate the *discriminant validity*, or the extent to which the items of a factor (latent variable) correlated with other factors. The cut-off for AVE is 0.7, while there is no cut-off value for ASV (however ASV value should be higher than AVE value).

4.3.5.2.3 Latent Variables Path Analysis

The hypotheses for quantitative data were tested using latent variables path analysis (also known as the hybrid model). The ultimate advantage of SEM is the ability to incorporate measurement and structural models derived from the CFA for subsequent analysis, hypotheses testing (Kelloway, 2015). Latent variables path analysis can be viewed as the synthesis of measurement model and path analysis (Kline, 2016). Kline (2016) further explained that the path model is assumed to be measured without error, which does not typically happen in practice. On the other hand, latent variables path analysis depicts the same basic pattern of causal effects, accompanied by error measurement terms. By using the confirmed and validated structural model from the CFA, the relationships between the latent variables were tested based on the following main steps:

i)   testing the relationships between SCL and governance mechanism;

ii)   testing the relationships between governance mechanisms and SP;

iii)   testing the relationships between SCL and SP;

iv)   testing the indirect relationships between SCL and SP; the mediating role of governance mechanisms.

4.4 Semi-structured Interview

As discussed earlier, semi-structured interviews were used to collect qualitative data. Interviews have been identified as the most widely used method in qualitative research (Bryman and Bell, 2015). Nonetheless, in the field of social science, an interview method is considered as the most widespread knowledge and theories-generating practice (Brinkmann, 2014). An interview method provides flexibility in gathering informants' experience and opinion. In general, an interview can be defined as:

> *"talking with a participant about the topic of research, but rather than using pre-set questions, the interviewers and the interview are guided by a set of general themes" (Walter 2010, p. 290).*

There are three main types of interviews namely structured, unstructured and semi-structured interviews (Bryman and Bell, 2015). A structured interview is typically conducted based on strict pre-determined questions. A structured interview is common in survey research, where less clarification needed from the informants (Berg, 2014). On the other hand, an unstructured interview is the most flexible interview method. An unstructured interview tends to be unstandardised and more exploratory in nature (Bryman and Bell, 2015; Walter, 2010). This provides more in-depth, rich and detailed information on the research phenomenon to the interviewers.

The third type of interview method is represented by semi-structured interview (which was utilised in this thesis). Using a semi-structured interview, an interviewer typically refers to a list of questions on specific topic, which is also known as interview guide or protocol (Bryman and Bell, 2015). At the same time, the interviewer is allowed to ask additional questions, depending on their discussion with the informants during the interview sessions. According to Walter (2010), although a semi-structured interview is less standardised compared to a survey (or structured interview), it is crucial to develop the research protocol prior to interviewing the informants. This is to ensure that the intended interviews' objectives are fulfilled by covering the necessary questions (Walter, 2010).

There are several advantages of utilising semi-structured interviews in collecting qualitative data. Unlike a survey method, an interview method allows researchers or interviewers to have an in-depth understanding of informants' responses (Bryman and

Bell, 2015; Berg, 2014). Furthermore, interviewers are able to explain complex questions to the informants, resulting in more accurate and comprehensive findings. Nonetheless, direct interactions between interviewers and informants during the interview sessions (either face-or-face or via telephone) could lead to more sincere discussions (Brinkmann, 2014). However, conducting interviews is a time consuming and costly activity, compared to survey method. Due to this, the sample size is relatively small, affecting the generalisability of the findings. An interview method is also subject to geographical restrictions.

As mentioned earlier, this thesis relies on a convergent mixed-method research approach, where both datasets (quantitative and qualitative) were collected simultaneously and in parallel. As such, the research approach is completely deductive, semi-structured interviews were used to capture informants' views on pre-determined themes or variables: SCL, governance mechanisms and SP.

4.4.1   Interview Protocol

The research protocol for semi-structured interviews adopted by this thesis was discussed with the supervisory team starting from July 2016. The interview protocol is necessary to maximise the reliability of the interview (the replicability of the research) (Yin, 2014; Amaratunga et al., 2002). Discussions included: the purpose of adopting qualitative interviews as a supplementary method; the scope of the interviews; access to the informants; timing for the fieldwork; potential interview questions. The supervisory team extensively reviewed the protocol and the interview questions were revised several times.

In February 2017, in order to ensure content validity, two industry experts and two academics with expertise in supply chain management were contacted for pre-testing and piloting the interview questions. The feedback received from the supervisory team and pilot test was employed in order to refine the interview questions. Piloting the interview protocol is crucial to ensure that all necessary information and details can be covered during the actual data collection (Tob-Ogu et al., 2018). The main concern emerging from this phase was related to the number of questions in the initial draft, which was deemed too high; serious doubts were raised about the possibility to complete the interview within the hypothesised 30-minute timeframe. Thus, the

number of questions to be included in the final set was significantly reduced. Also, questions were rewritten in order to be more generic and in an attempt to facilitate the response from the informants, in such a way to get more insights about their experience (Tob-Ogu et al., 2018; Miles et al., 2014).

Interview questions were designed as *guidelines* in order to ensure that all possible themes or variables were dealt with in the interviews. Table 4.2 shows the interview questions for suppliers and buying firms. The set of interview questions was approved by the supervisory team and ready for actual data collection in May 2017.

Table 4.2: Interview Questions

Potential Theme	Questions
SP	a. Do you keep track of your / your major suppliers' performance? If yes, across what measures?
	b. Comparing to industry benchmark, what is the recent performance level of your firm / your major suppliers including forward (such as cost, financial, quality, order fulfilment and delivery) and reverse performance (such as sustainability, remanufacturing, recycling and refurbishment)?
SCL	a. Is your firm / buying firm using motivation and encouragement (transformational) or reward and punishment (transactional) towards your major suppliers? If yes, how?
	b. Is your firm / buying firm using different leadership styles (transformational vs transactional) for different suppliers? Do you have examples on this?
Trust	a. What is the current state of trust between you and your immediate buying firm (based on 1 (poor) to 7 (excellent) scale)?
	b. Is your trust on buying firm / major suppliers important in your relationship with them (based on 1 (strongly disagree) to 7 (strongly agree) scale)? Could you expand on that point?
	c. Does your trust on your buying firm / major suppliers influence your performance? If yes, how?
Contract	a. Is your firm / buying firm using contract (or legal threat) in influencing your major suppliers? Do you have examples on this?
	b. Is it important for your firm / buying firm to exhibit legal / contractual power in their relationship with your firm (based on 1 (strongly disagree) to 7 (strongly agree) scale)? Could you expand on that point?
	c. Does the legal / contractual power exhibited by your firm / the buying firm influence your major suppliers' / your performance? Could you expand on that point?
Concluding Questions	a. Do you think buying firm's leadership styles influence your performance? If yes, how?

4.4.2 Informants Selection

Similar to the quantitative approach, the informants for qualitative experts' interviews were selected using purposive sampling. The details of the informants were retrieved from the Federation of Malaysian Manufacturers (FMM) directory. The list of

potential informants in the FMM directory was reviewed based on the following selection criteria:

    i) Only top or middle management level (such as Chief Executive Officer, Managing Director, Director, or Manager) should be selected.

    ii) The informants must be responsible for production, manufacturing, or firms' overall operations (such as Director of Operations, Director of Supply Chain, Head of Supply Chain, Production Manager, or Operations Manager).

    iii) The informants must have knowledge on buyer-supplier relationships and be able to explain the relationships of their firms with other supply chain members, either buying firms or suppliers.

The potential informants were identified based on their positions in their firms. Similar to the approach used in the survey method, this was to ensure that the informants were knowledgeable on their firms' operations and able to explain the relationships between the buying firms and suppliers (Seppanen et al., 2007). The potential informants for the interviews were screened starting from 2nd May 2017. All potential informants were contacted through emails or telephone in order to ask for their willingness to participate in the interviews. The researcher had also contacted the potential informants' secretaries to request appointments for the interviews. However, in contrast to the quantitative approach, the interviews were conducted based on two perspectives. For example, while asking the suppliers on the leadership behaviours of their buying firms, they were also asked about their leadership behaviours towards their immediate suppliers. With this approach, the output and value gained from the interviews was maximised while at the same time more information was retrieved.

The potential informants and / or their secretaries were contacted at least two times to schedule the appointments. They were informed that the interview will be around 30-40 minutes each. The interview questions, information sheet and consent form were attached in the email to the potential informants and / or their secretaries to ensure that they were well informed on the scope, topic and coverage of the research. The final sample of the qualitative interviews consisted of 28 informants from 25 firms who agreed to be interviewed. In order to get a holistic and comprehensive understanding of the phenomenon, the final sample consists of suppliers (13 firms) as well as focal

firms (12 firms). This was to ensure that the consistency and potential divergence between the perceptions of both parties towards SCL, governance mechanisms and SP can be covered.

4.4.3   Interview Process

Once the appointments were confirmed through emails or telephone calls, the initial step was to study the background of the informants and their firms. This was to ensure that the questions asked in the interviews were relevant to them. Moreover, this was to ensure that the researcher had information on their supply chain activities for example the product manufactured, number of suppliers or buying firms (customers), types of suppliers or buying firms (such as local or overseas suppliers) and their supply chain positions (such as focal firm, tier-1, tier-2 or tier-3). By having adequate information on their firms' profile, the interview was expected to be conducted more efficiently as the number of relevant questions asked in the interview could be maximised.

During the interview, the first step was to explain the consent form to the informants. The content of the consent form was kept to:

i)   acknowledge informants' right to withdraw from the interview at any point of time;

ii)   reassure confidentiality and anonymity of the informant, to ask for their permission for the data to be used for research;

iii)   ask their consent for the interview; and

iv)   formally ask for the interview to be recorded (using digital voice recorder and mobile phone).

This was to ensure that the informants were given the right information about the research and their rights. The consent form was read to the informants and their signatures were recorded on the forms. The original forms were kept by the researcher while the copies of the forms were kept by the informants. The interview started with the introduction of the researcher's background and research. The following was the opening statement and introduction of the interview, designed to assist informants in detailing their experience of the relationships between their firms and their suppliers *or* buying firms:

> *"Thank you for accepting my invitation for this interview. The main purpose of my research is to examine the impact of buying firms' leadership behaviours towards suppliers' performance. In other words, I am trying to look into how a buying firm is able to lead their upstream suppliers towards better performances."*

The interviews were conducted over an 11-week period (approximately 3 months), starting 7th July 2017. All interviews were undertaken in a face-to-face mode, involving the researcher and the informants. Interviews were held at several places, at informants' convenience, including their offices and cafes. Interviews were recorded using two electronic devices: (i) digital voice recorder and (ii) mobile phone. Informants' consent for voice recording were obtained *officially in writing* prior to recording the interviews. Written notes were also taken during the interviews to ensure that important information and expressions by the informants were properly captured.

4.4.4   Qualitative Data Analysis

4.4.4.1   Translation and Transcription

The analysis of the interviews commenced as soon as the first interview had been held. Out of 25 interviews, 17 interviews were conducted in English, with the remaining ones in Bahasa Malaysia (Malaysian language). The first step of the data analysis was translating all interviews in Bahasa Malaysia into English. Although translating the interviews could lead to the loss of meaning, this can be minimised if the translation is done by the interviewer (Xian, 2008; Temple and Young, 2004). Translating interview data is beneficial for the purposes of publishing the journal article or writing a dissertation (Bryman and Bell, 2015). Furthermore, translating the interview data was crucial as descriptive, content and thematic analysis had to be conducted. This was also ensuring the consistency for the coding phase in the future.

The second step was transcription of the interviews. Interviews were transcribed as soon as possible referring to the digital voice recorder or mobile phone recording, and the written notes. Interview transcription was a necessary process as this could facilitate the upcoming data analysis where the text needs to be re-read to identify the codes, themes and produce a final report. Interviews were transcribed using a *verbatim* approach (literally word-by-word), as the accuracy of the transcription represents one of the critical elements prior to analysing the data. The relevancy of the words and sentences were not examined or critiqued during the transcription. This is to ensure

that all the vital information was captured and available for the subsequent analysis phase. Pauses and extraneous sounds such as *"erm"* or *"ah"* were excluded from the transcriptions. The interviews were transcribed using Microsoft Word and NVivo V12 software. In order to improve the reliability of the data, some of the transcriptions were sent to the respective interviewees for validation. The interview data (transcriptions and audio) were stored in the NVivo V12 software, which provided additional support for coding, quantifying, managing and analysing data.

4.4.4.2   *Thematic Analysis*

A thematic analysis technique was adopted in order to analyse the qualitative data (interviews). As this thesis is based on a deductive approach, a deductive thematic analysis was selected. While inductive thematic analysis is based on the process of identifying themes from the raw information, in a deductive thematic analysis themes identification is based on theory or prior research (Braun and Clarke, 2006; Boyatzis, 1998). Using pre-determined themes or constructs based on established theories improve the internal and construct validity of the research (Amaratunga et al., 2002). Braun and Clarke's model of thematic analysis was used as the foundation to direct the data analysis. The thematic analysis steps or phases suggested by Braun and Clarke (2006) are:

i)   Data familiarisation;

ii) Initial coding generation;

iii) Themes searching;

iv) Themes reviewing;

v)   Themes definition and labelling; and

vi) Report writing

The first step, data familiarisation, plays an important role in thematic analysis. This is one of the reasons why the data from the interview had to be transcribed. This is to ensure that the researcher becomes involved actively with the data. Ideally, the data should be transcribed. The transcription should be carefully read and the preliminary understanding should be noted. This is not the issue for the researcher in this thesis as he conducted and transcribed the interviews himself which allowed him to be involved with the data from the beginning of the process. The transcriptions were read over a

number of times to ensure that the researcher was familiar with the interview data. Initial ideas and assumptions were noted on the hardcopy of the transcription.

The second step is related to the generation of initial codes. Similar to theme identification, code generation can be inductive (which is also known as data-driven) or deductive (theory-driven). The latter technique allows the code generation based on pre-determined codes, theory or specific questions. This is the main approach to code generation used in this thesis. As shown in Table 4.3, the codes were based on the pre-determined dimensions or characteristics of the constructs (which were later considered as themes in the qualitative study). This was also to ensure that the measures for quantitative and qualitative studies are comparable (construct validity). Based on the pre-determined codes, the themes were identified and reviewed (steps 3 and 4). In step 5, themes and codes were defined, and the descriptions were stated in order to ensure consistency during the coding phase. Furthermore, the themes and sub-themes for SCL constructs were also consistent with the recent study on SCL by Jia et al. (2018). The interview data were subject to line-by-line coding to ensure important information was not overlooked.

Table 4.3: Code Book

Themes	Sub-themes / Codes	Description
Transformational SCL	Idealised Influence	A buying firm acts and behaves in ways that their supply chain members will see them as a role model. It includes their ability to lead by example, which results in their being admired, respected and trusted by supply chain members.
	Inspirational Motivation	The ability of a buying firm to motivate and inspire their supply chain members by providing meanings and suggestions. By demonstrating motivational and inspirational concepts in buying firm's leadership style, they will be able to generate team spirit, enthusiasm and optimism among their suppliers.
	Intellectual Stimulation	The ability of a buying firm to stimulate followers' intellectual capacity to be more innovative and creative. There are a few ways of stimulating supply chain members' intellectual capacity including questioning assumptions, reframing and redefining problems or issues, and providing new ways of approaching old practices.

	Individualised Consideration	A buying firm also focuses on followers' individual needs, particularly for achievement and growth. Followers' individual needs can be achieved in several ways including the leader acting as a coach or mentor. Individualised consideration is important in promoting new learning opportunities for the suppliers.
Transactional SCL	Contingent Reward	By using this method, a buying firm will assign suppliers, and agree on goals and objectives with potential rewards or punishment, or actual rewards or punishment in exchange for attaining the assigned levels.
	Management-by-Exception (Active)	In an active management-by-exception practice, a buying firm tends to actively monitor deviances in members' assignment and take corrective action if necessary.
Laissez-Faire SCL	Management-by-Exception (Passive)	A buying firm who uses passive management-by-exception, they tend to passively wait for deviances to occur and then proceed with corrective action.
	Laissez-Faire	A buying firm that avoids making decisions and ignores their responsibility in supply chain activities or relationships.
Suppliers' Trust		Suppliers' belief that buying firms will act consistently to what they promise to do. Trust can be considered as the confidence that a supplier has on its buying firms and its willingness to rely on them.
Contractual Governance		The ability of a buying firm to use contractual or legal agreement to influence supply chain members.
Supplier's Performance	Cost	Cost efficiency is important in supply chain environment as most of the organisations are striving to achieve higher productivity which leads to a higher profit margin and financial sustainability. Several metrics that have been used in measuring cost efficiencies such as net profit, productivity ratio, return of investment, cost-saving, resource cost and inventory turnover.
	Quality	Quality concerns are not solely tilted towards the end products or services but also related to the whole supply chain processes and activities. For example, the quality of communication is crucial to ensure that the suppliers are receiving accurate information such as production forecasting or production downtime. There are few metrics that have been used to quantify supply chain quality including defect-free rate, rejection rate, complaint rate and product quality.
	Flexibility	The ability of an organisation to reassess and relocate their scope, process, resource and capability to meet uncertain customers' demand and business competition.
	Delivery	The ability of an organisation to deliver the products accurately and on-time. Late delivery can lead to the issue of production downtime which also contributes to overall performance.

	Reverse	These activities can be an open-loop process, where the materials or products are retrieved and reused by the other parties than the original manufacturers, or a closed-loop process that involve the activities of retrieving the products from the consumers and returning them back to the original manufacturers for recycling, reuse or refurbishment

Finally, the report was generated to present the findings. The demographics, descriptive, saliency and thematic analyses were conducted in order to present and discuss the findings. Demographic analysis was useful for reviewing the profile of the informants. Elements of a descriptive analysis (mostly content analysis) were employed in order to identify patterns in the interview data, including: words frequency, number of references for each informant and number of codes. Saliency analysis was useful to assess the degree of recurrence or importance of a code. Finally, the thematic analysis was used to explain the themes and their potential relationships with other themes.

4.5   Chapter Summary

This chapter explained the research methodology adopted in this thesis. By drawing upon a positivist research epistemology and objective ontological perspective, this thesis used deductive theory testing as the research approach. This chapter has also provided a brief explanation of the quantitative research design, data collection method, sample and unit of analysis, and the context of the study. Accordingly, the questionnaire survey items were presented and justified. This chapter has also provided the description and explanation of the steps taken for the data analysis, including the structural equation modelling and thematic analysis.

In general, this thesis adopted a convergent mixed methods research design. Quantitative and qualitative data were collected and analysed independently in order to triangulate the findings. Hypotheses developed in Chapter 3 (Theoretical Framework and Research Hypotheses) were tested using SEM for the quantitative data (Chapter 5). Further investigation on the hypotheses was also conducted through qualitative data, by using thematic analysis to find patterns between constructs or themes (Chapter 6). Findings were discussed and merged in Chapter 7 (Discussion).

CHAPTER 5

QUANTITATIVE ANALYSIS AND FINDINGS

The previous chapter explained and justified the research philosophy and research methodology adopted for this thesis. This chapter attempts to explain the research analysis processes and proceeds with the illustration of findings. This chapter starts with discussing the response rate and data screening procedures (including missing data, outliers, normality and collinearity tests). Furthermore, a section is devoted to presenting a descriptive analysis, mainly the demographics profile of the respondents. This chapter will then provide the results of inferential analysis in two separate sections: (i) exploratory factor analysis, and (ii) confirmatory factor analysis. Finally, the results of the direct relationships between supply chain leadership (SCL) and governance mechanisms; governance mechanisms and suppliers' performance (SP); and SCL and SP are presented. The analysis of indirect relationships between SCL and SP through governance mechanisms is also presented. This chapter ends with the summary of the hypotheses testing results.

5.1 Data Editing, Clean-up and Screening

After four months of actively conducting the field work (5th June 2017 to the 6th October 2017), a total of 225 responses out of 830 targeted respondents were collected. After one and a half months of data cleaning process, 35 responses were eliminated for the final sample. Twelve responses were excluded as they were from focal firms in their respective supply chain and not from suppliers (as the main focus of the study was to examine the role of SCL on SP). The remaining 23 responses were excluded as they contained an extreme amount of missing data and were considered as incomplete responses. The final number of usable responses employed for the analysis was 190, resulting in a response rate of 23%. Non-response bias was tested using a t-test, revealing there was no significant difference of the mean scores of the early and late responses. Prior to analysing the data, data screening was considered as one of the most crucial steps to be carried out. The preliminary analysis and preparation were needed to ensure the accuracy of the subsequent data analysis. The screening processes

utilised in this thesis includes missing data checking, outlier detection, normality testing and multi-collinearity testing.

5.1.1 Missing Data

In order to assess validity, each response was individually reviewed by the researcher. Any responses with an extreme amount of missing data (more than 5%) was excluded from the analysis. As this thesis has employed two methods in distributing the survey questionnaires (online and during supplier events), the missing data issue was expected. There are three common approaches in dealing with missing data, namely: list-wise deletion, pairwise deletion and mean substitution. The list-wise deletion approach allows the researcher to delete incomplete responses by excluding the cases with missing scores from the analysis (even if they only missed one item) (Field, 2013). Second, the pairwise deletion approach excludes only the variable that contains missing data (Field, 2013). For example, if the respondent missed one item, their data for this variable will be excluded, which mean that the rest of the data for other variables can be used in other analyses. The final alternative is by replacing the missing score with the mean or average score for the variable (also known as mean substitution) (Field, 2013). For this thesis, the third approach, mean substitution was used as the approach to deal with missing data as it allows to keep as many responses as possible.

5.1.2 Outliers Detection

A value or score that is significantly lower or higher compared to the other values in the dataset is considered as an outlier (Pallant, 2016). As most of the statistical techniques are sensitive to outliers, it is crucial to examine the dataset and evaluate the extent of outlier influence on the overall mean value. Outliers can be detected by running the descriptive analysis using SPSS and checking the minimum and maximum value, mean, standard deviation, histogram or boxplots. Moreover, the dataset should be checked to ensure that there is no data entry error (for example, typing 77 instead of 7) that contribute to the outlier issue. If a severe outlier is detected, then the case (response) can be removed or data can be transformed. Moreover, even the score can be changed, however this is the most debatable approach (Field, 2013). For this thesis, two main approaches in detecting outliers were used which are (i) examine the boxplot and (ii) compare the mean value of the item with its 5% trimmed mean (Pallant, 2016).

First, the descriptive and exploratory analyses in SPSS were executed and the boxplot outputs were examined. Boxplots allow researcher to identify the potential outliers in their dataset. For example, as shown by Boxplot A in Figure 5.1, there were no outliers detected for the item 'sales turnover' (CP3). Whereas Boxplot B shows that seven potential outliers were detected for the item 'cost of remanufacturing, replenishment and reproduction of returned products' (RP4). Each boxplot for every item in the questionnaire was observed and examined to detect potential outliers. Once a potential outlier was identified (for example, outliers in RP4) the second step, mean comparison, was conducted. The main reason of the mean comparison step is to compare the mean value of the items with its 5% trimmed mean value to see the influence of the potential outlier on the mean. The 5% trimmed mean value is retrieved by recalculating the mean with the exclusion of the 5% highest and the 5% lowest scores. If there are no significant changes on the mean value, it can be assumed that the potential outlier has no effect on the overall mean and the response should not be removed, transformed or modified.

Boxplot A: Without Outliers (CP3)

Boxplot B: With Outliers (RP4)
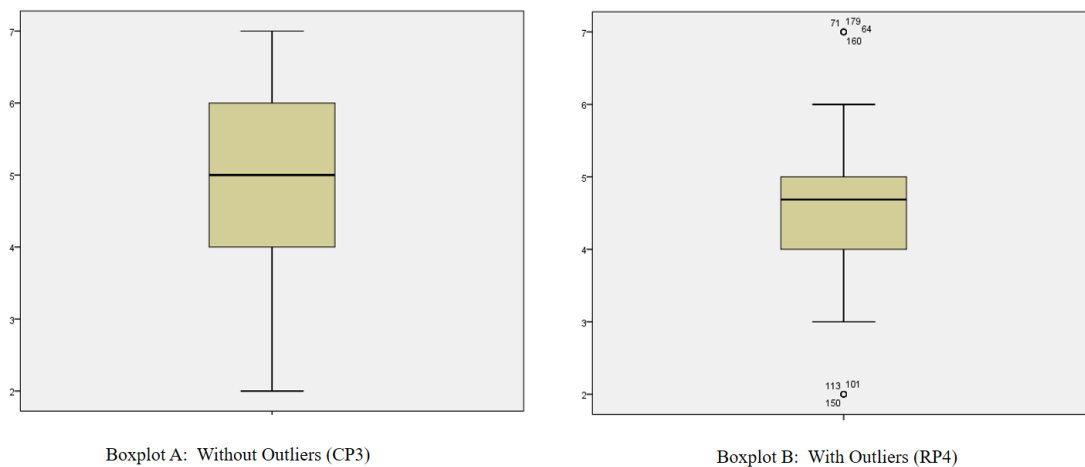
Figure 5.1: Boxplot Comparison

As shown in in Table 5.1, the mean value for RP4 was 4.69 while the 5% trimmed mean value was 4.71. Thus, the outliers had no significant effect towards the mean. A similar situation was observed for the whole dataset, and so it can be concluded that the dataset used for this thesis was not suffering from extreme outliers and no response was removed, transformed or modified.

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Table 5.1: Mean Value vs 5% Trimmed Mean Value for RP4

			Statistic	Std. Error
Cost of remanufacturing, replenishment and reproduction of returned products	**Mean**		**4.69**	.078
	95% Confidence Interval for Mean	Lower Bound	4.53	
		Upper Bound	4.84	
	5% Trimmed Mean		**4.71**	

5.1.3 Normality Test

The distribution of scores for each item in the questionnaire can be assessed by conducting descriptive analysis on skewness and kurtosis. Skewness provides information regarding the symmetry of the distribution, whereas kurtosis is concerning about the peak of each scores (Field, 2013; Tabachnick and Fidell, 2007). The data was screened for the potential of non-normality based on the skewness and kurtosis values. The dataset did not contain an extreme normality issue as the absolute value for skewness and kurtosis indices were within the range of [-2, +2] (Gunasekaran et al., 2017; Curran et al., 1996). The skewness and kurtosis values of all the items are presented in Table 5.2.

Table 5.2: Skewness and Kurtosis of the Questionnaire Items

Items	Skewness		Kurtosis		Items	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error		Statistic	Std. Error	Statistic	Std. Error
CP1	-0.423	0.176	-0.147	0.351	TR4	-0.543	0.176	0.096	0.351
CP2	-0.290	0.176	-0.412	0.351	TR5	0.334	0.176	-0.611	0.351
CP3	-0.271	0.176	-0.479	0.351	TR6	-0.516	0.176	0.113	0.351
CP4	-0.343	0.176	-0.115	0.351	TR7	-0.547	0.176	0.118	0.351
QP1	-0.630	0.176	-0.054	0.351	TR8	-0.527	0.176	0.022	0.351
QP2	-0.613	0.176	-0.283	0.351	TR9	0.192	0.176	-0.840	0.351
QP3	-0.755	0.176	0.046	0.351	TR10	-0.478	0.176	-0.048	0.351
QP4	-0.971	0.176	0.754	0.351	TR11	-0.761	0.176	0.678	0.351
TP1	-0.873	0.176	0.595	0.351	TR12	-0.847	0.176	0.760	0.351
TP2	-0.807	0.176	0.098	0.351	CON1	-0.628	0.176	0.281	0.351
TP3	-0.825	0.176	0.208	0.351	CON2	-0.572	0.176	0.251	0.351
TP4	-0.702	0.176	0.677	0.351	CON3	-0.705	0.176	0.969	0.351
TP5	-0.796	0.176	0.283	0.351	TFL1	-0.783	0.176	0.759	0.351
FP1	-0.806	0.176	0.794	0.351	TFL2	-0.685	0.176	0.756	0.351
FP2	-0.847	0.176	1.100	0.351	TFL3	-0.767	0.176	0.805	0.351
FP3	-0.568	0.176	0.086	0.351	TFL4	-0.735	0.176	0.497	0.351
FP4	-0.577	0.176	0.286	0.351	TFL5	-0.703	0.176	0.360	0.351
RP1	-0.429	0.176	0.101	0.351	TFL6	-0.634	0.176	0.334	0.351
RP2	-0.241	0.176	-0.042	0.351	TFL7	-0.672	0.176	0.386	0.351
RP3	-0.151	0.176	-0.278	0.351	TFL8	-0.672	0.176	-0.268	0.351
RP4	-0.214	0.176	-0.035	0.351	TFL9	-0.553	0.176	0.278	0.351
RP5	-0.498	0.176	0.229	0.351	TFL10	-0.859	0.176	1.108	0.351

RP6	-0.343	0.176	0.280	0.351	TSL1	-0.799	0.176	0.470	0.351
RP7	-0.240	0.176	0.064	0.351	TSL2	-0.794	0.176	0.507	0.351
RP8	-0.033	0.176	-0.094	0.351	TSL3	-0.941	0.176	0.767	0.351
RP9	-0.171	0.176	0.373	0.351	TSL4	-0.884	0.176	0.538	0.351
RP10	-0.368	0.176	0.713	0.351	TSL5	-0.992	0.176	0.724	0.351
RP11	-0.757	0.176	0.726	0.351	TSL6	-0.921	0.176	0.512	0.351
RP12	-0.332	0.176	-0.720	0.351	TSL7	-0.879	0.176	0.397	0.351
RP13	-0.466	0.176	0.065	0.351	TSL8	-0.762	0.176	0.330	0.351
TR1	-0.794	0.176	0.323	0.351	TSL9	-0.685	0.176	-0.143	0.351
TR2	-0.741	0.176	0.188	0.351	TSL10	-0.662	0.176	0.037	0.351
TR3	-0.665	0.176	0.056	0.351					

5.1.4   Multi-collinearity Test

The final screening test for the dataset is multi-collinearity test. The multi-collinearity should be tested before further analysis is conducted to ensure that two or more independent variables are not closely related (linearly) and are not predicting each other (Field, 2013; Tabachnick and Fidell, 2007). This is to ensure that the variables are not redundant. For example, transformational SCL should not predict transactional SCL; otherwise, this would mean that both are measuring the same thing. In order to test the multi-collinearity, the tolerance value and Variance Inflation Factor (VIF) were examined. If the tolerance value is less than .10 and the VIF value is more than 10, this is suggesting that there is an issue of multi-collinearity (Field, 2013). As shown in Table 5.3, the multi-collinearity was not observed in the dataset for this thesis. More simply, it can be concluded that each independent variable was measuring different things.

Table 5.3: Multi-collinearity Test

Dependent Variable	Independent Variables	Tolerance	VIF
Transformational	Transactional	1.000	1.000
	Laissez-Faire	1.000	1.000
Transactional	Laissez-Faire	.991	1.009
	Transformational	.991	1.009
Laissez-Faire	Transformational	.447	2.235
	Transactional	.447	2.235

5.2   Demographic Profile

This section provides a demographic analysis of the research sample. The main purpose of demographic analysis is to comprehend and evaluate the homogeneity, diversity and representativeness of the sample. Table 5.4 shows the locations of the respondents' firms. The demographic analysis depicted that the majority of the firms

were located in the central region of Malaysia (Kuala Lumpur, Selangor, Putrajaya and Negeri Sembilan) (58.4%).

Table 5.4: Firms' Locations

	Frequency	Percent
Central Region: Selangor, Negeri Sembilan, Kuala Lumpur, Putrajaya	111	58.4
Northern Region: Perlis, Kedah, Penang, Perak	29	15.3
Southern Region: Malacca, Johor	25	13.2
East Coast Region: Kelantan, Terengganu, Pahang	18	9.5
East Malaysia: Sabah, Sarawak, Labuan	7	3.7

As illustrated in Table 5.5, 71.6% of the respondents were working in large (more than 200 employees) and medium (76-200 employees) sized firms. The categorisation of the firms' size was based on the official definition of enterprises provided by the SME Corporation of Malaysia (2018). Furthermore, 35.3% of the respondent firms' annual turnover was RM300,001 - RM15 million, followed by more than RM50 million (33.7%) and RM15.1 million – RM50 million (27.4%). Only 3.7% of the respondents acquired less than RM300,000 annual profit. In addition, 57.4% of the companies responded to the survey were privately owned. Furthermore, almost half of the respondents (42.6%) were working in firms that have been operating for more than 20 years. It is followed by firms that have been operating for around 11-15 years (20%), 1-5 years and 16-20 years (12.6% respectively), 6-10 years (11.1 %) and finally, less than 1 year (1.1%).

Table 5.5: Firms' Characteristics and Background

	Frequency	Percent
Firm's Size		
Micro (less than 5 employees)	3	1.6
Small (6-75 employees)	51	26.8
Medium (76-200 employees)	68	35.8
Large (more than 200 employees)	68	35.8
Annual Turnover		
Less than RM300,000	7	3.7
RM300,001-RM15 million	67	35.3
RM15.1 million - RM50 million	52	27.4
More than RM50 million	64	33.7
Firm's Operating Experience		
<1 Year	2	1.1
1-5 Years	24	12.6
6-10 Years	21	11.1
11-15 Years	38	20.0
16-20 Years	24	12.6
>20 Years	81	42.6
Ownership		
Private ownership	109	57.4
Fully Foreign-Owned Company	32	16.8
Public ownership / State-Owned Enterprise	22	11.6
Local and Foreign Joint-Venture	22	11.6

Government-Linked Company (GLC)	4	2.1
Local Joint-Venture	1	0.5

Table 5.6 depicts that the respondents were working in 16 different sectors; the highest represented sectors were automotive (22.1%), electrical and electronics (16.8%), metal and machinery (15.3%), rubber and plastics (13.7%) and chemical (8.4%).

Table 5.6: Manufacturing Sectors

	Frequency	Percent
Automotive	42	22.1
Electrical and Electronics	32	16.8
Metal and Machinery	29	15.3
Rubber and Plastics	26	13.7
Chemicals	16	8.4
Others (Multiple Industries / Sectors)	12	6.3
Oil and Gas	8	4.2
Textile	5	2.6
Packaging and Printing	5	2.6
Food and Beverages	4	2.1
Agriculture	3	1.6
Steel	3	1.6
Furniture	2	1.1
Pharmaceutical	1	0.5
Tobacco	1	0.5
Toys	1	0.5

Furthermore, Table 5.7 illustrates that half of the respondents (53.2%) were working in a middle management position (senior general manager, general manager, senior manager or manager) in operations, production, research and development, sales or marketing divisions. 35% of the respondents belonged to the senior management team (President, Chief Executive Officer, Chief Operating Officer, Managing Director or Director) while 11.1% were lower management staff (Engineer, Supervisor, Team Leader). The majority of the respondents had 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%).

Table 5.7: Respondent's Position and Experience

	Frequency	Percent
Respondent's Position		
Middle Management (Senior General Manager, General Manager, Senior Manager, Manager of Operations, Production, R&D, Sales or Marketing)	101	53.2
Senior Management (President, Chief Executive Officer, Chief Operating Officer, Managing Director, Director)	68	35.8
Lower Management (Engineer, Supervisor, Team Leader)	21	11.1
Respondent's Experience in the Firm		
More than 10 years	82	43.2
2-5 years	60	31.6

6-10 years	39	20.5
Less than 1 year	9	4.7

Finally, the majority of the respondents (63.2%) were working in Tier-1 firms while 23.7% in Tier-2 and 13.2% in Tier-3. 95.3% of the respondents stated that they were normally interacting with the focal firms (Table 5.8).

Table 5.8: Firm's Position and Interaction in the Supply Chains

	Frequency	Percent
Firm's Position in the Supply Chain		
Tier 1 (Direct Suppliers to the focal firm / Components Suppliers e.g: Denso, Continental, Sensata Technologies)	120	63.2
Tier 2 (Sub-Components Suppliers to Tier 1 suppliers that then supplies them to focal firm)	45	23.7
Tier 3 (Raw materials suppliers e.g: Steel, Plastic, Glass, Rubber)	25	13.2
Interaction with Focal Firm		
Yes (Interact with focal firm)	181	95.3
No (No interaction with focal firm)	9	4.7

5.3   Exploratory Factor Analysis

The benefit of carrying out EFA prior to conducting the examination of the model fit through CFA is that it provides evaluation and assessment of the factor structure (for example, how latent variables can be extracted and used; or how many latent variables are supposed to be extracted). Furthermore, as the instruments used for this thesis have been adopted from a number of different studies, coherence between constructs has not previously been validated. Thus, it is crucial to evaluate the instruments and test their consistency in measuring the respective research variables. Sampling adequacy was used as the preliminary test to assess the suitability of the data for EFA. The EFA was conducted using IBM SPSS version 24.

5.3.1   Sampling Adequacy Test

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, while .6 is the minimum value for good factor analysis), while Bartlett's test of Sphericity is used to measure the significance p-value, which should be less than .001 (Pallant, 2016). The Kaiser-Meyer-Olkin (KMO) and Bartlett's test suggested that factor analysis was useful for this dataset as the KMO for all constructs were more than 0.8 with the significant values at .000 (p <.001).

5.3.2 Factor Extraction

The EFA was conducted using principal axis factoring extraction and Promax rotation. Promax rotation is an oblique technique used if the theory suggests that the latent factors in the study might correlate (Field, 2013). It is evident from the past studies that the factors used in this thesis are correlating moderately to each other, such as among transformational, transactional and laissez-faire leadership (Defee, 2007; Antonakis et al., 2003; Avolio et al., 1999).

5.3.2.1 Supply Chain Leadership

A total of 23 items were used to measure SCL. As expected, EFA revealed that three factors can be extracted based on an eigenvalue which is larger than 1 (Table 5.9). Looking at the factor loadings, these three factors appear to be transformational, transactional and laissez-faire SCL styles. Three items were removed due to a factor loading less than the recommended value of 0.4 (TFL 4, TSL1 and TSL2). One item, TSL5, was removed as it loaded onto two factors (transformational SCL – 0.424 and transactional SCL – 0.480) and the loadings between factors were not significantly different.

Table 5.9: Total Variance Explained for SCL

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.427	45.335	45.335	10.087	43.855	43.855	9.263
2	3.201	13.916	59.251	2.887	12.554	56.410	7.347
3	2.254	9.801	69.051	1.869	8.124	64.534	3.340
4	.961	4.177	73.228				
5	.831	3.612	76.840				
6	.688	2.993	79.832				
7	.627	2.728	82.560				
8	.519	2.256	84.816				
9	.429	1.866	86.683				
10	.382	1.663	88.345				
11	.347	1.507	89.852				
12	.320	1.392	91.245				
13	.287	1.248	92.493				
14	.257	1.117	93.610				
15	.244	1.059	94.669				
16	.231	1.005	95.674				
17	.213	.926	96.600				
18	.190	.825	97.425				
19	.171	.742	98.167				

20	.138	.600	98.767				
21	.108	.469	99.236				
22	.093	.405	99.642				
23	.082	.358	100.000				

5.3.2.2 *Governance Mechanisms*

A total of 15 items were used to measure governance mechanisms. Initially, two factors were expected to be retrieved from the mediating variables, which are trust (12 items) and contract (three items). However, the EFA revealed that three factors can be extracted based on an eigenvalue of more than 1 (Table 5.10).

Table 5.10: Total Variance Explained for Governance Mechanisms

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.170	47.799	47.799	6.854	45.693	45.693	6.735
2	2.322	15.480	63.280	2.104	14.028	59.721	2.960
3	1.553	10.353	73.633	1.183	7.889	67.610	1.773
4	.961	6.408	80.041				
5	.665	4.433	84.474				
6	.412	2.743	87.217				
7	.384	2.560	89.777				
8	.321	2.141	91.918				
9	.261	1.741	93.660				
10	.230	1.537	95.196				
11	.200	1.331	96.527				
12	.157	1.045	97.573				
13	.147	.982	98.554				
14	.114	.757	99.311				
15	.103	.689	100.000				

The scree-plot also suggested that the trust and contract variables could be explained from a three-factor structure (Figure 5.2). However, after further investigation on the pattern matrix, the third factor cannot be retained as only two items (TR5 and TR9) loaded into that respective factor. At least three factors should be representing each factor for reliable and consistent subsequent analysis using CFA (Kline, 2016). Hence, only two factors which are trust and contract were retained.
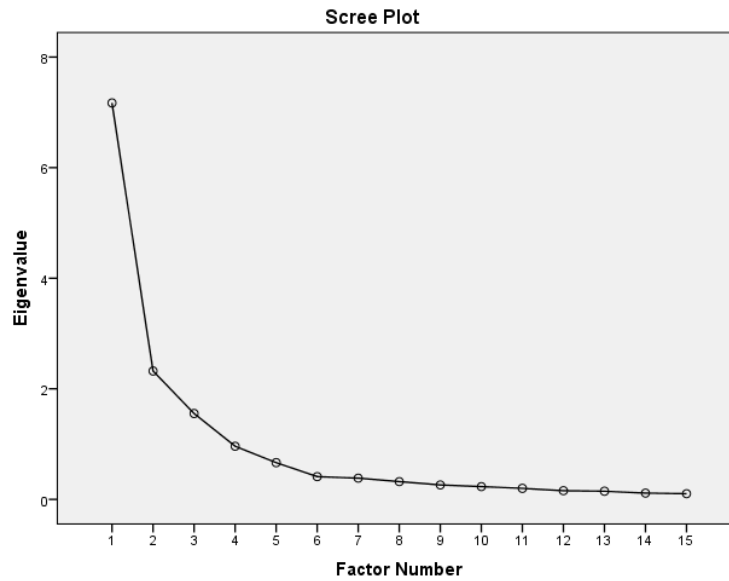
Figure 5.2: Scree Plot for Governance Mechanisms

5.3.2.3 Suppliers' Performance

A total of 30 items were used to measure SP. Initially, five factors were expected to be retrieved from the SP variables which are, cost performance (four items), quality performance (four items), delivery performance (five items), flexibility performance (four items) and reverse performance (13 items). However, the EFA revealed that only four factors can be extracted based on an eigenvalue of more than 1 (Figure 5.11).

Table 5.11: Total Variance Explained for SP

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	14.783	49.276	49.276	14.484	48.279	48.279	11.693
2	4.420	14.734	64.010	4.127	13.757	62.036	11.409
3	1.692	5.640	69.650	1.420	4.733	66.769	7.706
4	1.173	3.911	73.562	.919	3.063	69.832	9.726
5	.914	3.047	76.608				
6	.835	2.783	79.392				
7	.730	2.433	81.825				
8	.549	1.830	83.655				
9	.491	1.636	85.290				
10	.438	1.460	86.750				
11	.410	1.366	88.117				
12	.388	1.293	89.409				
13	.341	1.138	90.547				
14	.284	.948	91.495				
15	.264	.878	92.374				
16	.233	.777	93.151				

17	.222	.739	93.890				
18	.216	.721	94.611				
19	.210	.701	95.312				
20	.193	.642	95.954				
21	.167	.558	96.512				
22	.158	.527	97.039				
23	.144	.481	97.519				
24	.140	.468	97.987				
25	.129	.428	98.415				
26	.123	.409	98.824				
27	.096	.319	99.143				
28	.092	.308	99.451				
29	.084	.281	99.732				
30	.080	.268	100.000				

Similarly, the scree-plot also suggested that the SP variables could be explained according to a four-factor structure (Figure 5.3). Items from the expected two factors which are quality and delivery performance were loaded onto a single factor. That factor was renamed as 'operational performance (OP)'.

The grouping of these factors is consistent with the current studies in supply chain research. For example, Iyer et al. (2019) combined delivery and quality measurement items into one construct to measure operational performance. A similar approach is also observed in a recent study by Dubey et al. (2019), where delivery and quality were integrated into a dimension to define operational performance. Nonetheless, Miemczyk and Luzzini (2019) used operational performance as the second-order construct for delivery and quality performance, suggesting that both dimensions represent the same construct. The potential explanation of this approach is that operational performance is always associated with the process of improving product or service quality as well as on-time delivery, particularly in manufacturing industries (Dubey et al., 2019).

One factor, TP4, was removed as it loaded equally into operational and flexibility performance. Hence, only four factors which are cost, operational, flexibility and reverse supply chain performance (RSCP) were retained.
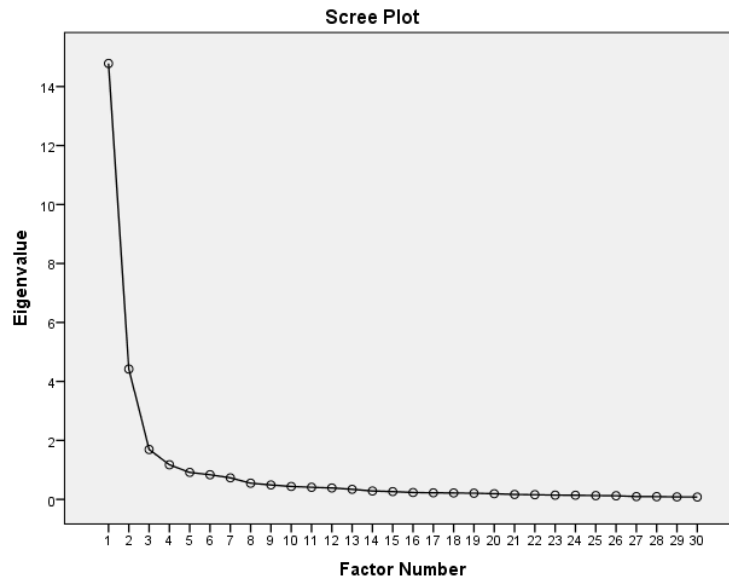
Figure 5.3: Scree Plot for SP

5.3.2.4   Final Factors and Items from EFA

The final result of the EFA consists of 61 items related to 9 latent factors. The top three items were selected to represent their respective latent factors. Table 5.12 shows the results of EFA and items' factor loadings.

Table 5.12: Exploratory Factor Analysis Result

Item Code	TFL	TSL	LF	TR	CON	CP	OP	FP	RSCP
TFL2	0.936								
TFL3	0.910								
TFL8	0.907								
TFL1	0.818								
TFL6	0.800								
TFL7	0.736								
TSL6	0.731								
TFL5	0.706								
TFL9	0.662								
TFL10	0.657								
TSL10		0.993							
TSL8		0.963							
TSL9		0.922							
TSL7		0.847							
TSL3		0.549							
TSL4		0.532							
LF3			0.932						
LF2			0.741						

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LF1			0.685					
TR7				0.947				
TR6				0.937				
TR4				0.898				
TR8				0.888				
TR3				0.860				
TR2				0.815				
TR12				0.809				
TR1				0.744				
TR10				0.632				
TR11				0.560				
CON3					0.915			
CON2					0.895			
CON1					0.887			
CP2						0.936		
CP3						0.859		
CP1						0.858		
CP4						0.486		
QP4							0.990	
QP2							0.961	
QP3							0.926	
TP1							0.884	
TP2							0.861	
QP1							0.794	
TP3							0.712	
TP5							0.605	
FP4								0.871
FP2								0.843
FP3								0.773
FP1								0.612
RP4								0.874
RP3								0.866
RP2								0.860
RP13								0.846
RP5								0.825
RP1								0.820
RP8								0.818
RP10								0.815
RP7								0.805
RP11								0.791
RP6								0.755
RP9								0.738
RP12								0.652

TFL – Transformational SCL; TSL – Transactional SCL; LF – Laissez-Faire SCL; TR – Trust; CON – Contract; CP – Cost Performance; OP – Operational Performance; FP –Flexibility Performance; RSCP-Reverse Supply Chain Performance

5.4 Confirmatory Factor Analysis

CFA was used to confirm and measure the validity of the model. By using AMOS v25, the items and factors identified during the EFA were utilised to create and validate the model. Following the recommendation by Anderson and Gerbing (1988), a two-step approach of conducting CFA was adopted, where the measurement model was estimated prior to the identification of the structural model. This thesis used SP as the second-order construct for cost, operational, flexibility and reverse supply chain performance (RSCP). The practice of using a second-order construct is common in supply chain and operations management research where several factors (first-order constructs) are governed by a higher order factor (second-order construct) (Zhu et al., 2008; Lai et al., 2002).

5.4.1 Measurement Model

By using the nine-factor model and all the related measurement items identified during the EFA (three factors for SCL, two factors for governance mechanisms and four factors for SP), the initial measurement model was created (Figure 5.4). The overall fit result for the initial measurement model was not adequate. As shown in Table 5.13, the values of model fit indices were below recommended value, implying the model did not fit the data. For example, the CFI value indicates that the current model was only 79.2% better than the null model (Kelloway, 2015).

Table 5.13: Model Fit Indices for Initial Measurement Model

Fit Index	χ^2	df	χ^2/df	CFI	TLI	IFI	SRMR	RMSEA	pClose
Recommended Value	-	-	<5.0	>.90	>.90	>.90	<.08	<.08	>.05
Actual Model Value	4158.961	1750	2.377	.792	.782	.793	.098	.085	.000

* χ^2 - Chi-square; df - degrees of freedom; χ^2/df - chi-square goodness-of-fit; CFI - comparative fit index; TLI - Tucker-Lewis index; IFI - Bollen's incremental fit index; SRMR - standardised root mean squared residual; RMSEA - root mean squared error of approximation

As the model fit was not adequate, modification was necessary. Over eight months (November 2017 until July 2018), three modification phases were performed prior to finalising the measurement model. First, the modification of the model was done using

one of the most widely used approaches to improve the model fit which is through the usage of modification indices (Byrne, 2000). However, even though several error terms had been co-varied following the suggestion by modification indices, the significant improvement of the model was still absent.

Second, based on several cut-off points of the factor loadings, items were removed one-by-one in order to improve the model fit. The items were removed carefully and incrementally starting from the factor loadings of 0.4, 0.5, 0.6, 0.7 and finally, 0.8. Unfortunately, even though an extensive items reduction has been performed based on the highest cut-off value (0.8), the significant improvement of the model was still required.

Thus, the final approach to improve the model fit was to remove items with low factor loading for every factor. The final measurement model after removing items with low factor loadings and was restricted to only three items per factor as identified through EFA earlier was statistically adequate and improved (Table 5.14). It is renowned that highest loadings items have a greater influence on their respective factor compared to the items with lower factor loadings (Hair et al., 2014a; Dubey et al., 2015). This extensive removal of items is typically referred as scale purification.

Scale purification is the process of eliminating items from multi-items scale and this approach is widely used in supply chain management research (Wieland et al., 2017). There are several reasons of adopting scale purification in this thesis. First, even though the number of responses was sufficient, the number of items was quite extensive. This could affect the computational effort of the software, leading to inaccurate results (Kline, 2016; Hair et al., 2014a). Second, the proposed model was comprehensive (three independent variables, two mediating variables and four first-order dependent variables). This leads to the complexity of the model and tends to reduce its parsimony (Kline, 2016). Finally, items used in this thesis is adopted mainly from the field of psychology and organisational behaviour (such as leadership). In psychology and organisational behaviour research, items are typically redundant and robust to modification (while maintaining the same performance as the original scales, provided the reliability is acceptable) (Clark and Goldsmith, 2005). It should be noted that all items in this thesis were reflective in nature. Reflective items are expected to be interchangeable and contribute equally to the manifestation of their respective latent

variables, thus removing any items should not significantly affect the construction of the latent variables (Podsakoff et al., 2006).

As mentioned earlier, the process of model modification and scale purification were performed approximately within eight months. This is to ensure that all items deleted carefully. Items were removed incrementally (one item at one time) with extensive evaluation from the supervisory team. The evaluation includes thorough review of the deleted items to examine whether the remaining items were able to measure the intended constructs. The final model allows simplification that reduces computational effort and more robust. The final measurement model is presented in Figure 5.5.

Table 5.14: Model Fit Indices for Final Measurement Model

Fit Index	χ^2	Df	χ^2/df	CFI	TLI	IFI	SRMR	RMSEA	pClose
Recommended Value	-	-	<5.0	>.90	>.90	>.90	<.08	<.08	>.05
Actual Model Value	500.342	305	1.640	.953	.946	.954	.075	.058	.072

* χ^2 - Chi-square; df - degrees of freedom; χ^2/df - chi-square goodness-of-fit; CFI - comparative fit index; TLI - Tucker-Lewis index; IFI - Bollen's incremental fit index; SRMR - standardised root mean squared residual; RMSEA - root mean squared error of approximation
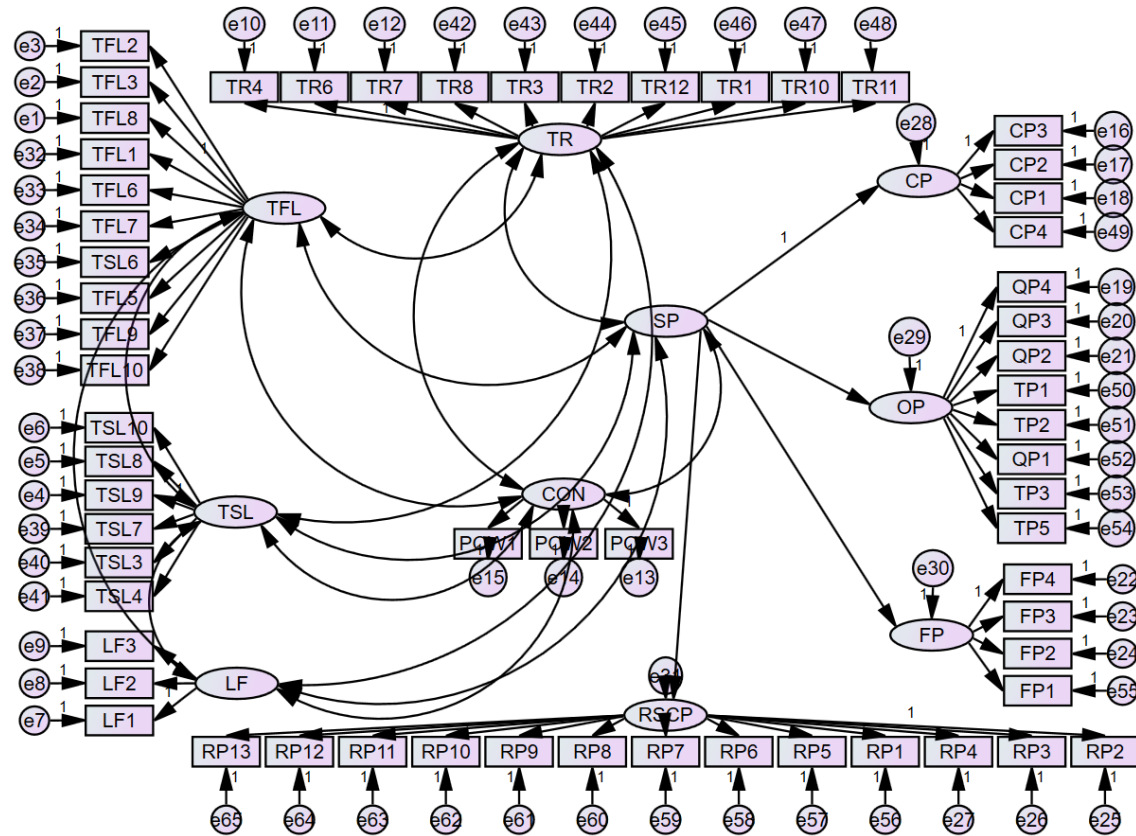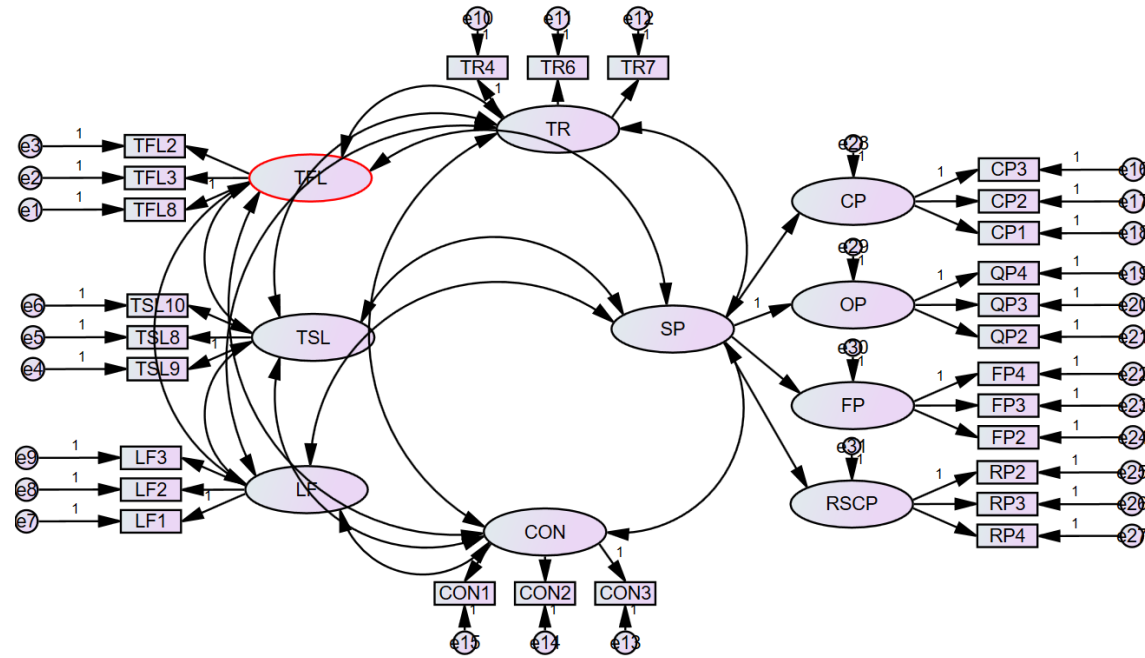
Figure 5.4: Initial Measurement Model

Figure 5.5: Final Measurement Model

5.4.1.1 Model Reliability and Validity

The reliability and validity of the model were examined based on average variance extracted (AVE), Cronbach's alpha (α) and composite reliability (CR). As shown in Table 5.15, the square root of AVE for all factors or constructs were higher that the cut-off value of 0.50, indicating that the items in a factor were measuring at least 71.7% of the own factor (Hair et al., 2014b).

Table 5.15: Square Root for AVE and Bivariate Correlations

	TFL	TSL	LF	TR	CON	SP
TFL	*0.796*					
TSL	0.231	*0.911*				
LF	-0.044	0.178	*0.764*			
TR	0.618	0.211	-0.025	*0.918*		
CON	0.178	0.498	-0.150	0.285	*0.888*	
SP	0.592	0.491	-0.164	0.588	0.443	*0.717*

*square root of AVE in italics

Table 5.16 shows that the lowest Cronbach's alpha (α) was 0.81 for laissez-faire SCL, indicating a good internal consistency between items in each factors (Pallant, 2016). The maximum Cronbach's alpha value is 1, where the closer to 1 implies the better consistency between items in each factor. Finally, the lowest CR value was for laissez-faire SCL (0.818) which is higher than the cut-off value of 0.70 (Hair et al., 2011). The tests confirmed that the model was not suffering from reliability, convergent and discriminant validity issues.

Table 5.16: Model Reliability

	α	CR	AVE
TFL	0.810	0.836	0.633
TSL	0.935	0.936	0.830
LF	0.801	0.805	0.584
TR	0.939	0.941	0.842
CON	0.916	0.918	0.789
SP	0.914	0.807	0.514

5.4.1.2 Common Method Bias Test

As a single method (questionnaire survey) was used to gather data on the independent (predictor) and dependent (criterion) variables, there was a possibility for common method variance and bias. Harman's one-factor test using EFA revealed that the most covariance explained by one factor was 34%. In addition, a common method bias test using common latent factor (CLF) in CFA was carried out. The test revealed that the CLF was only 43%. Both analysis discovered that the common method variance was less than 50%, indicated that the common method bias is not a major issue for the subsequent analysis (Blome et al., 2017; Gunasekaran et al., 2017; Podsakoff et al., 2003). Thus, it can be concluded that no common method bias was reported for this thesis.

5.4.1.3 Measurement Model Invariance Test

The measurement model invariance test was conducted in order to identify the consistency of the factor structure on different groups. The first group was based on firms' position in the supply chains (Tier-1 firms vs Tier-2 and Tier-3 firms). The second group was based on the size of the firms (small and medium enterprises (SMEs) vs large corporations). First, the measurement models for both groups were assessed. Table 5.17 shows that there was an adequate fit for the measurement models for both groups.

Table 5.17: Measurement Model Fit Indices for Model Invariance Test

	χ^2	df	χ^2/df	CFI	TLI	IFI	SRMR	RMSEA	pclose
Group 1	974.575	610	1.598	.916	.903	.917	.080	.056	.058
Group 2	981.419	610	1.609	.946	.938	.946	.080	.044	.968

Table 5.18 illustrates the result of chi-squared difference test for identifying invariants among groups. Both tables show insignificant difference for the chi-squared between unconstrained and fully constrained models, 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).

Table 5.18: Chi-squared Difference Test

Group	Model	χ^2	df	p-value	Invariant
Group 1	Unconstrained	974.575	610	0.823	Yes
	Fully constrained	987.900	629		
Group 2	Unconstrained	981.419	610	1.000	Yes
	Fully constrained	987.286	637		

5.4.2 Structural Model

The previous sections provide a validation process of the measurement model. Once the measurement model passed the reliability and validity phases, the model was transferred into the structural model (with relationships between latent variables). Table 5.19 shows the result of the structural model which indicates that the model fit was adequate for subsequent analysis (hypotheses testing). The structural model is presented in Figure 5.6.

Table 5.19: Model Fit Indices for Structural Model

Fit Index	χ^2	df	χ^2/df	CFI	TLI	IFI	SRMR	RMSEA	pClose
Recommended Value	-	-	<5.0	>.90	>.90	>.90	<.08	<.08	>.05
Actual Model Value	560.030	354	1.582	.951	.944	.952	.073	.055	.148

* χ^2 - Chi-square; df - degrees of freedom; χ^2/df - chi-square goodness-of-fit; CFI - comparative fit index; TLI - Tucker-Lewis index; IFI - Bollen's incremental fit index; SRMR - standardised root mean squared residual; RMSEA - root mean squared error of approximation
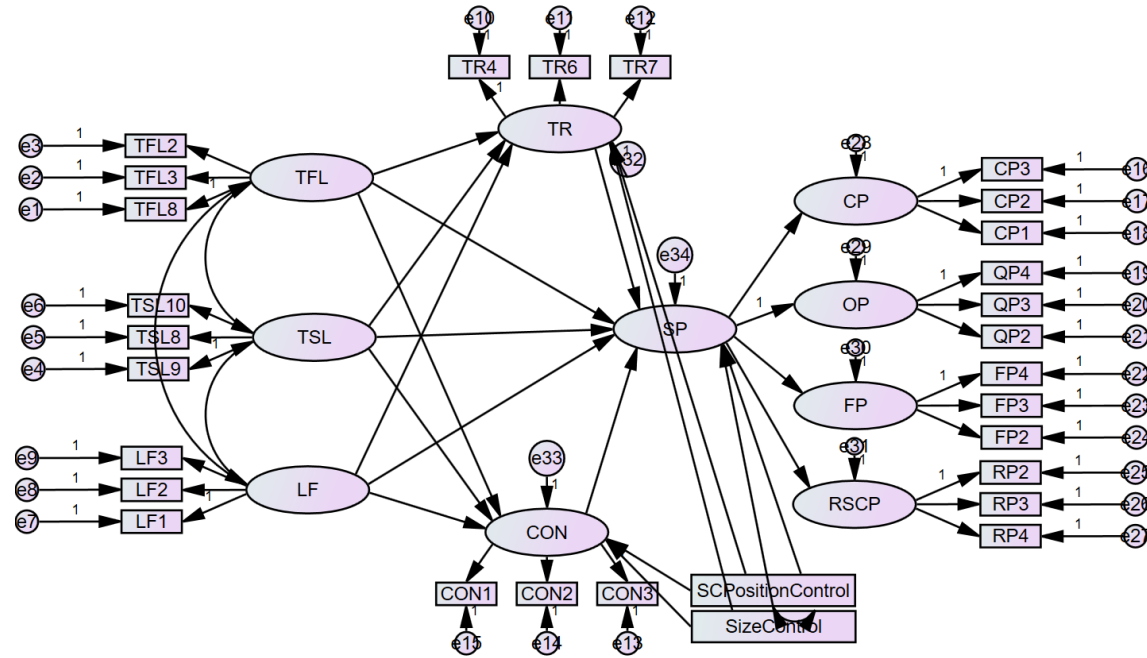
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Figure 5.6: Structural Model

5.5 Results and Findings of Quantitative Data (Hypotheses Testing)

In order to test the proposed hypotheses and answer the research questions, two final tests were conducted based on the final structural model. Relationships between variables were tested while controlling for firms' size and their position in the supply chain. At the same time, the direct relationship and mediation analysis were conducted separately in order to maintain theoretical clarity. Figure 5.7 illustrates the results of direct relationships between SCL, governance mechanisms and SP.
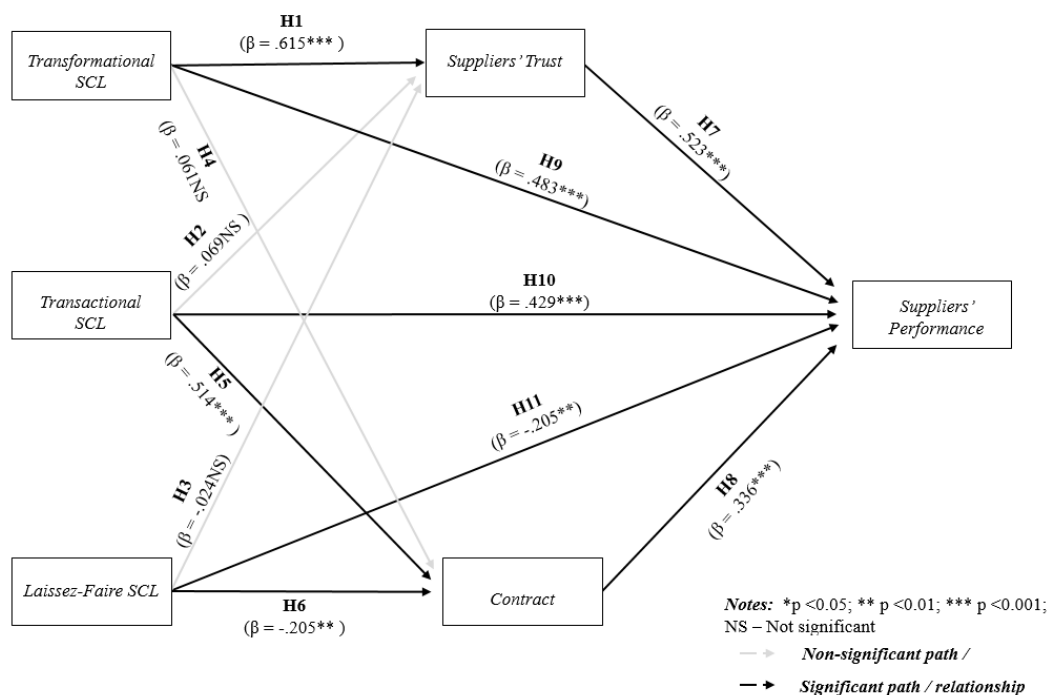
Figure 5.7: Results of Direct Relationships Between SCL, governance mechanisms and SP

5.5.1 Direct Relationships between SCL and Governance Mechanisms

The first aim of this thesis is to examine the direct relationships between SCL and governance mechanisms. Figure 5.7 presents the beta values (β) and significance level of the direct relationships between SCL and governance mechanisms (H1-H6). The analysis discovered that transformational SCL was *positively* significant towards suppliers' trust (β = .615, p <.001). However, there was *no significant* relationship between transactional SCL and suppliers' trust (β = .069, p – not significant). Similarly, the analysis revealed that there was *no significant* relationship between laissez-faire SCL and suppliers' trust (β = -.024, p – not significant). Hence H1 was accepted while H2 and H3 were not supported.

In contrast, the analysis on the relationships between SCL and contractual governance shown that there was *no significant* relationship between transformational SCL and contractual governance (β = .061, p value – not significant). Hence, H4 was not supported. A *positive* significant effect was found on the relationship between transactional SCL and contractual governance (β = .514, p <.001), while a *negative* significant effect was found on the relationship between laissez-faire SCL and contractual governance (β = -.205, p <.01). Hence, H5 and H6 were supported (accepted).

5.5.2 *Direct Relationships between Governance Mechanisms and SP*

The second aim of this thesis is to examine the direct relationships between governance mechanisms and SP. Figure 5.7 also presents the beta values (β) and significance level of the direct relationships between governance mechanisms and SP (H7 and H8). The findings show that a *positive* significant relationship was found on the relationship between suppliers' trust and SP (β = .523, p <.001). Similarly, a *positive* effect of contractual governance and SP was also observed (β = .336, p <.001). Both results indicate that H7 and H8 were supported.

5.5.3 *Direct Relationships between SCL and SP*

The third aim of this thesis is to examine the direct relationships between SCL and SP. The beta values (β) and significance level of the direct relationships between SCL and SP (H9-H11) are also illustrated in Figure 5.7. The analysis revealed that transformational SCL was *positively* significant towards SP (β = .483, p <.001). Similarly, transactional SCL was also *positively* significant towards SP (β = .429, p <.001). On the other hand, the analysis revealed that there was a *negative* significant relationship between laissez-faire SCL and SP (β = -.205, p <.01). Hence, H9, H10 and H11 were supported.

5.5.4 *Indirect Relationships between SCL and SP: The Mediating Role of Governance Mechanisms*

The final aim of this thesis is to examine the indirect relationships between SCL and SP through suppliers' trust and contractual governance. The beta values (β) and significance level of the indirect relationships are presented in Figure 5.8 (H12-H17).

The significance of the indirect effects was tested using 5,000 bootstrapped samples with a 95% confidence interval.
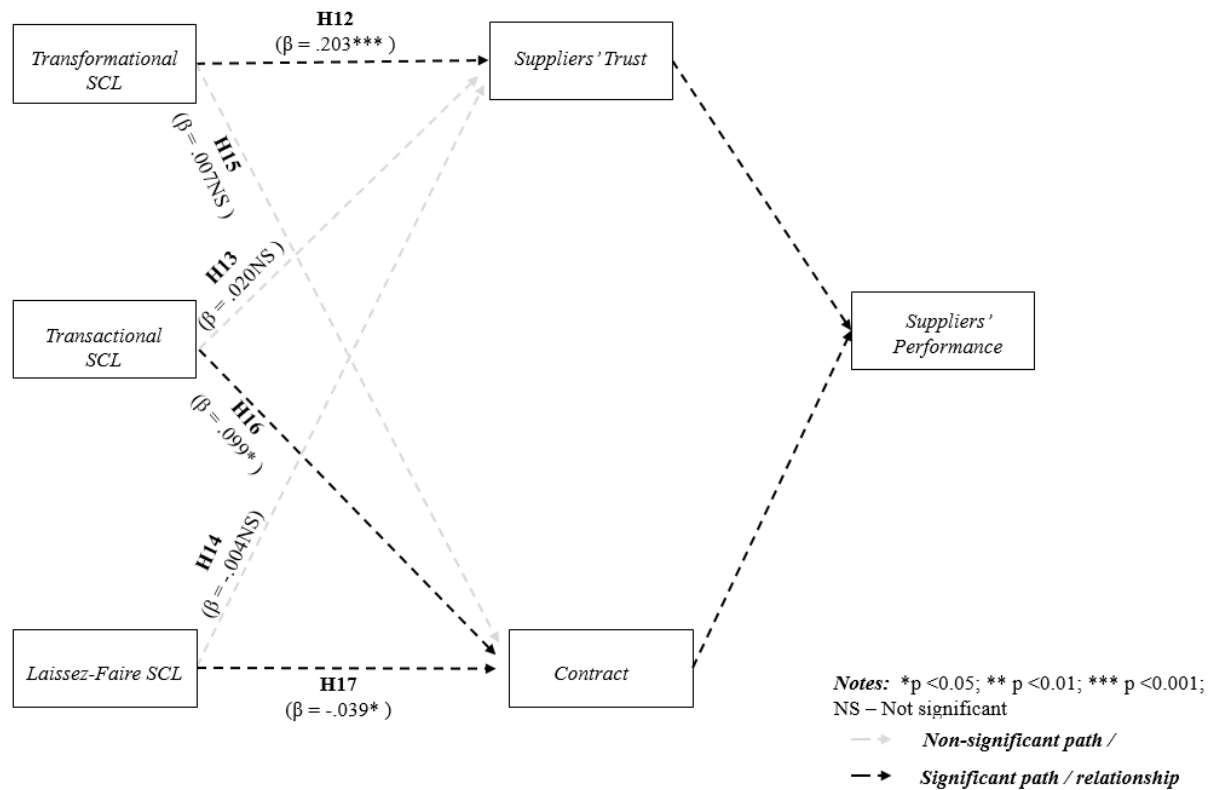

Figure 5.8: Mediation Analysis Results (Beta Value and Significant Level)

As shown in Table 5.20, six hypotheses were tested to examine the indirect relationships between SCL and SP through suppliers' trust and contract. Based on the results, only three hypotheses were supported (H12, H16 and H17). The results revealed that suppliers' trust (partially) *mediated* the positive relationship between transformational SCL and SP (β = .203, p <.001), while contractual governance (partially) *mediated* the positive relationships between transactional SCL and SP (β = .099, p <.05). On the other hand, contractual governance (partially) *mediated* the negative relationship between laissez-faire SCL and SP (β = -.039, p <.05). As the indirect effects of transactional SCL to SP through suppliers' trust (H13), laissez-faire SCL to SP through suppliers' trust (H14) and transformational SCL to SP through contractual governance (H15) were *not significant*, those hypotheses were not supported.

Table 5.20: Mediation Analysis Results (Bootstrapping and Confidence Interval (CI))

Relationship	Direct Effect Without Mediator	Direct Effect With Mediator	Indirect Effect (95% Bias-corrected CI)	Bootstrap CI		Remarks
				Lower	Upper	
H12: TFL→TR→SP	.483***	.278**	.203***	0.106	0.339	Partial
H13: TSL→TR→SP	.429***	.406***	.020 NS	-0.023	0.069	No Mediation
H14: LF→TR→SP	-.205**	-.212**	-.004 NS	-0.051	0.044	No Mediation
H15: TFL→CON→SP	.483***	.474***	.007 NS	-0.022	0.076	No Mediation
H16: TSL→CON→SP	.429***	.326***	.099*	0.007	0.231	Partial
H17: LF→CON→SP	-.205**	-.180*	-.039*	-0.122	-0.002	Partial

*TFL – Transformational SCL; TSL – Transactional SCL; LF – Laissez-Faire SCL; TR – Trust; CON – Contract; SP- Suppliers' Performance

5.6 Chapter Summary

A total of 17 hypotheses were empirically examined and the findings are reported in this chapter. This chapter has provided discussions on the response rate and the data screening procedures including explanation on dealing with missing data, outliers, normality and collinearity issues. Moreover, this chapter has provided descriptive analysis of respondents' demographic profile, followed by inferential analysis, EFA and CFA. Table 5.21 shows the summary of the hypotheses and overall findings.

The findings reported in this chapter affirmed that both transformational and transactional SCL had a significant positive influence on SP, while laissez-faire SCL had a significant negative influence on SP. The analysis also discovered that both governance mechanisms, suppliers' trust and contractual governance, had positive significant relationships with SP. Furthermore, it is evident from the findings that transformational SCL was positively related to suppliers' trust, transactional SCL was positively related to contractual governance, and laissez-faire SCL was negatively related to contractual governance. It was no significant relationships between transformational SCL and contractual governance; transactional SCL and suppliers' trust; and laissez-faire SCL and suppliers' trust.

However, despite the positive relationship between suppliers' trust and SP, suppliers' trust was not the mediator of the relationship between transactional SCL and SP, and of the relationship between laissez-faire SCL and SP. Similarly, contractual

governance was not the mediator of the relationship between transformational SCL and SP. These findings implied that transformational SCL was a trust-based relationship, while transactional SCL was a contract-based relationship. The findings of the qualitative data will be presented in the next chapter. It is worth noting that qualitative data is used as a complement to quantitative data to triangulate and strengthen the findings.

Table 5.21: Overall Findings of Quantitative Data

	Hypotheses	Quantitative Result
Direct Relationships	H1: Transformational SCL is positively related to suppliers' trust.	Supported
	H2: Transactional SCL is positively related to suppliers' trust.	Not Supported
	H3: Laissez-faire SCL is negatively related to suppliers' trust	Not Supported
	H4: Transformational SCL is negatively related to a higher contractual governance exercised by the buying firms.	Not Supported
	H5: Transactional SCL is positively related to a higher contractual governance exercised by the buying firms.	Supported
	H6: Laissez-faire SCL is negatively related to a higher contractual governance exercised by the buying firms.	Supported
	H7: Suppliers' trust in buying firms is positively related to SP.	Supported
	H8: High contractual governance exercised by the buying firms is positively related to SP.	Supported
	H9: Transformational SCL is positively related to SP.	Supported
	H10: Transactional SCL is positively related to SP.	Supported
	H11: Laissez-faire SCL is negatively related to SP.	Supported
Indirect Relationships	H12: Suppliers' trust mediates the positive relationship between transformational SCL and SP.	Supported
	H13: Suppliers' trust mediates the positive relationship between transactional SCL and SP.	Not Supported
	H14: Suppliers' trust mediates the negative relationship between laissez-faire SCL and SP.	Not Supported
	H15: Contractual governance mediates the positive relationship between transformational SCL and SP.	Not Supported
	H16: Contractual governance mediates the positive relationship between transactional SCL and SP.	Supported
	H17: Contractual governance mediates the negative relationship between laissez-faire SCL and SP.	Supported

CHAPTER 6

QUALITATIVE ANALYSIS AND FINDINGS

The preceding chapter presented the findings from the quantitative analysis. This chapter attempts to explain the analysis process and findings of the qualitative study. This chapter starts with a discussion of the preliminary steps that were undertaken prior to conducting experts' interviews; then, the interview process is illustrated. This chapter will then provide the findings of the descriptive analysis and thematic analysis, also providing some further insights into the testing of hypotheses.

6.1   Demographic Profile

Table 6.1 shows the demographic profile of the informants. In total, 28 informants from 25 firms were interviewed from the 7th of July until the 12th of September 2017. As planned, the informants were selected from various positions including 12 informants from senior management positions (President, Chief Executive Officer, Chief Operating Officer, Chief Procurement officer, Managing Director or Director), 14 informants from middle management positions (Senior General Manager, General Manager, Senior Manager, Manager, Head or Leader) and two informants from lower management positions (Engineer, Supervisor or Specialist). Interviews lasted from 30 to 60 minutes.

Figure 6.1 presents the informants' years of experience in the manufacturing industries. The majority of the informants had more than 10 years of experience working in manufacturing industries. This is consistent with the informants' position in their current firm as most of them were holding middle and top management positions such as Chief Executive Officers and Directors. It is noted that the most senior informants in this study had acquired a significant experience in manufacturing industries for more than 30 years (3 informants).

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Table 6.1: Profile of the Interview Participants / Informant

ID	Position	Years of Experience in the Industry (until 2017)	Years of Experience in the Company (until 2017)	Sector	Position in Supply Chain	Date of Interview	Size of Firm	Type of Firm
P1	Director of Supply Chain	30 years	7 years	Rubber	Tier 1	7 July	Large[1]	MNC[3]
P7	Head of Operations	16 years	16 years	Automotive	Tier 1	24 July	Large [2]	Local[4]
P8	Managing Director	3 years	3 years	Filtration	Tier 1	25 July	SME	Local
P9	Production Manager	10 years	10 years	Tobacco	Tier 1	26 July	Large	Local
P12	Chief Operating Officer	22 years	6 years	Telecommunication	Tier 1	1 Aug	SME	Local
P13	Senior Manager Operations	12 years	10 years	Electronics	Tier 1	4 Aug	Large	MNC
P15	Production Manager	10 years	2 years	Pharmaceutical	Tier 1	9 Aug	Large	MNC
P17	1. Procurement Leader (Asia and Middle East); 2. Procurement Specialist; 3. Procurement Specialist	1. 10 years 2. 5 years 3. 3 years	1. 4 years 2. 5 years 3. 3 years	Oil and Gas	Tier 1	10 Aug	Large	MNC
P20	Director	17 years	17 years	Steel	Tier 1	21 Aug	SME	Local
P21	Director	12 years	12 years	Printing / Advertising	Tier 1	22 Aug	SME	Local
P23	Operations Director	15 years	3 years	Semiconductor	Tier 1	28 Aug	Large	MNC
P25	Managing Director	10 years	5 years	Safety Equipment	Tier 1	12 Sept	SME	Local
P19	Group General Manager	21 years	21 years	Plastic	Tier 2	21 Aug	Large	Local
P10	Production Manager	15 years	13 years	Metal	Tier 2	21 July	SME	Local
P2	General Manager (Purchasing / Procurement)	24 years	2 years	Automotive	Focal	10 July	Large	Local
P3	Senior General Manager (Procurement and Vendor Development Department)	23 years	23 years	Automotive	Focal	11 July	Large	Local

P4	Head of Supply Chain (Asia)	20 years	5 years	Oil and Gas	Focal	13 July	Large	MNC
P5	Managing Director	19 years	19 years	Veterinary	Focal	13 July	SME	Local
P6	Director of Operations	15 years	9 years	Electrical / Solar	Focal	18 July	Large	MNC
P11	1. Chief Procurement Officer; 2. Senior Manager	1. 37 years 2. 20 years	1. 5 years 2. 20 years	Automotive	Focal	28 July	Large	Local
P14	Operation / Production Manager	7 years	5 years	Automotive	Focal	8 Aug	Large	MNC
P16	Production Manager	12 years	5 years	Electrical / Solar	Focal	9 Aug	Large	MNC
P18	Head of Supply Chain Management	37 years	6 years	Pharmaceutical	Focal	14 Aug	Large	MNC
P22	Managing Director	25 years	25 years	Textile	Focal	23 Aug	SME	Local
P24	Managing Director	6 years	6 years	Food and Beverages	Focal	11 Sept	SME	Local

[1] Firm has more than 200 employees / annual turnover less more than RM50 million; [2] Firm has less than 200 employees / annual turnover less than RM50 million;
[3] Multinational Corporations; [4] Local Firms / Corporations
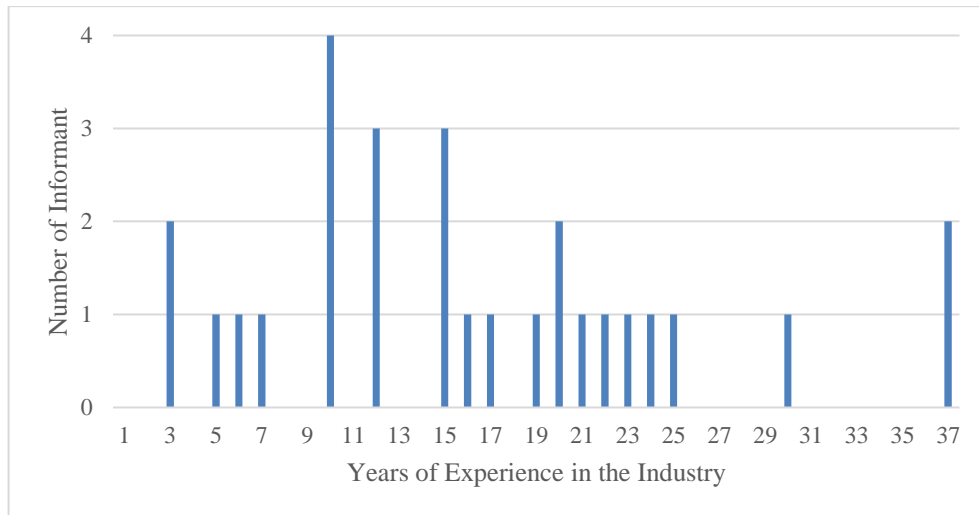
Figure 6.1: Informants' Years of Experience in the Industry

Figure 6.2 shows informants' years of experience in their current firms. The distribution ranges from two to 25 years of experience in the same firm. However, it is noted that most of the respondents were working in their current firms for less than 10 years. The possible explanation for this is as majority of them were holding high level positions such as Operations Director, their skills, knowledge and expertise are in high demand in Malaysian manufacturing industries. This phenomenon allows them to switch from one company to another for further career development. Due to that, such positions tend to exhibit a very high turnover ratio.

However, during the interview, the researcher also found several cases showing that the informants were working in the same firms for more than 20 years (4 cases). It means that they started as engineers and are currently holding several positions such as Managing Director, Senior or Group General Manager, and Senior Manager. This group of informants provided interesting and useful insight towards this thesis as they are highly experienced and knowledgeable in supply chain, operations management, production, manufacturing and buyer-supplier relationships. The credibility of the informants allowed this study to strengthen its findings.
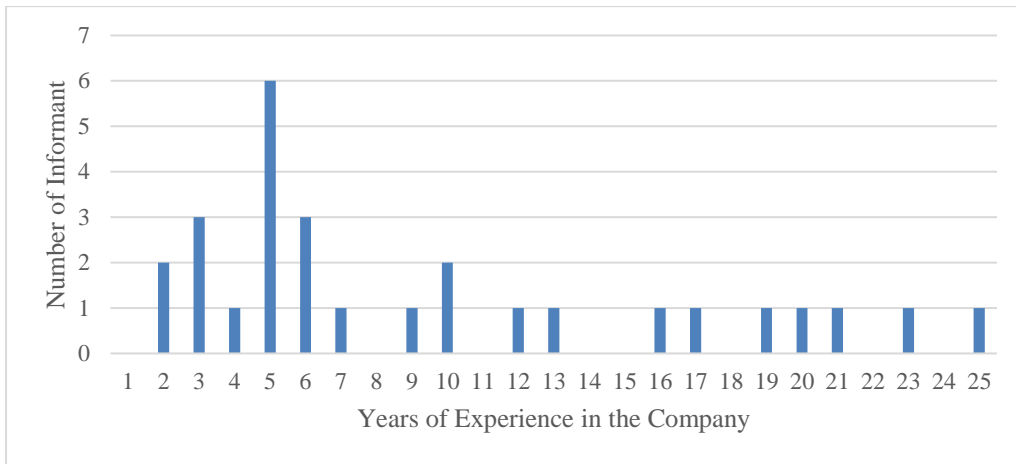
Figure 6.2: Informants' Years of Experience in the Company

As shown in Figure 6.3, informants were gathered from various sectors in manufacturing industries. The distribution in Figure 6.3 is based on the number of firms interviewed (25 firms) and not based on the total number of informants (28 informants). The firms belonged to 16 sectors with the highest sectors being automotive (five firms) and electronics (four firms). It is useful to have representatives from different sectors to ensure that the coverage of the research can be extended and applied to the whole industry. By having different perspectives from different sectors, the findings can be more comprehensive and holistic.
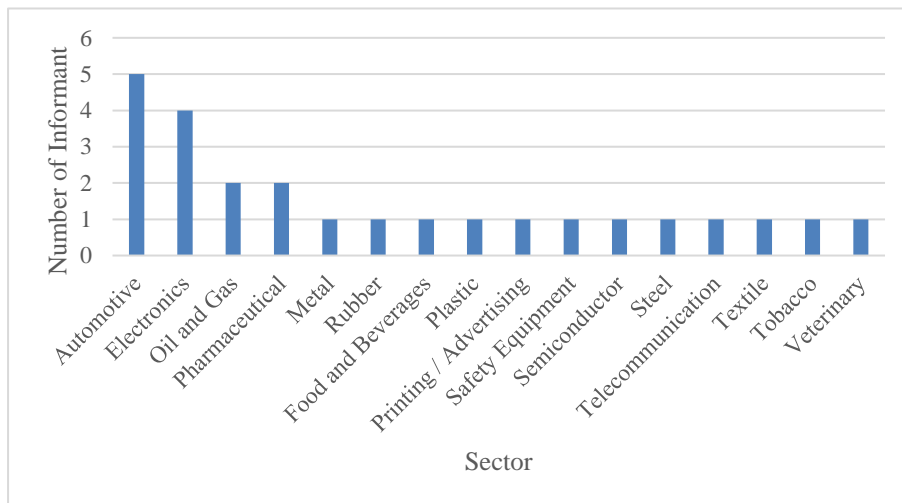
Figure 6.3: Distribution of Informants based on Sector

Table 6.4 shows the distribution of the informants based on their firms' position in the supply chain. Two categories were used: (i) focal firm and (ii) suppliers. Focal firms' category consists of the finished product manufacturers. For example, Continental, Honda, Toyota, Proton, Perodua, Sony and Panasonic. As for the suppliers' category,

it consists of suppliers from various tiers including Tier-1 and Tier-2. As mentioned earlier, this thesis considers and conceptualises leading firms as the immediate or direct buying firms. This notion was developed based on Stakeholder and Institutional Theories, where both theories suggest that buying firms are able to lead the suppliers based on their power as the customer. Due to this reason, the Tier-2 suppliers were considered as part of the sample in order to improve the generalisability of the findings as different suppliers might have different relationships depending on their position in the supply chains, dependency issue as well as power structure. For example, by including Tier-2 suppliers, the findings were not limited to the relationships between the focal firms and their Tier-1 suppliers. However, it should be noted that Tier-2 suppliers rated their immediate or direct buying firms which are the Tier-1 suppliers and not the focal firms. This is to ensure consistency of the SCL concept based on the dyadic perspective used in this thesis.

Similar to the approach used for the distribution of informants based on the sector, the distribution for supply chain position is also based on number of firms (25 firms) and not based on number of informants (28 informants). 11 firms were the focal firms while 14 firms were the suppliers.
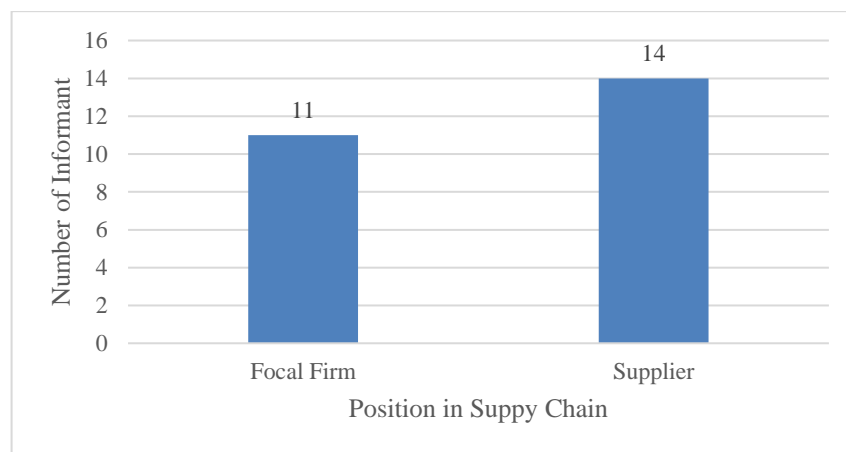

Figure 6.4: Distribution of Informants based on Firm's Position in the Supply Chain

6.2 Descriptive Analysis

A descriptive analysis using word frequency was conducted on the interview data. The descriptive analysis was conducted as the preliminary content analysis on the data. This is to observe the words frequency in the data to have a basic idea of the themes, codes or the relationships among them (Tob-Ogu et al., 2018; Huq et al., 2016; Miles

et al., 2014). Prior to conducting descriptive analysis (in this word frequency and coding process) the transcriptions of the interviews were stored in NVivo V12. The word frequency analysis and coding process were also conducted using NVivo V12.

The descriptive analysis was conducted based on the codes (also considered as sub-themes) (Figure 6.5). The analysis sized the areas to reflect the number of coding references. A larger area indicates a more frequent code mentioned by the informant in the respective theme. More simply, the analysis was conducted to identify how many times a code was mentioned in the interview data. For example, for suppliers' performance (SP), the larger portion is devoted to quality and cost, indicating that quality and cost were frequently mentioned during the interviews compared to other performance measurement dimensions such as delivery and reverse supply chain performance (RSCP).

Figure 6.5: Nodes Compared by Number of Items Coded

For transformational SCL, the emphasis was mostly on idealised influence, intellectual stimulation and individualised consideration. Equally the weightage of coding (a larger area indicates more coding references) was observed on both codes for transactional SCL which are contingent rewards and management-by-exception (active). As for laissez-faire SCL, most of the coding referred to management-by-exception (passive). As seen in the Figure 6.5, there are several sub-themes allocated to the *trust* theme such as partnership, information, payment, investment and honesty. These sub-themes were used as a reference by the researcher to identify trust elements that have been discussed by the informants. However, trust was considered as a unidimensional construct for the subsequent analysis. Similarly, contract was considered as a unidimensional construct.

This analysis was useful as a preliminary investigation aimed at observing the potential saliency of the codes. For example, the analysis signalled that the most coded themes (and its codes) were transactional SCL and SP, indicating both themes were an important subject in the interview and should be investigated further. However, even though laissez-faire SCL was the less mentioned theme, its saliency had yet to be discovered in the subsequent analysis (saliency analysis section).

Figure 6.6: Sources Compared by Number of Coding References

A descriptive analysis was also conducted for the identification of the coding weightage for each source (informant). The analysis is useful to find out highly coded sources. The responses can then be validated and cross-checked with the profile of the informants which lead to robust and reliable findings. For example, informant P1 was coded 44 times during the analysis. As most of the data in the subsequent analyses (such as thematic analysis) derived from informant P1 responses, his profile was checked to ensure his credibility (such as job position and experience). Furthermore, profile examination helps to ensure the information or responses were accurately interpreted based on the context (such as the industry and supply chain positions).

As shown in Figure 6.6, the analysis sized the areas to reflect the number of coding references, where a larger area indicates more coding references. Table 6.2 shows that the top ten sources for coding references were P1, P6, P11, P4, P2, P9, P5, P7, P3 and P19.

Table 6.2: Source and Number of Reference

Source	Coding Reference
P1	44 times
P6	32 times
P11	31 times
P4	26 times
P2	26 times
P9	21 times
P5	21 times
P7	20 times
P3	18 times
P19	16 times

The final descriptive analysis was conducted for the identification of the number of codes in each source (informant) (Figure 6.7). The analysis is useful to find out which source contributed the most towards different codes. Similar as the approach of coding references, this analysis facilitated the validation of the informants' profile of the to ensure more robust and reliable findings. The analysis sized the areas to reflect the number of items coded. A larger area indicates more items coded. As shown in Table 6.3, top ten sources contributed to the highest number of codes were P1, P6, P11, P9, P5, P4, P2, P19, P7, and P16. For example, the responses from informant P1 were assigned to 17 codes or sub-themes such as idealised influence or cost performance.

Figure 6.7: Sources Compared by Number of Nodes Coding

Table 6.3: Source and Number of Codes

Source	Coding Reference
P1	17 codes
P6	16 codes
P11	16 codes
P9	12 codes
P5	12 codes
P4	12 codes
P2	12 codes
P19	12 codes
P7	11 codes
P16	11 codes

6.3 Saliency Analysis

The saliency analysis of the sub-themes was conducted on the interview data. Six main themes and 15 sub-themes were deductively identified prior to analysing the interview data. The interview data was coded based on the respective sub-themes. Once the coding was completed, the frequency of the sub-themes appeared, and the coding was analysed to see the recurrence of each sub-theme. The saliency is the subjective importance of the sub-themes. It should be noted that the 'subjective importance' of each sub-theme was assigned based on researchers' perception of its importance and salience to the informants (Buetow, 2010). In this thesis, the importance of sub-themes was considered by looking into the frequency of its occurrence, supported by the statement by the informants on its importance and/or the outcomes of the statements. For example, statements such as *"we have to"*, *"it is important"*, *"the main element"*, *"the focus"* and *"main keys"* were considered as the representation of saliency given by the informant. The below quote is the example of a high salient statement:

> *"Depends on the business. Our priority most of the time is actually the delivery. Because we have a tight schedule and once we commit to a certain project, so delivery is one of the main criteria." (P17)*

The outcomes of the statements were also examined on the interview data. For example, even though the sub-themes of laissez-faire, management-by-exception (passive) and total laissez-faire were not frequently quoted, their effects on the outcomes were highly important and should be highlighted. Thus, the saliency level of those sub-themes was considered high. This will be further explained in the thematic analysis section. As a measure of rigour, several consolidation meetings with the supervisory team were conducted to review the results (Tob-Ogu et al., 2018). Deviations and ambiguity of the results were discussed during the consolidation meetings to ensure that the bias of the results interpretation can be minimised (Tob-Ogu et al., 2018; Huq et al., 2016).

In total, out of 15 sub-themes, 13 sub-themes were frequently coded and considered as highly important (high saliency), which are idealised influence, intellectual stimulation, individualised consideration, contingent reward, management-by-exception (active), management-by exception (passive), laissez-faire, suppliers' trust, contractual governance, cost, quality, delivery and flexibility. At the same time, two

sub-themes were less coded and considered as less important (low saliency), which are inspirational motivation and RSCP. Table 6.4 presents the full results of frequency and saliency analysis of the sub-themes or codes, as well as the example of quotes for each sub-theme. The next section will present more comprehensive findings using thematic analysis.

Table 6.4: Example of Quotes, Frequency and Saliency of Sub-Themes / Codes

Themes	Sub-themes	Description	Example of Quote	Frequency	Saliency
Transformational SCL	Idealised Influence	A buying firm acts and behaves in ways that their supply chain members will see them as a role model. It includes their ability to lead by example, which results in their being admired, respected and trusted by supply chain members.	*"We even arranged for matchmaking, capital assistance with global vendors or global suppliers, so that they (the suppliers) can learn, through what we call matchmaking. Can be in a form of technical assistance, or joint venture company. In the early days, we do allocate for them (suppliers) what part to produce. We even worked together with them on the part price. This is to ensure that they can survive."* (P11)	17	High
	Inspirational Motivation	The ability of a buying firm to motivate and inspire their supply chain members by providing meanings and suggestions. By demonstrating motivational and inspirational concepts in buying firm's leadership style, they will be able to generate team spirit, enthusiasm and optimism among their suppliers.	*"And then, when the product is ready and we make (do) trial run, the customers (buying firms) sometimes visit us and participate in the trial run to check the function of the product. During this time also they will give us some feedback, what they see and how we can make more improvement and what we can change for the next similar products. So we can make a better product for them. It's more like on job training or project type of training that we work together with the first tier because they need us to improve so that they can get better product in the future. So that's why they do not hold back and they teach us every time"* (P19)	7	Low
	Intellectual Stimulation	The ability of a buying firm to stimulate followers' intellectual capacity to be more innovative and creative. There are a few ways of stimulating supply chain members' intellectual capacity including questioning assumptions, reframing and redefining problems or issues, and providing new ways of approaching old practices.	*"For customer (buying firm) B, they want to develop. They ask for many things. As a vendor (supplier), we have to do it. We have to find any new technology and give presentation to customer B. If they convinced, they will take our idea. Then we will share the technology. As Japanese said, 'Yokoten' (sharing learning). We have to*	16	High

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			approach (convince) them. The opportunity is there." (P10)		
	Individualised Consideration	A buying firm also focuses on followers' individual needs, particularly for achievement and growth. Followers' individual needs can be achieved in several ways including the leader acting as a coach or mentor. Individualised consideration is important in promoting new learning opportunities for the suppliers.	*"Under our umbrella program, we also supply (assign) our senior manager, station over their side, to educate their number one and number two (Chief Executive Officers and Managing Directors) on how to manage the factory. We also arranged training program for senior management in how to do lean production system, quality system. To that level (extent). Also we provide financial assistance for the vendor to start-up their business. For vendor who are having financial crisis, in 1997, and also today, few vendors are having financial crisis. We also support them in buying their materials (raw materials). After 6-7 months, after they can stand up by themselves, then we stop giving the assistance (financial). To that level (extent). But that only applies for local vendors."* (P11)	18	High
Transactional SCL	Contingent Reward	By using this method, a buying firm will assign suppliers, and agree on goals and objectives with potential rewards or punishment, or actual rewards or punishment in exchange for attaining the assigned levels.	*"What we did was we also have a reduction of suppliers. For example, bottle suppliers. If you continuously give us bad products, and then your quality management system has not improved, what we did to one supplier over the past one year plus, basically we decommissioned one guy. We have no intention to terminate them, we had intention of bringing them back, but we wanted them to focus on the drum and getting it right."* (P4)	35	High
	Management-by-Exception (Active)	In an active management-by-exception practice, a buying firm tends to actively monitor deviances in members' assignment and take corrective action if necessary.	*"Of course they will put it under the OFI, opportunity for improvement, but actually because we want more volumes (production volumes) we want to please them. Either (towards) our suppliers, or my customers, we are doing the same*	38	High

			thing. In semiconductor (sector), based on my experience and with (discussions) the members also, I think the practice (audit) is similar. For example, in this week, customer (buyer) A is coming. Then (another week) customer B is coming. During this visit they will request to go to the line (production line) for example for 2 hours just to look at the line. The intention is not to find the faulty (mistake) alone. During the visit, maybe they (buyer) can see what we can save. And we will try to improve that." (P23)		
Laissez-Faire SCL	Management-by-Exception (Passive)	A buying firm who uses passive management-by-exception, they tend to passively wait for deviances to occur and then proceed with corrective action.	*"We have no penalty associated with the late delivery for example. At the end of the day, we are looking at whether we want to continue the relationship or not. If we want to continue the relationship with this company, we will try to identify why there is a delay. Whether it was avoidable. Whether it was in our side or their side. It is important that we find out why."* (P8)	5	High
	Laissez-Faire	A buying firm that avoids making decisions and ignores their responsibility in supply chain activities or relationships.	*"If quality is not good, we will slowly switch to another supplier. If the supplies are not good, we will not take from them. If we take, it will be in small quantity. They (the suppliers) will ask us why we take only small quantity. So we will tell them it is because of the quality of the fish and it affects our products. If they still send poor quality product, we have several other suppliers."* (P24)	4	High
Suppliers' Trust		Suppliers' belief that buying firms will act consistently to what they promise to do. Trust can be considered as the confidence that a supplier has on its buying firms and its willingness to rely on them.	*"We are having vendor briefing every month. This is one of communication tools between our top management and the customers' (buying firm) top management. They will call top management from all supplier firms to attend this vendor briefing. We are included. Any information will be transparent*	41	High

			in this meeting. We have been reminded not to leak this information to external parties, only internal community. The discussion includes forecast production volumes and what is next model. They will give the information. It is really helpful (for us)." (P7)		
Contractual Governance		The ability of a buying firm to use contractual or legal agreement to influence supply chain members.	*"While dealing with external supplier, we are most likely based on the contract and performance measurement. If the suppliers' performance is poor, we can deactivate them from our systems and they cannot supply anything to us. That's for the external suppliers."* (P16)	25	High
Supplier's Performance	Cost	Cost efficiency is important in supply chain environment as most of the organisations are striving to achieve higher productivity which leads to a higher profit margin and financial sustainability. Several metrics that have been used in measuring cost efficiencies such as net profit, productivity ratio, return of investment, cost-saving, resource cost and inventory turnover.	*"Plant (performance) is also measured in term of quality and cost per tyre. We are focusing with (on) the plant that can produce tyre with lower cost. If the plant is very expensive (cost of making tyres), we will close or improve the capability of that particular plant. The cost model is very important from the production perspective."* (P1)	23	High
	Quality	Quality concerns are not solely tilted towards the end products or services but also related to the whole supply chain processes and activities. For example, the quality of communication is crucial to ensure that the suppliers are receiving accurate information such as production forecasting or production downtime. There are few metrics that have been used to quantify supply chain quality including defect-free rate, rejection rate, complaint rate and product quality.	*"This is supplement, consumable (product). Quality is the main focus. Like you are Motorola, you do (manufacture) walkie-talkie, people don't consume it. I would say that is more on cost. Cost is very competitive. But for supplement and any other food related fast moving consumer goods (FMCG), quality is number 1. At any cost we should not jeopardize quality and should not bypass quality restrictions."* (P18)	37	High

	Flexibility	The ability of an organisation to reassess and relocate their scope, process, resource and capability to meet uncertain customers' demand and business competition.	*"The delivery period, that is drawn out very clearly at the start of the agreement, when they are rolling up product volumes, timelines, and stuff like that. For example, the raw materials suddenly changes, they will tell us. And then we negotiate. If there's small micro changes they will keep it the same. If there's major changes, we have to look at the pricing and structure of it. So the flexibility is certainly there."* (P5)	10	High
	Delivery	The ability of an organisation to deliver the products accurately and on-time. Late delivery can lead to the issue of production downtime which also contributes to overall performance.	*"Depends on the business. Our priority most of the time is actually the delivery. Because we have a tight schedule and once we commit to a certain project so delivery is one of the main criteria."* (P17)	10	High
	Reverse	These activities can be an open-loop process, where the materials or products are retrieved and reused by the other parties than the original manufacturers, or a closed-loop process that involve the activities of retrieving the products from the consumers and returning them back to the original manufacturers for recycling, reuse or refurbishment	*"We prefer supplier who has plan for invest in the future such as towards technology, Bluetooth system for example. The one who would like to recycle to reduce cost. This will help us to improve, as well as reduce our cost. Then we will select this kind of suppliers. We also monitor the warranty parts, and recycling. Mostly getting back parts from customers."* (P3)	6	Low

6.4 Thematic Analysis

In order to have a comprehensive presentation of the findings, two phases of analyses were conducted. First, this thesis presents the findings for each theme to ensure consistency between the measures (in this case constructs for quantitative and themes for qualitative) in the two datasets. This is to ensure that both datasets are comparable. Second, this thesis mapped the possible relationships between constructs or themes to test the hypotheses (section 6.5). Similar to the saliency analysis approach, several consolidation meetings were conducted with the supervisory team to discuss the results to improve rigor and minimise bias of the interpretation of the results (Tob-Ogu et al., 2018; Huq et al., 2016). It should be noted that, coherently to the employed deductive approach, all sub-themes were identified prior to analysing the interview data.

6.4.1 Suppliers' Performance

Suppliers' performance (SP) is one of the most important constructs that should be consistent in both datasets as it is the outcome of the study or the dependent variable. Academic literature provides vast discussions on the importance of measuring SP. The interview data discovered that the informants expressed their concerns on SP. For example, an informant gave his view on SP based on his position as a supplier:

> *"If our performance (the supplier) is not OK, their performance (buying firm) will not be OK as well. So, we help each other, that's obvious. If they simply charge us (penalty), they don't have enough parts to assemble." (P7)*

This view was consistent with the thoughts given by the focal firms:

> *"Of course, as a company, we have the obligation to the shareholders, no profit means no business. But the growth of the us (the focal firm) is very much depending on the growth of suppliers. We alone cannot perform if the vendors fail to perform. So, we have to work together, to get the right balance between profitability as well as sustainability. It must be a win-win situation. Win-loss situation will not last long." (P11)*

> *"We will try to help them (the suppliers) to improve (performance). Because at the end of the day, the products are going to come to us. We will help them to improve." (P18)*

The views above show that suppliers and focal firms mutually agreed that the performance of buying firms depends on the performance of their upstream suppliers. Thus, the issue of improving and developing SP is no longer the sole responsibility of

the suppliers, but also affects the buying firms. This is further clarified by Informant P18 who pointed out that:

> *"Supplement products is not like smokers or drinkers (cigarette and alcohol products), once you smoke Dunhill (cigarette) you'll always smoke Dunhill. If I don't get it from this shop, I'll get it from another shop. Same goes to beer. But for supplement, our biggest competitor is company A. They are the biggest supplement manufacturer and they are based in country A. If you go to pharmacy and they don't have our product, they have the same product like A (competitor's product), you'll (customers will) take it. You go to Tesco and every time you go there is no Lux (soap), then I'll go for Dettol. Once I start (using Dettol), I'll not stop. For this, suppliers play a critical role for us."*

Given the importance of SP towards the buying firms, mostly all of the informants claimed that they were monitoring and tracking their SP. Most of them had specific and detailed protocols, rules and procedures for measuring SP. The informants also claimed that they measured their SP regardless of the status of their suppliers, and whether they are local or overseas-based suppliers.

> *"We have 245 component suppliers, first tier suppliers. And we have 1,700 non-component suppliers. Today we talk about component suppliers, the one that build the car. Basically, we have three types of suppliers. Local companies. Second, foreign companies. Third, FDI (foreign direct investment) companies, means overseas companies come to Malaysia, invest in Malaysia, manufacture in Malaysia and supply to us. Three types. We track (performance) all three. We have our own procedure."* (P11)

> *"We do have our suppliers' scorecard to evaluate the suppliers' performance."* (P17)

> *"In our firm, we have a process (performance measurement). We evaluate the suppliers' performance on a monthly basis. And then at the same time what we do is, after quarter, we send them their performance."* (P3)

Along the same lines, informant P3 further shared that they were not just measuring their immediate suppliers (Tier-1 suppliers) but the process of measuring SP was also extended to their Tier-2 and Tier-3 suppliers.

> *"PIAQA (product integrity and quality assurance) audit looks in term of secondary supplier, meaning that supplier to the supplier. In order for them supply us a good product, they need to have a good supplier as well. If their suppliers are reliable, then their supply to us with all our guidance and so on they will be reliable."* (P3)

Similar views were observed during the interviews with the suppliers. The suppliers indicated that they were also measuring their own performance. They also added that most of their performance measurements were benchmarked with their competitors.

> *"Obviously (we measure our own performance). We measure our performance and benchmark it with our competitors. One of our competitors is competitor A. They manufacture almost the same product as us. (Using) same machine. The top management has instructed us to directly benchmark our performance with competitor A." (P7)*

> *"If I'm comparing our company as a printing company in Malaysia (industry benchmark and competitor), I can say that we have been recognised as the best printing company in the nation. I would say not no 1, but still the best, top five. Because we get the business from X (focal firm). Almost 95% business from them which is cover the Asian and Australia group market. Compare to our competitors, maybe they got around 5% balance. We would say that with the volume we received, we are the best printing company (tobacco industry) in Malaysia right now." (P9)*

> *"We have quality, downtime, delivery, warranty (performance metrics). More to quality. Our current overall performance is now green (good). Our main customer indicates our performance is green. There are 3 colours, green, yellow, red. Approximately 7-8 (performance scale out of 10)." (P10)*

6.4.1.1   Quality Performance

Further analysis on the interview data pertaining to the SP theme revealed that metrics or measures of performance differ from one firm to another, and from one sector to another. However, the interview data showed that there were four dominant performance metrics or measurements discussed by the informants, namely quality, cost, delivery and flexibility. Those four constructs were considered as the sub-themes. Among those four sub-themes, *quality performance* was the main priority of most informants when discussing about performance.

> *"This is supplement, consumable (product). Quality is the main focus. Like (if) you are Motorola, you do (manufacture) walkie-talkie, people don't consume it. I would say that is more on cost. Cost is very competitive. But for supplement and any other food related fast moving consumer goods (FMCG), quality is number one. At any cost we should jeopardize quality and should not bypass quality restrictions." (P18)*

> *"Number one (priority), of course, is quality. We will test the quality (of the product or cloth) first. Sometimes, when we wash the cloths, it will shrink, damage or discolour. Customers came back saying that our product is not good, tearing apart. We think it was just one customer, but then another came to complaint as well. Then we stopped from getting the supplies from that*

suppliers even though they offered us discount. It will affect our business."
(P22)

It is apparent from the interviews that most of the firms' main priority was quality performance. This applied to most of the sectors in the manufacturing industries but was highly important in the sectors that concentrate on customisation and consumable products such as advertising or printing, textile and pharmaceutical sectors. It is worth noting that even though the automotive sector is renowned as a sector that focuses on mass production, companies from this sector are not compromising their quality performance.

> *... "because we are concerned about the safety of the car, (the safety of the) people. So, if the welding is not good, if the power window is not working, this issue needs to be improved. Because right now they (the suppliers) can do (manufacture) the parts, but the parts broken after one year in the market. They gave us a good quality during testing phase for sampling. But after production, the parts failed." (P2)*

6.4.1.2   Cost Performance

The second performance construct that was considered as the second sub-theme in SP is *cost performance*. Cost performance is the second highest coded sub-theme and concern expressed by the informants. As mentioned by informant P20, alongside quality performance, cost performance played an important benchmark of firm's performance:

> *"Cost is the first priority in this industry (steel sector). Without cost, the rest of the things can't work. You can tell whoever that you can produce the world best material, but if the cost cannot make, then it is not working. For this industry, it is very sensitive on cost, unlike other industries. It means every cent count, every mm (millimetre – length of the steel) counts. It's very competitive because we are talking about mesh. In this industry, between quality and cost, I would say 80-20 (%). 80 (%) on cost, 20 (%) on quality."*

Informant P20 added:

> *"You realise that I emphasised a lot on cost. Because this industry (steel sector) is sensitive to cost. You can tell the buyer that I'm using a brand-new truck to send you cargo, brand new machine to produce the products you purchase from me, and the downtime is almost zero. But the buyer will ask how much you will sell to us. Some companies in the past might have failed delivery or something like that. But when it comes to the new project, when they cope, they tend to forget. Because it's cost that taking the lead."*

The statements by informant P20 clearly disclosed that the conventional metrics of performance measurement still have a significant role in shaping the overall performance. Buying firms are using several activities to ensure that their suppliers can reduce operational costs that can influence the overall cost of the products or parts. This is supported by informants P24 and P5, who agreed that one of the supplier selection criteria is cost reduction initiatives offered by the suppliers.

> *"In term of cost, we will try to minimise the cost. For example, fish supplier. If the gas price increased, they will increase their price. So, we will only select suppliers that can maintain their price." (P24)*

> "Cost is always being the starting point of developing a product. To be frank with you, getting in (this) competitive market, that's how (focus on cost) we create (manufacture) and develop a product that could be at price position better than our competitors. That will be one of the core focuses to pursue." (P5)

6.4.1.3   Delivery Performance

The third sub-theme of SP covered in the interviews is *delivery performance*. Even though it was not frequently mentioned by the informants compared to quality and cost performance, delivery performance is still crucial in some firms and sectors. The main reasons for concentrating on the delivery issue are to avoid production downtime and line disruptions. Firms were focusing on delivery performance to ensure that the end customers' needs are fulfilled in a timely manner so that the firms can remain competitive in the market. For example, informants P14 and P11 respectively explained that:

> *… "we are more into delivery (performance). Delivery is critical. Any late delivery can cause the production line to stop. Of course, quality is critical as well. For example, the products were not inspected thoroughly by our vendors (suppliers). Our company accidently assembled the parts which is actually for another model. So, quality and delivery are important. Accuracy of the delivery."*

> *"For delivery, we have two measurements which are part not installed or PNI and also downtime. What does PNI mean? That is the situation where the car rolls of the production line without the part. And the missing part, will be fitted later offline. This is limited to the component where it can be assembled or retrofitted. For example, the horn button. We can roll out this car from the production without that horn cover and we can treat that as part not installed. The carpet floor must be fitted. Otherwise, the car will not roll out because the seat cannot be installed, and the rest of the equipment (or parts) cannot be put*

in. So, under that category of part, we will consider as downtime. The production line needs to be stopped."

6.4.1.4 Flexibility Performance

The fourth sub-theme for SP observed from the interview data is *flexibility performance*. This is mostly related to the ability of a firm to reassess and relocate their scope, process, resource and capability to meet uncertain customers' demand and business competition. Informant P19 deduced that they always need to reassess and re-evaluate firms' operational activities and approaches so that they can remain competitive in the market and become more innovative:

> *"For the customer, yes, we do have a long-term relationship. Sometimes we did visit their plants. To witness some of their latest technology and to understand more on their requirements. So that we can adjust our manufacturing operations and technology to suit to their future plan. So, we not left behind."*

Informant P19 further explained:

> *"That is what we are doing for the last few years and we are keep investing on the new technologies, new machineries, for the last 5 years since 2013. We will still continue to invest and to improve ourselves especially on automation, and to build more sophisticated tools for customers. Because, our market is very huge, and our competition is very huge especially from China. In order to stay competitive in this we have to make a little bit different from what China can supply. We have to jump out from very conventional product to more specific niche market product."*

The importance of flexible performance was also observed during the interview with a focal firm, informant P11, where they inferred that their suppliers can adapt with the changes in the industry. Their suppliers started as novice players where they were only able to manufacture the parts based on the focal firm's specifications, but are now able to design the parts by themselves.

> *"In 1991, we did all (design, drawings, mould, tooling). But now in 2017, 90% is carried out by the vendors (suppliers). Last time, we did the design, everything. We also supplied the tooling to them. Now in 2017, vendors (suppliers) can do design, drawings. They can manufacture the jigs. Basically, I would say Malaysia's vendors (suppliers) for us, they already independent. They can design the parts, they can design the tooling, and they are ready to supply those parts."*

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6.4.1.5   Reverse Supply Chain Performance

The final sub-theme for SP is *reverse supply chain performance (RSCP)*. While informants' responses on quality, cost, delivery and flexibility performance were aligned and consistent with each other, the interview data revealed mix responses for RSCP. On one side, few informants argued that they strived towards the implementation of RSCP especially when it leads to cost reduction. This was one of the criteria of supplier selection as mentioned by informant P3:

> *"We prefer a supplier who has plans in investing for the future. The one (supplier) who would like to recycle to reduce cost. This will help us to improve, as well as (to) reduce our cost. We will select this kind of suppliers."*

However, it is also observed in the interview data that the practice of recycling, reusing and refurbishing is currently lacking in Malaysia's manufacturing industries. Informant P10 claimed that those practices are uncommon and undesired by the buying firm:

> *"For rejected or returned parts, we have one system. We will paint it red, scrap and record. We will not recycle or refurbish. It is not allowed by the customer (buying firm) and our quality policy. We will scrap the whole part. If we open the part, the structure will deform. So, we cannot use it anymore. As for the requirement, the part can only be used once. It is unfair if we reuse the product because customers pay us the price of new product. So, we supply a totally new product. We will not recycle. The scrap collector will come and take the waste with controlled price. It is the standard here in this industry. Reject is reject."*

Similarly, in certain sectors such as plastic manufacturers, the adoption of RSC practices is still vague and loose. For example, informant P19 believed that recycling, reuse and refurbishment practices are not applicable to their sector since they are producing customised products such as moulds. As the moulds were made based on the buying firm's specifications and will only be transferred to the buying firm's facility upon their approval, the execution of RSC practices is not really significant for this firm.

> *"That is not happening in our industry (sector). Because all of our products are custom-made. We make 150 moulds per year. These moulds are custom-made by design. Normally we will build (make) until it is approved, then only we transfer to the customer. So there is no defect issue. Because we have time. From the first completion until the transfer of our product, within few months, sometimes 6 months to make adjustment until this product achieves customers' requirement. Once they approved, then we transfer. So there is no return of the defective items. Only there is waste from our manufacturing and production*

> *like steel waste, copper waste, we make this monthly disposal through government appointed recycle agent. This procedure is also control by the local industry level."*

Moreover, a few informants claimed that they were practising RSC activities. However, they did not consider it as an important strategy in protecting the environment but more towards a way of cost reduction.

> *"I think the keyword is cost. By not wasting or by reusing the product we are saving cost. There's not much of impact to the environmental issue. Because, of course, steel is recyclable. We can always cut it down and reuse again. That's for steel, unlike other product, (such as) plastics or such things like that. I don't see the important of it. Because, it's by nature. Because you don't want to throw away steel waste, you want to scrap it. You want to collect all this scrap steel and sell it for a price. That is what happen (in this industry)." (P20)*

6.4.2   Supplier' Trust

As mentioned earlier, suppliers' trust has been identified as a unidimensional construct. The interview questions were constructed to assess suppliers' trust towards their immediate buying firms. Trust in this context is related to suppliers' belief that buying firms will act consistently to what they promise to do. Trust can be considered as the confidence that a supplier has on its buying firms and its willingness to rely on them. Asking about the importance of suppliers' trust, the majority of the informants agreed that suppliers' trust has a significant impact on supply chain relationships and practices. For example, informant P1 stated the suppliers are willing to engage and collaborate with the buying firms once they trust their buying firms:

> *... "they (the suppliers) can only do something if they trust you. Performance is also got to do with, very strongly, trust. If they trust you a lot, they are willing to go extra miles. They will go extra miles for it."*

During the interviews, several patterns and subjects emerged when informants discussed their trust towards buying firms. Some firms interpreted trust differently to the others, but most of the firms agreed that trust towards their buying firms was identified by several factors including honesty and partnership. Suppliers believed that their buying firms are honest with them and can be trusted whenever the information given by the buying firms was accurate and transparent.

> *"So far, I think that (transparency) makes customer A good. Because they are transparent. Any problems or directions, they will inform earlier. It eases us to do our job. No unclear instructions. They will provide production forecast so that we can easily plan our material ordering, early preparation. Very helpful,*

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easy for us. So far, we don't have conflict with customer. They give us 6 months forecast, more accurate. If there is any adjustment, they will inform earlier. Most of the communication are web-based. Anytime, anywhere we can check the status. If they have urgent matter, they will contact us directly." (P7)

"We'll give them (suppliers) enough information, and also timing about the progress of all the work. So that they can also plan up properly on their side. In the sense of trusting, yes they are (trust is) there. But most important is accurate information to them (suppliers)." (P6)

On the other hand, informant P10 expressed that a lack of transparency and accurate information lead to lower trust by the suppliers towards their buying firms.

"As for company B, it is hard to rely on their volume forecast. Once they said that they will manufacture 4000 units. We prepared everything including three days' buffer stock. We bought the (raw) materials at the beginning of the month. At the end of the day, they just took 100 units from us. What is going to happen with the existing materials? We cannot sell it (to other customers). Wasting our money. We've planned the manpower since the beginning of the month. At the end of time, they changed their mind."

Moreover, the ability of the buying firms to exhibit that they are concerned over their suppliers' welfare and keep their interests in mind will enhance suppliers' trust on them. Those buying firms relied on long-term relationships and tried to develop constructive partnerships with their suppliers.

"For us, all vendors (suppliers) are partners to us. Even if they supply small parts, they are still partner to us." (P22)

"One more thing why we are more rely on contract basis (relationship), our company has some long-term plan for our local (vendors). They are actually developing and creating partnerships. I think in future what our company is looking at is instead of having to import from Thailand, probably we only source it from local. Basically, due to Malaysia's tax policy and import regulations. So, that's the idea." (P14)

In the same vein, informant P7 stated that while transparency of information plays an important role in the relationship with their buying firms, the willingness of the buying firm to consider them as a business partner improved their trust towards them.

"Our main customer is customer A. I would say they are helpful. They see us as a business partner even though we are just their supplier. They are transparent especially in ordering."

Informant P7 further added:

> *"Malaysia automotive industry (sector) more towards that (partnership). Certain industries maybe contract-based. But in automotive, more towards friendly business partnership."*

6.4.3 Contractual Governance

As expected, the third theme that emerged from the interview data is contractual governance. This theme is related to the ability of a buying firm to use a contractual or legal agreement to influence supply chain members. It includes the strength of contractual governance used by the buying firms. It is apparent from the interview data that contractual governance played an important role in shaping suppliers' actions and behaviours. Most of the informants agreed that contracts act as a platform or a foundation of business relationships.

> *"There is correlation (between contract and performance). The correlation starts with our contracts. In our contracts stated very clearly, performance oriented. It is very clearly measured." (P1)*

> *"While dealing with suppliers, we are most likely based on the contract and performance measurement. If the suppliers' performance is poor, we can deactivate them from our systems and they cannot supply anything to us. That's for the suppliers." (P17)*

Nevertheless, a few informants argued that contractual governance is useful whenever they have to deal with international or overseas suppliers. This is mostly due to their lack of influence towards international or overseas suppliers, where a contract has to take place as the mean for controlling the suppliers.

> *"But for our international vendors, we are totally based on contract." (P14)*

Informant P14 added:

> *"With international vendor, we cannot control them, and it must be based on the contract. Even in quality issue, it takes time to actually resolve those issues with international vendors. We normally import more to buffer (as the buffer stock) in case there is any quality issue (in the future). In case our company would like to push (the international vendors), we need to use our Thailand branch and bring other parties or subsidiaries to help to push."*

Moreover, contractual governance is useful for firms that rely on transactional and arm-length business relationships as shared by informant P18:

> *"It is very difficult for one organisation to control another organisation. It is all goes by business contract. Because it is very competitive market nowadays.*

If you don't want to do this (the product), so many out there waiting to do my product."

As expected, buying firms utilised contractual governance as a safeguard from suppliers' opportunistic behaviours so as to ensure that their suppliers will not take their business relationships for granted.

"As I said earlier, even the downtime penalty is stipulated in the contract, they (the buying firm) will still call us to know what happened. It happened before. Our truck did not deliver on time due to an accident. So, we informed them. They are not too rigid even though it is in the contract (downtime penalty). The contract is clear. We have parts purchase agreements (PPA). But they still tolerate even though the based on the agreement we should be penalised. They still call us and negotiate. Not too rigid." (P7)

"In our contract, if we talk about downtime, for every single minute they (the suppliers) cause us a downtime, we'll charge them 500 ringgit (RM500). As for part not installed, every unit roll without their part, we will also charge them 500 ringgit (RM500) per minute. We do have a penalty-and-reward kind of approach. This is not to recover the losses, but rather to ensure that the vendors take this matter seriously. There are many instances where we waived (the penalty), but they must prove that they've upgraded their performance." (P11)

6.4.4   Transformational SCL

Based on the dimensions of transformational leadership, transformational SCL was characterised by four sub-themes namely idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. The interview data revealed that all four sub-themes emerged.

6.4.4.1   Idealised Influence

The first sub-theme, *idealised influence*, is related to the ability of a buying firm to lead by example and to be a role model to their suppliers. This allows the buying firms to be admired, respected and trusted by their suppliers. This phenomenon can be observed when a buying firm takes responsibility in developing their suppliers and helping them to grow in the industry. As mentioned by informant P11, as part of government-linked company, they are responsible to develop their suppliers to ensure that Malaysian government plan to industrialise Malaysia is realised:

"When we were established back in 1983, one of the main objectives is to be a catalyst to industrialised Malaysia. Under IMP (Industrial Master Plan) 1,2

> *and 3. The early days of us, we embarked what we called Vendor Development Program. We nurtured them (the suppliers) from zero. We determined what parts for that (program). They (they suppliers) came out with feasibility study on how to improve the company."*

Informant P11 further shared that in order to improve their suppliers' sustainability in the industry or sector, their responsibility as a buying firm was not only being a role model but also being accountable in initiating knowledge, technology and information sharing among their local and overseas suppliers.

> *"We even arranged for matchmaking, capital assistance with global suppliers, so that they can learn, through what we call matchmaking. Can be in a form of technical assistance, or joint venture company. In the early days, we do allocate for them (suppliers) what part to produce. We even worked together with them on the part price. This is to ensure that they can survive. To ensure that the project is viable. To ensure that this company can go."*

This can also be observed in the electronics sector where one of the informants inferred that their firm acts as the role model to their suppliers. In this case, suppliers imitated buying firms' practices and success, and at the same time use the buying firm's name as a benchmark or testimony of their performance. Furthermore, suppliers tended to work closely with this buying firm as they are able to learn from the buying firm.

> *"We actually have development program with them (the suppliers) and we actually make it successful so that their system (parts or products) can be applied in solar (buying firms' product). I still remember that they had a request, for them to use our name in their publication. Because based on their perspective, our brand and company's name carry a quite big weight for them to anchor more businesses. In general, yes, there are willing to come to us and work, for technology (to learn) especially." (P6)*

In the same vein, the perspectives given by the buying firms are consistent with the views from the suppliers. Suppliers believed that the growth and competitiveness of their businesses were influenced by the buying firms. For example, informant P7 deduced that their buying firms offered opportunities for them to develop through partnerships and shared-learning approaches. This includes the opportunity given by the buying firms for their suppliers to learn and share ideas in designing new products for the buying firms. Nevertheless, the suppliers also imitate buying firms' best practices for example *Kaizen* and lean production systems.

> *"The approaches (of different buying firms) are different. But still business through partnership. We also can improve. From there we can learn. From there we grow. Customer A gives more opportunity in that (designing).*

> *Customer B gives opportunity in terms of training and Kaizen. If we have to compare them".*

6.4.4.2 Intellectual Stimulation

The second sub-theme identified for transformational SCL is *intellectual stimulation.* This sub-theme is characterised by the ability of the buying firms to promote creativity and innovativeness among its suppliers through stimulating and challenging their intellectual capacity. Those activities include helping the suppliers by having comprehensive discussions and arguments on their current practices as well as providing new insights towards improvement. For example, P1 mentioned that they encouraged their suppliers to share ideas in solving any issues such as to improve productivity through radio frequency technology. This allows the suppliers to be more creative rather than depending solely on the ideas and solution from the buying firms.

> *"The suppliers become innovative by thinking of new things. For example, they (the suppliers) introduced RF (radio frequency) technology. The RF technology is an expense. The price is higher than the technology we are currently using. But the end result, we end up not paying more and the suppliers gain productivity. It means that the technology they (the suppliers) brought we share (costs and benefits) 50:50 (with the suppliers). That means we do not restrict them in working with our technology. You (supplier) can bring technology but the technology cannot end up more expensive for us (the buying firms)." (P1)*

This approach allows the suppliers to be involved in the activity throughout the supply chain such as product development, manufacturing and distribution. This permits the suppliers to have a holistic view and comprehensive understanding regarding buying firms' production activities. This indirectly influences their sense of responsibility and belonging towards a certain production phase or model.

> *"Through this development (program) we used as the platform for the vendors (suppliers) to intensify their involvement in term of new product development. That's what we mentioned just now - we call it early vendor involvement. That vendors' (suppliers') engineers will be together with our engineer to develop the model (in this case, car). We will be responsible to integrate all parts and components to build a complete car. But each and every vendor (supplier), will have to work with us and ensure our systems integrated and performed as discussed." (P11)*

> *"For customer (buying firm) B, they want to develop (the supplier). They ask for many things. As a vendor (supplier), we have to do it. We have to find any new technology and give presentation to customer B. If they convinced, they will take our idea. Then we will share the technology. As Japanese said,*

'Yokoten' (sharing learning). We have to approach (convince) them. The opportunity is there." (P10)

Nonetheless, the buying firms who were likely to stimulate and challenge suppliers' intellectual capabilities in order to improve their competitiveness, tended to be the buying firms that had been working with the suppliers for quite sometimes. As stated by informant P19, business relationships between them and their buying firms had been established for more than 10 years, indicating that both parties understand each other and are able to work together in completing any projects.

"Most of our customers are already working with us for more than 10 years. They (we are) like a team already. Sometimes when we have a big project, a lot of our products delivered to them (the buying firms). We will also send our engineers and designers to Germany, to Mexico or to US, to sit together with their (buying firms') team and analyse the products in their production. So, then we know that these tools (parts or products) are functioning like this with our machine but it is different when it is on their (buying firms') machine. We have to understand also how our product perform in their manufacturing (plants). We'll make our own understanding and adjustment, and next time we can implement (improve) in the next project." (P19)

6.4.4.3   Individualised Consideration

The third sub-theme is *individualised consideration,* which emphasises the ability of the buying firms to focus on suppliers' individual needs. This includes the ability of the buying firms to act as the coach or mentor to their suppliers. Moreover, by exhibiting this approach a buying firm is expected to offer learning opportunities to their suppliers.

"We also supply (assign) our senior managers, station over their side. To educate their number one and number two (Chief Executive Officers and Managing Directors) on how to manage the factory. We also arranged training program for senior management in how to do lean production system, quality system. Up to that level. We also provide financial assistance for the vendor to start-up their business. (Also) For vendor who are having financial crisis, in 1997, and also today. We also support them in buying their materials (raw materials). After 6-7 months, after they can stand up by themselves, then we stop giving the assistance (financial). To that level (extent). But that only applies for local vendors." (P11)

However, it should be noted that individualised consideration is not only characterised by the ability of a buying firm to 'formally' or 'officially' coach their suppliers through specific schemes or development programs. It can also be observed as the ability of the buying firm to have a close communication and contact with the suppliers and

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provide them with the necessary feedback with the main aim to improve suppliers' products.

> *"Usually (our) top management will see our suppliers directly. We will discuss the current materials, give them feedback, ask them to improve. What we can see, every year there will be issues of cloth shrinking and discoloured. But at the end, the will improve the quality of the cloths." (P22)*

Similarly, informant P19 echoed the above statement by stating that the training received from the buying firms were not officially conducted but are more likely to be conducted as on-the-job training. However, the informant further argued that even though training was not officially required, the willingness of the buying firms to collaborate and participate with them starting from the product design phase had helped them to utilise advice and feedback from the buying firms to significantly improve their products.

> *"Not really. We don't have official training or teaching (from the buying firm). Because our project comes from the designing of the products, usually during the design stage, the first tier (buying firm) will participate together with our designers to design the product. When our designers are not using the most effective design, the customer (buying firm / first tier) will give the advice. Because finally they are using these tools so they want the best for them. When my designers are making the design 70% (progress), the first tier will adjust and tell our designers to make it 100%. The 30% is the feedback from the customer (the buying firm), the first tier. That is the first step." (P19)*

6.4.4.4   Inspirational Motivation

Finally, the fourth sub-theme of transformational SCL is *inspirational motivation*. This sub-theme is characterised by the ability of a buying firm to motivate and inspire their suppliers. This includes providing meanings, constructive feedback and suggestions that are aimed at generating enthusiasm and optimism among the suppliers. As shared by informant P18, rather than strictly blaming the suppliers for their performance, they tended to help the suppliers by providing suggestions and potential solutions so that both of them can understand each other and strive together for a better performance. Furthermore, using this approach, the suppliers felt welcomed to share their difficulties with the buying firms, which at the end let both parties communicate and understand each other.

> *"When the performance dropped, we will try to understand. Most suppliers will share with us, like now we are having a machine problem, now we have the quality issue because we have some leakage in the machine. We will also*

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> *give some suggestions. When you have issue, you have to tell me why. I need to understand that. If I can, I'll give you some feedback. So, it will start back from the original feedback from our customers. We can work together to solve the problem but not to influence them."*

It should be noted that based on saliency analysis, this sub-theme is considered of low salience. The main reason is that the interview data revealed that this sub-theme was less coded as not many informants were talking about how the buying firms provide constructive feedback and suggestions to motivate and inspire their suppliers. Another potential reason is that there is a possibility of overlap between this sub-theme with contingent reward (a sub-theme in transactional SCL). This is expected as studies have provided evidence that those two constructs sometimes present huge areas of overlap due to their similarity, which are providing rewards as a motivator for their followers (Bass and Bass, 2008; Judge and Piccolo, 2004; Avolio et al., 1999; Bass, 1990). However, it should be noted that the 'inspirational motivation' does not discuss anything about punishment, which is the central concern in 'contingent reward'.

6.4.5   Transactional SCL

Transactional SCL is characterised by two sub-themes namely contingent reward and management-by-exception (active). The interview data revealed that all two sub-themes emerged.

6.4.5.1   Contingent Reward

Contingent reward refers to the buying firms' approaches in assigning specific goals and objectives to the suppliers as well as focusing on reward and punishment schemes. Using this method, a buying firm should be able to ensure that the suppliers adhere to the expected and pre-determined standards, rules or procedures by promoting rewards and enforcing punishments. For example, as stated by informant P4, his firm utilised a punishment approach in order to ensure that the suppliers meet their requirements:

> *"What we did was we also have a reduction of suppliers. For example, bottle suppliers. If you continuously give us bad products, and then your quality management system has not improved, what we did to one supplier over the past one year plus, basically we decommissioned one guy (supplier). We have no intention to terminate them, we had intention of bringing them back, but we wanted them to focus on the drum and getting it right."*

On the other hand, several buying firms provided monetary rewards or official awards to motivate and show their appreciation to the suppliers. As experienced by informant

P19, his firm had received a second-hand machine as a reward for their performance. Based on informant P19's view, the machine provided by the buying firms not only acted as a motivational means, but also helped them to enhance their production capacity. This situation has potentially led to the enhancement of their production quality and productivity.

> *"We do have some material rewards, for example one of the customers, they are now delivering one of the injection machines to us. It is a used machine, it's obsolete for their production. Like 10 years' machine, they buy a new one. Instead of selling it or scrap, it is still a usable machine and they give it to us for free. So, we can use it in our production. We can say it as a reward because when we buy it from Malaysia it will cost us RM200,000. But they give it to us for free. It's a machine that can improve our capacity." (P19)*

Nevertheless, buying firms organised several events in order to express their appreciation for the suppliers. Normally, the events are held on a yearly basis, and focus on giving awards to their best suppliers including best quality, delivery and cost reduction suppliers. However, based on the interview data, it seems that the most significant rewards received from the buying firms is not the physical awards such as trophies. Suppliers insisted that continuous business and higher production volumes are the desired rewards for them.

> *"Every year, the customers will organise events to appreciate vendors (suppliers). They give awards. A lot of awards. But we do not hope for any awards. Every year, we produce parts in very high quantity. Most of the award winners just supply one part, (thus) 100% delivery. We don't hope for that. We are more towards sales and volumes." (P10)*

6.4.5.2 Management-By-Exception (Active)

The second sub-theme in transactional leadership is *management-by-exception (active)*. This sub-theme refers to an active management practice by the buying firms in monitoring the deviances of their supplier from the pre-determined plan. The corrective action will be taken once the buying firm identified any non-conformities. As reported by informant P11, suppliers were audited extensively. This is to ensure that they complied with the quality standards determined by the buying firms. The audits by the focal firms are not limited to the end products, but also towards their production and manufacturing activities including raw materials and production plans.

> *"The third part is what we call as manufacturing process audit, the MPA. Each and every vendor (supplier) will have to be assessed thoroughly. We will carry out the audit at vendors (suppliers' premises) based on the quality control plan*

that they declared in their part submission warrants. Part submission warrant is the declaration by the vendor that the part is fit for used. In that document of part submission warrant, PSW, they will have to declare their control charts, from raw materials and the processes up to the finished goods. So, each and every section of the production lines, they have to declare what are the control plan. We will audit whether they do as per what they declared. Any non-compliance eventually downgrades their performance. We classified that into A, AB, B or C. For those who get C, considered fail." (P11)

This is supported by the informant P6's view, where he stated that active auditing and monitoring of SP was crucial and executed in their firm. Every month, they provide feedback to their suppliers regarding their current performance level. This is to ensure that the performance of their suppliers is as expected in order to avoid excessive part rejection, which directly impacts on the buying firm's operational performance.

"For example, for solar wafer we are measuring the solar efficacy. So, we do measure this and do track the performance of this wafer suppliers. If we see any drop or better performance from them, we will have kind of monthly communication with them. We will send a report to them also on their incoming rejection. We check every pieces of their wafer. From there if any parts out of our specification, we reject it. We have measurement system (procedure) to do that."

Informant P6 further stated that:

"From there, we prepare for them their rejection rate. From there, we also ask them to improve their rejection rate. For the performance of their wafer, for efficiency perspective, we also constantly working with them to say 'OK, now this is your level' and we do see that there is certain potential on certain electrical parameters that can further boost their performance. They will receive this data or this information; and they will look into their production and make some improvement." (P6)

On the other hand, informant P18 shared that they conducted suppliers' audits but will not take any action if the SP were fine. However, even though informant P18 stated they did not audit their suppliers aggressively, they still asked for official explanations from the suppliers when their performance dropped. This indicates that active auditing and monitoring are taking place in this firm.

"We will look into details if the performance drop. If not, we are not bother. If you are fulfilling my orders as per the contact, as per the PO (purchase order), I don't even want to disturb you. But certain big companies, they have a team who does supplier audit. We too have. But not too aggressive. We will go there, and we will audit them. Are they meeting the quality standards that we set? That we can do. If they not, they need to give a show cause (letter), give us the explanation why didn't you fulfil (the requirements)." (P18)

The practice of auditing and monitoring was also acknowledged by the suppliers. Informant P23 agreed that plant visits by the buying firms were frequently conducted. The buying firm carefully examined the processes in the supplier's plant and provided suggestions for improvement.

> *"It doesn't mean that if our customer (buying firm) is visiting us, it will be fall under improvement (initiative or category) alone. Sometimes, they just come to have their periodical visits, to look at the total (real) scenario at the lines (production lines). Same with us, we will go to our suppliers just to look whether they maintain the 5s (sort, set in order, shine, standardise, and sustain) or not. We try to find faulty (mistakes). From that findings, we will try to motivate (improve) them. Frankly speaking, from my experience, if the findings come from the customers (buying firms), by hook or by crook you need to improve that." (P23)*

Monthly meetings between the buying firms and suppliers are common in Malaysia's manufacturing industry. As inferred by informant P9, monthly meetings were conducted to ensure that the top management from both parties were aware of the current state of their operations. Moreover, close communication between both parties (especially the top management) will ensure that latest information is disseminated and received properly.

> *"Every month we have a supplier review (meeting) which to review our customer's (buying firm) complaints. We review the delivery dates, either we missed. And other related issues. Whatever we have discussed in the meeting, we brought back to our company, we informed out top management on things to be improved from time to time. Means that, every month we have the meeting and close discussions with the customer (buying firm) in order to keep our company running and also to support our major suppliers on the changes and to let them know the new technologies we are receiving in order to keep them in the loop, or for the future development." (P9)*

6.4.6 Laissez-Faire SCL

The final theme used for this thesis and identified in the interview data is laissez-faire SCL. Laissez-faire SCL is divided into two sub-themes, management-by-exception (passive) and total laissez-faire.

6.4.6.1 Management-By-Exception (Passive)

The first sub-theme, management-by-exception (passive), is referring to the focal or buying firms' approaches of being inactive until deviances occur. Using this approach, a buying firm tends to have less communication and contact with their suppliers. As

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shared by informant P8, they were exhibiting management-by-exception (passive), where indicates towards more reactive approach of supplier management. In other words, they waited for the issues to arise to act upon it.

> *"We have no penalty associated with the late delivery, for example. At the end of the day, we are looking at whether we want to continue the relationship or not. If we want to continue the relationship with this company, we will try to identify why there is a delay (in products delivery). Whether it was avoidable. Whether it was in our side or their (suppliers) side. It is important that we find out why. Of course, it is possible to create contract with all these terms however, that usually comes with the cost, whether it based on higher per unit cost or volume commitment. That is the management decision whether you take highly structured and forcible contract along with higher prices. Or you work with a more flexible arrangement that gives flexibility and delivery, price and also it supplies." (P8)*

Informant P8 further stated that:

> *"We do not operate on any exclusivity because most of our raw materials are quite commoditised, and there is no intellectual property inside (related to the products). With those two factors it means that we are not tided with our suppliers. Also, it does not hurt us if the suppliers sell to our competitors because there is nothing unique about the product that they are supplying us. It doesn't have registered design and intellectual properties associate with that. So, it is a different situation." (P8)*

6.4.6.2   Laissez-Faire

The second sub-theme is the complete or total laissez-faire approach, which refers to the unwillingness of the buying firms to make decisions relating to the activities in the supply chain. This includes ignoring their responsibility in enhancing SCL or leading the supply chain members. Furthermore, using this approach, a buying firm offers total freedom to suppliers in terms of standards, practices and operational procedures. By exhibiting this approach, a buying firm is more likely to minimise their interference on suppliers' activities and practices. As stated by informant P8, their relationships with their suppliers were arm-length without providing any guidance, rewards or even punishment to their suppliers.

> *"Presently we have no incentive scheme, incentive meaning positive or negative, whether award for supplying on time or punishment for not supplying on time. We don't have those." (P8)*

This situation is also observed in informant P24's firm, where they as the buying firm preferred to switch from one supplier to another, compared to developing and maintaining their current suppliers.

> "*If quality is not good, we will slowly switch to another supplier. If the supplies are not good, we will not take from them. If we take, it will be in small quantity. They (the suppliers) will ask us why we take only small quantity. So, we will tell them it is because of the quality of the fish and it affects our products. If they still send poor quality product, we have several other suppliers.*" (P24)

6.5   Results and Findings of Qualitative Data: Relationships between Themes

The thematic analysis provides detailed views of the themes and sub-themes that appeared in the qualitative data. Based on the thematic analysis, it is apparent that the quantitative and qualitative datasets were measuring the same constructs. The overall findings of the qualitative data can be categorised into four main SCL approaches or patterns. First, transformational SCL-based firms *(Category 1)*. This category includes buying firms that exhibited or suppliers that experienced high transformational SCL approach. Second, transactional SCL-based firms *(Category 2)*. This category includes the buying firms that exhibited or the suppliers that experienced high transactional SCL. The third category is assigned to buying firms that exhibited a combination of transformational and transactional leadership *(Category 3)*. Similarly, Category 3 is devoted to the suppliers who experienced the combination of transformational and transactional leadership of their buying firms. Finally, the fourth category is laissez-faire SCL which indicates the buying firms that practiced reactive approach in managing suppliers *(Category 4)*. This category also includes any suppliers that experienced laissez-faire leadership approach of their buying firms. Based on this categorisation pattern, the potential relationships between the themes were articulated.

6.5.1   *Direct Relationships between SCL and Governance Mechanisms*

This thesis hypothesised that leadership styles of the buying firms have a significant relationship on their governance mechanisms. The first set of hypotheses in this thesis suggests that SCL is positively related to suppliers' trust. Table 6.5 presents the potential relationships between SCL and suppliers' trust based on the interview data. Firms in Category 1 illustrate that transformational SCL practiced by the buying firm

had a positive influence on suppliers' trust. It is apparent from the interviews that all firms in this category exhibited (for the firms that were asked based on their perspective as the buying firms) or experienced (for the firms that were asked based on their perspective as the suppliers) transformational SCL. All firms in this category rated and argued that suppliers' trust on the buying firms were high. Based on this observation, *Hypothesis 1 (H1) is supported.*

However, the patterns of firms in category 2 suggest that transactional SCL had a non-significant effect on suppliers' trust. The informants in this category rated and expressed that that the level of suppliers' trust towards their buying firms varies from one firm to another. The interview data recorded mixed responses of the suppliers' trust level and it ranges from a low to a high level of trust. Due to this pattern, *H2 is not supported.* Similarly, category 4 firms show the relationship between laissez-faire SCL and governance mechanisms. It is observed that while the buying firms were being inactive in the supply chain relationships, suppliers' trust towards them seemed unaffected. For example, even though firm P24 was not interfering in suppliers' production plans or making decisions, they were still able to achieve an average level of trust from their suppliers. Similarly, firm P8 indicated that even though their buying firm was giving them total freedom for making any decisions, they still have an average trust towards their buying firm. Only one firm showed that their trust on the buying firm was low which is firm P20. Hence, the patterns suggest that *H3 is not supported*.

The same patterns are not observed for the relationships between SCL and contractual governance. The interview data revealed that even though a buying firm was exhibiting transformational SCL, the level of contractual governance exercised by them was either average or low. In other words, a buying firm who used transformational SCL as their main approach tended not too rely too much on exercising contractual governance. However, contracts still exist as a safeguard for both parties. This pattern signifies that transformational SCL is not a significant contributor of contractual governance. Hence, *H4 is not supported.*

On the other hand, a potential significant relationship between transactional SCL and contractual governance is observed in the interview data indicating that *H5 is supported.* As illustrated in Table 6.5, all firms in category 2 were either practising

(buying firms) or experiencing (suppliers) high contractual governance. As hypothesised, the patterns suggest that transactional SCL is highly associated with a higher contractual governance exercised by the buying firms. Nevertheless, a consistent pattern is observed for the relationship between laissez-faire SCL and contractual governance. The findings revealed that all buying firms that exhibited laissez-faire SCL tended to exercise none or low contractual governance. Hence, H*6 is supported.*

These findings were further supported by the interview data of firms in category 3. Equal leadership styles adopted by the buying firms led them to have equal outcomes of suppliers' trust and contractual governance. For example, firm P1 adopted transformational and transactional SCL in managing their suppliers. Due to the high practice of both leadership styles, trust of the suppliers increased, while at the same time high contractual governance was exercised. However, based on the data in this category, it is difficult to see which SCL styles influenced or affected which governance mechanisms (either suppliers' trust or contractual governance).

Table 6.5: Overall Findings of Qualitative Data

	ID	Leadership Styles	TFL	TSL	LF	TR	CON	SP
Category 1	P3	Transformational and Transactional (Mainly Transformational)	High	Average	Low	High	Average	High
	P5	Transformational and Transactional (Mainly Transformational)	High	Average	Low	High	Average	High
	P7	Transformational and Transactional (Mainly Transformational)	High	Average	Low	High	Low	High
	P9	Transformational and Transactional (Mainly Transformational)	High	Average	Low	High	Average	High
	P13	Transformational and Transactional (Mainly Transformational)	High	Average	Low	High	Average	High
	P17	Transformational and Transactional (Mainly Transformational)	High	Average	Low	High	Average	High
Category 2	P2	Transformational and Transactional (Mainly Transactional)	Average	High	Low	High	High	Average
	P6	Transformational and Transactional (Mainly Transactional)	Average	High	Low	Average	High	High
	P18	Transformational and Transactional (Mainly Transactional)	Average	High	Low	Average	High	Average
	P4	Transactional	Low	High	Low	Average	High	High
	P10	Transactional	Low	High	Low	Low	High	High
	P16	Transactional	Low	High	Low	Average	High	High
	P23	Transactional	Low	High	Low	Average	High	High
Category 3	P1	Transformational and Transactional	High	High	Low	High	High	High
	P11	Transformational and Transactional	High	High	Low	High	High	High
	P12	Transformational and Transactional	Average	Average	Low	High	Average	High
	P14	Transformational and Transactional	High	High	Low	High	High	High
	P15	Transformational and Transactional	High	High	Low	High	High	High
	P19	Transformational and Transactional	High	High	Low	High	High	High

	P21	Transformational and Transactional	Average	Average	Low	Average	Average	Average
	P22	Transformational and Transactional	High	High	Low	Average	Average	High
	P25	Transformational and Transactional	Average	Average	Low	Average	Average	Average
Category 4	P8	Laissez-Faire	Low	Low	High	Average	Low	Average
	P20	Laissez-Faire	Low	Low	High	Low	Low	Low
	P24	Laissez-Faire	Low	Low	High	Average	Low	Low

TFL – Transformational SCL; TSL – Transactional SCL; LF – Laissez-Faire SCL; TR – Suppliers' Trust; CON – Contract; SP – Suppliers' Performance

6.5.2 Direct Relationships between Governance Mechanisms and SP

The second set of hypotheses in this thesis suggested that governance mechanisms are positively related to SP. As illustrated in Table 6.5, firms in category 1 can be considered as firms with high levels of suppliers' trust towards their buying firms. By looking into this category, it is quite obvious that a high level of trust is consistent with a high level of SP. Hence, this pattern suggests that *H7 is supported.*

It should be noted that firms in category 1 are characterised by the firms that had higher suppliers' trust, whilst firms in category 2 are characterised by the firms that exercised or experienced high contractual governance. Firms in both categories applied different governance mechanisms. For example, informant P7 described their firm's performance as excellent. The informant also stated that they trust their buying firm to a great extent. However, detailed analysis of the interview data of this firm showed that their buying firm exercised low contractual governance such as less auditing and monitoring sessions. From the interview, it is apparent that their trust towards their buying firms influenced their performance. As discussed in the thematic analysis section, the example of informant P7 statements are as following:

> *"Our main customer is customer A. I would say they are helpful. They see us as a business partner even though we are just their supplier. They are transparent especially in ordering."*

Informant P7 further added:

> *"Malaysia automotive industry (sector) more towards that (partnership). Certain industries maybe contract-based. But in automotive, more towards friendly business partnership."*

On the other hand, category 2 firms are represented by the buying firms that exercised contractual governance. In this category as well, the interview data showed that mostly SP was also rated as high (except two cases of average performances). Hence, *H8 is supported.* The findings are further supported by the data from firms in categories 3 and 4. In category 3, whenever the level of both governance mechanisms were equally high, the SP was also high. Similarly, whenever the levels of both governance mechanisms were average, the SP were rated or described as average by the informants. Moreover, in category 4, governance mechanisms were rated as low and average, consistent with the rate given to the SP which are mostly the low level. Based on the patterns, it can be seen that whenever any one of the governance mechanisms

was at the high level, the SP was also high. However, whenever none of the governance mechanisms is high, SP tends to be at the low level. Hence, *these patterns further signal towards acceptance of H7 and H8.*

6.5.3 Direct Relationships between SCL and SP

The third set of hypotheses of this thesis involve the relationships between SCL and SP. The analysis found that SCL had potential relationships on SP. As shown in Table 6.5, all firms with higher transformational SCL tended to rate and describe their SP (or their own performance) as high (refer to firms in category 1). Similarly, this phenomenon is also observed with the firms that practiced or experienced transactional SCL, where most of them agreed that their suppliers' or their own performance was considered high (category 2). Firms in category 3 also seemed to be experiencing high performance due equally to the approaches of transformational and transactional SCL exhibited by the buying firms. Unfortunately, the findings differed for Category 4 firms where the buying firms who exhibited laissez-faire leadership led to low performance of their suppliers. Hence, based on these patterns *H9, H10 and H11 are supported.*

6.5.4 Indirect Relationships between Themes (Mediating Role of Governance Mechanisms)

This thesis attempts to identify the potential indirect relationships of governance mechanisms. While it is not possible to provide numerical or statistical data, the mediating role of governance mechanisms can be evaluated by using Baron and Kenny's (1986) assumptions. Baron and Kenny (1986) provided a foundation of mediation analysis by arguing that there is a 'possible mediation effect' if there are relationships between the independent variables to the mediators, AND between the mediators to the dependent variables, AND between independent variables to the dependent variables. Using this definition, the interview data was carefully analysed to see the potential mediating effects.

As shown in Table 6.6, transformational SCL had a positive relationship with suppliers' trust, and suppliers' trust had a positive relationship with SP (refer to firms in category 1). It shows that there is 'potential' that suppliers' trust mediated the relationship between transformational SCL and SP. Hence, this indicates that *H12 is*

supported. However, the interview data also revealed that transactional and laissez-faire SCL were not related to suppliers' trust (category 2 and 4 firms). Due to these patterns, it is unable to assume that suppliers' trust mediated the relationship between transactional SCL and SP as well as between laissez-faire and SP. Hence, these findings suggest that *H13 and 14 are not supported*.

The same approach of assessing 'potential mediation effects' was used to examine the role of contractual governance. As shown in Table 6.5, transformational SCL had no significant relationship with contractual governance (firms in category 1). Thus, the assumption of contractual governance mediated the relationship between transformational SCL and SP cannot be established. Hence, *H15 is not supported*. However, it seems that there are relationships recognised between transactional SCL and contractual governance, and between contractual governance and SP (firms in category 2). Thus, there is a potential mediation effect of contractual governance on the relationships between transactional SCL and SP. Hence, *H16 is supported*. Similarly, firms in category 4 show potential relationships (in this case, negative) between laissez-faire leadership, contractual governance and SP. This indicates the potential mediating effect of contractual governance on the relationship. Hence, H*17 is supported.*

6.6   Chapter Summary

In this chapter, similar to the quantitative approach (Chapter 5), a total of 17 hypotheses were tested to examine the potential relationships between themes identified from the interview data. This chapter presented five analyses of the interview data which are demographic analysis, descriptive analysis, saliency analysis of the themes, thematic analysis and hypotheses testing. Table 6.6 shows the overall findings of qualitative data. The findings reported in this chapter revealed that transformational and transactional SCL positively influenced SP, while laissez-faire leadership negatively influenced SP. The analysis also revealed that suppliers' trust and contractual governance equally contributed to the better performance of the suppliers. At the same time, it was apparent from the analysis that transformational SCL was positively related to suppliers' trust, while transactional SCL was positively related to contractual governance. On the other hand, laissez-faire SCL was negatively related to contractual governance. Furthermore, the potential mediation effects were

also examined in this chapter. The mediation analysis revealed the potential mediation effect of suppliers' trust on the relationship between transformational SCL and SP. Moreover, the assumptions of contractual governance mediated the relationship between transactional SCL and SP, as well as laissez-faire SCL and SP were also supported. In general, the results of the qualitative data resonate with the findings of the quantitative data. A detailed discussion providing a comparison of the findings between both datasets will be offered in the next chapter.

Table 6.6: Overall Findings of Qualitative Data

	Hypotheses	Qualitative Result
Direct Relationships	H1: Transformational SCL is positively related to suppliers' trust.	Supported
	H2: Transactional SCL is positively related to suppliers' trust.	Not Supported
	H3: Laissez-faire SCL is negatively related to suppliers' trust	Not Supported
	H4: Transformational SCL is negatively related to a higher contractual governance exercised by the buying firms.	Not Supported
	H5: Transactional SCL is positively related to a higher contractual governance exercised by the buying firms.	Supported
	H6: Laissez-faire SCL is negatively related to a higher contractual governance exercised by the buying firms.	Supported
	H7: Suppliers' trust in buying firms is positively related to SP.	Supported
	H8: High contractual governance exercised by the buying firms is positively related to SP.	Supported
	H9: Transformational SCL is positively related to SP.	Supported
	H10: Transactional SCL is positively related to SP.	Supported
	H11: Laissez-faire SCL is negatively related to SP.	Supported
Indirect Relationships	H12: Suppliers' trust mediates the positive relationship between transformational SCL and SP.	Supported*
	H13: Suppliers' trust mediates the positive relationship between transactional SCL and SP.	Not Supported*
	H14: Suppliers' trust mediates the negative relationship between laissez-faire SCL and SP.	Not Supported*
	H15: Contractual governance mediates the positive relationship between transformational SCL and SP.	Not Supported*
	H16: Contractual governance mediates the positive relationship between transactional SCL and SP.	Supported*
	H17: Contractual governance mediates the negative relationship between laissez-faire SCL and SP.	Supported*

*The indirect relationships between constructs were not statistically tested but the assumptions were made based on the direct relationships between the themes.

CHAPTER 7

DISCUSSION

Drawing upon the research gaps in the SCL studies presented in Chapter 2, this thesis examined the effect of supply chain leadership (SCL) on governance mechanisms and suppliers' performance (SP). More specifically, a convergent mixed methods approach was used in this thesis to investigate the impact of buying firms' leadership styles towards the performance of their upstream suppliers in manufacturing industries. A convergent parallel mixed methods design was used where the quantitative and qualitative data were collected in parallel, analysed separately and the findings merged in this discussion chapter. The main purpose of conducting a convergent parallel mixed methods research design in this thesis was to compare both quantitative and qualitative data. Using this approach, both datasets were used to measure the relationships between constructs (quantitative) and themes (qualitative). A set of hypotheses were tested using both methods. Overall, the four research objectives of this thesis are:

i) To examine the relationships between SCL and governance mechanisms.
ii) To examine the relationships between governance mechanisms and SP.
iii) To examine the relationships between SCL and SP.
iv) To examine the mediating role of governance mechanisms on the relationships between SCL and SP.

In order to meet the first, second and third research objectives, 11 hypotheses were proposed. In addition, 6 hypotheses were proposed in order to meet the fourth research objective. Those hypotheses were proposed after related studies of SCL, governance mechanisms and SP were reviewed. As noted in the literature review chapter (Chapter 2), most of the studies on SCL have been confined to the role of the buying firm's leadership style in improving their own performance. This thesis contributes to the body of literature on supply chain and operations management by providing evidence on the impact of SCL on governance mechanisms and SP. Nonetheless, this thesis provides the first attempt to examine the mediating role of governance mechanisms on the relationships between SCL and SP. This thesis strengthens and validates its quantitative findings with supplementary qualitative findings.

This chapter provides a discussion of the main findings. The discussion of the findings is broken down into five sub-sections. First, the findings of direct relationships between SCL and governance mechanisms are discussed. The next sub-section provides a discussion on the results of the direct relationships between governance mechanisms and SP. Furthermore, the third sub-section discusses the key findings of the direct relationships between SCL and SP to highlight the relevance of buying firms' leadership styles towards the performance of their upstream suppliers, followed by the findings of mediation analysis of governance mechanisms as the mediators. The overall findings between quantitative and qualitative data are discussed in each sub-heading, and the summary is provided in sub-heading 7.5.

7.1   Supply Chain Leadership and Governance Mechanisms

This first objective of this thesis was to examine the relationships between SCL and governance mechanisms. Transformational-transactional leadership theory was used as the basis for proposing the relationships between SCL and suppliers' trust. Initially, this thesis hypothesised that suppliers' trust towards their buying firms is highly associated or predicted by the leadership approach exercised by the buying firms. More specifically, it was hypothesised that transformational and transactional SCL are positively related to suppliers' trust, while laissez-faire leadership is negatively related to suppliers' trust. As illustrated in Table 7.1, H1 which suggested that transformational SCL is positively related to suppliers' trust is supported ($\beta = .615$, p <.001). The findings discover that by exhibiting transformational SCL, a buying firm is able to enhance and improve their suppliers' trust towards them. The result implies that buying firms' ability to *lead* the suppliers and provide them with necessary support and assistance will improve suppliers' trust as they tend to believe that the buying firms are concerned about their business success (Birasnav et al., 2015).

Table 7.1: SCL and Suppliers' Trust

Hypotheses	Quantitative Result	Qualitative Result
H1: Transformational SCL is positively related to suppliers' trust.	Supported	Supported
H2: Transactional SCL is positively related to suppliers' trust.	Not Supported	Not Supported
H3: Laissez-faire SCL is negatively related to suppliers' trust	Not Supported	Not Supported

Furthermore, acting as a mentor or coach improves suppliers' trust on the buying firm as the suppliers tend to believe that they can learn from their buying firms (Ojha et al., 2018; Teoman and Ulengin, 2018; Roman, 2017). This allows the buying firms to portray that they are transparent in the business practices, and at the same time they are willing to help their suppliers to develop. Nonetheless, using a transformational-based leadership approach in their relationships with the suppliers, a buying firm is willing to provide the necessary assistance to the suppliers to enhance collaboration and communication between both parties. Close contact, frequent discussion and constructive feedback or suggestion will improve the relationships and communication between the buying firms and their suppliers, resulting in a more trusted and honest supply chain environment.

This phenomenon is further supported by the qualitative data (interview). All the informants who rated their trust towards the buying firms was high mentioned that it happened due to the ability of the buying firms to be transparent and exhibit their concerns towards suppliers' development or success. Furthermore, the informants who rated their trust towards the buying firms as at the higher end stated that they trust and believe in the buying firms because they treat their suppliers as a *partner*. The findings from both datasets are consistent with the literature where those studies suggested that a higher extent of suppliers' trust can be enhanced and improved if a buying firm is able to efficiently disseminate information across the supply network, provide the necessary support to the suppliers and strengthen their buyer-supplier communication frequency as those elements contribute to the confidence in supply chain members or relationships (Hemmert et al., 2016; Dyer and Chu, 2000; Sako and Helper, 1998).

Unexpected yet interesting results were discovered on the relationship between transactional SCL and suppliers' trust; and laissez-faire SCL and suppliers' trust. Initially, it was proposed that transactional SCL is positively related to suppliers' trust, while laissez-faire SCL is negatively related to suppliers' trust. However, the findings suggest that both hypotheses (H2 and H3) are not supported due to insignificant relationships (at 0.05 level). The findings imply that transactional and laissez-faire SCL had no significant effect on suppliers' trust. In other words, by exhibiting transactional and laissez-faire SCL, a buying firm will not improve or deteriorate a supplier's trust towards them. A possible explanation for this discrepancy can be

explained based on the interview data. In contrast to the firms that exhibited or experienced transformational SCL (category 1), firms with transactional and laissez-faire SCL recorded mix responses when asked about their trust towards their buying firms (category 2 and category 4). These patterns signal that both leadership styles were not the determinant of suppliers' trust. This is supported by several statements shared by the informants in which they believed that the transactional SCL approach such as auditing and monitoring is just business-related practices that is done by all buying firms in the industry:

> *"It doesn't mean that if our customer (buying firm) is visiting us, it will be fall under improvement (initiative or category) alone. Sometimes, they just come to have their periodical visits, to look at the total (real) scenario at the lines (production lines). Same with us, we will go to our suppliers just to look whether they maintain the 5s (sort, set in order, shine, standardise, and sustain) or not. We try to find faulty (mistakes). From that findings, we will try to motivate (improve) them. Frankly speaking, from my experience, if the findings come from the customers (buying firms), by hook or by crook you need to improve that." (P23)*

Similarly, firms with a laissez-faire SCL approach tend to have very short term relationships with each other, particularly related to commodity products and sectors such as steel and fish supplies. Moreover, switching from one supplier to another is completely normal in these sectors. As shared by an informant, firms in this category operated in a *free* relationship and were not obliged to each other:

> *"We do not operate on any exclusivity because most of our raw materials are quite commoditised, and there is no intellectual property inside (related to the products). With those two factors it means that we are not tided with our suppliers. Also, it does not hurt us if the suppliers sell to our competitors because there is nothing unique about the product that they are supplying us. It doesn't have registered design and intellectual properties associate with that. So, it is a different situation." (P8)*

Table 7.2: SCL and Contractual Governance

Hypotheses	Quantitative Result	Qualitative Result
H4: Transformational SCL is negatively related to a higher contractual governance exercised by the buying firms.	Not Supported	Not Supported
H5: Transactional SCL is positively related to a higher contractual governance exercised by the buying firms.	Supported	Supported
H6: Laissez-faire SCL is negatively related to a higher contractual governance exercised by the buying firms.	Supported	Supported

Furthermore, this thesis has also examined the relationships between SCL and contractual governance (H4-H6). As illustrated in Table 7.2, the findings reveal that transformational SCL is not related to a lower contractual governance exercised by the buying firms (H4). This is inconsistent with the initial proposed hypothesis. The quantitative data reveals that the relationship between transformational SCL and contractual governance is not significant at the 0.05 level, implying that transformational SCL had no significant effect on contractual governance. A possible explanation of this result is that a high transformational SCL does not necessarily lead to higher contractual governance, but in certain relationships such as in the automotive sector, transformational SCL can lead to flexibility in enforcing the contracts. However, it should not be considered as a non-contractual relationship because contracts still exist as a safeguard. As discovered by the interview data, firms that exhibited or experienced transformational SCL rated the contractual governance as 'average'. This implies that transformational SCL is not the determinant of higher contractual governance. An example of this situation can be seen from the statement shared by one of the informants:

> *"As I said earlier, even the downtime penalty is stipulated in the contract, they (the buying firm) will still call us to know what happened. It happened before. Our truck did not deliver on time due to an accident. So, we informed them. They are not too rigid even though it is in the contract (downtime penalty). The contract is clear. We have parts purchase agreements (PPA). But they still tolerate even though the based on the agreement we should be penalised. They still call us and negotiate. Not too rigid." (P7)*

As expected, the findings reveal that transactional SCL is positively related to higher contractual governance (β = .514, p <.001). The result indicates that H5 is supported. Transactional SCL is characterised by the behaviour of a buying firm that impacts on the expected or pre-determined performance of the suppliers. In order to ensure that the suppliers meet the required performance level, several transactional approaches are used including reward, punishment and frequent monitoring. Furthermore, a buying firm clarifies clearly to the suppliers their expectations, rules and regulations. It is common that by exhibiting transactional SCL, a buying firm tends to apply a reward and punishment scheme to promote obligation and reduce deficiencies. This approach is highly associated with the use of contracts in managing supply chain relationships (Jia et al., 2018; Reimann and Ketchen, 2017). In a contract, the specific requirements of the buying firms are stipulated, together with the potential rewards or penalties (for

example, late delivery penalty). As a transactional SCL-based buying firm is highly interested in ensuring their expectation (for example, price, quality, delivery) is fulfilled, they tend to use contracts to influence suppliers so that the compliance and adherence of the suppliers can be assured (Terpend and Ashenbaum, 2012; Maloni and Benton, 2000). These findings are supported by the interview data. All the firms that exhibited or experienced transactional SCL (category 2) stated that they relied heavily on contractual governance. As stated by one of the informants in category 2, they rely on contractual governance as the primary mechanism in controlling their suppliers.

> *"It is very difficult for one organisation to control another organisation. It is all goes by business contract. Because it is very competitive market nowadays. If you don't want to do this (the product), so many out there waiting to do my product." (P18)*

On the other hand, the findings reveal that laissez-faire SCL is negatively related to higher contractual governance (β = -.205, p <.01). By exhibiting a laissez-faire approach, a leader assumes that the followers have the necessary guidance, expertise and resources so they are able to work independently (Judge and Piccolo, 2004; Avolio et al., 1999; Bass, 1990). Using this approach, a buying firm will provide less guidance to the suppliers, assuming that the suppliers are competent enough to complete the necessary tasks or projects. Furthermore, laissez-faire SCL buying firms will provide guidance or support when necessary (management-by-exception passive), implying that if the situation is under control and not severe, they will not interfere in their suppliers' business. By giving full autonomy to the suppliers, the reliance on contracts decreases. This is due to the nature of the laissez-faire leadership approach, where a leader tends to take action only after the behaviour of the followers or suppliers creates serious difficulties (Judge and Piccolo, 2004). Hence, if the suppliers are not having any severe situation that worries the buying firms, the contractual governance is minimally used. This is further supported by the interview data. All firms that exercised or experienced laissez-faire SCL deduced that they are not having any formal monitoring, reward or punishment scheme. At the same time, those firms (refer to the firms in category 4) preferred not having strict contracts with each other as in their sector, suppliers are easily switched from one to another (especially for those supplying commodities products such as steel, copper, fish supplies etc.). As stated by one of the informants, firms in this category (laissez-faire SCL) have no obligation to

each other. Furthermore, they believed that relying on contracts will cause them to be inflexible in getting the best products and supplies in the market.

> *"We have no penalty associated with the late delivery for example. At the end of the day, we are looking at whether we want to continue the relationship or not. If we want to continue the relationship with this company, we will try to identify why there is a delay (in products delivery). Whether it was avoidable. Whether it was in our side or their (suppliers) side. It is important that we find out why. Of course, it is possible to create contract with all these terms however, that usually comes with the cost, whether it based on higher per unit cost or volume commitment. That is the management decision whether you take highly structured and forcible contract along with higher prices. Or you work with a more flexible arrangement that gives flexibility and delivery, price and also it supplies." (P8)*

The findings are in line with transformational-transactional leadership theory. Transformational-transactional leadership theory postulates that the leadership styles of a leader influence the actions and behaviours of their followers. For example, a transformational leadership style is always positively associated with the higher level of followers' trust, while transactional leadership is always associated with the higher level of control and monitoring (Jia et al., 2018; Bass and Bass, 2008; Judge and Piccolo, 2004). Furthermore, the lack of leadership exhibited by the leader (laissez-faire leadership) can deteriorate the performance of the followers (Hinkin and Schriesheim, 2008; Avolio et al., 1999). It is evident from this thesis that transformational and transactional SCL are the determinants of governance mechanisms and SP. Transformational SCL exhibited by the buying firm fosters suppliers' trust on them. This happens as the suppliers believe that the buying firms are concerned about their success and will not be opportunistic. On the other hand, transactional SCL leads to a higher contractual governance of the buying firms. This is due to the nature of transactional SCL-based firms that rely on control elements in supply chain relationships including reward, punishment (for example, late delivery penalties) and audit.

Overall, the findings of both datasets discover that transformational SCL improved suppliers' trust, while transactional SCL heighten the use of contracts in supply chain relationships. Furthermore, the findings reveal that laissez-faire SCL led to a lower exercise of contractual governance. These findings support the existing studies on the positive impact of transformational SCL and trust between business partners in the supply chain context (see Agi and Nishant, 2017; Birasnav et al., 2015; Lockström et

al., 2010). These findings are in line with the recent study by Jia et al. (2018), which suggested that transformational SCL is leaning heavily towards trust-based relationships, while transactional SCL is towards contract-based relationships.

However, there are three insignificant results of the hypotheses (H2, H3 and H4). While the possible justifications of the insignificant results were given earlier, it is worth noting that the initial hypotheses and constructs were developed based on the intra-organisational leadership concept, while this thesis is dealing with inter-organisational context. In this case, perhaps the effects of transformational SCL on contractual governance, transactional SCL on suppliers' trust and laissez-faire SCL on suppliers' trust were not properly captured. This indicates the need for future studies to verify the results.

7.2   Governance Mechanisms and Suppliers' Performance

The second objective of this thesis was to examine the relationships between governance mechanisms and SP. The role of governance mechanisms, particularly suppliers' trust and contract, in managing supply chain relationships and practices is extensively explained in the literature. Extensive studies suggest that both governance mechanisms should be executed, maintained and implemented by the buying firms to improve supply chain practices (Kim et al., 2018; Um and Kim, 2018; Sancha et al., 2016; Wacker et al., 2016; Bai et al., 2016; Blome et al., 2013; Zhang et al., 2012; Inkpen, 2008; Wang and Wei, 2007; Inkpen and Tsang, 2005; Poppo and Zenger, 2002; Heide, 1994; Williamson, 1985). Even though this thesis does not provide the first attempt to examine the effects of governance mechanism on SP, it is still interesting to see whether this concept of *western* governance mechanisms is applied in an *eastern* and *emerging* economy country.

Governance mechanisms are the instruments that are used to organise the interactions and relationships between supply chain members (Um and Kim, 2018; Fawcett et al., 2017). Furthermore, governance mechanisms have been introduced in supply chain relationships to regulate exchange between supply chain members, act as a safeguard, reduce opportunistic behaviours and improve SP (Shahzad et al., 2018; Brito and Miguel, 2017; Cao and Lumineau, 2015; Blome et al., 2013). As shown in Table 7.3, the findings reveal that suppliers' trust is positively related to SP ($\beta = .523$, p $<.001$).

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The results imply that the higher suppliers' trust in their buying firms, the higher their performance will be. In supply chain relationships, the actions, behaviours, commitment and cooperation of the suppliers are determined by their trust towards their buying firms. Whenever they trust and are confident in their buying firms, the suppliers tend to be more transparent in information sharing and communication, and at the same time be more committed and involved in any activities initiated by the buying firms (Ramon-Jeronimo et al., 2017; Gualandris and Kalchschmidt, 2016).

Nonetheless, whenever the suppliers trust the buying firms, they are willing to invest in improving their capabilities, resulting in better performance. As the suppliers believe their buying firms will not exploit their vulnerabilities, they tend to share information and work closely with the buying firms. These trends allow the suppliers to learn more about the request, requirements and needs of the buying firms, which in the end, improve their overall production activities. For example, the quality and cost of the products supplied by the supplier will be significantly improved if the suppliers are willing to invest in new technology. However, in order for a supplier to invest, the buying firm must be able to convince them that they will not exploit the suppliers. Similarly, in Malaysia, RSC practices require the suppliers to embark on new practices that they have not been exposed to before (Shaharudin et al., 2017; Eltayeb et al., 2011). If a buying firm fails to foster suppliers' trust towards them, then the implementation of RSC practices will hardly be achieved and rationalised. These findings are further supported by the interview data. All firms with high trust on the buying firms had their performance rated as high (see firms in category 1 and 2). An informant of a focal firm realised the influence of suppliers' trust which he stated that:

> ... *"they (the suppliers) can only do something if they trust you. Performance is also got to do with, very strongly, trust. If they trust you a lot, they are willing to go extra miles. They will go extra miles for it." (P1)*

The findings are consistent with social exchange theory (SET) where it suggests that members in a supply chain interact with each other based on the specific rewards or expectations (Cropanzano et al., 2017; Blau, 1964). SET posits that any actions or behaviours will be repeated if they are frequently rewarded, the rewards are valuable and there is a high possibility of receiving the rewards (Griffith et al., 2006). Based on this notion, suppliers' trust has been identified as one of the antecedents of supply chain members' actions and behaviours. Suppliers are willing to collaborate, invest

and share information if the buying firms are able to foster suppliers' trust towards them (Kim et al., 2018; Li et al., 2015; Liao et al., 2012; Inkpen, 2008). Similarly, it is evident from this thesis that suppliers' trust contributes towards SP. Whenever a supplier believes that a buying firm is trusted (for example, the buying firm is honest, transparent and provides accurate information), the supplier will be interested to be involved and participate in supply chain activities. This includes suppliers' involvement in new product development and production planning. Over time, these activities allow the suppliers to develop and enhance their overall performance.

Table 7.3: Governance Mechanisms and SP

Hypotheses	Quantitative Result	Qualitative Result
H7: Suppliers' trust in buying firms is positively related to SP.	Supported	Supported
H8: High contractual governance exercised by the buying firms is positively related to SP.	Supported	Supported

The findings also show that high contractual governance is positively related to SP (β = .336, p <.001). Contracts usually act as a safeguard from opportunistic behaviours of supply chain members (Wang et al., 2016; Cao and Lumineau, 2015; Carey and Lawson, 2011; Liu et al., 2009; Williamson, 2008). While acting as a safeguard, contracts play a vital role as an instrument to monitor and control the suppliers (Lumineau and Henderson, 2012; Carey and Lawson, 2011; Poppo and Zenger, 2002). In most cases, *ex ante* details of the buying firms' needs are properly articulated in the contract, giving a clear description of the required quality, price, quantity, delivery terms or specifications. By exercising contractual governance, a buying firm is able to minimise buyer-supplier conflicts, as most of the requirements are stipulated in the written agreements, reducing the ambiguity of their requests (Lee and Cavusgil, 2006). SP can further be improved by exercising contractual governance as a monitoring instrument. The required performance can be indicated in the contracts, which can be used as a performance indicator. Using the contract as a performance indicator can foster suppliers' commitment to improve, as they will try not to breach the contact with the buying firms. The act of breaching contracts can lead suppliers to financial and non-financial difficulties, including loss of future business and reputation in the industry. Nonetheless, the new RSC practices implemented in Malaysia's manufacturing industries require a higher contractual governance. Sustainability and RSC practices can be explicitly stipulated in the contracts so that the suppliers commit

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to the buying firms' requests (Sancha et al., 2016). This includes the practice of recycling, refurbishment and replenishment of the products. As shared by one of the informants, a contract is used as a performance monitoring instrument:

> *"There is correlation (between contract and performance). The correlation starts with our contracts. In our contracts stated very clearly, performance oriented. It is very clearly measured." (P1)*

In inter-organisational relationships, different parties with different goals and objectives are involved. Similarly, this phenomenon is observed in supply chain relationships where different goals of each exchange party could lead to opportunistic behaviours (Lumineau and Henderson, 2012; Williamson, 1985, 2008). TCE posits that a proper governance mechanism is needed to minimise the risk of opportunism. One of the best instruments of minimising opportunism and governing the relationships between supply chain members is contractual governance (Shahzad et al., 2018; Cao and Lumineau, 2015; Hernández-Espallardo et al., 2013). Contracts can be considered as a safeguard, and also act as monitoring instruments (Wacker et al., 2016). A higher contractual governance allows the buying firms to clearly stipulate their requirements and expectations, which helps the supplier to understand the buying firms' needs. The findings of this thesis support these arguments, where it is evident that a higher contractual governance contributes to SP. The formal written agreements or contracts typically act as the performance indicators including products' quality, price and specification. Furthermore, as contractual governance is exercised by the buying firms, the suppliers tend to fulfil the buying firms' requirements in order to avoid potential legal disputes. The findings support the extensive prior studies that discovered contractual governance as the determinants of positive supply chain relationships and practices (Um and Kim, 2018; Sancha et al., 2016; Wacker et al., 2016; Huang et al., 2014; Lee and Cavusgil, 2006; Poppo and Zenger, 2002; Heide and John, 1992).

7.3   Supply Chain Leadership and Suppliers' Performance

This third objective of this thesis was to examine the relationships between SCL and SP. The performance of the suppliers is deemed as an important element in determining the success of a buying firm (Meisel and Glock, 2018; Maestrini et al., 2018a; 2018b; Wilhelm et al., 2016a; 2016b; Silvestre, 2015). Even though the

quantitative data from the survey was not able to provide insights on the importance of SP towards the performance of the buying firm, it was apparent from the interview data that all buying firms strived towards improving SP. The interview data reveal that most of the buying firms were actively involved in measuring SP to ensure that their suppliers are providing them with expected deliverables. Moreover, the buying firm's role was not only limited towards measuring SP but also trying to work together with the suppliers to improve their performance. While suppliers should be consistently improving their performance, buying firms should take initiatives to share responsibility with the suppliers to lead and develop them (Vachon and Klassen, 2006; Sako, 2004; Narasimhan and Das, 2001; Krause et al. , 2000; Krause, 1997). This phenomenon can be observed from the interviews conducted in this thesis, where most of the buying firms were trying to improve the performance of their suppliers, regardless of their supply chain positions.

However, this thesis argues that improving SP is not solely the responsibility of the focal firms, but rather an accountability of every buying firm towards their immediate suppliers. In other words, it should be noted that the responsibility of a buying firm to manage their SP relies on themselves rather than the focal firm as the relationships between the buying firms and their immediate suppliers might be different from the focal firm and their tier-2 suppliers (Wilhelm et al., 2016a). For example, a focal firm might have total control towards their tier-1 supplier, but lack influence and control towards their tier-2 suppliers due to the lack of contractual and legal agreements between them. Furthermore, even though a buying firm would like to monitor all suppliers regardless of their position in the supply chain, it can be complex due to geographical dispersion, technological limitations and a lack of engagement with the more upstream suppliers (Wilhelm et al., 2016a). Hence, these dynamic supply chain relationships require a buying firm to be responsible to their own suppliers (in this case their immediate suppliers), rather than leaving this to the focal firms.

Given the importance of SP, it is crucial to examine the relationships between buying firms' leadership styles and SP. The summary of the hypotheses testing of the direct relationships is presented in Table 7.4. The findings from both datasets support H9, H10 and H11, which proposed the direct effects of SCL (transformational, transactional and laissez-faire) on SP. H9 suggested that transformational SCL has a

positive effect on SP. The findings reveal that a significant positive effect was found on the relationship between transformational SCL and SP (β = .483, p <.001). By exhibiting transformational SCL, a buying firm acts as a role model, being admired and respected by supply chain members (Jia et al., 2018; Ojha et al., 2018; Birasnav et al., 2015). This leadership approach also fosters the ability of a buying firm to lead by example and enhances their willingness to share knowledge and resources to help their suppliers. At the same time, a buying firm that adopts transformational SCL acts as a coach or mentor to the suppliers. Suppliers will be able to learn from the buying firm on a variety of dimensions, including their operations procedures, quality management and RSC practices (Roman, 2017; Loke et al., 2012). These findings are further supported by the qualitative data. As stated by one of the informants, the buying firms worked together with them in order to improve their current and future production capabilities:

> *"Most of our customers are already working with us for more than 10 years. They (we are) like a team already. Sometimes when we have a big project, a lot of our products delivered to them (the buying firms). We will also send our engineers and designers to Germany, to Mexico or to US, to sit together with their (buying firms') team and analyse the products in their production. So, then we know that these tools (parts or products) are functioning like this with our machine but it is different when it is on their (buying firms') machine. We have to understand also how our product perform in their manufacturing (plants). We'll make our own understanding and adjustment, and next time we can implement (improve) in the next project." (P19)*

The interviews revealed that the buying firms take responsibility over providing assistance to the suppliers including matchmaking with global suppliers. Moreover, the buying firms recognised their role as the *catalysts* towards Malaysian manufacturing industries. They were willing to lead the suppliers, especially local small and medium enterprises, to ensure that the suppliers can sustain their business in the industry. Nevertheless, the suppliers were given access to learn directly from the buying firms. These approaches were carried out through various strategies including plant visits and technology transfer. The procedures and practices exercised by the buying firms can then be imitated by the suppliers and implemented in their plant operations.

Furthermore, due to the motivational and inspirational concepts exercised by the buying firms, they are able to cultivate a team spirit and sense-of-belonging among

their suppliers (Goffnett and Goswami, 2016; Dubey et al., 2015b; Birasnav et al., 2015; Birasnav, 2013; Lockström and Lei, 2013; Lee et al., 2011; Williams et al., 2002; Hult et al., 2000b). By practising these behaviours in their leadership style, a buying firm tends to provide constructive feedback and suggestions on suppliers' activities including their production planning and performance. Sometimes, due to their sense of responsibility to help the suppliers, the buying firms will perform plant visits and participate in the 'trial run' of the products. The buying firms will give suggestions to the suppliers to improve any deficiencies that they encountered during the process. Similarly, these practices were also shared by the informant during the interviews. The buying firms attempted to discuss, give feedback and provide suggestions to the suppliers regarding their performance. The buying firms and suppliers' believed that this approach helps both of them not only to improve the current product, but also future products.

Table 7.4: SCL and SP

Hypotheses	Quantitative Result	Qualitative Result
H9: Transformational SCL is positively related to SP.	Supported	Supported
H10: Transactional SCL is positively related to SP.	Supported	Supported
H11: Laissez-faire SCL is negatively related to SP.	Supported	Supported

H10 suggested that transactional SCL has a positive effect on SP. The findings reveal that a significant positive effect was found on the relationship between transactional SCL and SP (β = .429, p <.001). The contingent reward and punishment approaches of transactional SCL are effective elements to motivate suppliers towards a higher level of performance and growth. Most commonly, a transactional SCL-based buying firm will assign suppliers with a set of objectives and potential rewards in exchange for their accomplishment (Jia et al., 2018; Agi and Nishant, 2017). Moreover, a buying firm that exhibits transactional SCL tends to actively monitor deviances in suppliers' assignments and take the necessary corrective actions (Birasnav et al., 2015). Several approaches can be utilised in order to actively monitor suppliers' activities including frequent and formal audit sessions as well as informal site visits. As mentioned by one of the informants, in order to ensure that their suppliers are meeting their requirements, the buying firms had conducted plant visits and even issued show cause letters requesting for justifications if any nonconformities happened.

> *"We will go there (suppliers' plant), and we will audit them. Are they meeting the quality standards that we set? That we can do. If they not, they need to give a show cause (letter), give us the explanation why didn't you fulfil (the requirements)." (P18)*

The main notion of this transactional SCL is that the wider extent of a potential failure can be reduced if the deviances of performance are detected earlier. Nonetheless, actively monitoring the suppliers allows the buying firms to ensure that the production activities or products created meet the specifications from the start. Similarly, the role of transactional SCL is highly pertinent towards sustainability and RSCP. As these concepts are relatively new to the supply chain environment, the role of the buying firm in monitoring, rewarding and even punishing suppliers in realising RSC practices is vital (Jia et al., 2018; Agi and Nishant, 2017). The growth of RSC practices can be maximised by having a close engagement between buying firms and suppliers. This is to ensure that the suppliers are properly directed, recognised and appreciated for their effort in embracing RSC practices in their operations.

In contrast, it was suggested that laissez-faire SCL is negatively related to SP (H11). As expected, the findings reveal a significant negative effect on the relationship between laissez-faire SCL and SP (β = -.205, p <.01). When a buying firm adopts a laissez-faire SCL, they either tend to wait for the nonconformities to occur before proceeding with corrective actions, or prefer not to interfere in suppliers' production or manufacturing activities. This *reactive* approach results in delay in detecting any issues. For example, adopting laissez-faire SCL, a buying firm tends to believe that the suppliers are competent and resourceful enough to meet their expectations. Due to the lack of monitoring and auditing by the buying firm, the suppliers have not received enough guidance on achieving buying firms' demands. As for the results, the nonconformities of the deliverables will only be detected once delivered, affecting the performance and relationships of both parties (Judge and Piccolo, 2004; Avolio et al., 1999). By adopting this approach, interactions with suppliers are limited and shifting from one supplier to another is common. At the same time, receiving no feedback from the buying firm will lead to difficulty in understanding the buying firm's needs and the suppliers are not being able to identify their weaknesses (Defee et al., 2010).

These findings are consistent with the interview data. As mentioned previously, the firms that adopted or experienced laissez-faire SCL were either buying or supplying

commodity products such as steel and fresh fish supplies. In this category, the products supplied are non-critical. For example, in the automotive sector, most of the suppliers are producing critical parts that require specific knowledge and expertise. Due to that, the buying firms tend to monitor the progress of these suppliers, or even to work together with these suppliers to improve their products. Unfortunately, this approach seems not to be being practiced in all sectors in manufacturing industries such as the steel sector. Due to a large number of suppliers listed in this sector, the buying firms tend not to be involved in developing the suppliers, resulting in the poor performance of them. Moreover, the buying firms tend to delay in providing feedback, and hence it is harder for the suppliers to continuously improve their products and overall performance. As stated by one of the informants, they preferred to provide late feedback to the suppliers as they can easily find alternative supplies:

> *"If quality is not good, we will slowly switch to another supplier. If the supplies are not good, we will not take from them. If we take, it will be in small quantity. They (the suppliers) will ask us why we take only small quantity. So, we will tell them it is because of the quality of the fish and it affects our products. If they still send poor quality product, we have several other suppliers." (P24)*

The findings of this thesis are consistent with the theories of stakeholder, institutional and transformational-transactional leadership. Stakeholder theory suggests that the customer (buying firm) has the ability to influence the activities and practices of the exchange parties (in this case, the suppliers) (Gabler et al., 2017; Roman, 2017; Freeman, 2010). In other words, as a firm is embedded in a network of various stakeholders in a supply chain, the stakeholders are able to shape and influence the firms' practices and decisions. Thus, to remain competitive, a firm should consider the expectations of their stakeholders in their business strategies. Furthermore, stakeholder theory postulates that the relationships among stakeholders should be based on value creation and trading (Touboulic and Walker, 2015; Freeman, 2010; Freeman et al., 2010; Donaldson and Preston, 1995). It is evident from the findings of this thesis that the buying firms are responsible for supporting and monitoring their suppliers, where in return improve suppliers' willingness to learn, cooperate and collaborate for the development of supply chain activities such as quality improvement and delivery accuracy. At the same time, to survive in the industry, the suppliers have to improve and develop, based on the suggestions and expectations of the stakeholders (in this case, the buying firms).

In the same vein, institutional theory contends that the external actors are able to influence the activities and practices of a firm (Hazen et al., 2016; Blome et al., 2014; Zhu and Sarkis, 2007; Zsidisin et al., 2005). Based on the concept of isomorphism, institutional theory posits that firms are seeking for legitimacy among their stakeholders by adopting the best practices in the industry (Touboulic and Walker, 2015; Ketchen and Hult, 2007; DiMaggio and Powell, 1983). Furthermore, the external actors (such as buying firms, suppliers, institutions or communities) are able to pressure a firm to embrace particular practices or activities (Sarkis et al., 2011; Zsidisin et al., 2005; DiMaggio and Powell, 1983). It is evident from the findings of this thesis that the activities and practices of the suppliers are highly dependent on their buying firms. For example, a buying firm realised their role as the industrial catalyst willing to foster suppliers' development. The buying firm provided several activities including matchmaking, which allowed the local suppliers to learn and imitate (mimetic isomorphism) the production process of the better firms (such as overseas suppliers or vendors). On the other hand, the findings discover that the adoption of RSC is relatively poor in Malaysian manufacturing industries due to a vague understanding of the concept and lack of enforcement by the buying firms and governmental actors (normative and coercive isomorphism).

A clearer explanation of SCL's roles can be articulated using transformational-transactional leadership theory. While stakeholder and institutional theories provide a general ground of embracing SCL, transformational-transactional leadership theory offers a detailed justification of buying firms' leadership styles and their impact on supply chain practices (Agi and Nishant, 2017; Gosling et al., 2017; Roman, 2017; Dubey et al., 2015; Birasnav et al., 2015; Defee et al., 2010; Lockström et al., 2010; Defee et al., 2009). Based on the intra-organisational perspective, the relationships between leadership styles, governance mechanisms (such as followers' trust) and followers' performance have been extensively studied (Bass and Bass, 2008; Judge and Piccolo, 2004; Bass et al., 2003; Avolio et al., 1999). Drawing upon the same tenet, SCL studies adopted transformational-transactional leadership theory to conceptualise the role of leadership in an inter-organisational perspective (see Goffnett, 2018; Jia et al., 2018; Gosling et al., 2017; Birasnav et al., 2015; Defee et al., 2010; Defee, 2007). In this thesis, transformational and transactional SCL are also identified as significant positive contributors towards SP. Both leadership styles

facilitate communication, information sharing and knowledge exchange between the buying firms and their suppliers. These practices contribute towards a better performance of the suppliers as they are able to understand buying firms' needs and are also be able to communicate closely with the buying firms. However, the lack of communication and feedback from the laissez-faire SCL-based firms contribute to lower contractual governance as well as poor SP.

7.4   The Mediating Role of Governance Mechanisms

The final objective of this thesis is to examine the mediating role of governance mechanisms on the relationships between SCL and SP. Table 7.5 presents the results of the mediation analysis. This thesis uses partial and full mediation to explain the mediating role of governance mechanisms. Partial mediation indicates that only a certain portion of the relationship is explained by the mediator, whereas full mediation indicates that the association between the independent and dependent variables occurred completely due to the mediator. The findings show that suppliers' trust and contractual governance were the mediators for the relationships between SCL and SP. Suppliers' trust partially mediated the relationship between transformational SCL and SP (H12) but did not mediate the relationship between transactional SCL and SP, as well as passive SCL and SP (H13 and H14). The results imply that the relationship between transformational SCL and SP was partially explained by suppliers' trust. By practising transformational SCL, buying firms are able to enhance suppliers' trust on their firm, which at the end influences SP. As the buying firm motivates, inspires and stimulates suppliers, the suppliers tend to believe that buying firms are transparent and honest with them (Da Cruz and Paulillo, 2016; Akhtar et al., 2017). As the suppliers' trust on the buying firm is higher, they are willing to innovate and invest more to improve their operations.

Moreover, trust towards the buying firm will lead the suppliers to share information such as their drawings or production plans (Venselaar et al., 2015; Birasnav et al., 2015). Suppliers tend to seek for advice and suggestions from the buying firm, which allow them to modify and alter their production activities. These practices will help the suppliers to get different views from different parties (internally and externally), which can lead them to improve their overall performance. Based on the results of insignificant direct relationships between transactional SCL and suppliers' trust, and

laissez-faire SCL and suppliers' trust, it is expected that the mediating effect of suppliers' trust on those relationships are not happening. As suggested by Baron and Kenny (1986), the mediating effect is likely to occur when the (i) independent variable (for example, transactional SCL) has a significant effect on the mediating variable (suppliers' trust); AND (ii) the independent variable (for example, transactional SCL) has a significant effect on the dependent variable (SP); AND (iii) the mediating variable has a significant effect on dependent variable (SP). In addition, the full mediation occurs when the mediating variable comes in the model, and the direct relationship between independent and dependent variable becomes insignificant. Otherwise, it implies a partial mediation. For the qualitative data, this thesis refers only to the first three steps suggested by Baron and Kenny (1986) and ignores the evaluation of full or partial mediation.

Table 7.5: Suppliers' Trust as a Mediator

Hypotheses	Quantitative Result	Qualitative Result
H12: Suppliers' trust mediates the positive relationship between transformational SCL and SP.	Supported	Supported*
H13: Suppliers' trust mediates the positive relationship between transactional SCL and SP.	Not Supported	Not Supported*
H14: Suppliers' trust mediates the negative relationship between laissez-faire SCL and SP.	Not Supported	Not Supported*

On the other hand, the results in Table 7.6 reveal that contractual governance was not the mediator of the relationship between transformational SCL and SP (H15). Given the previous insignificant direct relationship between transformational SCL and contractual governance, it is expected that no mediation effect occurred. The results further discover that contractual governance was a significant mediator on the relationship between transactional SCL and SP (H16). The relationship between transactional SCL was partially mediated by contractual governance as transactional SCL-based firms are more inclined to apply reward and punishment schemes, as well as highly monitoring and auditing approaches. This will lead the buying firms to exercise high contractual governance to ensure suppliers' obligation and obedience towards their requirements (Pulles et al., 2014; Maloni and Benton, 2000).

By exercising high contractual governance, suppliers will carefully monitor their own performance, so that they will not violate the contract which can cause them subsequent penalties including business termination. In other words, buying firms use legal or contractual means to influence suppliers' actions and behaviours. In contrast,

by exhibiting laissez-faire SCL, buying firms tend not demonstrate high contractual governance; this has a negative impact towards SP (H17). For instance, a laissez-faire SCL-based firm will not provide many suggestions (or directly intervene) about their suppliers' production plan or operations. Using this approach, the buying firm indirectly uses less contractual terms to influence the suppliers as they do not monitor their suppliers and their compliance; this can lead to poor management of supply chain relationships (Meqdadi et al., 2018; Um and Kim, 2018; Poppo and Zenger, 2002; Wathne and Heide, 2000). It can be concluded that the relationships between (i) transactional SCL and SP, and (ii) laissez-faire SCL and SP can be partially explained by the exercise of high contractual governance by the buying firms.

Table 7.6: Contractual Governance as a Mediator

Hypotheses	Quantitative Result	Qualitative Result
H15: Contractual governance mediates the positive relationship between transformational SCL and SP.	Not Supported	Not Supported*
H16: Contractual governance mediates the positive relationship between transactional SCL and SP.	Supported	Supported*
H17: Contractual governance mediates the negative relationship between laissez-faire SCL and SP.	Supported	Supported*

Table 7.7: Overall Findings of Quantitative and Qualitative Data

	Hypotheses	Quantitative Result	Qualitative Result
Direct Relationships	H1: Transformational SCL is positively related to suppliers' trust.	Supported	Supported
	H2: Transactional SCL is positively related to suppliers' trust.	Not Supported	Not Supported
	H3: Laissez-faire SCL is negatively related to suppliers' trust	Not Supported	Not Supported
	H4: Transformational SCL is negatively related to a higher contractual governance exercised by the buying firms.	Not Supported	Not Supported
	H5: Transactional SCL is positively related to a higher contractual governance exercised by the buying firms.	Supported	Supported
	H6: Laissez-faire SCL is negatively related to a higher contractual governance exercised by the buying firms.	Supported	Supported
	H7: Suppliers' trust in buying firms is positively related to SP.	Supported	Supported
	H8: High contractual governance exercised by the buying firms is positively related to SP.	Supported	Supported
	H9: Transformational SCL is positively related to SP.	Supported	Supported
	H10: Transactional SCL is positively related to SP.	Supported	Supported
	H11: Laissez-faire SCL is negatively related to SP.	Supported	Supported
Indirect Relationships	H12: Suppliers' trust mediates the positive relationship between transformational SCL and SP.	Supported	Supported*
	H13: Suppliers' trust mediates the positive relationship between transactional SCL and SP.	Not Supported	Not Supported*
	H14: Suppliers' trust mediates the negative relationship between laissez-faire SCL and SP.	Not Supported	Not Supported*
	H15: Contractual governance mediates the positive relationship between transformational SCL and SP.	Not Supported	Not Supported*
	H16: Contractual governance mediates the positive relationship between transactional SCL and SP.	Supported	Supported*
	H17: Contractual governance mediates the negative relationship between laissez-faire SCL and SP.	Supported	Supported*

*The indirect relationships between constructs were not statistically tested but the assumptions were made based on the direct relationship between the constructs.

CHAPTER 8

CONCLUSION

Malaysia is renowned as one of the developing countries and emerging economies. Malaysia's economy has been growing rapidly for the past two decades (Hsu et al., 2013). One of the main reasons for the rapid growth of Malaysia's economy is the nation's manufacturing industries. Malaysian manufacturing industries have been able to grow significantly in the last few decades due to the increase of trade agreements with other countries (Sundram et al., 2018). Moreover, Malaysia has also been identified as one of the MITI-V countries, alongside with India, Thailand, Indonesia and Vietnam, which is expected to be in top 15 manufacturing countries by year 2020 due to the ability to provide low-cost labour as well as good infrastructure and support for high-tech sectors (Deloitte, 2016). However, the development of Malaysian manufacturing industries is not only important to the nation, but also for the global domain. The improvement of supply chain performance in emerging economies including Malaysia is vital as it serves not only domestically but as a global manufacturing base (Katiyar et al., 2018). Thus, the improvement of SP in Malaysia and other emerging economies should not be taken lightly as it affects the global manufacturing industries as a whole.

Given the importance of governing the relationships and performance with the upstream suppliers, this thesis examined the effects of supply chain leadership (SCL) on governance mechanisms and suppliers' performance (SP). This chapter summarises the key findings of this thesis, followed by reviewing the research contributions and implications. The limitations of this thesis will then be highlighted, leading to the recommendations for future research.

8.1 Summary of Research Findings

This thesis utilised a convergent mixed methods research design to examine the effect of SCL on governance mechanisms and SP. Drawing upon the research gaps identified using the systematic literature review presented in Chapter 2, this thesis collected 190 survey responses and conducted 25 semi-structured interviews. Using structural

equation modelling and thematic analysis, the relationships between the constructs were analysed to examine 17 research hypotheses that had been proposed to meet four research objectives:

i)   To examine the relationships between SCL and governance mechanisms.

ii) To examine the relationships between governance mechanisms and SP.

iii) To examine the relationships between SCL and SP.

iv) To examine the mediating role of governance mechanisms on the relationships between SCL and SP.

For the first objective, this thesis discovered that transformational SCL is positively related to suppliers' trust. In other words, suppliers' trust is improved when the buying firms practice transformational SCL. On the other hand, the findings reveal that transactional SCL is positively related to higher contractual governance, indicating that transactional SCL-based firms rely heavily towards managing their suppliers through formal contracts. As proposed, laissez-faire SCL contributed to a lower contractual governance exercised by the buying firms. This indicates that the more a buying firm relies on laissez-faire SCL, the less they are exercising contractual governance on their suppliers. In addition, the results imply that that the transformational SCL leans towards trust-based governance, while transactional SCL leans towards contract-based governance. These findings support the existing studies on the positive impact of transformational SCL and trust between business partners in the supply chain context (see Agi and Nishant, 2017; Birasnav et al., 2015; Lockström et al., 2010). These findings are also in line with the recent study by Jia et al. (2018) which suggested that transformational SCL is leaning heavily towards trust-based relationships, while transactional SCL is towards contract-based relationships. To the best of the researcher's knowledge, this thesis provides the first attempt to investigate the effect of laissez-faire SCL on SP to extent the concept of SCL beyond transformational and transactional leadership styles.

The second objective aims to examine the effects of governance mechanisms on SP. As proposed, both governance mechanisms contributed positively towards SP. The results implied that SP can be improved significantly if the buying firms are able to foster the suppliers' trust towards them; and when there is a higher exercise of contractual governance. The findings support the arguments in governance mechanisms studies that both contractual governance mechanisms (relational and

contractual) are prevalent towards the performance of the suppliers and entire supply network (see Kim et al., 2018; Um and Kim, 2018; Bai et al., 2016; Wacker, Yang and Sheu, 2016; Blome et al., 2013; Inkpen, 2008; Inkpen and Tsang, 2005; Poppo and Zenger, 2002; Heide, 1994; Williamson, 1985).

This thesis also discovered that there were direct relationships between SCL and SP. The findings disclosed that transformational and transactional SCL were positively related to SP, while laissez-faire SCL was negatively related to SP. The results implied that SP was significantly improved when the buying firms exhibited transformational and transactional SCL. The improvement of SP was measured based on four dimensions: cost, operational (quality and delivery), flexibility and reverse supply chain performance (RSCP). On the other hand, SP decreased as the buying firms exhibited laissez-faire SCL. By examining the effects of SCL on SP (including RSCP), this thesis extends past research on SCL where most of them were investigating the role of SCL on buying firms' and linear supply chain performance (see Dubey et al., 2017; Roman, 2017; Defee et al., 2010; Defee et al., 2009; Hult et al., 2000a). However, it should be noted that the findings of this thesis supports the results of past studies in intra-organisational leadership, where they suggested that transformational and transactional leadership are positively related to followers' performance, while laissez-faire leadership is negatively related to the same outcome (see Judge and Piccolo, 2004; Bass et al., 2003; Avolio et al., 1999).

Finally, this thesis attempts to provide explanations on *why* SCL exerts these effects on SP. The findings reveal that the relationships between transformational SCL and SP was partially mediated by suppliers' trust. The results imply that the transformational SCL exercised by a buying firm positively influences suppliers' trust, which in return fosters their willingness to improve (for example, in terms of cost reduction or embracing recycling initiatives). On the other hand, by exhibiting transactional SCL, a buying firm tends to rely on a high monitoring, rewarding and controlling scheme. These approaches lead the buying firm to exercise high contractual governance, which formally specifies the buying firms' requirements, expectations, goals and standards. By having clear guidance from the buying firms, associated with the intention to avoid breaching the contract, the performance of the suppliers will

significantly improve. In contrast, using a laissez-faire SCL approach, lower contractual governance is exercised, resulting in the poor performance of the suppliers.

8.2   Theoretical Contributions and Implications

The first contribution of this thesis relies on Chapter 2 of this thesis which is the systematic literature review of SCL. The systematic review provides an original and updated review of studies in SCL domain. The existing review by Gosling et al. (2017) only focuses on the concept of SCL in the context of learning of sustainability practices in supply chains. In contrast, the systematic literature review in this thesis offers a more comprehensive view of this emerging domain. This approach helps in synthesising studies on SCL, providing future research with useful avenues in expanding the SCL concept. Furthermore, the systematic literature review in this thesis provides a thorough review of the SCL concept as utilised in the current literature including the dimensions of SCL styles, leadership theories used to explain the SCL concept and its role towards supply chain practices. This provides a rigorous approach in determining the SCL styles and the research gaps. The findings of the systematic literature review have now been published in the International Journal of Production Economics (Appendix I), providing the first comprehensive review of SCL concept to the academics and practitioners. This is a crucial step in order to stimulate future research in the SCL area.

Second, this thesis contributes to the SCL literature by reconceptualising and redefining the concept. Drawing upon the theories of stakeholder, institutional and transformational-transactional leadership, this thesis provides a new definition of SCL. Furthermore, this thesis operationalises SCL based on a dyadic perspective of buyer-supplier relationship. While the findings discovered that transformational and transactional SCL contributed positively to SP, the findings also revealed that both SCL styles positively contributed to different governance mechanisms. This implies that both leadership styles are needed in leading or managing suppliers rather than relying on only one leadership style (either transformational or transactional). This is consistent with transformational-transactional leadership theory as it posits that transactional leadership acts as the fundamental for transformational leadership (Judge and Piccolo, 2004; Bass et al., 2003; Avolio et al., 1999; Bass, 1990). Relying only on one leadership style (especially transformational leadership) might be perilous to the

buying firms as it opens doors for opportunism. While the majority of the studies in the SCL domain focus on transformational leadership, this thesis suggests that SCL should be measured using both leadership styles where transactional leadership role should not be neglected or ignored. Furthermore, the notion of exhibiting transformational leadership sounds ideal in an intra-organisational context, however the replication of this concept and the exclusion of transactional leadership should be properly articulated in supply chains or an inter-organisational context due to the different objectives and agenda of different parties in supply chain networks.

Additionally, this thesis discovers that relying solely on transactional SCL might not be an ideal leadership approach either. Transactional SCL showed a positive relationship towards contractual governance but not significantly towards suppliers' trust (relational governance). A lack of trust by the suppliers in their buying firms can be risky as it signals for the suppliers to be more self-centred and to rely on opportunistic behaviours. In the long run, the lack of suppliers' trust can weaken the supply chain relationships and collaboration. Suppliers will be reluctant to share information, technology or even solutions to certain issues, as they feel insecure of their relationships with the buying firms. In order to curb this, again the buying firms should consider both leadership styles as it contributes to different means of supply chain governance. This is further support for the *transformational-transactional leadership theory* that suggests that the best leadership styles or leaders are those who portray and exhibit both styles (Bass and Bass, 2008; Judge and Piccolo, 2004; Avolio et al., 1999). It should always be noted that *"transformational leadership does not substitute for transactional leadership"* (Bass 1998, pp. 21). This is the first study that combines three different leadership styles and tests them towards followers' performance in the context of supply chain research.

Third, this thesis integrates SCL and governance mechanisms in one model and reconciles the role of both concepts towards SP. Even though the studies of SCL and governance mechanisms provide evidence that they improve supply chain practices, both concepts (SCL with trust and contracts) have rarely been studied together. This thesis provides an explanation of the relationship between SCL and SP by looking into the role or governance mechanisms. By integrating both concepts, this paper fills the gap of disengagement between SCL and governance mechanisms (Gong et al., 2018).

Nonetheless, this thesis is among the first that examine the determinants of governance mechanisms based on buying firms' leadership behaviours. This thesis provides an avenue for future research to look into the behaviour factors of the buying firms in determining their potential governance mechanisms in managing their suppliers. This thesis provides first attempt in the literature to empirically examine the relationships between SCL, governance mechanisms and SP.

Fourth, this thesis incorporates metrics from traditional forward supply chains and RSCs to measure SP. This allows a holistic view of SCL's role towards SP in both orientations, forward and reverse, to be obtained. Findings indicate that the role of active SCL is significant towards suppliers' cost, operational (quality and delivery) and flexibility performance. Moreover, as the RSC concept is relatively new, the focal or buying firms should play a role in orchestrating the implementation of the concept throughout their supply networks. This thesis extends the past studies on SCL, environmental sustainability and supply chain performance such as the studies of Vivaldini and Pires (2016), Szekely and Strebel (2013) and Defee et al. (2009). Furthermore, this thesis offers first attempt to examine the role of buying firms' leadership behaviour to improve RSCP. The empirical findings have been published in the Journal of Cleaner Production (Appendix J), offering avenues for future research and debates. Furthermore, as the interviews reveal that RSC is not a common practice in Malaysia, it triggers new research directions for the researchers and practitioners.

Finally, this thesis provides a contribution by adopting a mixed method research design. The research design of this thesis offers a more comprehensive approach to understanding and conceptualising the SCL concept. For example, without qualitative data, it is not possible to see how the leadership behaviours of the buying firms negatively influenced RSC practices in Malaysian manufacturing industries. Nonetheless, without qualitative data, it is difficult to see how different SCL approaches were used in different sectors. For example, most of the firms in the automotive sector were using transformational SCL, while the firms dealing with commodities products, tended to experience a laissez-faire SCL behaviour of their buying firms. Hence, the thesis advances the current concept of SCL.

8.3 Practical Contributions and Implications

The findings of this thesis offer guidance and suggestions to the supply chain managers (in both buying firms and suppliers) on the role of buying firms' leadership styles and its influence towards SP regardless their supply chain positions. Findings from this thesis can help the buying firms to re-evaluate their leadership styles as the relationship with each supplier is extremely unique and the idea of relying on a single leadership style has a potential to disrupt the performance of both parties. Each SCL style (referring to transformational and transactional SCL) has its own advantages. For example, transformational SCL is more towards influencing suppliers through support and motivation whereas transactional SCL is leaning towards reward, punishment and monitoring. Buying firms should adjust their leadership styles based on the situation and context rather than deciding to focus solely on transformational or transactional SCL. The findings also suggest that buying firms should minimise their laissez-faire leadership behaviour as it can deteriorate the performance of their suppliers.

The findings of this thesis further suggest that as the supply chain environment is dynamic, the needs of different suppliers might vary from one to another. A buying firm should focus on their supplier firms' individual needs for their achievement and growth as there is no *one-size-fits-all* approach. The willingness for a buying firm to consider its suppliers' individual needs can foster the ability of the suppliers to develop new learning opportunities. Acting as a mentor or coach, a transformational SCL-based buying firm is also focusing on stimulating supply chain members' intellectual capacity including their production processes and practice. This approach allows the buying firms to encourage the suppliers to be more innovative and creative. New product development and improvement can be discovered by promoting a learning environment across the supply chains. By challenging suppliers' practices or approaches, a buying firm is able to ensure that the suppliers will constantly grow. This approach allows the buying firm to ensure that the performance of their suppliers remains progressive and not stagnant. The informants of the interviews mentioned that they were inspired to find new technology and solutions to improve their production and manufacturing processes. The buying firms also requested that their suppliers be involved in product design, development and production, and this led the suppliers to learn and develop over time.

The most alarming issue discovered by this thesis is the low level of implementation of RSCs in Malaysian manufacturing industries. It should be noted that during the interview, it was found that suppliers were not striving towards the implementation of RSCs mainly because the buying firms were not emphasizing the need for these activities. In several cases, the implementation of reusing, recycling and refurbishment of returned parts or components (products) was prohibited by the buying firms. This situation happened due to a lack of understanding of the RSCs among the buying firms in emerging countries such as Malaysia (Shaharudin et al., 2017; Hsu et al., 2013; Eltayeb et al., 2011; Wooi and Zailani, 2010). As the notion of RSC is immature in Malaysia, the lack of control and education on RSC practices from the buying firms hardened the implementation of it by the suppliers. The practices of RSC and environmental sustainability can be enhanced if the buying firms are able to lead their suppliers to the new initiatives (Gong et al., 2018; Jia et al., 2018; Wilhelm et al., 2016a;2016b).
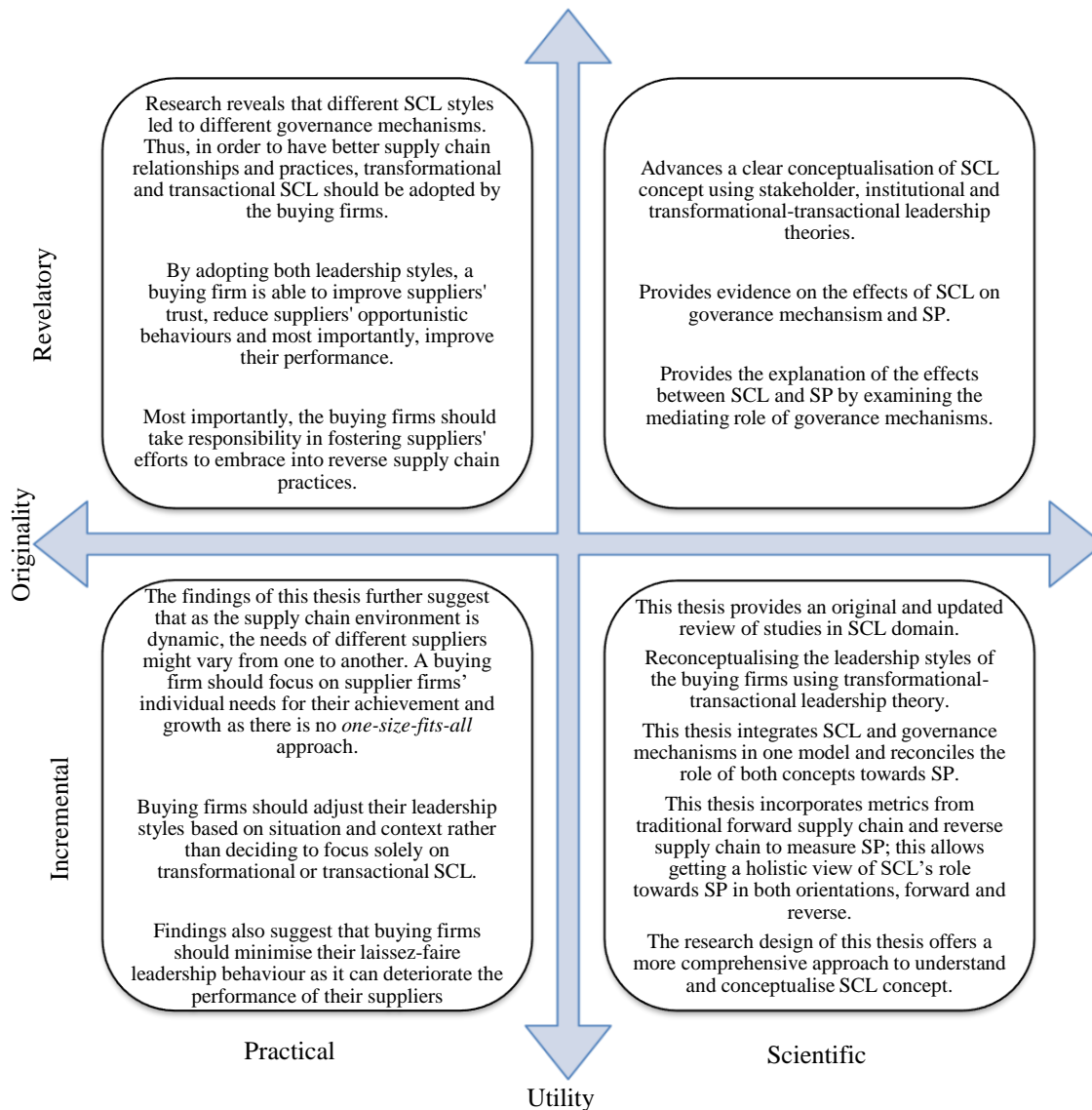
Figure 8.1: Research Contributions

As illustrated in Figure 8.1, the research contributions of this thesis are summarised based on the *originality* and *utility* map suggested by Corley and Gioia (2011). The figure presents a 2x2 matrix of the dimensions of the research contributions. The contributions of the research are original if it advances the current knowledge or understanding in the field incrementally, or provide new knowledge (radical or subtle revelation). In terms of utility, the contributions of a research can be assessed based on practical or scientific usefulness.

8.4   Research Limitations and Future Research Directions

This thesis has several limitations including the SCL concept, context of the study, sample size and research method. This thesis focuses on the relationship between immediate buying firms and suppliers which is based on a dyadic relationship. This limits the explanation of SCL in this thesis to a dyadic concept rather than a multi-tier concept. Nevertheless, the SCL concept tested in this thesis is based on the perception of the suppliers toward the leadership behaviours of their buying firms. The mismatch between followers' perception and buying firms' actual practices was minimised through an extensive pilot test with academics and practitioners as well as by using different methods to triangulate the results.

Secondly, this thesis focuses on upstream supply chain members (tier-1, tier-2 and tier-3 suppliers). The findings should not be applied to the downstream supply chain members including distributors and retailers. This is due to the different nature of the relationship between the focal firm and distributor. It is evident from this thesis that a buying firm is able to lead their upstream supply chain members as they hold more power as a customer. However, this concept should be carefully extended to downstream supply chain members as a buying firm (in this case, manufacturer) will no longer be a customer in that channel.

Thirdly, this thesis adopted a deductive research approach. This approach relies on pre-determined constructs or themes. Using a more qualitative and inductive approach, the concept of SCL can be further extended as different leadership approaches or behaviours beyond transformational, transactional and laissez-faire SCL can be examined. Nonetheless, while this thesis emphasises on concurrent parallel mixed method research design by comparing quantitative and qualitative data for triangulation, using different types of mixed method such as sequential (exploratory or explanatory) or embedded approaches can enhance the findings from different perspectives. For example, using exploratory sequential mixed method research design, quantitative data (such as instruments, variables and context) is determined based on the findings from the previous qualitative data in the same study (Creswell and Clark, 2011; Tashakkori ad Creswell, 2007). This could improve the rigour of the study by developing and choosing the constructs or variables based on the extensive discussion with the informants during the qualitative phase. It is worth noting that,

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even though this approach was slightly executed in this thesis (through extensive pilot and pre-testing with the industry experts and academics prior developing the scales and instruments), the findings of one method (qualitative) was not followed or designed based on the findings of the other (quantitative).

This thesis provides at least three future research directions. Firstly, this thesis focusses on the leadership styles of the buying firms towards their suppliers in a dyadic relationship (immediate buyer-supplier). Future studies should consider extending this concept into myriad or multi-tier relationships. This will strengthen the SCL concept by looking beyond the dyadic perspective and its ability to penetrate beyond tier-1 suppliers. Secondly, as SCL is a situational and context-based concept, it is useful to see whether a buying firm uses different leadership styles towards a supplier in different situations. Finally, as this thesis was using the manufacturing industries in an emerging economy as the research context, future studies should extend this concept in other industries or countries so that the SCL concepts can be further generalised. Also, the role of SCL in the management of RSC should be investigated further.

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Appendices

Appendix A: Reviewed Articles for Supply Chain Leadership

No	Author	Country / Context	Methodology	Instruments / Analysis	Sample Size	Supply Chain Relationship	Leadership Styles	Measures / Dimensions of Leadership	Supply Chain Outcome
1	Roman (2017)	USA	Quantitative	Survey / CB-SEM	206	Dyadic	Transformational leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration	Sustainability
2	Dubey et al. (2017)	India	Quantitative	Survey / Multiple regression	277	Dyadic	General	Legal, penalties, ethical, environment and social responsibility	Sustainability
3	Agi & Nishant (2017)	Gulf Countries	Qualitative	Interview / Interpretive Structural Modelling (ISM)	13	Dyadic	Transformational and transactional leadership	Commitment of top management, reward and appraisal systems, performance monitoring, integration with SC partners (trust, dependence, long-term relationship)	Sustainability
4	Akhtar et al. (2017)	New Zealand	Quantitative	Survey / CB-SEM (AMOS)	225	Dyadic	Autocratic / Directive / Participative	Influence on policy, idea dissemination, promotional allowances, uniform, guidelines and instructions	Operational performance
5	Blome et al. (2017)	Germany	Quantitative	Survey / PLS-SEM	118	Dyadic	Transformational and transactional leadership	Ethical, obedience to authority	Sustainability
6	Gabler et al. (2017)	USA	Qualitative	Interview / Case study	15	General	General	Normative, strategic, operational	Sustainability

No	Author	Country / Context	Methodology	Instruments / Analysis	Sample Size	Supply Chain Relationship	Leadership Styles	Measures / Dimensions of Leadership	Supply Chain Practices
7	Gosling et al. (2017)	N/A	Conceptual Paper	Content-based literature review	N/A	General	Transformational and transactional leadership	Proactive and reactive	Sustainability
8	Kurucz et al. (2017)	N/A	Conceptual Paper	N/A	N/A	General	General	Collective capacity, reflective practise	Sustainability
9	Yuen & Thai (2017)	Singapore	Quantitative	Survey / Exploratory Factor Analysis	172	Dyadic	General	Coordination, strategic	Buyer-supplier relationships
10	Akhtar et al. (2016)	China, India and New Zealand	Quantitative	Survey / CB-SEM (MPlus)	220	Dyadic	General	Influence on policy, idea dissemination, promotional allowances, encouragement / promotion on data driven	Operational performance
11	Da Cruz & Paulillo (2016)	Brazil	Qualitative	Interview / Case Study	Not stated	Myriad	Autocratic / Directive / Participative	Imposition, centralisation, coercion, control, coordination, complexity, prescription	Buyer-supplier relationships
12	Goffnett & Goswami (2016)	USA	Quantitative	Survey / CB-SEM	184	Triadic	Transformational leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration	Buyer-supplier relationships
13	L'Hermitte et al. (2016)	Italy	Qualitative	Interview / Case Study	29	Dyadic	General	Purposeful, action-focused, collaborative, learning-oriented	Operational performance
14	Mzembe et al. (2016)	Malawi	Qualitative	Interview / Case Study	37	Myriad	Transformational leadership	Organisational contingency, ethical values, advisory	Sustainability
15	Sinha et al. (2016)	India	Quantitative	Survey / Multiple regression	120	Dyadic	General	Quality, empowerment, motivation, change management	Operational performance
16	Thornton et al. (2016)	USA	Quantitative	Survey / CB-SEM	145	Dyadic	General	Building relationship, connection, understanding people,	Buyer-supplier relationships

No	Author	Country / Context	Methodology	Instruments / Analysis	Sample Size	Supply Chain Relationship	Leadership Styles	Measures / Dimensions of Leadership	Supply Chain Practices
17	Vivaldini & Pires (2016)	Brazil	Qualitative	Interview / Case Study (longitudinal)	Not stated	Dyadic	General	Collaborative principles	Sustainability
18	Birasnav et al. (2015)	N/A	Conceptual Paper	N/A	N/A	Dyadic	Transformational and transactional leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration, contingent reward behaviour, active management by exception, passive management by exception	Operational performance
19	Venselaar et al. (2015)	Netherlands	Qualitative	Interview / Case-Study	9	Dyadic	Autocratic / Directive / Participative	consultation, shared understanding, strategic needs, group dynamics	Buyer-supplier relationships
20	Dubey et al. (2015a)	India	Quantitative	Survey / EFA, CFA, Regression	306	Dyadic	Transformational and transactional leadership	Vision statement, high performance expectation, intellectual stimulation, provide appropriate model	Operational performance
21	Dubey et al. (2015b)	India	Quantitative	Survey / EFA, CFA, Regression	187 /174	Dyadic	Transformational leadership	Establishing policies, providing resources, stimulating improvement, long-term vision	Sustainability
22	Silvestre (2015)	Brazil	Qualitative	Interview / Case Study	52	Dyadic	General	Constructive, active leadership, pressure supplier to obtain quality and environmental certifications, promote appropriate policies and sustainable practices	Sustainability

No	Author	Country / Context	Methodology	Instruments / Analysis	Sample Size	Supply Chain Relationship	Leadership Styles	Measures / Dimensions of Leadership	Supply Chain Practices
23	Tuomikangas & Kaipia (2014)	N/A	Conceptual Paper	N/A	N/A	Triadic	General	Advanced formal planning, common aligned business objectives, rewarding and incentives, corporate norms, commitment, trust, top management setting example, collaborative manner, empowerment, constructive engagement, conflict management.	Operational performance
24	Blome, Hollos, & Paulraj (2014)	Western Europe	Quantitative	Survey / PLS-SEM (SmartPLS)	114	Dyadic	General	Top management initiatives and motivation	Operational performance
25	Birasnav (2013)	N/A	Conceptual Paper	N/A	N/A	Triadic	Transformational leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration,	Buyer-supplier relationships
26	Szekely & Strebel (2013)	N/A	Conceptual Paper	N/A	N/A	Triadic	Transformational leadership	Commitment, innovation, visionary, clear direction	Sustainability
27	Lockström & Lei (2013)	China	Quantitative	Survey / PLS-SEM	88	Dyadic	Transformational leadership	Communication with strategic suppliers, treat suppliers as partners, encourage and involve our key supplier in teamwork, authority, supplier autonomy, supplier continuous improvement	Buyer-supplier relationships
28	Tamburro & Wood (2014)	N/A	Conceptual Paper	N/A	N/A	Dyadic	General	Intellectual challenge	Buyer-supplier relationships

No	Author	Country / Context	Methodology	Instruments / Analysis	Sample Size	Supply Chain Relationship	Leadership Styles	Measures / Dimensions of Leadership	Supply Chain Practices
29	Müller-Seitz & Sydow (2012)	Germany	Qualitative	Interview / Case Study	83	Myriad	General	Distribution of power, decision making, initiation of leadership related activities, nature of leadership, degree of formal centralisation, scope of centralisation, scope of activities, duration	Buyer-supplier relationships
30	Youn et al. (2012)	South Korea	Quantitative	Survey / PLS-SEM	142	Dyadic	Autocratic / Directive / Participative	Interest, support, power, authority long-term partnership, long-term plan	Operational performance
31	Sharif & Irani (2012)	UK	Quantitative	Survey / Correlation	50	Myriad	General	Affiliation, power, achievement	Operational performance
32	Loke et al. (2012)	Malaysia	Quantitative	Survey / CB-SEM (Lisrel)	202	Dyadic	General	Encouragement, knowledge management	Operational performance
33	Kuei et al. (2011)	Taiwan	Quantitative	Survey / AHP	Not stated	Triadic	General	Ability to manage change, culture diversity, support, policy deployment, communication	Operational performance
34	Thomas et al. (2011)	USA	Qualitative	Interview / Case Study	149	Dyadic	General	Inspiration, motivation, roles defined, communication	Operational performance
35	Lee et al. (2011)	China	Quantitative	Survey / CB-SEM (AMOS)	192	Dyadic	Transformational leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration	Buyer-supplier relationships
36	Lockström et al. (2010)	China	Qualitative	Interview / Case Study	30	Dyadic	Transformational leadership	Coaching / cooperative leadership style, situation changing leadership, assertive leadership style, delegating leadership style	Buyer-supplier relationships
37	Lambrechts et al. (2010)	Belgium	Qualitative	Interview / Case-Study	Not stated	Dyadic	Transformational leadership	Pro-activity, indirectness, inducing and stimulating	Buyer-supplier relationships

No	Author	Country / Context	Methodology	Instruments / Analysis	Sample Size	Supply Chain Relationship	Leadership Styles	Measures / Dimensions of Leadership	Supply Chain Practices
38	Defee et al. (2010)	USA	Quantitative	1. Simulation 2. Survey / CB-SEM AMOS	253	Dyadic	Transformational leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration	Operational performance
39	Defee et al. (2009)	N/A	Conceptual Paper	N/A	N/A	Dyadic	Transformational leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration	Sustainability
40	Wamba & Chatfield (2009)	Australia	Qualitative	Interview - Observation - Focus Group / Case Study	Not stated	Triadic	Transformational leadership	Organisational transformation, change management, communication	Buyer-supplier relationships
41	Melnyk et al. (2009)	USA	Mixed	Literature Review & Delphi study	29	General	General	Talent management, supply chain competencies, cross-functional experience	Operational performance
42	Hult (2007)	USA	Quantitative	Survey / CB-SEM (LISREL)	314	Triadic	Transformational and transactional leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration, contingent reward behaviour, management by exception	Operational performance
43	Harland et al. (2007)	UK	Qualitative	Interview / Case Study		Dyadic	Autocratic / Directive / Participative	Contingent, aggregation, information integration, long-term relationship	Buyer-supplier relationships
44	Russell & Hoag (2004)	N/A	Conceptual Paper	N/A	N/A	General	General	Management level support, breadth of support, opinion leaders / champions in-house	Operational performance

No	Author	Country / Context	Methodology	Instruments / Analysis	Sample Size	Supply Chain Relationship	Leadership Styles	Measures / Dimensions of Leadership	Supply Chain Practices
45	Williams et al. (2002)	N/A	Conceptual Paper	N/A	N/A	Triadic	Transformational leadership	Flexibility, decision making, consideration and appreciation, dynamic, long-term collaboration, encouragement, visionary	Buyer-supplier relationships
46	Kaynak (2002)	USA	Quantitative	Survey / CB-SEM (Lisrel)	214	Dyadic	General	Communication, resources, involvement, training	Operational performance
47	Segars (2001)	USA	Qualitative	Interview / Case Study	Not stated	Dyadic	Transformational leadership	Investigator, innovator, coach, change agent, visionary	Buyer-supplier relationships
48	McAdam & Brown (2001)	UK	Mixed	Survey & Interview	Not stated	Dyadic	Transformational leadership	Company baron, traditionalist, visionary, coach	Buyer-supplier relationships
49	Wong (2001)	China	Quantitative	Survey / CB-SEM (EQS)	139	Dyadic	General	Commitment to cooperative culture, long-term orientation, goal interdependence, open-mindedness, quality contributions	Buyer-supplier relationships
50	Hult et al. (2000a)	USA	Quantitative	Survey / CB-SEM (Lisrel)	555	Dyadic	Transformational and transactional leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration	Buyer-supplier relationships
51	Hult et al. (2000b)	USA	Quantitative	Survey / CB-SEM (Lisrel)	746	Dyadic	Transformational leadership	Idealised influence, inspirational motivation, intellectual stimulation, individualised consideration, contingent reward behaviour, active management by exception, passive management by exception	Operational performance

Appendix B: Survey Questionnaire

Examining the Impact of Supply Chain Leadership on Suppliers' Performance.

Dear Sir / Madam

I am a PhD student in the University of Sheffield's Management School. My research project is *Examining the Impact of Supply Chain Leadership on Suppliers' Performance.*

You are being invited to take part in this research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please feel free to contact me or any of my supervisors for further clarification if necessary.

This research will be beneficial to both parties, buying firms and suppliers, who urge to improve their supply chain performance and integration. As the definition and study on supply chain leadership are limited and paucity, this research aims to provide a definition on supply chain leadership and examine its contribution towards suppliers' performance (financially and non-financially). A summary report of the findings of this study will be available to all participants once the data has been analysed.

The questionnaire will take no longer than 15 minutes to complete. Your responses will be treated as highly confidential and your information will not be disclosed to anyone. This research has been approved by the Sheffield University Management School's research ethics committee. I would like to stress that your participation in this research is entirely voluntary and there will be no negative implications if you decide not to take part.

If you have any concerns or questions relating to the research, please contact Professor David Oglethorpe (the Dean of Sheffield University Management School) at +44 (0)114 222 3364 or d.oglethorpe@sheffield.ac.uk.

Thank you for your time and kind assistance.

Yours sincerely,

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SECTION A: DEMOGRAPHIC PROFILE

Q1 Please select your firm's location:

- ○ Northern Region: Perlis, Kedah, Penang, Perak
- ○ East Coast Region: Kelantan, Terengganu, Pahang
- ○ Central Region: Selangor, Negeri Sembilan, Kuala Lumpur, Putrajaya
- ○ Southern Region: Malacca, Johor
- ○ East Malaysia: Sabah, Sarawak, Labuan

Q2 Please select the size of your firm:

- ○ Micro (less than 5 employees)
- ○ Small (6-75 employees)
- ○ Medium (76-200 employees)
- ○ Large (more than 200 employees)

Q3 Please select your firm annual turnover:

- ○ Less than RM300,000
- ○ RM300,001-RM15 million
- ○ RM15.1 million - RM50 million
- ○ More than RM50 million

Q4 Please select the years of your firm's operating experience:

- ○ <1 Year
- ○ 1-5 Years
- ○ 6-10 Years
- ○ 11-15 Years
- ○ 16-20 Years
- ○ >20 Years

Q5 Please select the type of main industry your firm operates in:

- ○ Electrical and Electronics
- ○ Chemicals
- ○ Rubber and Plastics
- ○ Metal and Machinery
- ○ Automotive
- ○ Food and Beverages
- ○ Furniture
- ○ Pharmaceutical
- ○ Textile
- ○ Tobacco
- ○ Toys
- ○ Sporting Goods
- ○ Others (Please specify) _____

Q6 Please select the ownership status of your firm:

- ❍ Public ownership / State-Owned Enterprise
- ❍ Private ownership
- ❍ Government-Linked Company (GLC)
- ❍ Local Joint-Venture
- ❍ Social Enterprise
- ❍ Local and Foreign Joint-Venture - Please specify the country of your ownership partner(s)
  _____
- ❍ Fully Foreign-Owned Company - Please specify the country of your parent company
  _____
- ❍ Others (Please specify) _____

Q7 Please select your position in this firm:

- ❍ Senior Management (President, Chief Executive Officer, Chief Operating Officer, Managing Director, Director)
- ❍ Middle Management (Senior General Manager, General Manager, Senior Manager, Manager of Operations, Production, R&D, Sales or Marketing)
- ❍ Lower Management (Engineer, Supervisor, Team Leader)
- ❍ Others (Please specify) _____

Q8 How long have you been working in this firm?

- ❍ Less than 1 year
- ❍ 2-5 years
- ❍ 6-10 years
- ❍ More than 10 years

Q9 What is the position of your firm in the supply chain?

- ❍ Focal / Prime Firm (Finished Product Manufacturers / Original Equipment Manufacturers (OEM) e.g: Honda, Toyota, Proton, Perodua, Apple, Sony, Panasonic)
- ❍ Tier 1 (Direct Suppliers to the focal firm / Components Suppliers e.g: Denso, Continental, Sensata Technologies)
- ❍ Tier 2 (Sub-Components Suppliers to Tier 1 suppliers that then supplies them to focal firm)
- ❍ Tier 3 (Raw materials suppliers e.g: Steel, Plastic, Glass, Rubber)
- ❍ Others (Please specify) _____

Q10 Do you normally interact with the focal firm in your supply chain?

- ❍ Yes
- ❍ No

SECTION B: PERFORMANCE

In this section, please rate your *company's supply chain performance by comparing it to industry benchmark.*
Please express your judgement to each statement by ticking the most appropriate option.

	Extremely Poor (1)	Poor (2)	Below Average (3)	Average (4)	Above Average (5)	Good (6)	Excellent (7)
1. Sales turnover	◯	◯	◯	◯	◯	◯	◯
2. Annual profit	◯	◯	◯	◯	◯	◯	◯
3. Manufacturing costs	◯	◯	◯	◯	◯	◯	◯
4. Inventory costs	◯	◯	◯	◯	◯	◯	◯
5. Overhead costs	◯	◯	◯	◯	◯	◯	◯
6. Price competitiveness	◯	◯	◯	◯	◯	◯	◯
7. Products conformance (meet established standards / customers' requirements)	◯	◯	◯	◯	◯	◯	◯
8. Products quality consistency	◯	◯	◯	◯	◯	◯	◯
9. Products reliability (probability of a product malfunctioning/failing within a specified time period)	◯	◯	◯	◯	◯	◯	◯
10. Products overall quality (products' primary operating characteristics)	◯	◯	◯	◯	◯	◯	◯
11. Accuracy of product delivery (correct quantity and products)	◯	◯	◯	◯	◯	◯	◯
12. Product delivery time	◯	◯	◯	◯	◯	◯	◯
13. Order fulfilment lead time	◯	◯	◯	◯	◯	◯	◯

14. Supply chain throughput time	❍	❍	❍	❍	❍	❍	❍
15. Manufacturing lead-time	❍	❍	❍	❍	❍	❍	❍
16. Ability to rapidly change production volume	❍	❍	❍	❍	❍	❍	❍
17. Ability to produce customized product features	❍	❍	❍	❍	❍	❍	❍
18. Ability to produce broad product specifications within same facility	❍	❍	❍	❍	❍	❍	❍
19. Capability to make rapid product mix changes	❍	❍	❍	❍	❍	❍	❍

In this section, please rate *your company's reverse supply chain performance by comparing it to industry benchmark.* Please express your judgement to each statement by ticking the most appropriate option.	Extremely Poor (1)	Poor (2)	Below Average (3)	Average (4)	Above Average (5)	Good (6)	Excellent (7)
1. Cost of processing recyclable products	○	○	○	○	○	○	○
2. Cost of retrieving returned products	○	○	○	○	○	○	○
3. Cost of storing returned products	○	○	○	○	○	○	○
4. Cost of remanufacturing, replenishment and reproduction of returned products	○	○	○	○	○	○	○
5. Availability of recyclable / reusable materials in products	○	○	○	○	○	○	○
6. Availability of material recovery plan and warranty returns	○	○	○	○	○	○	○
7. Ability to remanufacture and refurbish returned products	○	○	○	○	○	○	○
8. Lead-time for unsold products to be remanufactured / refurbished	○	○	○	○	○	○	○
9. Lead-time for warranty returns products to be remanufactured/refurbished	○	○	○	○	○	○	○
10. Lead-time product recycling and reuse	○	○	○	○	○	○	○
11. Ability to incorporate traditional practices with reverse supply chain practices i.e: dismantling parts and recycle	○	○	○	○	○	○	○
12. Ability to provide new infrastructure for new products research and development	○	○	○	○	○	○	○
13. Ability to produce products with high reusable and recyclable materials	○	○	○	○	○	○	○

SECTION C: SUPPLIERS' TRUST

In this section, please indicate the extent of *trust between your firm and your immediate buying firm*.
To what extent would you agree or disagree with the following statements in relation to inter-organizational trust?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1. Buyer firm keeps their promises to our company	❍	❍	❍	❍	❍	❍	❍
2. We believe in the information provided by the buying firm	❍	❍	❍	❍	❍	❍	❍
3. Buyer firm is concerned about our business success	❍	❍	❍	❍	❍	❍	❍
4. When making important decisions, the buying firm considers our welfare as well as its own	❍	❍	❍	❍	❍	❍	❍
5. We find it is necessary to be cautious with the buying firm	❍	❍	❍	❍	❍	❍	❍
6. Buyer firm keeps our best interests in mind	❍	❍	❍	❍	❍	❍	❍
7. Buyer firm is honest with our company	❍	❍	❍	❍	❍	❍	❍
8. Buyer firm is transparent with our company	❍	❍	❍	❍	❍	❍	❍
9. Buyer firm will exploit our vulnerabilities	❍	❍	❍	❍	❍	❍	❍
10. Buyer firm will not expose our production planning and drawings to other parties	❍	❍	❍	❍	❍	❍	❍
11. We are willing to invest in new infrastructure or facilities to fulfil buying firm's needs	❍	❍	❍	❍	❍	❍	❍
12. Buyer firm is trustworthy	❍	❍	❍	❍	❍	❍	❍

SECTION D: CONTRACT							
In this section, please indicate the *extent of contractual power exhibited by your immediate buying firm*. **To what extent would you agree or disagree with the following statements in relation to contractual power exhibited by the buying firm?**							
	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1. Buyer firm often refers to a portion of an agreement to gain our compliance on a particular request	○	○	○	○	○	○	○
2. Buyer firm makes a point to refer to any legal agreement when attempting to influence us	○	○	○	○	○	○	○
3. Buyer firm uses sections of our sales agreement as a "tool" to get us to agree to their demands	○	○	○	○	○	○	○

SECTION E: SUPPLY CHAIN LEADERSHIP

In this section, please indicate the *extent of leadership approaches exhibited by your immediate buying firm*.
To what extent would you agree or disagree with the following statements in relation to buying firms' leadership approaches?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1. Buying firm goes beyond its self-interest for the good of the supply chain	❍	❍	❍	❍	❍	❍	❍
2. Buying firm talks enthusiastically about what needs to be accomplished in the supply chain	❍	❍	❍	❍	❍	❍	❍
3. Buying firm clarifies the central purpose underlying their supply chain actions	❍	❍	❍	❍	❍	❍	❍
4. Buying firm displays power and confidence	❍	❍	❍	❍	❍	❍	❍
5. Buying firm seeks different views when solving supply chain issues	❍	❍	❍	❍	❍	❍	❍
6. Buying firm suggests new ways in solving supply chain issues	❍	❍	❍	❍	❍	❍	❍
7. Our company is encouraged to express ideas	❍	❍	❍	❍	❍	❍	❍
8. Buying firm spends time teaching and coaching us	❍	❍	❍	❍	❍	❍	❍
9. Our company gets individual consideration	❍	❍	❍	❍	❍	❍	❍
10. Buying firm encourages us to improve our strengths	❍	❍	❍	❍	❍	❍	❍
11. Buying firm lets us know what is expected of us in the supply chain process	❍	❍	❍	❍	❍	❍	❍
12. Buying firm encourages the use of uniform procedures in the supply chain process	❍	❍	❍	❍	❍	❍	❍
13. Buying firm decides what shall be done and how it will be done in the supply chain process	❍	❍	❍	❍	❍	❍	❍

	❍	❍	❍	❍	❍	❍	❍
14. Buying firm maintains definite standards of performance in the supply chain process	❍	❍	❍	❍	❍	❍	❍
15. Buying firm asks that we follow established purchasing rules and procedures	❍	❍	❍	❍	❍	❍	❍
16. Buying firm rewards our company for achievement	❍	❍	❍	❍	❍	❍	❍
17. Our company is punished for fault and misconduct such as late delivery	❍	❍	❍	❍	❍	❍	❍
18. Buying firm tracks our company mistakes	❍	❍	❍	❍	❍	❍	❍
19. Buying firm concentrates their full attention on dealing with our mistakes	❍	❍	❍	❍	❍	❍	❍
20. Buying firm concentrates on our failures	❍	❍	❍	❍	❍	❍	❍
21. Buying firm believes in "if not broken, don't fix it"	❍	❍	❍	❍	❍	❍	❍
22. Buying firm does not interfere in our company production problems	❍	❍	❍	❍	❍	❍	❍
23. Buying firm avoids making decisions	❍	❍	❍	❍	❍	❍	❍

We thank you for your time spent taking this survey. Your response is extremely valuable for this research. Your responses will be treated as highly confidential and your information will not be disclosed to anyone

Please feel free to provide us your email address if you would like to take part in a further discussion or to request findings report of this research.

Thank you!
Ahmad Rais Mohamad Mokhtar

Appendix C: Pre-Testing Questions

1. Are the instructions clear for the respondents to answer the questionnaire?
2. Are the questions easy to understand?
3. Are there any issues in answering the questions in the survey?
4. Is the survey well-structured and well-designed (for example sequence of questions, font, colour etc.)?
5. Is the survey easy to complete? If not, what are the areas that require attention?
6. Are the survey items free from jargons or unprofessional words?
7. Is there any question that highly sensitive or confidential for the respondents?
8. What do you think about the length of the survey?
9. How long do you take to complete the survey?
10. Do you think the respondents are keen to answers all questions?
11. Are the questions asked in line with the items in the survey? Is there any other way to ask the question so that the responses are more accurate?
12. Are there any items or elements in the survey that you think inappropriate?
13. Do you have any suggestion to improve the questionnaire?
14. Do you have any suggestion to improve the response rate?
15. Please provide your overall comments of the questionnaire.

Appendix D: Interview Information Sheet

Examining the Impact of Supply Chain Leadership on Suppliers' Performance

Dear Sir / Madam

I am a PhD student in the University of Sheffield's Management School. My research project is "Examining the Impact of Supply Chain Leadership and on Suppliers' Performance".

You are being invited to take part in this research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please feel free to contact me or any of my supervisors for further clarification if necessary.

This research will be beneficial to both parties, buyers (focal companies) and suppliers, who urge to improve their supply chain performance and integration. As the definition and study on supply chain leadership are limited, this research aims to provide a definition on supply chain leadership and examine its contribution towards suppliers' performance (financially and non-financially). It is expected that the findings from this study will be published in academic journals. A summary report of the findings of this study will be available to all participants once the data has been analysed.

The interview will take no longer than 30 minutes to complete. Your responses will be strictly anonymous and treated as highly confidential. This research has been approved by the Sheffield University Management School's research ethics committee. I would like to stress that your participation in this research is entirely **voluntary** and there **will be no negative implications if you decide not to take part**. The consent form is attached and the approval of **your consent is needed prior to the interview session**. The interview **will not be recorded** without your consent.

If you have any concerns or questions relating to the research, please contact Professor David Oglethorpe (the Dean of Sheffield University Management School) at +44 (0)114 222 3364 or d.oglethorpe@sheffield.ac.uk.

Thank you for your time and kind assistance.

Yours sincerely,

Ahmad Rais Mohamad Mokhtar
Doctoral Researcher
Sheffield University Management School
Email: arbmohamadmokhtar1@sheffield.ac.uk
Phone: +60129453436 (Malaysia) / +447761898567 (UK)
Research Supervisors: Dr. Andrea Genovese (email : a.genovese@sheffield.ac.uk); Dr. Andrew Brint (a.brint@sheffield.ac.uk)**;** Dr. Niraj Kumar (n.kumar@sheffield.ac.uk)

Appendix E: Interview Consent Form

Title of Research Project: Supply Chain Leadership and Suppliers' Performance

Name of Researcher: Ahmad Rais Mohamad Mokhtar

Participant Identification Number for this project: **Please initial box**

1.   I confirm that I have read and understand the information sheet/letter
     (delete as applicable) dated *[insert date]* explaining the above research project
     and I have had the opportunity to ask questions about the project.

2.   I understand that my participation is voluntary and that I am free to withdraw
     at any time without giving any reason and without there being any negative
     consequences. In addition, should I not wish to answer any particular
     question or questions, I am free to decline.
     Supervisor: Dr. Andrea Genovese, Email: a.genovese@sheffield.ac.uk

3.   I understand that my responses will be kept strictly confidential.
     I give permission for members of the research team to have access to my
     anonymised responses. I understand that my name will not be linked with
     the research materials, and I will not be identified or identifiable in the
     report or reports that result from the research.

4.   I agree for the data collected from me to be used in future research

5.   I agree to take part in the above research project.

6.   I agree for the interview to be recorded.

_____   _____   _____
Name of Participant   Date   Signature

(*or legal representative*)

_____   _____   _____
Name of person taking consent   Date   Signature

(*if different from lead researcher*)

To be signed and dated in presence of the participant

_____   _____   _____
 Lead Researcher   Date   Signature

To be signed and dated in presence of the participant

Copies:

Appendix F: Ethics Approval

Ahmad Rais Bin Mohamad Mokhtar
Registration number: 150119236
Management School
Programme: PhD - Management

Dear Ahmad Rais

PROJECT TITLE: Supply Chain Leadership and Supply Chain Performance in Manufacturing Industry
APPLICATION: Reference Number 008580

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 25/08/2016 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 008580 (dated 23/08/2016).
- Participant information sheet 1018300 version 3 (23/08/2016).
- Participant consent form 1018299 version 2 (23/08/2016).

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Yours sincerely

Daniel Miller
Ethics Administrator
Management School

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Appendix G: Sample of Interview Transcription 1 (Focal Firm)

P6 – Solar (43 minutes)

First of all, would you like to share with you the background of your firm.

Malaysia's plant started in 2008. It is actually coming from formal X, a German based company. Y in Korea started going to solar somewhere around 2010-2011. The actually come into industry through merger and acquisition. The bought a company in China and that is the starting off of all solar business in Y group. Then in 2012, because of turmoil of the industry, former X went into insolvency. That's why Y came in and acquire the company. We had two entities at that time and in 2015 we actually merged. These two entities become Y. That is where everything is started off and since 2008 we have been running in Malaysia, the operations. And ever since the acquisition of Y we have been expanding rapidly. In the sense of capacity, in 2012 we are around 800 megawatt. Now in the end of this year, we are reaching about 1.8 gigawatt. Now globally we have three sites, three manufacturing sites. The global innovation and R&D (research and development) is in Germany. Three manufacturing sites are in China, Malaysia and Korea. This month we started to ramp up another factory in Korea. We already have one, so we make an expansion. Another one. All together by end of the year we are expecting that we will be reaching about 6.8 gigawatt across the whole world. Y also in the beginning of the year announced that we will have a joint venture with Turkish government and we are going to have expansion there as well next year. I have been in this company since start-up of this plant, in 2008. September 15 will be my 9th year in this company.

Based on your company's profile, it seems that you can be considered as a focal firm. If that is true, do you monitor you suppliers' performance?

Yes. We do. Because the quality of the suppliers that come to us make a very crucial point to our final product quality. In general, I'm in charge of sales division. In this plant we have solar sales production and we also have module production. I'm in charge of sales division here and in sales division we can break it into three sections. One is the direct materials, all those materials that is thoroughly used to produce for example the wafer, and then we have this silver paste, and then we have the chemical used for the production. So this is some of direct materials. And we have indirect materials. Indirect materials mean that spare parts of the equipment. Let say we have the production gloves, all those stuff which is indirect materials that we are buying. And the third one will be the services. Because of this manufacturing plant, we have a lot of contractors. Let says gas companies, waste collection, we have this the whole

facility management. Certain of the things are contracted outside. These are the services that we are actually obtain from the suppliers. So we do monitor. Let say from the contractors, we do have KPIs (key performance indicators) for them. Let say every month we track their performance, the system uptime. We also track their compliance to our regulations and to our procedures, tidiness of their workplace, all these things are parts of the tracking. For direct materials, we are tracking their quality performance. For example, wafer. We have certain indication before we get the supply from them we actually have some specification agreed with them and also certain target. For example, for solar wafer we are measuring the solar efficacy. So we do measure this and do track the performance of this wafer suppliers. If we see any drop or better performance from them, we will have kind of monthly communication with them. We will send a report to them also on their incoming rejection. We have measurement to check every pieces of their wafer. From then there is certain out of our specification, we rejected it. We have measurement system to do that. From there we prepare for them their rejection rate. From there we were also asked them to improve their rejection rate. For the performance of their wafer, for efficiency perspective, we also constantly working with them to say 'OK, now this is your level' and we do see that they are certain potential on certain electrical parameters that can further boost their performance. Then from there, they will receive this data or this information and they will look into their production, and make some improvement. Then they will send us some testing log then from there this thing still continues. Of course there is some claim, criteria and also penalty that we put in place just in case the quality crash. Then they have to compensate certain of the losses that we have. These are all put into the contract.

If I give you scale from 1 which is the worst and 10 the excellent, are you be able to rate the performance of your main suppliers?

The performance of the suppliers I would say depends. It depends on which suppliers and which section of them. In general, let say the example I just gave, the wafer. So far, I would say the supplier dependent. They are three main suppliers that we have for this wafer. I would say from efficiency perspective, 3 months ago maybe 2 of them are quite good, the other 1 is not really good. We worked with them. Then the supplier improved. In the sense of pricing, it could be quite a difficult topic because it's supply and demand situation in solar industry. If based on quality, let say I have supplier A, B and C, the C one, as of now the performance is lower. I can rate the other two maybe higher, 6 or 7 or 8. But in the sense of pricing, it is the other way around. They are certain supplier who are quite rigid in pricing. From that perspective then the rating will be different. Finally, when we make all this judgement we based on their pricing,

their performance. Every month we have a matrix to say whether this is good or bad. To certain extent, for example wafer, it is not easy to say this is good and forever they will be good. Because they also try to get profit out of all thing. Let say for other materials, contractors, who are providing services to us. As general, I can rate them as 8 or 7 in that range. Because we have been working very long with them and they understand how we work. Quite a good feedback system together with them. So the system maintained quite well. So from that perspective, it depends on the suppliers and depends on the category (of the products supplied).

In the current literature of supply chain leadership, scholars found that there are two types of buyer firm's leadership approaches that influence suppliers' performance which are transformational and transactional. In your firm, are you using both leadership approaches or just one of them?

I would say we would be skewed more towards the second approach (transactional). The first approach (transformational), there are certain examples that we used it, but the second one is quite common because of the changes and also the fluctuation of the industry. Nowadays, I don't think you can only use one way to manage suppliers. I can give you one example on one of the company that are providing services to us on the facility sites. They come from a perspective that they are very rigid in their business model. They are supplying to the other industries as well. They are always stick the same and they always be on the winning side. From that perspective, actually I came in, and the contract terms usually very long, 10 years. So within the 10 years you are actually quite tight with them and you are unable to actually change the situation to get the better cost down and to make your product to even more competitive in the market. For this type of suppliers, we would use some kind of punishment approach towards them. But to break the whole cycle, we will come with a strategy to talk to them. For this one I personally involve together with the purchasing and facility guys. We actually invite new suppliers or new providers to come into the picture. Through this kind of competition or challenging both sides, we are actually managed to break the business model and actually followed what we want. Usually for me, we would follow win-win situation for both. I believe that in order to survive in the industry, the relationship between the supplier and customer (buyer) must come together and both must win. In the past, I've seen a lot of situation that the supplier is winning more compared to the customer. Of the certain session of the supply. Ever since I took over the division, I actually revamp the whole thing, I've changed the whole thing around. I had to educate the supplier and tell them that the industry has changed. The way the world is working also has changed. If you still stick to your conventional model, your customer (buyer) will not survive. If we cannot survive, you will also lose your business.

This is how in a way of advising, sometimes a bit of pressuring and strategize. Slowly bring them into this situation they understood that they have to change. With that we managed to actually turn the whole thing around. Let say one part of direct material, paste, we are using this silver paste to print on the solar cells. That one we actually motivate them to come together and to work. We do compare. To sometime, the do not have the understanding about how our production works. So actually give opportunity to them, to come to our production and you do the test together with our engineers. They have the opportunity to understand and make their products even better for us. Of course as what I said, the second approach (transactional) is usually what we used because the volume of production that we are doing is huge. We are producing more than 1 million pieces per day. Just imagine any quality deviation from the products or from the suppliers, the impact to us is quite high. That's why we must have this kind of penalty or some rules in place whenever we face this situation, at least from the company's perspective, we are protected. We always work with them to clear all the issues together. We don't take this approach that 'any issue you (supplier) come and solve for me'. That doesn't work. For me personally I don't believe that.

From your explanation, it seems that you are applying both of leadership approaches but more heavy towards transactional. Is that true?

Yes. To get the whole thing moving, actually four years ago, myself at that time was the Head of Technology together with Head of Quality and Head of Supply Chain, we were actually come together to form this kind of team, together, to manage the suppliers. So we always have three dimensions. One, the performance of the materials. Technological performance of the supply. Secondly, the quality, meaning that how good is the supply coming to us. In sense for the spec (specifications) that we have set. How good quality is the supply. And the third portion, which is always the 'headache' portion is pricing. There are chances that we work very closely and heavily with the suppliers to improve their quality which they can also sell to our competitors. At the end, we don't get the benefit on the pricing. That's why the balance (between transformational and transactional) has to be there. That's why we are skewing more to the other side (transactional), and we always utilize these three components to actually manage them. Let say the price they try to increase, or the price is not in favour, and then we can say 'OK, now we can't we too much with you in improving your quality'. Then it will bring to some consensus with them, they reduce. From the quality perspective, sometimes the rejection is too high. So from there we can also use that for the supply chain people to negotiate 'hey, your rejection rate is so high, you caused a lot of losses on our side'. So then they have a

better negotiation point to the suppliers. That's why we have this kind of triangle, but the person who are communicating with the suppliers are the purchasing guys. So that this guy has all the information to negotiate with them (supplier) to get the better pricing for us. Because this is quite general and whatever things that we do with them, let say wafer, we improve their wafer. They also can supply to our competitors. This is only happening within our side. Because we have made a lot of steps to improve the wafer suppliers. Actually our Korea plant benefited on it. They didn't do anything, the get a better wafer coming to their site. I would not say it will be one way. It will be depending on the supplier that you are managing and depending on the situation that you are in. I would say sometime we have to adopt certain portion of these two methods, in order to get what you want.

If we are looking into trust, do you think you suppliers trust your firm? It could be on their trust based on your information on production volumes, forecasting or their willingness to invest to new technology to cater your demand.

For other industry, this trust thing will be slightly higher because it's predictable. For solar, it is quite challenging because things are changing really fast. Sometimes I do understand supplier is not about they don't trust us. Because sometimes things are moving too fast when they purchase raw materials, or something, once we change a little bit of direction then they will have trapped with that (materials). But over the years, I do see that with certain group of suppliers we can work very well in all these. And finally, even development in raw materials, they invested. Finally you have to go through series of qualification because for solar, once you change any materials, you need to go into certification. Certification might pass, might fail. In a way not to say trust or not trust, we'll give them enough information, and also timing about the progress of all the work. So that they can also plan up properly on their side. In the sense of trusting, yes they are there. But most important is accurate information to them. So we always tell them 'now after the first certification, this is the timing that we will place some order to make kind of small trial run'. Then they will buy their raw materials and prepare for it. Once the test out, maybe not so good, maybe we ask them to hold. But at that time also we take risk. We say 'OK fine, based on technical understanding seems to be quite OK, yes there are some risk you could fail but we will ask you to produce'. Of course we have to commit. If anything failed, the raw aterials they already purchase, the cost will come to us. To certain end the trust must be there. Either trust of the data, or trust of our direction. Y so far the leading company for solar cells, in term of capacity and also technology. A lot of suppliers are willing to come together, even for trial, even it could be failure, they still want to work with us. So they can be the frontrunner for our product generation or something.

With regards of power such as coercive, legitimate and reward, how do you approach your supplier when there is a quality issue or production downtime? Do you apply reward and penalty scheme?

Yes. We do have this. We have this, quality assurance agreement with them. This is actually to make sure the incoming quality from the suppliers. Let say, we have, maybe higher breakage that is occurring across the line (production) then we will accumulate the losses, pieces broken across the whole production. Then from there we are going to pass it to them to say this is what we are going to claim from you. This is all pre-agreed in the agreement. Let say the one we can't influence much, power interruption. If only that, we can only give feedback that this is the losses that we have and then for sure we will work with them on all the improvement, but for this case, we can't claim. So we just have to absorb the losses. Usually for all the suppliers that we have, even the contractors who providing us gas, any interruption from their side actually we have clauses in our contract on all these.

Comparing to your supplier, do you think you hold more power than them such as due to your firm's position or brand?

Yes. Again, it depends on which commodities. Let say for wafer, will be difficult. Because this is one area that is very difficult. It is mostly control by China. From that, the supply and demand, the imbalance, this will create a lot of situation. For Chinese, our competitors, to get wafer or everything from China, sometimes it is big crazy that you can literally taking a bag of cash to the company saying 'hey, this is my cash, give me wafer'. That is the Chinese way of working. For the paste and the rest, I think there are quite, especially all those technological driven material they are quite willing to come to us, to work with us, so that they can be part. Even we have one sub-equipment supplier, we actually make this development with them and we actually make it successful so that their system can be applied in solar. I still remember that they have this kind of request, possibility for them to us our name in their publication. Because for their perspective, our brand and company's name carry a quite big weight for them to anchor more businesses. In general yes, there are willing to come to us and work, technologically especially. For wafer, it's a little big tough.

From my understanding, it seems that you are using different leadership approach for different suppliers.

Yes. In 2015 when we deployed our new technology, in the market there are only two or three suppliers that can supply this machine. We come together and we decided on one. That time the machine is really not in the mass production state. But we work with them. We are quite

open. I gave them data, information, feedback. And finally made the whole machine able to run smoothly in mass production. Because of that, they also in the way to make a kind of indirect promotion 'Y is using their machine'. Right after that you can see the domino effect that everyone started to jump into the direction to buy the same machine. I would say nowadays, things have changed, and the way company are moving are also changing. Personally, I don't believe in one way to manage one supplier. Sometimes for this supplier we could be like motivating in working with them but, in other time, we might need to change the style to different approach such as punishment or something. Sometimes supplier tends to get too comfortable, in certain situation that they forgot, what is the objectives and our partnership about. Sometimes you need to wake them up a bit. By doing certain different ways for them to understand 'hey, come back'.

Do you think how you manage your supplier, your approach, is influencing the performance of your supplier?

Yes. Based on the transactional perspective, let say reward punishment, OK your performance is good, your quality, your pricing is good, then what I do is I increase the share of the volume that they can supply. So that is one way to reward them, let say monetary or something, one-time cash bonus because of performance. Because for them they need to supply continuously, and also volume. This is how I changed the whole mechanism. Let say we have two or three suppliers for chemical, from there every quarter we make a negotiation with them, everyone will propose next quarter this is the pricing, this is the volume they are intended to give us. From there we make a calculation, give to our company costing. If this is aligned with what we want, the pricing is right. Then we say we are willing to get more from you, if you are able to reduce some more. From there we can manoeuvre all this thing. And then the supplier loose up for the next quarter bidding. Then they have one quarter to improve themselves. Let say in case of pricing, to get better source or something. Then they can come in again in next quarter. This is how we can manage it to get benefit, from both sides. They get higher volume, because they give us better deal, and at the same time we are getting better pricing.

Appendix H: Sample of Interview Transcription 2 (Supplier)

P20 – Steel (33 mins)

Can you share with the background of your company?

We are mesh manufacturer. We started our business in 2012. We are supplying mainly to the construction industry and trading houses in Malaysia. For extended metal, we are also more or less construction related industry. The main user is engineering companies. For example, security fencing. We got two companies that we are running here. One, is this (company) and another one that I have in Pasir Gudang. I myself is Singaporean. I came here in year 2000. That's how we started. It is a private company. I welded mesh I have probably 20 customers.

Based on that 20 customers, do you have any dominant customer?

I would not say dominant. Because it depends on the project that my customer is having. Sometime they may have more job, sometime customer B may have more. So I do not have that so called dominant customer.

Do you measure your performance based on quality, flexibility, cost and delivery?

Quality I would say that more or less it's already there. As a manufacturer, you need to meet whatever standard that we are talking about (in the industry). That's in term of quality. But the most important factor at this point of time is cost. Cost is the first priority in this industry. Without cost, the rest of the things can't work. You can tell whoever you can produce the world best material, but if the cost cannot make that's it (not working). For this industry, it is very sensitive on cost, unlike other industries. It means every cent counts, every mm (millimetre – length of the steel) counts. It's very competitive because we are talking about mesh. In this industry, between quality and cost, I would say 80-20 (%). 80 (%) on cost, 20 (%) on quality.

Do you adopt any environmental sustainability initiatives?

If you are talking about recycling, for us of course we try not to waste. I would not say recycling. For our product, every kilo (kilogram) counts. It is not the matter of how much is the environmental impact, but how much I can save money. Like scrap, if it is not necessary, we don't want to scrap. But of course end cut (steel) like that we have not choice and have to scrap it. I think the keyword is cost. By not wasting or by reusing the product we are saving cost. There's not much of impact to the environmental issue. Because, of course, steel is recyclable. We can always cut it down and reuse again. That's for steel, unlike other product, (such as) plastics or such things like that. I don't see the important of it. Because, it's by nature.

Because you don't want to throw away steel waste, you want to scrap it. You want to collect all this scrap steel and sell it for a price. That is what happen (in this industry).

As I mentioned to you earlier, supply chain leadership is characterized by transformational and transactional leadership. Is this happening in your industry?

As I said, in this industry, it is very cost effective. Nowadays in term of market practise, in term of corporate image, of course it does make a certain impact when it comes to a certain bigger scale project. Because the buyers at some time they have this worry that whether the supplier cope with their demand. So they might be looking at bigger supplier. Or more stable (supplier), they've got financial strength, they've got technical strength, they've got manpower and anything like that. Other than that, if you are talking about the mass of the market, it is all cost (emphasized on). If you are talking about corporate image, to a smaller company, the corporate image is supported by cost. You realize that I emphasized a lot on cost. Because this industry is sensitive to cost. You can tell the buyer that I'm using a brand new truck to send you cargo, brand new machine to produce the products you purchase from me, and the downtime is almost zero. But the buyer will ask how much will you sell to us. Some companies in the past might have failed delivery or something like that. But when comes to the new project, when they cope, they tend to forget. Because it's cost that taking the lead. Of course if over time if you failed and failed and failed, then the company's reputation is tarnished, they might bar this company from supplying. Company A barred A supplier, but A supplier can go to company B, C, D. They might fail A, they might not fail B. By the end of the day, it is competitiveness. If they are able to sustain, if they are able to get cheaper material, if they are able to produce at the lower cost and if they are able to sell at the lower price, the market is still there. In this level of supplies (commodity), I would not say that the image is very important. Our product is not too sophisticated. The product that we are producing can be done in many ways and many other machines. There is no one single machine that is producing this (product). So another word, the product we are selling, we don't need a rocket scientist to work out the formula. Of course this we can't compare to automotive. Automotive, we are talking about R&D (research and design). We do research on this engine or this part or this car model, and when the development is firmed they will produce maybe in millions (parts) and you can't change the supplier. It is just like the oil and gas industry. They don't want to change their supplier every now and then. Because the value of the product that we are using. They don't want to change the suppliers that often. Because for one supplier that they want to change, they will have to qualify the supplier. Why? Because of the value. For the items they use it at the offshore, drilling for

example, when they deploy, the cost is already there. This product cost, for example service treatment, is so much compared to the operation cost that we are talking about. So for them, they want to stick to the supplier for whom they know that this supplier is genuine and able to support. They don't want to change. But for this industry (steel) no. For example, in JB (Johor Bharu) there are 8 producers. In all Malaysia about 30. If you don't go for 1, you still have 29 suppliers to go. It's that kind of different (compare to other industries). It is entirely different ball games. For me, this is a wrong trade (business) for me. I don't like this trade. They've got this stealing culture. They've got full spec (specification), they've got commercial quality. When we say commercial quality, that means I supply what you are buying. If you want this mesh at $1, I would sell $1 mesh. You want to buy this mesh at 90 cents, I would sell you the 90 cents mesh. But the quality is different. This is what we call the cut corners kind of our supplies. If we don't do it, others are doing it. It is never a good industry. Of course there are field big players, of whom they are having a big supply. People (company) like A, B. All these are listed companies. In automotive industry, I would say that they are more precise. In term of precision wise, they are more specific especially when it comes to their suppliers (selection). They work very closely with their suppliers. Again same thing, they try not to change. They can't afford to change every now and then. Our industry (still) is just the other way around. There are so many suppliers. For example, I've got a project of 100,000 pieces of mesh, I'll ask supplier A, B and C. And I will choose the lowest and I'll try to squeeze 10% out of the lowest. This is what happen in the industry. Whenever the things (happened) in this manner, the quality always been compromised. The specifications always been compromised. You can stand firm to whatever by saying "no, I only supply this product". You can. But you have to face the consequences, you'll be suffering in term of sales like that. And of course there are a lot of factors contributing to it.

Do you buying firm provide you any reward such as for on time delivery?

No. They will pay you accordingly. But of course the word reward, it might come in for the next project. For example, contractor ABC. They tender for this job which is 1000 tonnes. When you give them the quote, and you are selected. You've been shortlisted and you are the supplier. If you have done a good job, the buyer, they registered this company and had this (business) relationship. The next job, they will call this (our) company to quote. Of course at the same time they will go for others (suppliers) as well. If the buying firm had a good experience with this (our) company, of course the preference is this company. Provided the price is fine.

What about trust in this industry?

I would say that is very low trust in this industry. And also the favouritism factor. In is a very common in Malaysia whereby there is a buyer offer or favouritism pertaining to the supplies. For example, personal favour, hamper (present), red packet. You know red packet? Token of appreciation during festive. All these are affecting on what is happening for new project. But at the end of the day, it is still the cost counts. I can be very keen to invite a company (for quoting) or I prefer your company. But I'll tell you that I'm having this price. It is very seldom we will have a situation where they pay you more than this company, because they are reliable, good at quality. Very seldom in our industry.

Do you think the buyer holds more power than the supplier?

Yes. In this industry, unfortunately, it's over supply than demand. It's up to them (buyer) on how they are going play it. It is very tough to maintain. You can't set a policy to that company (buyer) like I do not want to do anything that is not as specification. Because we know that, for example, when I supply mesh we got to tell ourselves that I don't want to comment on the purchase, you just tell me what do you want. I will supply according to the price. That is what happen in this industry.

Are you willing to invest for a new project requested by the buyer?

For that I really looking into the value (of the investment). But I think this question is not subject to this industry. Because as I mentioned just now, for mesh manufacturing, you don't need rocket scientist formula in order to work out. Because it is actually very primitive (the process) and no much thing can be done. No much of R&D (research and development) can be done. It is just a simple reinforce or re-mesh.

Do you think your company's performance is influenced by your buyer approaches?

The performance of the company, I would not say that it is influenced by the buyer, but it's on the company's itself. We are talking about the product that we are able to produce. It is very much depending on the production capability, the capacity of the production, the machine, the manpower. The moment when we enter certain contract with certain customer (buyer), we know that what are the contract we have with them, what is the capacity that we are having now, where are we supposed to be. Then we know that is our capacity able to meet the requirement (by the buyer). It is that simple. The main thing is that this is all about how fast you can produce. That's all. Of course with the machine that we are having, if the maximum capacity is 1500 tonnes for example, now the project in hand is almost there, so the more you

take in, the more problem you will face. The planner must be able to play this picture very clearly to the management. The only concern that they (buyer) have is the those in the project of high-rise building. For high-rise, a developer to develop a 30-storey building. Normally for contract like that, they will award it to one supplier. Because, for a 30-sotrey (building), if something goes wrong, the wall cracks, somebody has to be responsible. They have to make sure that this is traceable. If they've been provided the mesh from 3 suppliers, so who is going to be responsible? So they want to award this contract to sole supplier for this 30-storey (building). For anything like that, they (buyer) want to award to a reputable company. Because to play safe.

Appendix I: Article Published in the International Journal of Production Economics
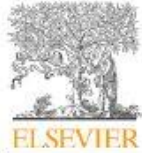
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Review

Supply chain leadership: A systematic literature review and a research agenda

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ARTICLE INFO

ABSTRACT

The main purpose of this study is to improve the understanding and comprehension of the supply chain leadership concept. To this aim, the paper systematically reviews and synthesises the current academic literature in this emerging field, unveiling research gaps and discussing a future research agenda. The review was performed by selecting papers from leading journals in the operations and supply chain management field (using the *Scopus* and *Web of Science* academic search engines). Overall, 51 relevant papers were identified through the review process. After providing an overview of classical leadership theories, the paper introduces a definition for the supply chain leadership concept. The theoretical characterisation of such concept is then investigated, through the identification of dominant leadership theories employed to explain and characterise supply chain leadership. Also, the study provides a thematic analysis of supply chain leadership styles and their influence on supply chain practices. Employed research methodologies, along with geographical specificities and supply chain orientations of previous studies, are also scrutinised. To the best of our knowledge, this is the first attempt to provide a holistic systematic literature review in the supply chain leadership domain. Therefore, this contribution is an important first step in order to establish robust theoretical frameworks involving the constructs of supply chain leadership and to provide a foundation for further studies in this field.

1. Introduction

Globalisation has allowed firms to exploit international supply networks, increasing the need for improved coordination with suppliers. This phenomenon has changed the locus of competition from single firms to entire supply chains (Gosling et al., 2017). As the boundaries of supply chain networks have been broadened, competition has become more intense and the overall performance of firms now highly depends on the support of supply chain partners. Highly competitive business practices require a firm to extend supply chain management practices beyond traditional intra-firm boundaries and play a strategic role in improving connections with supply chain members (Nosella and Petroni, 2007; Maestrini et al., 2017). Due to this situation, a significant number of studies addressing the importance of inter-organisational management and partnerships have been published (Meqdadi et al., 2018; Um and Kim, 2018; Yawar and Seuring, 2018; Chen et al., 2017).

The need for inter-organisational management in a supply chain context has led to a proliferation of studies emphasising the role of a focal or buying firm in orchestrating supply chain members' activities across the network in order to achieve desirable and mutual goals for all parties (Dubey et al., 2018; Wilhelm et al., 2016a; 2016b; Hoejmose et al., 2012). However, the notion of a firm orchestrating and managing its supply chain members is not a new proposition in a supply chain context. Previous studies highlighted the crucial role of buying firms in supply chains through the provision of channel leadership (manufacturer-retailer relationships management), supply chain governance mechanisms (relational-based concepts such as inter-organisational trust, power, collaboration, long-term relationship), and institutional pressures (based on the isomorphism concept in influencing stakeholders) (see Gölgeci et al., 2018; Akhtar et al., 2016; Goffnett and Goswami, 2016; Cao and Lumineau, 2015; Zhu and Sarkis, 2007; Poppo and Zenger, 2002; DiMaggio and Powell, 1983; Etgar, 1978).

Supply chain leadership (SCL), focuses on firms' behaviours and has been formulated by the scholars based upon the classical leadership theory. As such this paper argues that SCL is concerned with the ability

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Appendix J: Article Published in Journal of Cleaner Production
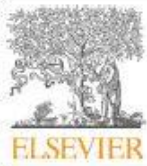
Improving reverse supply chain performance: The role of supply chain leadership and governance mechanisms

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ARTICLE INFO

ABSTRACT

Recently, a growing interest has been devoted to the role of buying firms in promoting sustainability across supply chains. However, relatively little attention has been given to how the behaviour of a buying firm affects the performance of reverse supply chains. Within this context, this paper investigates the role of Supply Chain Leadership styles on suppliers' performance dimensions related to reverse product flows. Furthermore, the mediating role of two governance mechanisms (namely trust and legal-legitimate power) on this relationship is examined. This study employs structural equation modelling to analyse data collected from 190 manufacturing companies in Malaysia. The paper concludes that transformational and transactional leaderships are significant and positive contributors to suppliers' reverse supply chain performance; trust and power significantly mediate these relationships.

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1. Introduction

The Circular Economy (CE) paradigm pushes the frontiers of environmental, economic and social sustainability by emphasising the idea of transforming products in such a way that there are workable relationships between ecological systems and economic activities (Kirchherr et al., 2017). This is achieved by creating a paradigm shift in the design of material flows, based on the notion of waste and by-products as a resource in manufacturing processes (Genovese et al., 2017). CE has been increasingly integrated into supply chain research and practice through concepts such as circular business models and circular product design (Geissdoerfer et al., 2017; Murray et al., 2017).

The main notion of CE is not only to improve environmental sustainability by enhancing traditional performance measures, but also by taking care of reverse supply chain performance (RSCP) by improving the management of end-of-life products and intermediate by-products through reusing, recycling and refurbishment options (Nasir et al., 2016). As such, reverse supply chains (RSCs) are at the backbone of operationalising CE concepts at a meso-level,

enacting inter-firm collaboration (Genovese et al., 2017). The management of RSCs carries a number of economic, social and environmental issues and implications, which are further exacerbated by the involvement of multiple actors in RSC operations (Genovese et al., 2017). In order to ensure a successful implementation of RSCs, all stakeholders in the supply chains, including buying firms, should take responsibility in optimising the adoption of RSC practices (Defee et al., 2009; Kannan, 2018; Mathivathanan et al., 2018).

Within this context, buying firms should be able to orchestrate production processes across supply chains by playing a *leadership* role towards upstream suppliers (Defee et al., 2009). Supply chain leadership (SCL) is concerned with the ability of an organisation (for example, the buying firm in a supply chain) to influence followers' (for example, suppliers) actions or behaviours (Defee et al., 2009; Gosling et al., 2017).

Recently, studies about the influence of SCL on the implementation of sustainable practices within supply chains have been observed (Vivaldini and Pires, 2016; Agi and Nishant, 2017; Blome et al., 2017; Gabler et al., 2017; Gosling et al., 2017; Gunasekaran et al., 2017). However, within this emerging body of knowledge, most of the empirical studies are centred on the improvement of more traditional linear performance measures (such as the ones related to green procurement and manufacturing) (Silvestre, 2015; Kurucz et al., 2017; Roman, 2017). Very little emphasis has been

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