

AHMET DOĞANAY	THE EFFECT OF TRUST BASED SUPPLY CHAIN COLLABORATION (SCC) ON SUPPLY CHAIN PERFORMANCE (SCP) AND TRANSACTION COST (TC)	İŞLETME ANA BİLİM DALI YÖNETİM VE ORGANİZASYON (İNG) BİLİM DALI	İSTANBUL 2017
T.C. MARMARA ÜNİVERSİTESİ SOSYAL BİLİMLER ENSTİTÜSÜ İŞLETME ANA BİLİM DALI YÖNETİM VE ORGANİZASYON (İNG) BİLİM DALI THE EFFECT OF TRUST BASED SUPPLY CHAIN COLLABORATION (SCC) ON SUPPLY CHAIN PERFORMANCE (SCP) AND TRANSACTION COST (TC) Doktora Tezi AHMET DOĞANAY İstanbul, 2017			

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YÖNETİM VE ORGANİZASYON (ING) BİLİM DALI

**THE EFFECT OF TRUST BASED SUPPLY CHAIN
COLLABORATION (SCC) ON SUPPLY CHAIN
PERFORMANCE (SCP) AND TRANSACTION COST (TC)**

Doktora Tezi

AHMET DOĞANAY

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İstanbul, 2017

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SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ

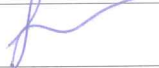
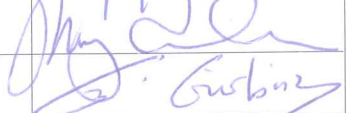
TEZ ONAY BELGESİ

İŞLETME (İNGİLİZCE) Anabilim Dalı YÖNETİM VE ORGANİZASYON
(İNGİLİZCE) Bilim Dalı DOKTORA öğrencisi Ahmet Doğanay'nın THE EFFECT OF TRUST
BASED SUPPLY CHAIN COLLABORATION (SCC) ON SUPPLY CHAIN
PERFORMANCE (SCP) AND TRANSACTION COST (TC) adlı tez çalışması, Enstitümüz
Yönetim Kurulunun 6.04.2017 tarih ve 2017-8/40 sayılı kararıyla oluşturulan jüri tarafından oy
birliği / oy çokluğu ile Doktora Tezi olarak kabul edilmiştir.

Tez Savunma Tarihi ..02../...05../...2017...

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4.	Jüri Üyesi	Prof. Dr. FATMA GÜLRUH GÜRBÜZ	
5.	Jüri Üyesi	Prof. Dr. GÜNER GÜRSOY	

ACKNOWLEDGEMENTS

When I have completed my master's thesis, I didn't have much idea about the PhD education which seemed too far to me. But my learning desire and my love to teaching pulled me this very challenging adventure. Of course, my teachers and my old class mates had big effect on my decision. Now, I am very happy to experience this adventure, this was one of the best experience in my life.

I would like specially to thank my supervisor Prof.Dr. H.Sinem ERGUN for her patience, continuous support, encouragement and developing guidance. I would like to express my sincere appreciation to all teachers of Marmara University, Management and Organization department, they have always been extremely supportive. I would like to thank my jury Prof.Dr. F.G lruh G RB Z, Prof.Dr. G ner G RSOY, Prof.Dr. Gonca G NAY Asst.Prof.Dr. M jdelen İpek YENER, for their invaluable contribution and feed backs.

I would like to thank also, Prof.Dr. Mehmet TANYAŞ, Prof.Dr. G ner G RSOY, Assoc.Prof.Dr. Nezi  ALTAY, Tun  AYDEMİR, Hakan ERDEN, Volkan AKBIYIK, Mustafa EREL for their review and feed backs during questionnaire preparation. I want to thank Prof.Dr. H.Nejat BASIM for his motivation and guidance. I am also grateful to all academicians who helped to improve the literature with their studies so far.

I would like to thank Prof.Dr. E.Serra YURTKORU and Asst.Prof. Meral D LGER TAŞKIN for their invaluable assistance during data statistics.

I would like to thank all organizations which attended to this research and share information for the development of science. Special thanks to organizations like LODER, TEDAR, TUSAYDER, KALDER and their presidents Prof.Dr. G l in B Y K ZKAN (LODER), Tu rul G NAL (TEDAR), G rkan H RYILMAZ (TEDAR), Orhan ARGON (KALDER, Program Manager). All organizations and ISO 1000 firms were very helpful to me by providing correct source to gather quantitative information for this research.

I would like to thank Emel  ITAK and Dilara TAN who made the proof reading and designed this dissertation.

I am greatly thankful to my doctorate class mates; Zeynep Kabadayı Kuşçu, Pınar Acar and S.Begüm Samur Teraman, we were like family. Since the beginning of the doctorate studies, we have continuously motivated and encouraged each other and made this journey unforgettable.

And special thanks to my family; my dear wife, Derya DOĞANAY for giving me more than support and encouragement, this dissertation wouldn't be possible without her patience, love and sincere helps as she did in all our marriage. I am thankful also to my children, my dear daughter Demet, my handsome son Atalay and my beautiful little daughter Doğa. I am so blessed to have this family, I have learnt a lot from my children.

And finally, I want to thank my parents, Güner and Metin DOĞANAY, for giving me this inspiration, being there always for us and praying for our blessings.

ÖZET

Günümüzde organizasyonlar, müşterilerinin olağanüstü ve dinamik olarak değişen gereksinimlerini karşılamak için daha fazla işbirlikleri kuruyorlar, çünkü talepkar ve rekabetçi bir ortamda başarılı bir şekilde tek başlarına rekabet edemiyorlar. Bu karmaşıklığa bir çözüm olarak, örgütler, tedarikçilerinin ve müşterilerinin kaynaklarını ve bilgilerini sonuna kadar kullanmak amacıyla tedarik zinciri işbirliğini kullanmaktadırlar.

Bu doktora tezinin amacı, güvene dayalı Tedarik Zinciri İşbirliğinin (TZİ), Tedarik Zinciri Performansı (TZP) ve İşlem Maliyeti (İM) ile arasındaki ilişkiyi araştırmaktır. Teorik olarak İşlem Maliyeti Ekonomisi (İME) ve Kaynak Tabanlı Teori (KTT)'ye dayanan kavramsal bir model geliştirilmiş ve SPSS programı kullanılarak bu model test edilmiştir.

Araştırmamız İstanbul Sanayi Odası (ISO) 1000 listesinde bulunan firmalarla, LODER, KALDER ve TUSAYDER gibi tedarik zinciri ile ilişkili derneklere üye firmalara altılı likert ölçekli online anketler gönderilerek gerçekleştirilmiştir.

Bu tez, daha önce böyle bir yöntemle araştırılmamış olan kavramlar arasında nedensel bir ilişki kurmaktadır. Aynı zamanda, güvene dayalı tedarik zinciri işbirliğine ve onun tedarik zinciri performansı ve işlem maliyetine olan etkisine odaklanan entegre bir çerçeveyi araştırarak literatüre ampirik bir katkı sağlamaktadır. Bu kavramlarla ilgili çalışmalar literatürde yer almakla birlikte, Türkiye bağlamında tedarik zinciri işbirliği ile ilgili ampirik çalışmalar görece olarak azdır. Bu çalışma bu boşluğu doldurmak amacını da taşımaktadır.

Test edilen model, hipotezler ve analizler, hem araştırmacılar için hemde organizasyonlar için ampirik kanıtlar ve öneriler sağlamaktadır. Sonuçlar, ankete cevap veren örgütlerin odak firma ile ana tedarikçi arasındaki güvenin işbirliğini artırmak suretiyle, tedarik zinciri performansını geliştirdiğini ve işlem maliyetini azalttığını algıladıklarını göstermektedir. Bundan dolayı, tedarik zincirinde bulunan örgütler, tedarik zinciri performanslarını artırmak ve işlem maliyetini düşürmek amacıyla ana tedarikçileriyle güvene dayalı işbirliği yapmayı düşünebilirler.

ABSTRACT

Today, organizations have been establishing more collaborations to meet their customers' extraordinary and dynamically changing needs, because they can't compete alone successfully in a demanding and competitive environment. They have been using supply chain collaboration to leverage the resources and knowledge of their suppliers and customers as a solution to this complexity.

The purpose of this dissertation is to find out the relationship between trust based Supply Chain Collaboration (SCC), Supply Chain Performance (SCP) and Transaction Cost (TC). A conceptual model with theoretical basis on Transactional Cost Economics (TCE) and Resource Based Theory (RBT) are developed and tested by using Statistical Package for the Social Science (SPSS) program.

The research has been conducted by sending six point likert scale online surveys to supply chain related organizations which are the members of Istanbul Chamber of Industry (ISO-1000), LODER, TEDAR, TUSAYDER, KALDER.

This dissertation establishes a causal relationship between constructs which have not been researched before by the herein proposed method. It also makes an empirical contribution to literature by investigating an integrated framework focusing on trust based supply chain collaboration and its effect on supply chain performance and transaction cost. Even though there are researches about these constructs in literature, researches about supply chain collaboration are relatively less in Turkish context. One of the aim of this dissertation is to close this gap.

Tested models, hypotheses and analyses provide empirical evidences and implications for both researchers and organizations. The results show that respondent organizations perceive that trust between focal firms and their suppliers improves supply chain performance and reduce transaction cost via developing collaboration activities. Therefore, organizations in supply chain may consider to have trust based supply chain collaboration with their major suppliers to improve supply chain performance and reduce transaction costs.

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LIST OF ABBREVIATIONS

AGS	Annual Gross Sale
AP	Addressing Problems
BSC	Balanced Scorecard
CC	Collaborative Communication
CFAR	Collaborative Forecasting and Replenishment
CPFR	Collaborative Planning, Forecasting and Replenishment
CR	Continuous Replenishment
CRP	Continuous Replenishment Policy
DA	Developing Association
DS	Decision Synchronization
ECR	Efficient Consumer Response
ERP	Requirements Planning
EVA	Economic Value Added
GC	Goal Congruence
GSCF	Global Supply Chain Forum
IA	Incentive Allignment
IS	Information Sharing
JKC	Joint Knowledge Creation
KALDER	Türkiye Kalite derneği
KMO	Kaiser-Meyer-Olkin
LODER	Lojistik Derneği
MP	Monitoring Performance
OP	Opportunism
QR	Quick Response
RBT	Resource Based Theory
RBV	Resource Based View
RS	Resource Sharing
SC	Supply Chain

SCC	Supply Chain Collaboration
SCCCC	Supply Chain Collaboration Collaborative Communication
SCCDS	Supply Chain Collaboration Decision Synchronization
SCCGC	Supply Chain Collaboration Goal Congruence
SCCIA	Supply Chain Collaboration Incentive Alignment
SCCIS	Supply Chain Collaboration Information Sharing
SCCJKC	Supply Chain Collaboration Joint Knowledge Creation
SCCRS	Supply Chain Collaboration Resource Sharing
SCCDSJKCIA	Supply Chain Collaboration Decision Synchronization, Joint Knowledge Creation, Incentive Alignment
SCCISGC	Supply Chain Collaboration Information sharing and Goal congruence
SCI	Supply Chain Integration
SCM	Supply Chain Management
SCP	Supply Chain Performance
SCP Perspeed	Supply Chain Performance, Performance of final products and Speed of deliveries
SCP Cost	Supply Chain Performance Production costs
TC	Transaction Cost
TCAP	Transaction Cost Addressing Problems
TCDA	Transaction Cost Developing Association
TCMP	Transaction Cost Monitoring Performance
TCOP	Transaction Cost Opportunism
TCE	Transaction Cost Economics
TCT	Transaction Cost Theory
TEDAR	Tedarik Zinciri Yönetimi Derneği
TUSAYDER	Satın Alma Profesyonelleri ve Yöneticileri Derneği
VICS	Voluntary Inter-Industry Commerce Standards
VMR	Vendor Managed Replenishment
VMI	Vendor-Managed Inventory

INTRODUCTION

Transactional relations were focusing on the single product transaction with limited information sharing during the traditional form of business exchange era (Jagdev and Thoben, 2001, p.437). Because of the retreat and oil emergency in 1980s, the exchange trades, also known as “arm’s-length” relations, caused distrust and competition environment where buyers and suppliers were like enemies that must be suppressed as much as could reasonably be expected to expand the individual organization's net revenue (Skjoett-Larsen et al., 2003, p.531).

At the end of the 1980s, companies like Wal-Mart and Proctor & Gamble started to implement new trading relations inspired by Japan. These relations were called “durable arm’s-length” relations and were strategic partnerships which included high degree of information exchange. Information change would create cost savings because of smooth management of business processes (Dyer et al., 1998, p.58).

Efficient collaboration relation attempts continued with sectoral studies of Efficient Consumer Response (ECR) Movement organization. ECR-related business practices, such as Vendor-Managed Inventory (VMI) and Continuous Replenishment (CR) were followed by Collaborative Planning, Forecasting and Replenishment (CPFR) to have more comprehensive focus on business processes like planning, forecast and replenishment (Skjoett-Larsen et.al., 2003, p.532).

During supply chain relations, organizations’ exchange can be in various aspects. They can differ from exchange of basic information to sharing experiences, risks and profits. To become competitive and stable in the changing environment, many manufacturers and service providers collaborated with their strategic suppliers, upgrading traditional supply and materials management functions and integrating them as part of corporate strategy. This integration and smooth flow of information, materials and funds can only be managed by Supply Chain Management (SCM) implementation within the organizations.

SCM is a long and challenging process for supply chain partners which should be dedicated for long-term partnership to share risks and rewards that are balanced over time. Collaboration between supply chain partners is the driving power behind a successful and effective SCM (Cooper and Ellram, 1993, p.14; Min et al., 2005, p.237).

The success of a product depends on customers' response to that product, so achieving customer satisfaction becomes important by having efficient and effective SCs. This achievement could be possible through collaboration among SC partners in a SCM system (Ramanathan, 2014, p.210). The desire for meeting and exceeding customers' demands, achieving high customer satisfaction drives organizations from competition to collaboration.

In the new collaborative era, trust is in, adversarial contingencies are out. While the real facts and shared information are the foundation for business decisions and business relationships, estimates and assumptions are regarded as guesses. Working with shared and confirmed information for organizations is the norm, not the exception (McClellan, 2003, p.1)

The main idea of collaboration is that an organization cannot successfully compete alone because customers are more demanding and the competition is increasing. Therefore, many organizations look for opportunities to coordinate inter-organizational operations mutually to produce outstanding performances (Anderson and Narus, 1990, p.56). SCC refers to two or more supply chain members that set long term partnership and plan operations together to build a competitive advantage by sharing information, making joint decisions, and achieving more benefits by having customer satisfaction than acting individually (Simatupang and Sridharan, 2002, p.45). SCC can positively impact operational effectiveness and efficiency of supply chain operations of partners and as well as profitability (Min et al., 2005, p.249).

SCC has been studied with many aspects in literature by researchers, one of the most frequent used subject is trust as antecedent of collaboration (e.g. Bunduchi, 2008; Dyer and Chu, 2003; Zaheer et al., 1998; Akyüz et al., 2014). Trust is a very important

facilitator for collaboration (e.g. Hosmer, 1995; Das and Teng, 2001; Dirks and Ferrin, 2001; Sundaramurthy and Lewis, 2003). Organizations which have trust in their partners are generally eager to collaborate with their partners because they assume that there won't be any opportunistic behavior from those partners (Barney and Hansen, 1994, p.178; Bradach and Eccles, 1989, p.98). The degree of established trust between the supply chain partners is a major determinant of the level of collaboration that is possible in a relationship (Hoyt and Huq, 2000, p.762).

SCC has many advantages for organizations which are in supply chain and seek for ultimate customer satisfaction via supply chain management. Supply chain performance (SCP) is one of the most imminent way to reach customer satisfaction. Literature supports SCC and SCP relation; SCC has an effect on improving performance via facilitating the cooperation of supply chain members along the supply chain (Bowersox, 1990, p 2-8). The effective SCC between supply chain members leads to collaborative advantage and better firm performance (Cao and Zhang, 2011, p 175). There are also financial advantages and benefits of collaboration by increasing responsiveness along with supply chain for innovative products (Fisher, 1997, p.221). According to the literature, collaboration also helps cost savings and efficiency on efforts for partners (Lambert et al., 2004, p.22).

In supply chain relations, partners have to also consider the transaction costs in market transfers while making decisions. SCC is one of the most important factors which can reduce transaction costs and enhance productivity for supply chain partners (Kalwani and Narayandas, 1995, p.2). SCC helps organizations to reduce the costs of opportunism and monitoring regarding the transactions with members and builds a mutual trust that the partner will behave in best interest (Kaufman et al. 2000, p.653). Long term relationships and collaboration between partners will reduce uncertainty, maintain trust in transactions and improve supply chain performance.

Trust has been also connected to supplier relationship and collaboration studies both as an antecedent and result. Trust in a supplier improves the overall effects of collaboration for a buyer since it gives additional confidence against opportunism (Artz, 1999, p.118). Trust also supports higher capacity for collaboration, adaptation, and commitment in the

relationship. This situation helps to eliminate frictions in daily operations, leads to a better coordination, which will finally result in an improved financial performance for organizations (Wicks et al., 1999, p.112). In a transaction cost economics framework, trust has effects on reducing costs such as searching, contracting, monitoring, and enforcement. Trust can also act as a substitute for control and reduce uncertainty in information sharing, (Dyer and Chu, 2003, p.59; Zaheer et al.,1998, p.157). Trust, collaboration, performance and transaction cost have relations with each other and affect each other in different ways.

The purpose of this dissertation is to analyze the relationship between trust based Supply Chain Collaboration (SCC), Supply Chain Performance (SCP) and Transaction Cost (TC). Trust is one of the most important antecedents of collaboration and trust based SCC is believed to have a positive relation with SCP and a negative relation with TC. The theoretical grounds for the causal relationships have been set through a comprehensive review of the relevant literature on Transactional Cost Economics (TCE), Resource Based Theory (RBT), Supply Chain Management (SCM), Supply Chain Collaboration (SCC), Supply Chain Performance (SCP) and trust. "Trust based supply chain collaboration" is selected as the major ground for the entire research since the recent literature emphasizes on the importance of trust and collaboration concepts. Each variable and the anticipated causal relationships between these variables are placed within a theoretical frame and dissertation conceptual model is established.

The research is conducted with the help of large-scale data collection method to be able to implement an empirical analysis. A six-point likert-scale questionnaire is designed to measure organizations' perceptions regarding the research constructs of the proposed model. SPSS program is used to analyze the data.

Unit of Analysis of the study is the organizations which are the focal firms in supply chain. The population of the research is selected from the organizations which are in ISO 500 -1, ISO 500 - 2 (First 1000 industrial firms in Turkey (2014) announced annually by Istanbul Chamber of Industry) and organizations in different Supply Chain associations like LODER, TEDAR, TUSAYDER, KALDER.

The research questions for this dissertation are as follows:

- Is there any relation between perceived trust among the members of a supply chain (SC) and Supply Chain Collaboration (SCC), Supply Chain Performance (SCP), Transaction Cost (TC)?
- Does the degree of perceived Supply Chain Collaboration (SCC) determine the perceived degree of Supply Chain Performance (SCP)?
- Does the degree of perceived Supply Chain Collaboration (SCC) determine the perceived degree of Transaction Cost (TC)?
- Does the degree of perceived Supply Chain Collaboration (SCC) mediate the relation between perceived trust and Supply Chain Performance (SCP)?
- Does the degree of perceived Supply Chain Collaboration (SCC) mediate the relation between perceived trust and Transaction Cost (TC)?

All the research questions are answered through conceptual model and hypotheses are developed accordingly. The analyses are conducted and the results have provided enough empirical evidences to draw a conclusion on conceptual model of the dissertation.

The dissertation is organized in five chapters. The first chapter covers literature reviews about SCM, SCC, trust, SCP and TC including theoretical background of the research, Resource Based View (RBV) and Transaction Cost Economics (TCE). In the second part, research constructs are defined and the proposed model of the research is explained, research hypotheses are given. Part three is covering research methodology, source of data, data collection method, design and content of the questionnaire and respondents' profile. Part four is consists of the findings of the research. Finally, part five discusses the findings of the research with the support of the literature, concludes the study, provides implications and limitations of the study.

PART 1. LITERATURE REVIEW

The purpose of this chapter is to present a literature review about Supply Chain Management (SCM), Supply Chain Collaboration (SCC), Trust, Supply Chain Performance (SCP) and Transaction Cost (TC). In this chapter, definitions of key concepts are provided, research constructs are reviewed, relevant theories of organization are discussed to provide a better understanding of the dissertation and its components.

1.1. SUPPLY CHAIN MANAGEMENT (SCM)

As the competition have become global and product life cycles have been shortened, organizations have been forced to consider alternative ways to achieve competitive advantage. Organizations began to use core competencies and build strategic relationships with their suppliers to enhance their capabilities and technology. Supply Chain Management (SCM) spread when organizations started strategic partnerships, and integrated their supply chain activities with logistics providers (Narasimhan et al, 2008, p.5231).

The term “supply chain management” was first used in its popular sense by Oliver and Weber (1982) and then replicated by Houlihan (1985, and 1988) in a series of articles to describe the management of materials flows across organizational borders. Since then, many researchers have investigated the concept of supply chain management, establishing its theoretical and operational bases as known today. The influence of supply chain thought on organizational strategy has also been significant, reflecting, as Christopher (1992, p 2), Macbeth and Ferguson (1994), and other authors have briefly claimed, *“that today ... competition takes place between supply chains rather than between individual companies”* (Giannakis and Croom, 2004 p 28).

A supply chain can be pictured as a pipeline; directional supply chain flows (products, services, financial resources, the information associated with these flows, and the informational flows of demand and forecasts) travel in this pipe from supplier’s supplier to customer’s customer not only forward but also backward. The traditional business functions

of marketing, sales, research and development, forecasting, production, procurement, logistics, information technology, finance, and customer service manage and accomplish these flows from the supplier's suppliers through the customer's customers to ultimately provide value and satisfy the customer.

SCM aims to reduce or eliminate the buffers of inventory that may exist in this pipeline through the flow of information sharing up and down on demand and stock levels. SCM brings a significant change from the traditional arm's-length or adversarial relationships that were common in buyer-supplier relationships in the past. SCM focuses on trust cooperation and the recognition. When this relationship is properly managed and risks and profits are shared mutually, the idea of 'whole can be greater than the sum of its parts' would be achieved (Christopher, 2016, p 3)

Supply Chain Management is defined as *"the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for all stakeholders"* (Lambert and Cooper, 2000, p.66). The main objective of SCM is to obtain customer value and satisfaction to achieve competitive advantage and profitability for both the individual companies in the supply chain, and the supply chain as a whole. The SCM concept seeks visionary performance in business: all activities between supply chain partners are orchestrated and coordinated (as if a single organization) to synchronize supply and demand at all levels. In the meantime, information and technologies are shared between partners to increase innovation and to shorten product development cycles; to increase customer satisfaction, stocks are replaced, costs are reduced with flows, effectively and efficiently (Russell, 2007, p,58).

To achieve this goal and mutual benefits of SCM, organizations need to do more than cooperation and establishing alliances with their strategic partners. Collaborative relationships with strategic partners built on trust are the best effective way of alliances. In this collaborative relation, suppliers are more than sources for organizations, they provide solutions to the focal organizations to improve better technologies for innovation. In collaborative relations partner organizations are like extensions of focal organization and they make decisions for mutual goals and benefits. This relation should be seen in both

ways, it is also same for downstream, buyers also mean same for suppliers (Narasimhan et.al, 2008, p.5242).

1.2. SUPPLY CHAIN COLLABORATION (SCC)

1.2.1. Introduction

There has been a dramatic paradigm shift in strategic management because of the developments in the last quarter of the 20th century. With the improvements in data processing technology, business practitioners, and academics witnessed the startup of the post-Fordist era, which involved a paradigm shift from mass production, reliance on economies of scale and vastly integrated firms to customization, economies of scope, and firms focused on core competence. A widespread phenomenon of this era has been the increase in inter-firm collaborations. Firms engage in these collaborations with their suppliers, channel partners, customers, and even with their competitors (Turk and Ybarra, 2011, p.2). Transactional relations were focusing on the single product transaction with limited information sharing during the traditional form of business exchange era (Jagdev and Thoben, 2001, p.437). Because of the retreat and oil emergency in 1980s, the exchange trades, also known as “arm’s-length” relations, caused distrust and competition environment where buyers and suppliers were like enemies that must be suppressed. That was the time when organizations only focused on increasing their own organization's net revenue. (Skjoett-Larsen et al., 2003, p.531).

At the end of the 1980s, companies like Wal-Mart and Proctor & Gamble started to implement new trading relations inspired by Japan. These relations were called “durable arm’s-length” relations and strategic partnerships which included high degree of information exchange. Information change would create cost savings because of smooth management of business processes (Dyer et al., 1998, p.58). Integrated collaboration between firms got more attention in 1992, after Efficient Consumer Response ECR Movement’s report referring to four main business areas (replenishment, promotion, product introduction, store assortment) to reach significant efficiency (Salmon, 1993). Information sharing relations have been changed in the scope of extended supply chain, proactive

information sharing used to plan and synchronize processes (Jagdev and Thoben, 2001, p.438).

A pilot project between Wal-Mart, Warner-Lambert, Benchmarking Partners, SAP and Manugistics was implemented together with Collaborative Planning, Forecasting and Replenishment (CPFR) concept (Cooke, 1998). CPFR concept had a more comprehensive focus according to ECR-related business practices, such as Vendor-Managed Inventory (VMI) and Continuous Replenishment (CR), (Skjoett-Larsen et al., 2003, p.532).

During supply chain relations, organizations' exchange can be in various aspects. They can differ from exchange of basic information to sharing risks and profits. These relationships were defined in the Derrouiche et al., (2008, p.429) study as collaborative supply chain strategies. These collaborative strategies described shortly below as cited in Derrouiche et al., 2008:

1.2.1.1. Quick Response (QR)

In QR, strategy implementation organizations and their partners develop an information sharing system and work together to meet the customer requirements to reduce the lead-time and inventory cost in supply chain, (Troyer and Denny 1992). With this strategy, suppliers have access to point of sale data which helps to synchronize their production, inventory and actual sales. This access enables suppliers and retailers to improve demand forecasting, order generating and production scheduling. (Schonberger 1996).

1.2.1.2. Efficient Consumer Response (ECR)

ECR strategy helped to make SC more competitive and bring more value to ultimate customer. In ECR, the idea was to reduce the total system costs, inventories and physical assets while improving the customer satisfaction by meeting and exceeding expectations. All parties worked together as business partners to achieve this result. The

concept of Continuous Replenishment Policy (CRP) was developed after ECR (Alberto and Zamolo 2005).

1.2.1.3. Continuous Replenishment Policy (CRP)

CRP is a replenishment of stocks system; when stocks comes to predefined level, supplier sends the products according to sales or prearranged amount to distribution center. With an advanced CRP, as long as customer service levels are met, suppliers may manage to reduce inventory levels at distribution center (Troyer and Denny 1992).

1.2.1.4. Vendor Managed Inventory (VMI)

In VMI system, the vendor is the primary decision-maker in order placement and inventory control. This is the highest level of partnership (Alberto and Zamolo 2005). Supplier is the one who decides on the inventory levels of each of the products (according to previous agreements) and inventory policies to maintain these levels (Simchi-Livi et al. 2000).

1.2.1.5. Collaborative Planning, Forecasting and Replenishment (CPFR)

CPFR was developed and published by Voluntary Inter-Industry Commerce Standards (VICS) Association in 1998 and used as a guide for over 300 companies. This set of business processes are established by a formal agreement which enables organizations to collaborate on strategy, tactics and execution. VICS CPFR committee made a big revision in original CPFR model to integrate innovations and solve identified shortcomings in the original process in 2004 (VICS 2016).

Supply chain relationships are not simple to establish and maintain in a long period. They require a big investment of resources and capital on all the partners involved to become successful. However, organizations do not and should not attempt to collaborate with all their suppliers and customers. Since it is neither efficient nor practical, collaborative efforts should be spent for only a strategic supply chain members, those members that

provide strategic products or services or purchase large quantities products (Drake ve Schlachter, 2008, p.853).

1.2.2. The Definition of Supply Chain Collaboration

According to Webster dictionary, the definition of "collaborate" is "to work jointly with others or together especially in an intellectual endeavor" (<http://www.merriam-webster.com/dictionary/collaborate>). To collaborate refers to parties which are not immediately connected but working and cooperating jointly. Cooperating refers to working together with others for mutual benefit. Collaboration is widely used in business world among business partners to describe the relationship level between partners. Collaborative relations can be adversarial or non-adversarial (Cox, 2001, p.10), partnership (Mentzer et al., 2000, p.52), and supplier-producer collaboration (Cravens et al., 1996, p.213).

According to Alavudeen and Venkateshwaran (2008, p.351), collaboration requires effort and good managed effective team work. There should be trust and respect between team members. Open communication and acceptance of inputs from others are necessary to establish an effective team. In the situation of conflicting goals in product development, collaborative approach will help in decision making process. Figure 1.1 shows the level of cooperativeness representing two axes: Cooperativeness and Assertiveness. In this figure, different approaches are mapped against these two axes. If both assertiveness and cooperativeness are low, it represents avoidance approach which says "I don't care". In high degree of cooperativeness and a low degree of assertion, accommodation approach refers "You win, I lose" situation. In high degree of assertiveness and a low degree of cooperativeness, competition approach refers "I win, you lose" case. When there is a compromise situation in which both moderate degrees seem ideal, it refers that "Sometimes I win and sometimes I lose". But this is not the ideal. The ideal is the collaborative approach or the "win-win" approach. To reach the win-win approach organization should search for creative solutions that can satisfy the needs of both organizations rather than focusing on competing solutions.

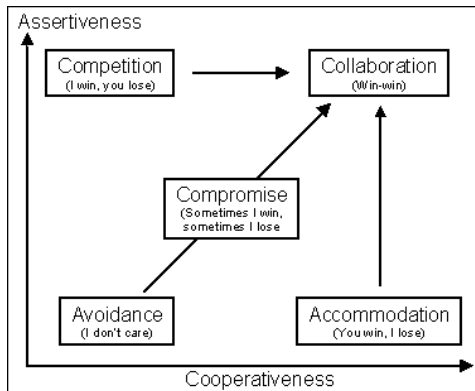


Figure 1.1. Level of cooperativeness (Alavudeen and Venkateshwaran, 2008, p,351)

Beside collaboration, many other similar words are used to define supply chain partnership relations and levels of this partnership. Bäckstrand (2007) has deeply inspected this terminology confusion and summarized the words and synonyms used to describe this relationship in Table 1.1.

Table 1.1 Common terms used in the literature when referring to the concept of collaboration in supply chains.

Terminology	Synonyms
Collaboration	Association, relationship, alliance, cooperation
Cooperation	Collaboration, support, help, mutual aid
Interaction	Contact, interface, relation, communication
Integration	Incorporation, assimilation
Alliance	Association, pact, treat, agreement, coalition, aggregation
Association	Joint enterprises
Partnership	Joint-venture, affiliation, enterprise, corporation
Relation	Association, connection, affiliation, link
Transaction	Deal, business, matter, operation

Source: Adapted from Bäckstrand (2007, p.18).

The degree of interaction between two organizations could be ranging from a single transaction to a full merger. Bäckstrand (2007, p.19) defines interactions in three levels: transaction, collaboration, and integration. According to her study, supply chain

interaction starts with a transactional level of interaction which can be single transactions or arms-length relations. When transaction level increases, different degrees of cooperation could be found; from adversarial relations to partnership. When it gets higher up to collaboration or integration, the interaction may reach up to a joint venture, or a strategic alliance. Most commonly used terms regarding the interaction in the literature are collaboration and integration. Both Supply Chain Collaboration (SCC) and Supply Chain Integration (SCI) are used to define the level of cooperation between supply chain members. Both terms are understood as data sharing between organizations by practitioners (Horwath, 2001, p 205). While integration puts more emphasis on central control through contract means, collaboration refers more on governance through relational means (Nyaga et al., 2010, p.102). The differences between meanings of integration, collaboration and the level of interaction among supply chain partners are not in the scope of this dissertation. However, out of two words used in supply chain relation, collaboration will be used to describe the relationship level in this study.

There are variety of forms of potential supply chain collaboration which can be divided in two main categories; vertical and horizontal (Figure 1.2). Vertical collaboration includes suppliers, internal and customers. Horizontal collaboration could include, competitors, internal departments and non-competitors. In these categories, there are both internal and external collaborations. Internal collaboration includes the activities between internal departments for smooth internal operations. External collaboration includes all external stake holders which the organization is in relationship with (Barratt, 2004, p.33). In this dissertation, vertical external collaboration with suppliers is studied. The view from focal firm to major supplier for collaboration is considered in combined with trust, transaction cost and supply chain performance towards to final customer in this supply chain.

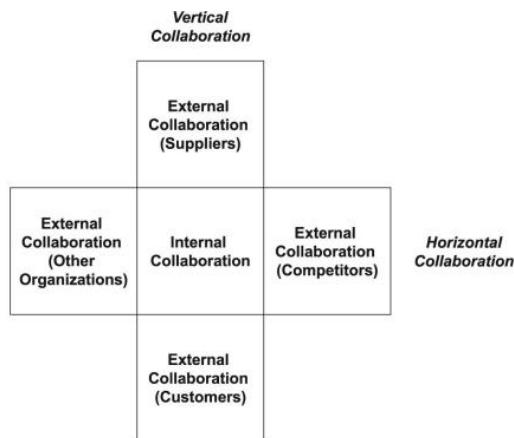


Figure 1.2. The general scope of collaboration (Barratt, 2004, p.32).

According to existing Supply Chain Collaboration literature some definitions of Supply Chain Collaboration (SCC) are given below in Table 1.2.

Table 1.2 Definitions of Collaboration in supply chain

No:	Definitions of Supply Chain Collaboration	Source
1.	<i>"Business process whereby two or more supply chain partners work together toward common goals."</i>	Mentzer et al., 2001; Stank et al., 2001; Manthou et al., 2004; Sheu et al., 2006
2.	<i>"Formation of close, long term partnerships where supply chain members work together and share information, resources, and risk to accomplish mutual objectives."</i>	Golicic et al., 2003, p.58
3.	<i>"Collaboration is where two or more parties in the supply chain jointly plan a number of promotional activities and work out synchronized forecasts, on the basis of which the production and replenishment processes are determined."</i>	Skjoett-Larsen et al., 2003, p.531
4.	<i>"SCC is a partnership where the parties work together, share information, resources, and risks, and make joint decisions to accomplish mutual beneficial outcomes."</i>	Bowersox et al. 2003, p.18
5.	<i>"Collaboration is a cooperative strategy of supply chain partners with a common goal of serving customer through integrated solutions for lowering cost and increasing revenue."</i>	Simatupang et al. 2004, p.57

6.	<i>"SCC is two or more autonomous firms that form long-term relationships and work closely to plan and execute supply chain operations toward common goals, thereby achieving more benefits than acting independently."</i>	Simatupang and Sridharan 2005, Sheu et al. 2006
7.	<i>"Collaborative relationship as one in which an organization initiates and implements a knowledge creation endeavor, and a collaborating organization shares the expense and benefits of newly created knowledge, including its joint ownership through patents and licenses."</i>	Samaddar and Kadiyala, 2006, p.192
8.	<i>"Financially independent entities try to get the dependent parts of the chain to "play" together, i.e. ensuring that the entities in a chain interact successfully to provide the necessary coordinated outputs."</i>	Kampstra et al. 2006, p, 314
9.	<i>"The ability to work across organizational boundaries to build and manage unique value-added processes to better meet customer needs."</i>	Fawcett et al. 2008, p.93
10.	<i>"Collaboration describes the cooperation among independent, but related firms to share resources and capabilities to meet their customers' most extraordinary or dynamically changing needs."</i>	Simatupang and Sridharan (2008), p,402
11.	<i>"SCC is defined as a long term relationship where participants generally cooperate, share information, and work together to plan and even modify their business practices to improve joint performance."</i>	Whipple et al., 2010, p.507
12.	<i>"A partnership process where two or more autonomous firms work closely to plan and execute supply chain operations toward common goals and mutual benefits."</i>	Cao and Zhang, 2011, p,166

1.2.3. Supply Chain Collaboration Studies

Recent literature provides variety of studies related to SCC researches (e.g. Simatupang and Sridharan, 2004; Wiengarten et al., 2010; Cao et al., 2010; Cao and Zhang 2011). Researchers try to explain and categorize SCC elements that help to understand the extent of the collaboration between supply chain partners.

One of the comprehensive researches regarding SCC is Simatupang and Sridharan (2004)'s work "Benchmarking supply chain collaboration: An empirical study". In their study, supply chain collaboration can be characterized by five elements including appropriate performance system, information sharing, decision synchronization, incentive alignment, and streamlined intercompany business processes. The three elements of

information sharing, decision synchronization, and incentive alignment constitute the structure of coordination that can be designed at different levels by the participating members. Collaboration elements and their roles between performance system and supply chain processes are very well explained in Simatupang and Sridharan (2004)'s study.

Another collaboration study is Wiengarten et al., 2010 which uses information sharing, information quality, incentive alignment and joint decision making to categorize SCC elements to measure the operational performance. Cao et al., (2010) conceptualizes and develops a more comprehensive SCC measurement instrument in their study including seven interconnecting elements; Information Sharing (IS), Goal Congruence (GC), Decision Synchronization (DS), Incentive Alignment (IA), Resource Sharing (RS), Collaborative Communication (CC), Joint Knowledge Creation (JKC). Their study develops valid and reliable instruments to measure SCC through rigorous empirical and statistical analysis including structured interviews.

According to the literature review and the knowledge of the author, the instrument used in Cao et al., (2010) study is the most comprehensive instrument to measure SCC level of organizations and it is decided to use this instrument in this study. All the collaboration elements used in this study and their roles between performance system and supply chain processes that are based on Simatupang et al.'s (2004, p.23) study are illustrated on Figure 1.3.

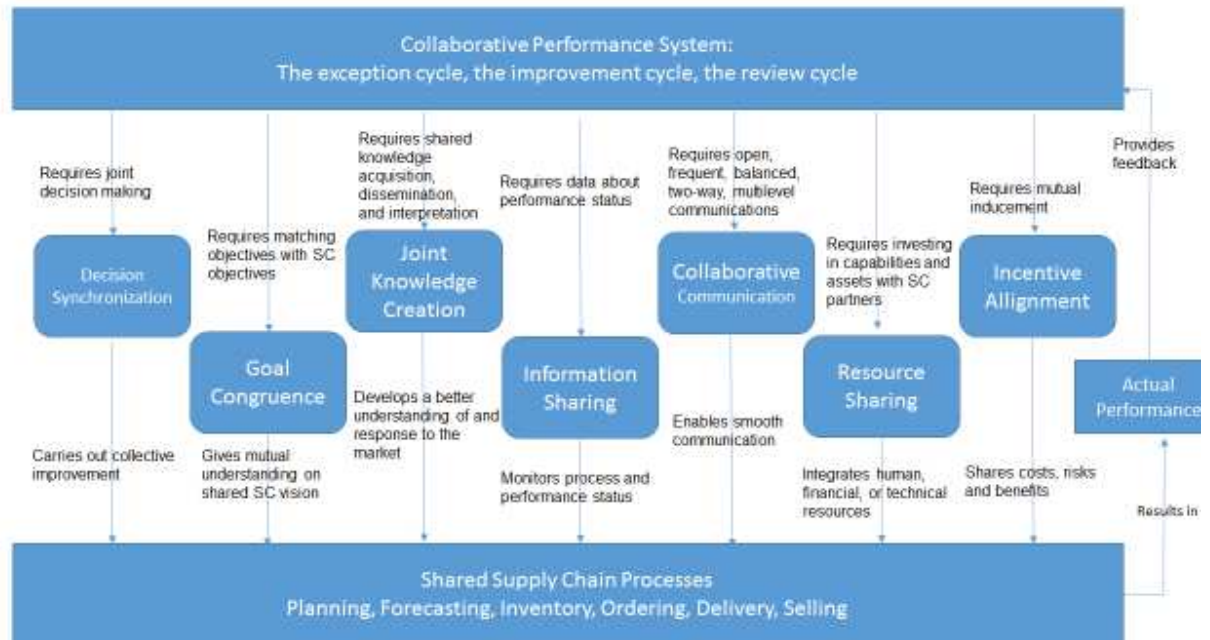


Figure 1.3. SC collaboration elements adapted and developed based on Simatupang and Sridharan, 2004, p.23.

1.2.4. The Advantages of Supply Chain Collaboration

Supply Chain Collaboration (SCC) has many advantages for the supply chain partners in the supply chain network. Scholars in the field have conducted plenty of research that support the advantages of the SCC (Ralston, 2014).

The main idea behind collaboration is that a single organization cannot successfully compete alone because customers are more demanding and the competition is increasing. Therefore, many organizations look for opportunities to coordinate inter-organizational activities and work mutually over time to produce an outstanding performance (Anderson and Narus, 1990, p.56). The reason they enter inter-organizational collaborative relations is to share risks and rewards with their partners to ensure a superior performance which wouldn't be possible to reach by operating alone (Lambert et al., 1999, p.170). Another reason that firms are looking outside their organizational boundaries for

opportunities to collaborate with supply chain partners is to ensure efficiency and responsiveness of supply chain. Collaboration helps to increase the effect of the resources and knowledge which suppliers and customers already have (Cao and Zhang, 2011, p.166).

Crook et al. (2008, p.172) suggests that when independent firms collaborate and share knowledge with others, they can achieve the advantages beyond what could be achieved in arm's length exchange. Because of this synergy, supply chain partners can expand the total gain which is important for collaboration (Simatupang and Sridharan, 2005, p.60). To increase the responsiveness for innovative products via collaboration will help supply chain partners to gain financial advantages (Fisher, 1997, p.221). Literature supports that collaborative partnerships have a positive effect on cost savings and reducing duplicated efforts done by supply chain members (Lambert et al., 2004). During the collaboration, organizations will soon observe operational improvements like productivity as a primary advantage and in the long run, more competitive products and quicker product development for supply chain members. This advantage possibly will provide competitive advantage and increased profits to supply chain members (Ian Stuart and McCutcheon, 1996).

Another advantage of SCC mentioned in the literature is performance for organizations. In the literature, one of the common reasons of seeking collaborative relationships is explained as improving performance for both customers and suppliers (Duffy and Fearne, 2004, p.57; Sheu et al., 2006). Because of the collaboration, supplier firms can reach high sales and profits from resources invested in setting and keeping long-term relationships with their customers (Kalwani and Narayandas, 1995, p.2). SCC is a motivational factor to improve performance along with the supply chain for all members (Bowersox, 1990, p.2). There are several examples of organizations that have captured the performance advantage of collaboration in business like Hewlett-Packard, IBM, Dell, and Procter & Gamble which worked closely with their partners (e.g. Barratt and Oliveira, 2001; Callioni and Billington, 2001; Dell and Fredman, 1999). The study of Cao and Zhang, (2011) found that the implementation of supply chain collaboration effectively leads to collaborative advantage and better firm performance in the long run. To achieve a very well performing

supply chain, organizations should create a win–win situation where all members collaborate to achieve common business synergy, so that to compete with other supply chains would be possible. One of the risks of collaborations is the individual interests of organizations which would like to compete against their own collaborative partners. This is a very dangerous situation which may hamper the collaborative relations between partners. Motivation of the organizations with mutual intentions, goal congruence and benefit sharing will help establishing long term collaborations (Wong, 1999, p,280; Tuten and Urban, 2001, p.156). SCC is such a tool for organizations that provides benefits not only for customer satisfaction but also operational effectiveness and efficiency as well as profitability.

SCC is also providing advantages for learning, knowledge transfer and knowledge creation for supply chains. Collaboration provides an ideal platform for learning for organization because different kinds of knowledge are shared across the supply chain, (Verwaal and Hesselmanns, 2004, p,443). Collaboration also facilitates a market knowledge creation enabled by members (Malhotra et al., 2005, p,176). Transferring knowledge and new technical skills across organizations are generally very difficult to buy or obtain because they are particular skills and tacit in nature. Supply chain collaboration can be a solution for these transfers (Mowery et al., 1996). Cooperation among competitors could result with coefficient gains because of the increased knowledge seeking of partners (Lado et al., 1997). One of the ways to have a better chance of achieving goals of reaching new skills and competencies is collaborating with an organization which has a better position in these skills and competencies (Barringer and Harrison, 2000).

Another advantage of SCC is transaction cost which is also one of the research construct of this study. From the Transaction Cost perspective, SCC helps organizations to reduce the costs of opportunism and monitoring regards to transactions with members (Kaufman et al. 2000, p.654). SCC also helps organizations to avoid internalizing an activity that may not be aligned with their competencies (Harrigan, 1988). The advantages of collaboration in supply chain are summarized in Table 1.3 based on the existing literature.

Table 1.3 Advantages of Collaboration in supply chain

No:	Advantages of Collaboration in Supply Chain	Source
1.	<i>"Result to have quicker product development processes, reduced development costs, greater technological improvements, and/or enhanced product quality in dynamic market conditions."</i>	Walter, 2003
2.	<i>"Supply chain effectiveness including improvements in customer responsiveness"</i>	Sabath and Fontanella, 2002
3.	<i>"Supply chain efficiency measured in reduced inventory and cost savings, inventory visibility"</i>	Sabath and Fontanella, 2002; Stank et al., 1999
4.	<i>"Supply chain capabilities that include better demand planning, better access to target market segments"</i>	McCarthy and Golicic, 2002
5.	<i>"improve profitability, reduce purchasing costs, and increase technical cooperation"</i>	Ailawadi et al., 1999; Han et al., 1993
6.	<i>"improve a firm's financial performances in the long run"</i>	Cao and Zhang, 2011
7.	<i>"effective means of transferring knowledge and new technical skills across firms."</i>	Mowery et al., 1996
8.	<i>"help firms share risks"</i>	Kogut, 1988
9.	<i>"obtain information"</i>	Koka and Prescott 2002
10.	<i>"access complementary resources"</i>	Park et al. 2004
11.	<i>"improve technological capabilities"</i>	Powell et al. 1996
12.	<i>"reduce logistical costs"</i>	Stank et al., 2001
13.	<i>"reduce transaction costs and enhance productivity"</i>	Kalwani and Narayandas 1995
14.	<i>"revenue enhancements, cost reductions, and operational flexibility to cope with high demand uncertainties"</i>	Fisher, 1997; Lee et al., 1997
15.	<i>"reduce the costs of opportunism and monitoring"</i>	Kaufman et al. 2000
16.	<i>"higher quality and lower costs"</i>	Larson, 1994
17.	<i>"delivery performance"</i>	Artz, 1999, p.117
18.	<i>"the opportunity to expand product and service offerings, the ability to share risks"</i>	Parkhe, 1993
19.	<i>"overall performance"</i>	Hewett and Bearden, 2001
20.	<i>"helps reduce a variety of costs. Overall SC costs are improved and firm profitability goes up."</i>	Fawcett et al., 2010

1.2.5. Supply Chain Collaboration, Communication and Information Sharing

According to SCC researches in the literature, one of the most influential collaboration elements is communication and information sharing between supply chain partners. Collaboration between supply chain partners is not just transactions; it also helps reaching sustainable competitive advantage by leveraging information sharing and knowledge creation (Malhotra et al. 2005, p.176). Two-way and balanced communication is the glue that holds supply chain partners together (Mohr and Nevin 1990). The opposite side of this case is miscommunication which can cause collaboration failure due to conflicts and misunderstandings (Paulraj et al 2008). It is essential to understand the processes that organizations use sharing information, integration, communication, and joint knowledge creation with their partners to build collaborated supply chains. Information sharing between partners at different levels can improve the global performance of a supply chain (Montoya-Torres and Ortiz-Vargas, 2014). Information sharing is one of the main SCM practices between supply chain partners. In the master thesis of this dissertation, information sharing is the most important supply chain management practice which significantly and positively affected organizational performance according to empirical research results (Doğanay, 2011, p 90). To improve supply chain coordination and product quality, manufacturing firms often demand that their supply chain partners such as subcontractors or suppliers should implement common processes which often require the sharing of information (Cheng and Fu, 2013, p.482). Information sharing significantly affects reducing supply chain costs, and achieving competitive advantage (Cheng and Fu, 2013, p.482, Jain et al., 2009, p.3036).

Without information sharing, firms only see the orders that arrive from their immediate customers instead of viewing the end-user demand information that drives inventory replenishment. Sharing demand information among all the parties in the supply chain can relieve some of the supply chain inefficiency since every firm can utilize the end-user demand information in its production and inventory management efforts. Information sharing is only one of many techniques developed to improve supply chain operations. Almost all of these strategies, though, involve some form of collaboration between the firms

in the supply chain. This collaboration could be as simple as a manufacturer providing buyers shipping information in advance or as complex as when employees of the downstream firm work in the supplier's facility to consult on design issues, monitor order and production quality statuses (Drake ve Schlachter, 2008, p.852).

According to Hudnurkar et al.'s, (2014) study, the information sharing has been found to be playing a vital role in supply chain collaboration. A supply chain is the place where supply chain members constantly share information, follow materials and funds flow across the multiple functional areas dynamically (Jain et al., 2009). In the technology age, the market is alive, dynamic in nature and virtually connected. To cope with this environment, organizations are continuously improving their abilities being agile, flexible, responsive to meet and exceed changing market needs. Many organizations use outsourcing as an option for decentralizing value adding activities and becoming virtual organization to compete in a demanding market. Information Technology (IT) is an essential tool to integrate information systems of supply chain members. IT integration on value adding activities along the supply chain facilitates collaboration between supply chain members, this is like a nervous system for supply chain. (Gunasekaran and Ngai, 2004).

In their study, Min et al. (2005, p.245) stated that "in the center of collaboration there is always information sharing". According to their survey, shared information is not only essential for strategic collaboration, but also essential for daily operations. Shared information among supply chain members establishes a common platform which triggers the smooth flow for all sort of activities like products, services, funds, and feedback. Information sharing might be formal or informal between collaborative partners in different times and occasions to ease the supply chain processes.

This question is always asked by organizations is: what kind of information to be shared between supply chain partners? The answer is all kind of information which will help smooth supply chain operations. Besides the current operational data, the data would be used in future planning like forecasting data will be very useful for partners. Because this data has strong impact on production and shipping scheduling of supplier as well as inventory management. Providing essential information like demand forecasting, materials

requirements will help reduce production and inventory costs for collaborated supply chain partners. Production schedules, marketing planning will also help collaborative partners to work jointly for new business developments.

1.2.6. Failures of Supply Chain Collaboration

Even though collaboration provides many advantages to supply chain partners, it is not easy to collaborate with another firm while internal collaboration is still a debate. Organizations still have resistance about internal collaboration. Departments that have silo mentality in the same organization may focus on only their own targets and miss the organizational strategic targets. This may cause miscommunication between departments and lack of necessary information to use for inter firm relations. Internal communication failure has also an effect on external communication which is very important to start external collaboration with supply chain partners. Another reason for many supply chain collaboration failures is miscommunication and misunderstanding between supply chain partners (Tuten and Urban, 2001, p.158).

Despite the advantages that have been identified in the collaboration among companies, collaborative practices may not be appropriate for every business relationship (Krause, 1999). Organizations should be selective in collaboration partnership as in supply chain management. They cannot afford to manage all the supply chains, same in collaboration, they cannot afford to have collaboration with every supply chain partner. One of the most obvious risks in collaborations is the risk of failure (Dwyer et al., 1987). The risk of failure includes the loss of significant investments in money, time and delay or abandonment of business plans, in cases where collaboration is unsuccessful. In addition, an inherent risk for the risk of failure is the exposure to competition. In fact, companies should keep in mind that the potential collaborator may become the partner of another competitor at some point in time. Another important risk is related to the potential increased dependence of one company on another (Matopoulos et al., 2007).

When the collaboration is well executed by supply chain partners, it gives good results. But to reach these good results, organizations must invest good efforts to make

it work properly. To benefit from the advantages of collaboration, organizations should be very well prepared for the activities that enable collaborating, otherwise collaboration will fail (Lambert et al., 1999, p.171). Some reasons that lead organizations to collaborative failure are; poor internal communication prior to collaboration, maintaining long-term strategic coordination between partners, and the late coming expected benefits (e.g. Bowersox et al., 1999; Fawcett and Magnan, 2002; Barratt, 2004; Daugherty et al., 2006). Other than these reasons, collaboration might increase the cost of coordination and inflexibility, to set a balance on this, an optimal level of collaborative efforts should be found by managers (Das et al., 2006, p.568).

Expecting huge collaborative benefits may hamper supply chain collaboration; some organizations may view one partner's collaborative win (reduction of inventory or lowering of costs) as a redistribution of expenses (Ireland and Bruce, 2000; Barratt, 2004, p.38). Finding the right balance of governance modes in collaboration is generally takes more effort than setting-up the necessary collaborative processes. Complex trade-offs in collaborative relations must be considered because the benefits of the collaboration do not come for free for organizations (Corsten and Felde, 2005, p.456).

1.3. TRUST

Trust, a popular research topic in psychology, has also drawn the attention of management scholars recently in inter organizational relationships research. Researchers have studied trust with different approaches, like psychological, sociological and economical approaches (Seppänen et al., 2007, p.254). Numerous studies which emphasize the importance of trust in joint ventures and strategic alliances have been published (e.g., Ekanayake, 2007, Mohr and Puck, 2013; Krishnan, et al., 2006). Trust facilitates more open communication, information sharing and conflict management for organizations. It has been proposed that a certain amount of trust is needed as a threshold condition for inter-organizational cooperation to evolve (Blomqvist, 2002). In general, trust has been considered to reduce the transaction costs such as governance costs (management costs), internalization costs (acquisitions) (Bidault and Jarillo, 1997, p.271). Trust may be a critical

factor in enhancing business performance and a source of sustainable competitive advantage (Barney and Hansen, 1994, p.176).

There are many definitions of trust in the literature and they are all giving a valuable contribution to the understanding of trust in inter organizational relationship. In the table below (Table 1.4), the definitions of trust derived from the literature are presented.

Table 1.4 Definitions of Trust

No:	Definitions of Trust	Source
1.	<i>"a key construct in inter-organizational relationships"</i>	Talay and Akdeniz, 2014, p.86
2.	<i>"a common belief that another individual makes good-faith efforts to behave according to commitments, is honest and does not take excessive advantage of another even when the opportunity is available"</i>	Cummings and Bromiley, 1996, p. 303
3.	<i>"Inter-organizational trust can be defined as the extent of trust placed in the partner organization by the members of a focal organization"</i>	Zaheer et al., 1998, p.142
4.	<i>"the expectations of one organization that another organization will fulfill its duties, behave in a predictable way, and treat their partners fairly even when an opportunistic chance presents itself"</i>	Zaheer et al., 1998, p.143
5.	<i>"trust in the partner's honesty, that is, the belief that the partner stands by its word"</i>	Anderson and Narus 1990, p.45
6.	<i>"fulfills promised role obligations, and is sincere"</i>	Dwyer et al., 1987; Scheer and Stem 1992
7.	<i>"trust in the partner's benevolence, that is the belief that the partner is interested in the firm's welfare"</i>	Larzelere and Huston 1980; Rempel, et al., 1985
8.	<i>"Trust is the willingness to rely on an exchange partner in whom one has confidence"</i>	Ganesan, (1994), p.2
9.	<i>"Degree of confidence the individual partners have in the reliability and integrity of each other"</i>	Aulakh et al. (1996), p.1006
10.	<i>"The level of expectation or degree of certainty in the reliability and truth/honesty of a person or thing"</i>	Chow and Holden (1997), p.276
11.	<i>"trust as one party's confidence that the other party in the exchange relationship will not exploit its vulnerabilities"</i>	Dyer and Chu (2000), p.58

In trust, there are two parties, one is called trustor and the other one is trustee. In this relationship, even though there is a possibility for opportunism, trustor assumes that

the trustee will behave in a predictable and fair way (Zaheer et al., 1998, p.143). With an inter-organizational trust, an organization can gain greater confidence and more commitment than agreed on (Zand, 1972, p.230). In a high level inter-organizational trust environment, organizations are more focused on engaging in committed relationships and not concerned about opportunistic behaviors. Trust is the center for creating an environment of information sharing as collaboration requires trust in the other party – trust in the other's information and trust that other will not exploit oneself (Thomas, 1979). With the help of increased trust, partners become more committed to the relationship (Griffith, et al., 2006, p.86). When there is trust between organizations, it is believed that the partner's actions will result with positive outcomes for the other partner, and the partner will not conduct unexpected actions that would result negatively for the other partner (Anderson and Narus, 1990, p.45).

Dyer and Chu (2003, p.60) put special emphasis on the relationship between trust and information through theorizing a positive relationship between buyer trustworthiness and supplier information sharing and suggest two primary reasons; first, trust of the supplier to the buyer will allow to share more confidential information about the product cost, design or process. If the supplier thinks that the buyer will behave opportunistically, there will be no information sharing. Second; the lack of trust will cause not to share useful information which will possibly help to solve problems between the supplier and the buyer.

Trust has been also connected to supplier relationship and collaboration studies, both as an antecedent and a result. Trust in a supplier improves the overall effects of collaboration for the buyer since it gives additional confidence against opportunism (Artz, 1999, p.117). Trust also supports a higher capacity for collaboration, adaptation, and commitment in the relationship. This situation helps eliminating frictions in daily operations, lead to a better coordination, which will finally result in an improved financial performance for organizations (Wicks et al., 1999, p.112). Since trust reduces the uncertainty of a partner's actions and other relational risks, it reduces the "interest" rates for investments and encourages partners to engage in collaborative actions (Madhok, 1995, p.133). In a trust based supply chain relationship, supply chain partners will behave altruistically for the

success of the entire supply chain. The degree of trust established between the supply chain partners is a major determinant of the level of collaboration that is possible in a relationship (Hoyt and Huq, 2000, p.759). Because of the complex and interdependent relationship between supply chain partners, trust plays a critical role. Lack of trust between partners leads to uncertainty, which creates barriers for establishing and sustaining long-term relationships (Fawcett et al., 2015; Pérez and Cambra-Fierro, 2015).

It can be seen in the literature that there is a positive relationship between trust and collaboration. Trust appears as a vital facilitator for collaboration (e.g., Hosmer, 1995; Das and Teng, 2001; Dirks and Ferrin, 2001; Sundaramurthy and Lewis, 2003), and these positive effects are noted mainly in the literature as:

- *“decreasing the opportunistic behavior”* (Hosmer, 1995; Lander et al., 2004)
- *“enabling open sharing of information, which leads to decreased information asymmetry”* (Bunduchi, 2008, p.615)
- *“increasing and supporting the interdependence among partners, enabling the use of collaborative feedback mechanisms”* (Bunduchi, 2008 p.616)
- *“strengthening the relationship, increasing the predictability of both partner’s and mutual behavior”* (Langfield-Smith and Smith, 2003, p.284)
- *“allowing partners to deal with unforeseen contingencies in mutually acceptable ways”* (Langfield-Smith and Smith, 2003, p.284).
- *“Providing a positive effect on SC performance”* (Robson et al., 2008, p.661).

Trust is also well proven to have a positive effect on SC performance with these stated characteristics (Robson et al., 2008, p.661). Trust facilitates information exchange and knowledge resources, involvement in joint learning processes, and sharing the costs of discovering and exploiting new opportunities with supply chain partners. This will significantly affect the performance of partner organizations (Nahapiet and Ghoshal, 1998, p.262; Cai et al., 2013, p.2064). In the literature, there are many studies (e.g., Hoyt and Huq,

2000; Kidd et al., 2003; Johnston et al., 2004; Pimentel Claro et al., 2006) presenting the importance of trust in improving the overall supply chain performance and coordinating inter-firm actions. Accordingly, it is also supported in the literature that trust has a significant and positive effect on performance including improved flexibility, responsiveness, and cost reduction (e.g., Handfield and Bechtel, 2002; Narasimhan and Nair, 2005; Ireland and Webb, 2007; Laaksonen et al., 2009).

As stated in Zaheer et al. (1998, p.144), from transaction cost theory perspective, when unforeseen contingencies arise, such as costs not explicitly covered by the terms of a contract, high levels of trust between supply chain partners facilitates the development of a mutual agreement about the contingent situations and solutions. When inter organizational trust is high, negotiating positions are based on similar underlying assumptions, and agreements are likely to be reached more quickly. When there is low trust between partners, lengthy and difficult negotiations over unforeseen contingencies will take place because of the possibility of opportunism (Williamson 1975). To protect investments in the relationship, organizations put additional contractual and structural safeguards which also cause extra costs (Williamson 1985). In contrast, when organizations have high trust conditions, they are not worried about safeguards for specifying, monitoring, and enforcing agreements (Zaheer et al., 1998, p.143). Trust between partners is found to decrease the transaction costs due to uncertainty (Noordewier, et al., 1990), to encourage long-term orientation (Ganesan, 1994), and to facilitate communication (Morgan and Hunt, 1994). Trust provides a stable relationship with lower transactional costs, promotes desirable behavior, decreases the extent of legal contracts, and helps to address problems (Sahay, 2003). Trust has effects on reducing costs such as searching, contracting, monitoring, and enforcement. Trust also can act as a substitute for control and can reduce the uncertainty in information sharing (Dyer and Chu, 2003, p.59; Zaheer et al., 1998, p.144).

1.4 SUPPLY CHAIN PERFORMANCE (SCP)

Managers are kept responsible from the performance of their own organizations, and they are subject to report accordingly. But in a supply chain partnership, the success of the supply chain partners also depends on the success of the supply chain. The ultimate

success in supply chain is mostly defined as meeting and exceeding customer expectations and achieving customer satisfaction. Today's managers must consider the whole supply chain as a path to reach the ultimate customer satisfaction efficiently and effectively at the organizational level and at the supply chain level. Long-term, strategic relationships with supply chain partners should be developed to achieve an effective SCM. This will also help to maximize the value of the supply chain in terms of both customer satisfaction with the product and/or services and a low total cost of the product/service (Heizer and Render, 2006).

Optimization of SCP is only possible for supply chains where supply chain partners adopt a strategic approach both inter organizational and inter functional. All supply chain partners benefit from optimization at the supply chain level, this will help to increase supply chain wealth which will be shared by partners. SCP can be enhanced by strategies that strengthen the competitive position of the supply chain. This will later positively impact the performance of the supply chain partners at the organizational level (Chopra and Meindl, 2007, p.271).

As SCM activities become more complex, it becomes more critical to be able to measure the various aspects of supply chain operations. There are a lot of metrics that can be used by managers to evaluate the supply chain operations. These measures are mostly industry specific and so, different measures should be used to evaluate the organizational performance based on the nature of the organization. Performance measures play an important role in success by evaluating performance and benchmarking the results against similar organizations (Camp, 1989; Stewart, 1995). Measures can be generally categorized into quality, financial, time, product flexibility, overall performance, and innovation. Metrics of supply chain are important as they distinguish between the performing and non-performing entities versus the traditional system (Slack et al., 1995; Gunasekaran et al., 2001; De Toni and Tonchia, 2001, p.65).

Gunasekaran et al., 2004 study is one of the most comprehensive studies regarding SC performance measurement methods. In this study, different types of SCP measurements are explained; one of the methods used in SCP measurement is evaluation

of suppliers involves measures important at the strategic, operational and tactical level. The evaluation of suppliers refers to efficiency, flow, integration, responsiveness and customer satisfaction in the context of the supply chain. The other methods supplier link measures include delivery performance of supplier, lead-time, pricing, efficiency of purchase order cycle time, efficiency of cash flow method, and supply booking procedures. The last method is performance measures for the production link includes percentage of defects (a measure of product quality), cost per operation-hour, capacity utilization, range of product and services, and utilization of economic order quantity.

Brewer and Speh's (2000) study measures the supply chain performance by using the balance scorecard. Efficiency and effectiveness have been used as key indicators measuring supply chain performance (Beamon, 1999; Holmberg, 2000; Li et al., 2006; Tan et al., 1998). Another two well-known indicators are cost-containment and performance reliability constructs. Cost-containment indicator includes such activities as cost in and outbound activities, warehousing costs, and inventory-holding cost, and increasing asset turnover. Reliability indicator addresses such areas as order fulfillment rate, inventory turns, safety stocks, inventory obsolesces, and number of product warranty claims (Won Lee et al., 2007). Zelbst et al., 2009 studied the impact of supply chain linkages on supply chain performance. Elrod et al., 2013, set some specific performance measures and discuss their strengths, limitations, and applications. In their study, the performance measures are grouped by financial costs, quality, time and flexibility.

SCP metrics provide organizations with a standard framework to assess the SCP, including internal and external links for organizations (Huan et al., 2004; Harrison and New, 2002). The use of external linkage performance metrics supports the ultimate customer value creation through closer integration activities and communication with other supply chain members along the supply chain (Bowersox et al., 2000, p.10; Croxton et al., 2001, p.25).

According to Bäckstrand (2007, p.56), supply chain performance can be measured according to the customer value set by competitive priorities under the market requirements. During the identification of the market requirements, market aspects like

target segment, product life-cycle phase, competition in the market, and the rules and regulations must be considered. Basically, the customer value is divided by quality, cost, delivery, flexibility and innovativeness.

In the literature, SCP has been used very commonly as an output of an organization. The relations connected to SCP may differ but the result wanted from a successful supply chain does not. It is high level of SCP at the end of the day. There are different relations connected to SCP in the literature. Trust is one of the constructs which has a relation with SCP, trust in the exchange of relationships enhances SCP (Gulati and Sytch, 2007). Another one is information transparency and collaborative practices, which will help an organization to provide high order replenishment performance (Bailey and Francis, 2008). Collaborative planning on replenishment has a direct influence on the performance of the suppliers in the relationships with buyers (Kulp et al., 2004). Supply chain operation costs which are also a SCP measurement tool can be reduced significantly by IT based SCC. (Rai et al., 2006; Wang et al., 2006, p.59). Information sharing is a critically important collaboration tool to maintain performance (Ryu et al., 2009).

Another comprehensive study is done by Akyüz and Erkan (2010) about SCP measurement literature review. In this study, 24 SCP related articles are selected from the literature and a critical literature review is conducted including taxonomy study and detailed investigation to the methodologies, approaches and findings of these works. As cited from Akyüz and Erkan (2010); Gunasekaran et al. (2004) develop a framework for SCP measurement which provides a detailed 'measurement and metrics classification' and use a survey aiming at assessing importance within each metric group in their study. Three main classes of the performance measures are discussed by Martin and Patterson (2009): inventory, cycle time and financials. The effects of supply relations (organizational structure, partnering, supplier agreements and process improvements) on the performance measures selected are investigated via a survey-based study. Gunasekaran and Kobu (2007) offer a comprehensive review and classification for supply chain measurement and metrics. A trend of increasing attention on performance measurement and metrics, both in the practice and literature, is emphasized in their work. McCormack et al.'s (2008) study is also supporting

this idea. Gunasekaran and Kobu (2007, p.2823) highlight the confusion as the classification of metrics in the literature, and lacking complete coverage of all the performance measures. Their review classifies the literature based on the following criteria: balanced scorecard perspective, components of measures, location of measures, decision levels, nature of measures, measurement base, traditional versus modern measures. They treat metrics in five classes: order planning, supplier evaluation, production level, delivery and customer and they conduct an empirical research to assign importance ratings within each class.

According to the literature, SCP has a relation with the independent constructs, trust and SCC. SCC can deliver many benefits to all partners; reducing risk and cost and increasing productivity, performance and profit are some of these benefits (Cao and Zhang, 2011, p.168). Knowledge sharing in a supply chain shortens the lead time, reduces the input costs, and improves product quality (Kotabe et al., 2003, p.312). According to Ramanathan and Gunasekaran's (2014, p.258) study, collaborative alliances help to improve SCP. It is also supported in the literature that trust has a significant and positive effect on performance which includes improved flexibility, responsiveness, and cost reduction (e.g., Handfield and Bechtel, 2002; Narasimhan and Nair, 2005; Ireland and Webb, 2007; Laaksonen et al., 2009).

1.5 THEORETICAL PARADIGMS

The purpose of this dissertation is to find out the relationship between Supply Chain Performance (SCP), Transaction Cost (TC) and trust based Supply Chain Collaboration (SCC). Transaction Cost Economics (TCE) or Transaction Cost Theory (TCT) from microeconomics and Resource-Based View (RBV) or Resource Based Theory from strategic management are the two most related theories with the aim of this dissertation. It is very common to apply theories from other disciplines to supply chain management researches to emphasize and support the importance of this field (Rungtusanatham et al., 2003; Harland et al., 2006). TCT and RBT provide an adequate theoretical background that leads to the theoretical establishment of hypotheses between trust, supply collaboration and performance, which are worth to test empirically.

1.5.1 Transaction Cost Economics (TCE) / Transaction Cost Theory (TCT)

The transaction cost approach to the theory of the organization is created by Ronald Coase. Transaction costs are the costs of providing for some products or services through the market like placing orders, progress chasing, raising invoices, confirming delivery arrangements, handling queries and all the other. Many of these costs are hidden and it is not easy to quantify and yet they can be significant. In order to carry out a market transaction, the organization should be aware of that there will be sort of activities to deal with. These activities refer to conducting negotiations leading up to a bargain, drawing up the contract, undertaking the inspection just to be sure that the terms and conditions of the contract are met and so on (Coase, R. H. 1960). Coase basically explains that, in the real business world, there is not only production and service costs but also a transaction cost. To understand properly how the economic system works and have a strong base for setting economic policy for the organization, transaction costs must be taken into consideration. After Coase's input to theory, during 1980s, Williamson's Transaction Cost Theory had served as a widely acknowledged theory offering a plausible explanation of how organizations deal with the risk of transacting business across their boundaries (Williamson, 1979). The theory has a significant contribution to the study of inter organizational exchange because it enables researchers to elaborate on the nature and the degree of risks in transactions, as well as the grounds it has provided on which governance mechanisms are built in to minimize those risks (Yüksel, 2007).

Because of Williamson's work, researchers in sociology, organizational theory, law, finance, information systems, and marketing have gained insights into a variety of issues through a transaction cost lens (Barney, 1990, p.389). In their comprehensive conceptual review on the transaction cost analysis, Rindfleisch and Heide (1997) have listed several empirical studies that test hypotheses based on TCT using data from business organizations. According to Rindfleisch and Heide (1997, p.48), there are two key assumptions characterize TCT; bounded rationality and opportunism.

Bounded rationality, a concept first articulated by Herbert Simon in 1957, refers to the neurophysiological and language limits of individuals. In an organization, while

decision-makers might want to act rationally, they are limited in their ability to reach information without error. This situation limits the extent to which rational behavior can be conducted while having decision. Bounded rationality becomes a problem under unstable and uncertain conditions. In an economic crisis, specifying the conditions surrounding an exchange becomes more difficult under these conditions. Given unbounded rationality, all contingencies can be incorporated into a contract (i.e. through full specification of the decision tree) and the players involved in the exchange will not have to incur ongoing renegotiation costs. However, when the rationality constraint is binding, it gives a rise to the transaction costs that need to be minimized through a correct choice of governance. Under uncertain conditions, however, bounded rationality brings the necessity for the both parties to accept and be ready to face the transaction costs resulted by ongoing negotiations on contractual issues (Grover and Malhotra, 2003, p.459).

Due to decision makers' finite cognitive abilities (bounded rationality), neither the buyer nor the supplier has a complete understanding of the other party and the information upon which they base their decisions. This leads to the possibility for opportunistic behavior on the part of each party as they attempt to maximize their utility through the exchange (Hobbs, 1996, p.17).

Opportunism refers to seeking a self-interest without honesty in a relationship. In other words, it means that organizations and individuals seek to manipulate the situation for their own benefits in some conditions. This includes behaviors such as cheating, lying, and subtle forms of violation of agreements. Opportunism increases transaction costs while controlling other parties' behaviors. To prevent opportunistic behavior, organizations take some precautions like; monitoring, safeguarding, controlling of behaviors of the partner they are engaged with, these are the transaction costs burdens for organization. The level of opportunism is mostly related with the environment where exchange happens and managing the relations in this environment will increase transaction costs (Grover and Malhotra, 2003, p.459). Uncertainty in the transaction exchange or complexity of the product in the transaction can serve to increase the potential for opportunistic behavior and parties might incur higher transaction costs. When there isn't any

form of governance mechanism, agreements between organizations, relation will always be subject to risks from opportunistic behavior” (Hoyt and Huq, 2000, p,762).

According to Clemons et al., 1993, transaction costs can generally be represented in terms of two major components: Transaction costs = coordination costs + transactions risk. Coordination costs are the cost of exchanging information and incorporating that information into the decision process. In the case of a manufacturer–supplier dyad, it might include costs of exchanging information on products, price, availability, demand, as well as the costs to exchange design changes rapidly with the supplier. Transaction risk includes the risk that other parties in the transaction will avoid their agreed upon responsibilities.

Williamson (1979), defined three characteristics of a transaction; asset specificity, uncertainty and transaction frequency.

1.5.1.1 Asset Specificity

Asset specificity is the *“the degree to which an asset can be redeployed to alternative use by alternative users without sacrifice of productive value”* (Williamson, 1985, p95). According to Williamson (1997), there are four types of asset specificity; human asset specificity, physical asset specificity, site asset specificity and dedicated asset specificity.

1.5.1.1.1. Human asset specificity is referring to skills, knowledge and experience of personnel required to deal with the organization in transaction (De Vita et al., 2011, p.6).

1.5.1.1.2. Physical asset specificity is tailoring of specific assets for a specific transaction. If the assets are specifically made available on transaction, it will be difficult to transfer them to a different transaction. (Cousins, 2005, p.407; De Vita et al., 2011, p6).

1.5.1.1.3. Site asset specificity may take place in long term relations to reduce the transport costs, inventory or transactional costs. In this case the organization can invest a facility or a warehouse specific to this transaction (Cousins, 2005, p.407)

1.5.1.1.4. Dedicated asset specificity includes general investment in assets to meet the requirements of a specific contract (Abushaikha, 2014, p.10).

1.5.1.2 Uncertainty

Uncertainty can be environmental *uncertainty* or *behavioral uncertainty*. The environmental uncertainty may occur under *technological uncertainty* or under *volume uncertainty*. Components or products specification changes, or technological developments are technological uncertainties. (Geyskens et al., 2006). Volume uncertainty is about the challenges in precise forecasting of demand in transaction. This can cause either cost of inventory or cost of stock out which may affect customer satisfaction (Geyskens et al., 2006). Behavioral uncertainty is related to evaluating a transaction performance which happens generally after transaction (Rindfleisch and Heide, 1997, p.31).

1.5.1.3 Transaction Frequency

Transaction frequency is the degree of the buyer activity in the market (Williamson, 1979) or the degree to which a transaction occurs (Geyskens et al., 2006). The idea in this is; to reduce the cost, large number of transactions should be considered to be taken care internally under hierarchical governance structure (Williamson 1985; Geyskens et al., 2006).

In supply chain relations, partners should consider the transaction costs while having decisions. Supply chain collaboration is one of the most important factors which can reduce the transaction costs for supply chain partners. Long term relationships and collaboration between partners will reduce uncertainty and maintain trust in transactions.

1.5.2 Resource Based View (RBV)/ Resource Based Theory (RBT)

Before starting to discuss RBV, defining resources will help to understand this theory. In the literature, there are different definitions of resources. One of the common definitions of resource is *“all the assets, capabilities, organizational processes, firm attributes, information, knowledge etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness”* (Barney, 1991 p.101). Another resource definition is made by Wernerfelt (1984, p.172) is: *“anything that could be thought of as a strength or weakness of a given firm, which could include tangible and intangible assets”*. The common definition goes around tangible and intangible assets; resources can be tangible or intangible. But some researchers define resources from a general perspective and consider each internal characteristic including capabilities and competencies as a resource (Barney, 1991, p.100; Wernerfelt, 1984, p.172). In the literature, there are comparisons and explanations about resources and capabilities. For example, Grant (1991) defines resources and capabilities like two separate dimensions. Resources are defined as the inputs of the production process and capital equipment, skills of employees, patents and finance are given as examples of resources. And capability is defined as a the *“capacity for a team of resources to perform some tasks or activity”* (Grant, 1991). According to Carmeli and Tishler (2004, p.300), resources are input related, capabilities are process related and competencies are cross-functional and process integration related. Resources are classified into three categories by Barney (1991, p.101); physical capital, human capital and organizational capital. Physical capital resources include technology, machines, materials and factory, location and ability to reach sources. Human capital resources include training and experience of personnel, decision making abilities, and social relationships of personnel working in the organization. Organizational capital resources include planning, operations, structure, control, coordination and communication systems internally in the organization and externally in its environment (Barney, 1991, p.101).

RBV has become one of the most influential frameworks in the strategic management since the mid-1980s. It goes back to Penrose's (1959) study on this subject,

the RBV view promoted inside power for organizations which are considered heterogeneous entities holding unique resources in their own. RBV aims to explain the basis of competitive advantage of a firm through highlighting the importance of possessing strategic assets (bundle of resource) that are rare, valuable, costly to imitate and have barriers to be appropriable (e.g. Wernerfelt, 1984; Fahy and Smithee, 1999; Barney, 2001), to be able to achieve and sustain advantages. According to Barney (1999, p.143), if organizational resources are different, inimitable, not easily mobile, changing a short term competitive advantage into a sustained competitive advantage could be achievable. The resources can only create sustainable competitive advantage for the firms if they employ four attributes. These attributes are; being valuable, rare, inimitable and non-substitutable (VRIN) products or services (Barney, 1991, p.102). Only if an organization has the capability of sustaining the value creation strategy, then it can achieve a sustainable competitive advantage. (Barney, 2001). RBV suggest unique products and services can be created by investing in relationship-specific assets and combining subsidiary and rare resources (Knudsen, 2003, p.722).

RBV theory supports a totally different view than Porter's Theory (Dyer and Singh, 1998, p.675). The RBV researchers support that organizations have a bundle of heterogeneous resources and these resources are a competitive advantage power for them (Barney, 1991, p.101; Peteraf, 1993). Reaching competitive advantage is very much related with what kind of unique internal resources an organization holds. However, Porter's Theory supports homogeneity of organizations and declares that the competitive advantage of an organization depends on the industry and the environment in which the organization exists (Porter, 1980; Dyer and Singh, 1998, p.675). According to Porter's theory, reaching competitive advantage, depends on the industry and products, instead of the organizational internal resources. But, RBV, on the other hand, represents an important difference from Porter theory and suggests that organizations are different and they have their own unique resources to support this difference. Organizations which can combine their own resources in their own way could achieve competitive advantage against organizations which cannot do so (Dyer and Singh, 1998, p.661).

Core competence is one of the important concepts that RBV presented to the literature. Core competence can be defined as *“the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies”* (Prahalad and Hamel, 1990, p.82). Core competence is regarded as skills or knowledge sets rather than products or functions by Quinn and Hilmer (1994).

RBV focuses more on acquisitions, though it provides a rationale for partnerships through suggesting the combination of existing firm-specific and leverage external resources, which can also be named as complementary resources (Ziegler, 2004). However, identifying dynamic capabilities and skills as core competences within the organization is a difficult task. It is indispensable for any company, interested in SC collaboration with other partners, to assess its own strength and weakness to decide the required level of collaboration (Gunasekaran et al., 2004; Danese, 2007, p.199). Supply chain collaboration is one such initiative of RBV encouraging many SC players to share their knowledge and experiences to improve SCs. SCC helps organizations to focus on what they have as core competence to contribute for the value-adding process of the supply chain (Park et al. 2004, p.23).

Both internal and external SC collaboration can be called capabilities of the organizations. These capabilities are among organizational capital resources and they are very important assets which can be listed under organization's strengths.

PART 2. RESEARCH CONSTRUCTS

In this research, there are four research constructs which are Trust, Supply Chain Collaboration (SCC), Supply Chain Performance (SCP) and Transaction Cost (TC). In this part, research constructs which are also independent and dependent variables of the dissertation model are defined, the model of the dissertation is drawn and the hypotheses are stated.

2.1. Supply Chain Collaboration (SCC)

SCC is two or more supply chain members that set long term partnership and plan operations together to create a competitive advantage by sharing information, making joint decisions, and achieving more benefits by satisfying end customer needs than acting individually (Simatupang and Sridharan, 2002, p.45). This is a partnership where the supply chain partners work together to achieve mutual goals and benefits by collaborating (Bowersox et al., 2003, p.23). According to the literature, the collaboration can include these activities between partners; information sharing, exchanging forecast data and delivery schedules, common product development, just-in-time planning, sharing cost, benefits and other strategic information (e.g. Angeles and Nath 2001, Green and Inman 2005, Holweg et al., 2005).

In the literature, there are different types of SCC constructs studies. Mostly, they resemble each other and include collaboration activities between organizations in supply chain; information sharing, decision synchronization, incentive alignment (Simatupang and Sridharan, 2005), knowledge sharing (technical and technological) (Cai et al., 2013), open communication, risks and rewards, joint planning, joint problem solving and joint decision-making (Soosay et al., 2008), interpersonal integration, and strategic integration (Vieira et al., 2009). In this dissertation, SCC constructs are drawn from Cao et al., 2010 study. SCC is composed of seven components in this study: information sharing, goal congruence, decision synchronization, incentive alignment, resources sharing, collaborative communication, and joint knowledge creation. Definition of supply chain collaboration and sub-components from literature is presented in below table (Table 2.1) which is cited from

Cao et al., 2010. Related with this dissertation's theoretical base, from TCE and RBV views, these components can be organizational capital resources which may help to reduce costs and risks during transactions.

Table 2.1. Definition of supply chain collaboration and sub-components.

Construct	Definition	Literature
Supply Chain Collaboration	<i>"A long-term partnership process where SC partners with common goals work closely together to achieve mutual advantages that are greater than the firms would achieve individually"</i>	Ellram and Hendrick 1995; Lambert et al., 1999; Mentzer et al., 2000; Bowersox et al., 2003; Golcic et al., 2003; Manthou et al., 2004; Sheu et al., 2006
Information Sharing	<i>"The extent to which a firm shares a variety of relevant, accurate, complete and confidential ideas, plans, and procedures with its SC partners in a timely manner"</i>	Angeles and Nath 2001; Simatupang and Sridharan 2005; Sheu et al., 2006; Elofson and Robinson 2007
Goal Congruence	<i>"The extent to which supply chain partners perceive their own objectives are satisfied by accomplishing the SC objectives"</i>	Angeles and Nath 2001; Lejeune and Yakova 2005; Simatupang and Sridharan 2005
Decision Synchronization	<i>"The process where supply chain partners orchestrate decisions in supply chain planning and operations that optimize supply chain benefits"</i>	Corbett et al., 1999; Harland et al., 2004; Simatupang and Sridharan 2005
Incentive Alignment	<i>"The process of sharing costs, risks, and benefits among SC partners"</i>	Womack et al., 1990; Angeles and Nath 2001; Simatupang and Sridharan 2005
Resource Sharing	<i>"The process of leveraging capabilities and assets and investing in capabilities and assets with supply chain partners"</i>	Lambert et al., 1999; Harland et al., 2004; Simatupang and Sridharan 2005
Collaborative Communication	<i>"The contact and message transmission process among supply chain partners in terms of frequency, direction, mode, and influence strategy"</i>	Mohr and Nevin 1990; Prahinski and Benton 2004; Paulraj et al., 2008
Joint Knowledge Creation	<i>"The extent to which supply chain partners develop a better understanding of and response to the market and competitive environment by working together"</i>	Slater and Narver 1995; Kaufman et al., 2000; Malhotra et al., 2005

Source: Cao et al., 2010, p. 6617-6618

2.1.1. Information Sharing (IS)

Information sharing is the desire to make strategic and operational data available to firms in the supply chain. This data shared between partners could include; forecasts, inventory level, strategies, promotions, innovation etc. (Global Logistics Research Team, 1995). Sharing information is not enough alone and should be timely, accurate, relevant and complete within the scope of supply chain partners. Information may include confidential ideas, projects, plans and procedures in supply chain (Angeles and Nath 2001, p.112, Elofson and Robinson 2007, p.2568). In the literature, many definitions can be found; information sharing is described as the heart of supply chain (Lamming, 1996), nerve center (Chopra and Meindl 2007), life blood (Ian Stuart and McCutcheon, 1996), essential ingredient (Min et al., 2005, p.245), key requirement (Sheu et al., 2006), and foundation (Lee and Whang 2001) of SCC. While sharing information with supply chain partners, improving the quality (Gosain et al., 2004), accuracy and completeness of shared information (Simatupang and Sridharan 2005, p.51) should be the main focus, information sharing in SCC is more special, tacit, and integrative than the data traded in arm's-length relationships (Uzzi, 1997, p.45). With information age technology, information can be obtained by partners in real time without any effort via on-line (Lee and Whang 2001). This transparent approach enables to minimize uncertainty and solve the problem of demand inaccuracy in a SC – the well-known 'bullwhip effect' (Angeles and Nath 2001, p.112). Information sharing is the most important supply chain management practice which significantly and positively effecting the organizational performance according to the empirical research results (Doğanay, 2011, p 90).

2.1.2. Goal Congruence (GC)

Goal congruence is the degree of goal agreement to which supply chain partners are jointly involved in the achievement of a common goal (Samaddar et al., 2006, p.194). When partners perceive that their own objectives are accomplished by achieving the supply chain objectives, the goal congruence can be maintained within partners (Angeles and Nath 2001, p.111). In a goal congruence environment, partners will believe in that their own objectives are totally in line with those of the supply chain. In any dispute, they believe

in that their goals can be achieved by working towards the objectives of the supply chain (Lejeune and Yakova 2005, p.83). SCC goal congruence requires a degree of consensus and harmony along with the organizations' attributes, values, beliefs, and practices. The strategic direction and vision between supply chain partners are important to reach goal congruence. They should agree on a vision for SCM as well as key business processes supporting the vision (Lambert et al., 1999, p.175). Since strategic planning is directly related to supply chain strategies, it should be designed according to the needs and capabilities of customers and suppliers. (Stank et al., 2001, p.30). By having goal congruence, organizations will share strategic information to achieve goals that are mutually beneficial, because knowledge-sharing is one of the most important sources of competitive advantage (Dyer and Singh, 1998, p.662).

2.1.3. Decision Synchronization (DS)

Decision synchronization refers to partner's joint decision making in planning and operational activities. It is the orchestration of the decisions in supply chain planning which optimize the benefits for all partners (Simatupang and Sridharan, 2005, p.46). Planning facilitates to decide the best way to use the organizations' resources to achieve specific objectives. SC planning decisions may include different aspects; as operations strategy, production planning demand management, procurement, distribution management etc. Joint planning requires alignment within partners, and coordination on inventory replenishment, order placement and delivery (Cao et al., 2010, p.6619).

The retailer and supplier are generally live conflict of interests when it comes to decision synchronization. Because they have different decision rights and expertise. When the retailer is more concerned about the sales forecast, supplier is concerned about the order forecast and generation (Simatupang and Sridharan 2005, p.47). Supply chain partners often have conflicts on goals to lead decision making, however, they should coordinate for critically important decisions that will affect the increasing supply chain performance. Another way to evaluate decision synchronization is the ability of supply chain partners about success in filling customer demands and enhancing supply chain profitability (Corbett et al., 1999, p.71). Building and maintaining mutual partnerships in supply chain

can be achieved by increasing the level of synchronization in the decision-making process which is an important tool in SCC (Harland et al., 2004, p.2).

2.1.4. Incentive Alignment (IA)

Incentive alignment refers to the degree to which supply chain members share costs, risks, and benefits in supply chain (Simatupang and Sridharan, 2005, p 46). Incentive alignment includes also formulating incentive schemes. In successful partnerships, partners share gains and losses equally, so the collaboration results are beneficial to all members (Manthou et al., 2004, p,242). In incentive alignment mechanism, gain sharing should be fair regarding to organizations' investment, risk, effort, expertise, etc. (Lee and Whang 2001).

This collaboration activity demands a mutual and proactive effort at sustaining the supply chain for the benefit of the supply chain as a whole. While incentive alignment is done out of self-interest without any opportunism, the result is not immediately apparent as beneficial to the organizations' goals, but in the long run it will be beneficial for the partnership (Drake ve Schlachter, 2008, p.856).

It also motivates the members to work with overall objectives such as voluntarily sharing relevant information with partners (Simatupang and Sridharan 2005, p.55). It ensures a certain level of cooperation and commitment, in the time reducing damaging activities such as opportunistic behavior (Harland et al., 2004, p.3). Incentive scores for partners can be accounted, traced, calculated and displayed by expert systems, ABC, and Web-based technology (Kaplan and Narayanan 2001).

Organizations that favor incentive alignment and good communication along the supply chain to build trust between partners have similar habits that are specific characteristics of friendships of utility. If organizations' incentives are aligned, which means the risks, costs, and rewards are distributed fairly across the network, supply chain can work well. All supply chain members are interlinked: if they work together to efficiently deliver goods and services to customers, they will all win. If they don't, they will all lose to another supply chain. The challenge here is to get all the members of the supply network to play the

game according to common goals, so that everybody wins. Aligning incentives in the supply network is the only way to achieve this goal (Narayanan and Raman, 2004).

2.1.5. Resource Sharing (RS)

Resource sharing is used to leverage capabilities and assets and invest in those with supply chain partners. In the view of RBV, resources can be tangible or intangible. Resources are defined as the inputs of the production process and capital equipment, they can be tangible as physical assets, such as manufacturing equipment, facilities, technology or intangible as skills of employees, patents, knowledge (Harland et al., 2004, p.2). Some researchers define capabilities and competencies as a resource; resources are input related, capabilities are process and competencies that are cross functional (Barney, 1991, p 101; Grant, 1991). To achieve sustainable collaborations mutual resource investments should be considered by supply chain partners. Both tangible and intangible investments including time, money, training, technology, equipment, employee and other resources are needed. Mutual financial investment is in the sign of an effective partnership (Lambert et al., 1999, p.175).

Resource sharing among SC partners varies from tangible elements such as sharing of warehouses, machineries and logistical services to intangible elements such as information sharing and reputations. A mutual effort and enough time are required to achieve collaborative relationships (Min et al., 2005, p.249). Organizations are “*voluntarily agreeing to integrate their human, financial, or technical resources to create a better business models with partners*” (Bowersox et al., 2003, p. 22). Resource sharing is becoming a vital part of many collaborative relationships in recent supply chains (Ireland and Crum, 2005).

2.1.6. Collaborative Communication (CC)

Collaborative communication is the process that supply chain partners can contact and message transmission to manage the partnership among themselves in terms of frequency, direction, mode of the communication which could influence strategy. One of the indicators of close inter-firm relationships is open, frequent, balanced, two-way and multilevel communications (Goffin et al., 2006). In their study, Mohr and Nevin (1990)

explore way of communications; the collaborative communication between partners has a higher frequency, more two-way flows, better informal modes, and improved indirect influence. By frequency, it is meant that how often partners contact between each other. By direction of communication, the flow up and down the supply chain is defined (Mohr and Nevin 1990, Prahinski and Benton 2004). And the mode is the method used to transmit information between partners. There might be two kinds of modes; one is formal and the other is informal. Formal mode is the communication established through structured rules and certain procedures, informal mode is the communication between chain partners established through a more spontaneous and not the regular way. Influence is inserted into the communication content (i.e., the given message). With the direct influence, it is intended to change the way a partner behaves by asking some specific actions via recommendations, promises and it can be connected to legal issues. On the other hand, indirect influence aims to change the partner's attitudes and intentions on desired behavior without direct commands or hidden threats (Mohr and Nevin 1990).

One of the important causes of SCC problems is the communication difficulties. By developing proper strategies for communication among partners, many challenges can be solved and the communication is "*the glue that holds together a channel of distribution*" (Mohr and Nevin 1990, p. 36). Communication is vital to have smooth relationships and successful inter-organizational exchange (Paulraj et al., 2008).

2.1.7. Joint Knowledge Creation (JKC)

Although it is not addressed enough, joint knowledge creation is another crucial variable in SCC. Joint knowledge creation covers shared knowledge acquisition, dissemination and interpretation of knowledge (Slater and Narver 1995). For supply chain partners, it develops a better understanding on market response in the competitive environment via working together (Malhotra et al., 2005, p.176). Harland et al., 2004, divide knowledge creation in two kinds: knowledge exploration and knowledge exploitation. Knowledge exploration refers to searching and acquiring relevant and new information. Knowledge exploitation refers to the assimilation and application of knowledge. These type of knowledge creations among partners helps to establish innovation and facilitate the long-

term competitiveness (Harland et al., 2004, p.3). SC partners should be involved to build a joint knowledge via knowledge interpretation which allows partners to create a value for the chain by innovation, reputation and customer satisfaction (Kaufman et al., 2000, 657).

The value of SCC is not only efficiency improvement; it also has strategic benefits, which will eventually help the value chain respond about competition and customer satisfaction (Sobrero and Roberts, 2001). By reaching correct and timely information, organizations can reduce their response time to achieve order fulfilment in long term partnership (Verwaal and Hesselmanns, 2004). SCC should involve active generation and development of knowledge for managing current and future business.

2.2 Trust

In SCM, it is hard to manage all supply chains the focal firm has. Only major suppliers which supply the critical component, product, sub-product or services can be considered for managing. Trust, as a research construct of this study is considered as the antecedent of collaboration between supply chain partners. First, the focal firms choose which supply chains to be managed, then establish relationships with their supply chain partners and collaborate with their trusted suppliers in these chains.

As trust builds among the organizations, they are willing to take bigger risks with each other via eliminating other sources of supply, integrating business processes, collaborating on product and process design, etc. that eventually increase the potential benefits from the relationship. Trust also is a good facilitator for incentive alignment and information sharing between the firms. Trust construct and its effects on collaboration, SCP and transaction cost are already explained in the literature review section. In this study, to measure the trust between focal firms and its major suppliers, honest trust and benevolence trust are used from literature (Kumar et al., 1995; Liu et al., 2009; Liu et al., 2015).

2.3. Transaction Cost

The costs of market use can be avoided if an organization becomes vertically integrated and accepts all the costs caused by this integration which includes coordinating

of economic activities within organization. In this case, the organization must also assume the alternative costs of administering vertical flows of products/services and organizing factors of production. These can also cover the costs of price searches, the costs of negotiations in every single contract for each exchange transaction and the costs of correctly defining the details of a transaction in a long-term contract (Hobbs, 1996, p 16). Transaction costs are the costs of placing orders, progress chasing, raising invoices, confirming delivery arrangements, handling queries and all the other activities that are involved when companies do business with each other. Many of these costs are hidden and not easy to quantify and yet they can be significant. Adversarial relationships along the supply chain increase these transaction costs. There are several studies in the literature research about the possible ways to measure and reduce transaction costs occur in inter organizational relations (e.g. Hobbs, 1996; Grover et al., 2002, Grover and Malhotra, 2003).

Transaction costs are divided into three main classifications in Hobbs's (1996, p.20) study: information costs, negotiation costs, and monitoring costs. Organizations and individuals face costs when they are searching information about the market including products, prices, buyers or sellers. Another cost of transaction is the negotiation costs such as negotiating and writing contracts or paying for the services of agencies for the transaction (such as an auctioneer or a broker). Monitoring or enforcement costs arise after an exchange has been negotiated. This may involve monitoring the suppliers' product or service quality or monitoring the supplier or buyer actions to make sure that all the agreed terms and conditions of the transaction are met.

Rindfleisch and Heide (1997, p.46) suggest that direct transaction costs may arise in the form of direct costs that would include costs of crafting safeguards; communication, negotiation and co-ordination costs; screening and selection costs and measurement costs. Clemons et al., (1993) highlight two other aspects related to transaction risk. The first is "small numbers bargaining", if there are only a few suppliers can supply the product and the firm decides to procure from the market, it exposes itself to opportunistic behavior. The second is "loss of resource control" which relates to outsourcing a product

that may be proper in nature and which may again increase the probability of opportunistic behavior.

Grover and Malhotra (2003, p,466) suggest that transferring the concept of transaction costs to the operational arena remain unclear. The objective measures of financial costs which are like cost of co-ordination and coping with transaction risk would mostly help empirical work in the area. But, it is very hard to obtain a correct representation of these costs from financial data. A survey-based measure is developed by Grover and Malhotra (2003) to measure the transaction costs. This survey instrumentation allows for a rich assessment of constructs and facilitates statistical testing of the relationships using a large sample.

In this research, transaction cost survey instrumentation is drawn from the study of Grover et al, 2002 and Grover and Malhotra, 2003. TC survey instrument consists of 4 factors; Developing Association (DA), Monitoring Performance (MP), Addressing Problems (AP), Opportunism (OP). Transaction cost resulting from focal firm's purchasing relation with its major supplier is the focus in this measurement item. Costs related with this relationship like contracting, developing association, monitoring, challenges to be solved and misbehaviors of supplier are considered as transaction costs.

2.4. Supply Chain Performance (SCP)

Supply Chain Performance (SCP) literature review is covered in part 1 in details. Organizations in supply chain may have different set of goals for their own strategic plans but at the end of the day all organizations have one ultimate goal which is to survive in a competitive environment. For this goal, organizations must meet and exceed the customer expectations in rival environments. In this aspect, customer satisfaction is indeed the ultimate goal of the organizations. In this dissertation, SCP is considered from ultimate customer perspective and focal firms are asked to consider the supply chain between major supplier, focal firm and ultimate customer.

Along with the supply chain, the respondent is considered as focal firm, supplier of the respondent is upstream of the chain and ultimate customer of the focal firm is in the

downstream of the chain. Supply chain performance measures are drawn from Green et al., 2008 study. Items used in measurement scale focus on the ability of supply chain in regards to deliver products and services; in good quality, in precise quantities and on time. This performance will then minimize total cost of products and services to ultimate customers of the supply chain. Performance of end products or services, delivery speed, quantity and capacity flexibility and cost of products or services are basically covered in this measurement scale. Downstream external linkage performance is tried to be measured by asking questions about supply chain performance related with ultimate customer.

2.5. MODEL OF THE DISSERTATION

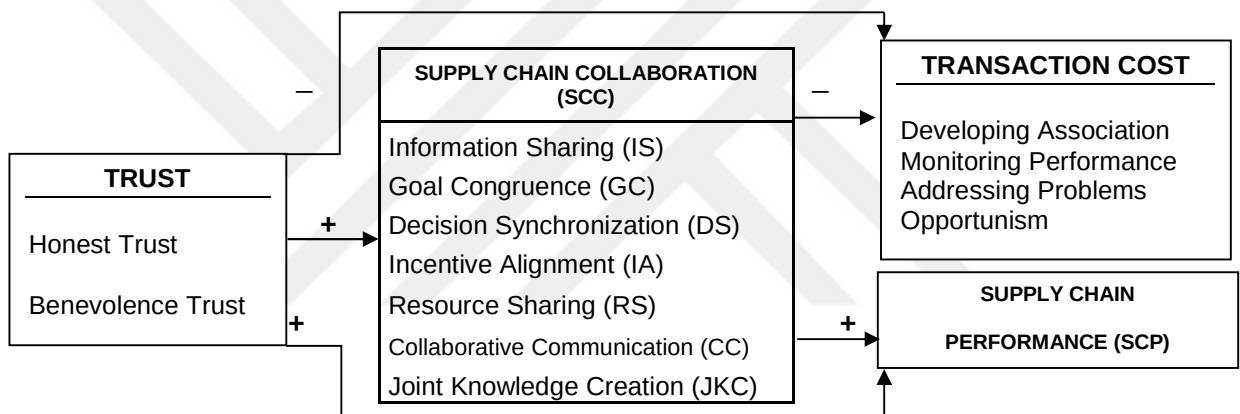


Figure 2.1 The proposed model of the dissertation

2.6. HYPOTHESES

The following hypotheses (Table 2.2) are developed based on the literature review and the proposed conceptual model (Figure 2.1).

Table 2.2 Developed hypotheses of the dissertation.

Hypothesis 1	In a supply-chain relationship, inter-organizational trust has a significant positive effect on supply chain collaboration (SCC). The higher the level of trust, the better in terms of supply chain collaboration.
H1a	The higher level of Honest Trust, the better in terms of SCC IS.
H1b	The higher level of Honest Trust, the better in terms of SCC GC.
H1c	The higher level of Honest Trust, the better in terms of SCC DS.
H1d	The higher level of Honest Trust, the better in terms of SCC IA.
H1e	The higher level of Honest Trust, the better in terms of SCC RS.
H1f	The higher level of Honest Trust, the better in terms of SCC CC.
H1g	The higher level of Honest Trust, the better in terms of SCC JKC.
H1h	The higher level of Benevolence Trust, the better in terms of SCC IS.
H1i	The higher level of Benevolence Trust, the better in terms of SCC GC.
H1j	The higher level of Benevolence Trust, the better in terms of SCC DS.
H1k	The higher level of Benevolence Trust, the better in terms of SCC IA.
H1l	The higher level of Benevolence Trust, the better in terms of SCC RS.
H1m	The higher level of Benevolence Trust, the better in terms of SCC CC.
H1n	The higher level of Benevolence Trust, the better in terms of SCC JKC.
Hypothesis 2	In a supply-chain relationship, Supply chain collaboration has a significant positive effect on supply chain performance. The higher level of supply chain collaboration (SCC), the better in terms of supply chain performance (SCP).
H2a	The higher level of SCC IS, the better in terms of supply chain performance.
H2b	The higher level of SCC GC, the better in terms of supply chain performance.
H2c	The higher level of SCC DS, the better in terms of supply chain performance.
H2d	The higher level of SCC IA, the better in terms of supply chain performance.
H2e	The higher level of SCC RS, the better in terms of supply chain performance.
H2f	The higher level of SCC CC, the better in terms of supply chain performance.
H2g	The higher level of SCC JKC, the better in terms of supply chain performance.
Hypothesis 3	Supply chain collaboration has a significant negative effect on transaction cost (TC). The higher level of supply chain collaboration (SCC), the lower in terms of transaction cost.
H3a	The higher level of SCC IS, the lower in terms of TC Developing Association.
H3b	The higher level of SCC GC, the lower in terms of TC Developing Association.

H3c	The higher level of SCC DS, the lower in terms of TC Developing Association.
H3d	The higher level of SCC IA, the lower in terms of TC Developing Association.
H3e	The higher level of SCC RS, the lower in terms of TC Developing Association.
H3f	The higher level of SCC CC, the lower in terms of TC Developing Association.
H3g	The higher level of SCC JKC, the lower in terms of TC Developing Association.
H3h	The higher level of SCC IS, the lower in terms of TC Monitoring Performance.
H3i	The higher level of SCC GC, the lower in terms of TC Monitoring Performance.
H3j	The higher level of SCC DS, the lower in terms of TC Monitoring Performance.
H3k	The higher level of SCC IA, the lower in terms of TC Monitoring Performance.
H3l	The higher level of SCC RS, the lower in terms of TC Monitoring Performance.
H3m	The higher level of SCC CC, the lower in terms of TC Monitoring Performance.
H3n	The higher level of SCC JKC, the lower in terms of TC Monitoring Performance.
H3o	The higher level of SCC IS, the lower in terms of TC Addressing Problems.
H3p	The higher level of SCC GC, the lower in terms of TC Addressing Problems.
H3q	The higher level of SCC DS, the lower in terms of TC Addressing Problems.
H3r	The higher level of SCC IA, the lower in terms of TC Addressing Problems.
H3s	The higher level of SCC RS, the lower in terms of TC Addressing Problems.
H3t	The higher level of SCC CC, the lower in terms of TC Addressing Problems.
H3u	The higher level of SCC JKC, the lower in terms of TC Addressing Problems.
H3v	The higher level of SCC IS, the lower in terms of TC Opportunism.
H3w	The higher level of SCC GC, the lower in terms of TC Opportunism.
H3x	The higher level of SCC DS, the lower in terms of TC Opportunism.
H3y	The higher level of SCC IA, the lower in terms of TC Opportunism.
H3z	The higher level of SCC RS, the lower in terms of TC Opportunism.
H3aa	The higher level of SCC CC, the lower in terms of TC Opportunism.
H3ab	The higher level of SCC JKC, the lower in terms of TC Opportunism.
Hypothesis 4	In a supply-chain relationship, inter-organizational trust has a significant positive effect on supply chain performance (SCP). The higher level of trust, the better in terms of SCP.
H4a	The higher level of Honest Trust the better in terms of supply chain performance.
H4b	The higher level of Benevolence Trust the better in terms of supply chain performance.
Hypothesis 5	In a supply-chain relationship, inter-organizational trust has a significant negative effect on Transaction Cost (TC). The higher level of trust, the lower in terms of TC.
H5a	The higher level of Honest Trust the lower in terms of TC Developing Association.
H5b	The higher level of Honest Trust the lower in terms of TC Monitoring Performance.
H5c	The higher level of Honest Trust the lower in terms of TC Addressing Problems.
H5d	The higher level of Honest Trust the lower in terms of TC Opportunism.

H5e	The higher level of Benevolence Trust the lower in terms of TC Developing Association.
H5f	The higher level of Benevolence Trust the lower in terms of TC Monitoring Performance.
H5g	The higher level of Benevolence Trust the lower in terms of TC Addressing Problems
H5h	The higher level of Benevolence Trust the lower in terms of TC Opportunism.
Hypothesis 6	Supply Chain Collaboration (SCC) mediates positive effect of Trust on Supply Chain Performance.
H6a	SCC IS mediates positive effect of Trust on Supply Chain Performance.
H6b	SCC GC mediates positive effect of Trust on Supply Chain Performance.
H6c	SCC DS mediates positive effect of Trust on Supply Chain Performance.
H6d	SCC IA mediates positive effect of Trust on Supply Chain Performance.
H6e	SCC RS mediates positive effect of Trust on Supply Chain Performance.
H6f	SCC CC mediates positive effect of Trust on Supply Chain Performance.
H6g	SCC JKC mediates positive effect of Trust on Supply Chain Performance.
Hypothesis 7	Supply Chain Collaboration mediates negative effect of Trust on Transaction Cost (TC).
H7a	SCC IS mediates negative effect of Trust on Transaction Cost (TC).
H7b	SCC GC mediates negative effect of Trust on Transaction Cost (TC).
H7c	SCC DS mediates negative effect of Trust on Transaction Cost (TC).
H7d	SCC IA mediates negative effect of Trust on Transaction Cost (TC).
H7e	SCC RS mediates negative effect of Trust on Transaction Cost (TC).
H7f	SCC CC mediates negative effect of Trust on Transaction Cost (TC).
H7g	SCC JKC mediates negative effect of Trust on Transaction Cost (TC).

PART 3. RESEARCH METHODOLOGY

3.1 Source of Data

Unit of Analysis of the study is organizations which are in supply chain. The organization in the supply chain is the focal point which has connection with suppliers and customers. To reach these kind of organizations, the population is primarily selected from the organizations which are in ISO 500 -1, ISO 500 - 2 (First 1000 industrial firm list announced annually by Istanbul Chamber of Industry in Turkey in 2014). The list is composed of industrial enterprises' annual production based sales figures, as the major criterion of sorting and ranking.

Beside the organizations in the first 1000 list, the organizations in different Supply Chain associations like LODER, TEDAR, TUSAYDER, KALDER are considered as the source of data. Some of the organizations in these associations are already in the First 1000 industrial firms list. Totally, around 1500 organizations are contacted to remain within the budget and time restrictions of the study.

3.2. Data Collection Method

According to the research model and research questions, the data collection method is constructed. Since the survey attempts to measure trust based supply chain collaboration, supply chain performance and transaction cost, supply chain managers and purchasing managers who are in touch with suppliers frequently are considered as the most appropriate respondents to provide sufficient data for the research purposes.

Visiting all facilities included in the population has appeared to be infeasible due to the cost and time-based limitations. Therefore, an online survey is prepared based on the questionnaire designed. All the data collected in this study is received via online survey.

To select the correct respondent for the most reliable answers these methods are used;

- Attended to supply chain conferences and congresses to reach supply chain professionals and purchasing managers in the organizations,
- Reached supply chain professionals associations like LODER, TEDAR, TUSAYDER, KALDER and requested help to reach members of these associations,
- Reached ISO-500-1 and ISO-500-2 lists from ISO web site, from this list each organization web site visited and phone numbers retracted.
- Reached to organizations' supply chain or purchasing sections by phone call to have correct e-mail addresses to send questionnaire.
- If the correct respondent is not available on the phone, his/her direct business e-mail is requested and the person who provided this information is noted. In this case, the person who provided the information of respondent is stated in the mail.

After reaching correct respondents' e-mails, online questionnaires are sent directly to respondents' personal business e-mail addresses instead of sending info mails of the organizations. In the e-mails, the purpose of the research is explained and online entry is requested with an attached link of the questionnaire. A deadline is included in the e-mail and at the deadline another reminder e-mail is sent to respondents. The survey is conducted over a 6-month period during the spring and summer of 2016.

3.3. The Design and Content of The Questionnaire

This study employs Likert scale, which is accepted as the most frequently used variation of the summated rating scale. In Likert scales, responses over a number of items tapping a particular concept or variable are then summated for every respondent (Sekaran, 2003). The respondents are asked to agree or disagree with each statement and a 6-point numerical score is assigned to each response, in anticipation to reflect the degree of agreement to the statements in the questionnaire. Six measurement items are used with responses (ranging from 1- Totally Disagree, 2- Very slightly agree, 3- Slightly agree, 4- Pretty agree, 5- Very much agree, 6 Totally agree) to measure the levels of trust, supply chain collaboration, supply chain performance and transaction cost relations among the firms.

A first draft of the survey is reviewed by 3 supply chain management educators and 4 supply chain executives who are experts in their area of business. Each expert is asked to evaluate the measures and survey draft for the following aspects; representativeness, clarity, content validity and face validity. After receiving the experts' feedback, refinements and changes are made to improve the overall quality of the questionnaire according to Turkish context.

Unit of analysis of the research is the organizations which are in a focal position in a supply chain. A special emphasis is given on the selection of respondents among the executives holding the responsibility for managing the flow of these organizations' supply chain activities can be considered key informant for this organization. They are in prestigious positions in Turkey's leading industrial enterprises and very much capable of providing high quality data when responding to questionnaires within their area of expertise.

While answering the questionnaire, respondents are asked to consider their most important supplier in the supply chain and the item it supplies. This supplier could be the major supply chain partner which supplies the critical component in the supply chain. The intention of the questionnaire is to measure trust, collaboration, transaction cost on the specific supply chain relationship between major supplier and focal firm and supply chain performance at final customer side as a result of this relationship (Figure 3.1).

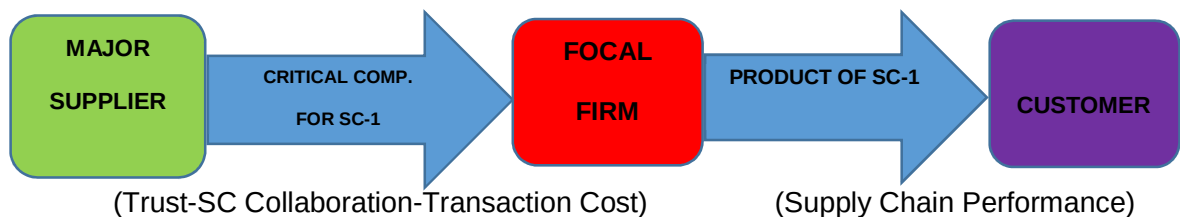


Figure 3.1 Supply chain schema and measurement items asked in questionnaire

The questionnaire consists of 4 variables; Trust, Supply Chain Collaboration (SCC), Supply Chain Performance (SCP), Transaction Cost (TC).

Trust variable consists of 2 factors; Honest Trust - 5 questions, (Kumar et al., 1995; Liu et al., 2009; Liu et.al., 2015), Benevolence Trust - 5 questions, (Kumar et al., 1995; Liu et al., 2009; Liu et.al., 2015). These 2 factors are measured with 10 questions in total.

Supply Chain Collaboration items are drawn from Cao et.al, 2010. Respondents are asked to indicate their level of agreement in regards to collaboration elements between their firm and their major supplier. SCC variable consists of 7 factors; Information Sharing (IS) - 5 questions, Goal Congruence (GC) - 5 questions, Decision Synchronization (DS) - 5 questions, Incentive alignment (IA) - 5 questions, Resource Sharing (RS) - 5 questions, Collaborative Communication (CC) - 5 questions, Joint Knowledge Creation (JKC) 5 - questions. These 7 factors are measured with 35 questions in total.

Transaction Cost (TC) items are drawn from Grover et.al, 2002. TC consists of 4 factors; Developing Association (DA) - 3 questions, Monitoring Performance (MP) - 4 questions, Addressing Problems (AP) - 4 questions, Opportunism (OP) - 3 questions. These 4 factors are measured with 14 questions in total. With this variable, it is intended to measure the amount of effort and costs that are required to set up and maintain this relationship with the major supplier.

Supply Chain Performance (SCP) questions are drawn from Green et al. (2008); there are 11 questions covering performance of final products, speed of deliveries, volume or capacity flexibility and production costs. But, SCP is expected to be measured under one factor. With this variable, on the side of final customer, it is intended to measure the customer side performance of the supply chain established with major supplier.

Beside the 70 items asked with Likert scale method, 14 demographic questions are asked to understand the organization and respondents' position and 5 relational questions are asked to understand the relationship between the focal firm and the major supplier.

These questions are asked in demographic questions section of the questionnaire;

Regarding to the organization; the location of the organization, the industry of the organization, the number of employee, age of the organization, annual gross sales, implementation of Supply Chain Management, implementation of Supply Chain Collaboration, average quantity of suppliers.

Regarding the respondent; the section he/she works, the position in the organization, education level, age, tenure in the organization, total professional experience.

Via 5 relational questions, it is intended to have answers about the relation between the supply chain partner; organization's position in the partnership (big partner-equal-small partner), power and dependence relation of partners (supplier has the power, balanced, customer has the power), partnership duration, percentage of this supplier in all purchases in this supply chain, material purchased from this supplier.

English version of the questionnaire is in the Appendix – A and Turkish version of the questionnaire is in the Appendix – B.

3.4 Respondents Profile

There are two types of Respondents' Profile in this research; the respondent person who replied questionnaire and the respondent organization which is the focal firm in a supply chain relationship. Respondent person profile gives information about if the correct person has been reached to have the most reliable information. Respondent organization profile is related with the focal firms which collaborate with their major suppliers.

Respondent person information is as follows; among the respondents, only 27 (12,7 percent) of the respondents are workers who work in the supply chain management or purchasing department. 37 (17,5 percent) of the respondents are chiefs or supervisors, 84 (%39,6) are Assistant Manager or Manager, 32 (%15,1) are Director or Assistant General Manager, 30 (%14,2) are General manager, CEO or owner of the organization (Table 3.1). With this level of management, they are expected to have a broad view of SCM and supplier relationship in their organization.

Table 3.1. Respondent's Profile (Position)

POSITION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Worker	27	12,7	12,9	12,9
	Chief/Supervisor	37	17,5	17,6	30,5
	Asst.Manager/Manager	84	39,6	40,0	70,5
	Director/Asst.General Man.	32	15,1	15,2	85,7
	General Manager	15	7,1	7,1	92,9
	CEO/Owner	15	7,1	7,1	100,0
	Total	210	99,1	100,0	
Missing	System	2	,9		
Total		212	100,0		

Education levels of the respondents are also suitable with their titles; 115 have university degree, 79 have masters or doctorate degree (Table 3.2).

Table 3.2. Respondent's Profile (Education)

EDUCATION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary	1	,5	,5	,5
	High School	17	8,0	8,0	8,5
	Bachelors	10	4,7	4,7	13,2
	University	105	49,5	49,5	62,7
	Master's Degree	65	30,7	30,7	93,4
	Doctorate	14	6,6	6,6	100,0
	Total	212	100,0	100,0	

Their age scale is; 34 people between 20 and 30, 80 people between 31 and 40, 70 people between 41 and 50, 27 people over 51 years old (Table 3.3).

Table 3.3. Respondent's Profile (Age)

AGE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 25	4	1,9	1,9	1,9
	26 - 30	30	14,2	14,2	16,1
	31 - 40	80	37,7	37,9	54,0
	41 - 50	70	33,0	33,2	87,2
	51 +	27	12,7	12,8	100,0
	Total	211	99,5	100,0	
Missing	System	1	,5		
Total		212	100,0		

Working year in current organization (tenure); 20 respondents have been working in organization for less than a year, but 83 respondents 1 to 5 years, 48 respondents 6 – 10 years, 60 respondents have been working for more than 10 years (Table 3.4). This shows that they have enough knowledge and experience about their organizations.

Table 3.4. Respondent's Profile (Tenure)

TENURE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	20	9,4	9,5	9,5
	1 - 5 year	83	39,2	39,3	48,8
	6 - 10 year	48	22,6	22,7	71,6
	More than 10 year	60	28,3	28,4	100,0
	Total	211	99,5	100,0	
Missing	System	1	,5		
Total		212	100,0		

Their job experience (profession year) also shows that they are very experienced people; 67,5% of the respondents have more than 10 years of experience in their profession (Table 3.5).

Table 3.5. Respondent's Profile (Profession year)

PROFESSION YEAR					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	5	2,4	2,4	2,4
	1 - 5 year	31	14,6	14,7	17,1
	6 - 10 year	32	15,1	15,2	32,2
	More than 10 year	143	67,5	67,8	100,0
	Total	211	99,5	100,0	
Missing	System	1	,5		
Total		212	100,0		

Respondent organizations' profiles are as follows; from the sector point of view, the most of the respondents are in a manufacturing business with 63 organizations, automobile 17, electric/electronic 17, construction 12, service 22, finance only 2, 79 organizations are in other businesses (Table 3.6).

Table 3.6. Respondent Organization's Profile (Sector)

SECTOR					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	63	29,7	29,7	29,7
	Automobile	17	8,0	8,0	37,7
	Electric/Electronic	17	8,0	8,0	45,8
	Construction	12	5,7	5,7	51,4
	Service	22	10,4	10,4	61,8
	Finance	2	,9	,9	62,7
	Other	79	37,3	37,3	100,0
	Total	212	100,0	100,0	

Since ISO 1000 is the target population, as number of personnel, respondents are big organizations; only 54 of them have less than 100 personnel, 79 of them have between 101 and 500, 79 of them have more than 500 personnel (Table 3.7).

Table 3.7. Respondent Organization's Profile (Number of Personnel)

NUMBER OF PERSONNEL					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 10	19	9,0	9,0	9,0
	11 - 20	7	3,3	3,3	12,3
	21 - 50	16	7,5	7,5	19,8
	51 - 100	12	5,7	5,7	25,5
	101 - 500	79	37,3	37,3	62,7
	More than 500	79	37,3	37,3	100,0
	Total	212	100,0	100,0	

Ages of the organizations are; 24 of them are in the business for less than 5 years, 23 of them is around between 5 – 10 years, 32 between 10 -20, 98 between 20 – 50 and 35 of them for more than 50* years (Table 3.8).

Table 3.8. Respondent Organization's Profile (Age of the Organization)

AGE OF THE ORGANIZATION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	1	,5	,5	,5
	1 - 5 year	23	10,8	10,8	11,3
	5 - 10 year	23	10,8	10,8	22,2
	10 - 20 year	32	15,1	15,1	37,3
	20 - 50 year	98	46,2	46,2	83,5
	More than 50 years	35	16,5	16,5	100,0
	Total	212	100,0	100,0	

Annual gross sales (AGS) also shows how big the organizations are. Only 39 respondent organizations had less than 10,000,000 TL AGS, 45 of them had AGS between 10,000,001 TL – 100,000,000 TL, 72 of them had AGS between 100,000,001 TL – 1,000,000,000 TL and 56 of them had more than 1 billion TL AGS (Table 3.9).

Table 3.9. Respondent Organization's Profile (Annual Gross Sale)

Annual Gross Sale					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 100,000 TL	5	2,4	2,4	2,4
	100,000 TL - 1,000,000 TL	16	7,5	7,5	9,9
	1,000,001 TL - 10,000,000 TL	18	8,5	8,5	18,4
	10,000,001 TL - 100,000,000 TL	45	21,2	21,2	39,6
	100,000,001 TL - 1,000,000,000 TL	72	34,0	34,0	73,6
	More than 1,000,000,000 TL	56	26,4	26,4	100,0
	Total	212	100,0	100,0	

Most of the respondent organizations (%75) are applying SCM applications (Table 3.10), almost 94% of them are having supply chain collaboration with their suppliers (Table 3.11).

Table 3.10. Respondent Organization Supply Chain Profile (SCM Application)

SCM					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	159	75,0	75,0	75,0
	No	53	25,0	25,0	100,0
	Total	212	100,0	100,0	

Table 3.11. Respondent Organization Supply Chain Profile (Supply Chain Collaboration Implementation)

SUPPLY CHAIN COLLABORATION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	199	93,9	93,9	93,9
	No	13	6,1	6,1	100,0
	Total	212	100,0	100,0	

Supplier quantity of the respondents are: 33 of the respondent organizations had less than 10 suppliers, 19 of them had 11 to 20 suppliers, 28 of them had 21 – 50 suppliers and most of them, 132 had more than 51 suppliers (Table 3.12).

Table 3.12. Respondent Organization Supply Chain Profile (Supplier Quantity)

SUPPLIER QUANTITY					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5	16	7,5	7,5	7,5
	6-10	17	8,0	8,0	15,6
	11-20	19	9,0	9,0	24,5
	21-50	28	13,2	13,2	37,7
	51+	132	62,3	62,3	100,0
	Total	212	100,0	100,0	

The position of the focal firm in this supply chain relationship is asked and 82 of the respondents claimed that they are the big partner in this relationship, 59 of them claimed that they are equal partners. The rest of the respondents, 71 of them, claimed that they are the small partner when they compare the organization with their major suppliers (Table 3.13).

Table 3.13. Supply Chain Relation with the supplier (Position in the partnership)

POSITION IN THE PARTNERSHIP					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Big Partner	82	38,7	38,7	38,7
	Equal Partner	59	27,8	27,8	66,5
	Small Partner	71	33,5	33,5	100,0
	Total	212	100,0	100,0	

According to the respondent organizations' answers, the relationship between the focal firm and their major suppliers mostly balanced. 112 respondents claimed they had a balanced supply chain relationship. While 75 of them declares that customer, which means focal firm, had the power, only 25 of the respondents declares that their major supplier has the power in the power and dependency relationship (Table 3.14).

Table 3.14. Supply Chain Relation with the supplier (Power-Dependency)

POWER-DEPENDENCY					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Customer has the power	75	35,4	35,4	35,4
	Balanced	112	52,8	52,8	88,2
	Supplier has the power	25	11,8	11,8	100,0
	Total	212	100,0	100,0	

The focal firms have a long term partnership with their major suppliers. According to the results; 73 of the respondents have less than 5-years of partnership with their major supplier, 64 of them have 5 to 10 years of partnership, 75 of them have more than 10-years of partnership (Table 3.15).

Table 3.15. Supply Chain Relation with the supplier (Partnership Duration)

PARTNERSHIP DURATION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 1 year	4	1,9	1,9	1,9
	1 - 5 year	69	32,5	32,5	34,4
	5 - 10 year	64	30,2	30,2	64,6
	More than 10 years	75	35,4	35,4	100,0
	Total	212	100,0	100,0	

According to the share of purchase, the number of the organizations which have less than %5 of the purchase from their major suppliers is only 26. 49 of them have %6 to %19 share of purchase, 54 of them have %11 to %25 share of purchase, 47 of them have %26 to %50 share of purchase and 36 of them have more than %51 share of purchase (Table 3.16).

Table 3.16. Supply Chain Relation with the supplier (Share of Purchase)

SHARE OF PURCHASE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than %5	26	12,3	12,3	12,3
	%6 - %10	49	23,1	23,1	35,4
	%11 - %25	54	25,5	25,5	60,8
	%26 - %50	47	22,2	22,2	83,0
	More than %51	36	17,0	17,0	100,0
	Total	212	100,0	100,0	

Product group of the purchases from major suppliers are mostly raw materials (%38,7) and the other groups are listed in Table 3.17.

Table 3.17. Supply Chain Relation with the supplier (Product Group)

PRODUCT GROUP					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Raw material (metal, wood etc.)	82	38,7	38,7	38,7
	Vehicle, material equipment	35	16,5	16,5	55,2
	Mechanical material (valves, jacks etc)	7	3,3	3,3	58,5
	Chemicals, plastic, melted materials	23	10,8	10,8	69,3
	Electrical materials (relay, transformer etc.)	5	2,4	2,4	71,7
	Electronic materials (electronic parts, semiconductors etc.)	12	5,7	5,7	77,4
	Computer related materials (software, main board, accessories etc.)	7	3,3	3,3	80,7
	Others (Education, health services etc.)	41	19,3	19,3	100,0
Total		212	100,0	100,0	

PART 4. FINDINGS OF THE RESEARCH

4.1. Factor and Reliability Analysis

For each variable in the model, exploratory factor analysis is used to identify the not directly observable factors based on the questionnaire. The goal is to identify a smaller set of factors to represent the relationships among the variables parsimoniously (i.e., to explain the observed correlation with fewer factors). The Bartlett Test of Sphericity (to test the null hypothesis that the correlation matrix is an identity matrix) and the Kaiser-Meyer-Olkin measure of sampling adequacy (small value of KMO indicates factor analysis is inappropriate) are used to validate the use of factor analysis.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. It is calculated from the sum of the correlation coefficients divided by the sum of the correlation coefficients and partial correlation coefficients, and if its value is less than 0.50, then partial correlations are high and correlations between pairs of variables are therefore relatively unaffected by other variables, and factor analysis should not proceed (Colman and Pulford, 2006). Large values for the KMO measure indicate that a factor analysis of the variables is plausible (Table 4.1).

Table 4.1. Intervals of Validity for Kaiser-Mayer-Olkin Sampling Adequacy Index Scores (Sipahi, Yurtkoru and Çinko, 2010, p.80)

KMO Sampling Adequacy Index Scores Validity

0.90 – 1.00	Perfect
0.80 – 0.89	Very Good
0.70 – 0.79	Good
0.60 – 0.69	Moderate
0.50 – 0.59	Poor
Below 0.50	Unacceptable

Another indicator of the strength of the relationship among variables is Bartlett's test of sphericity. Bartlett's test of sphericity is used to test the null hypothesis that the variables in the population correlation matrix are uncorrelated. If the test fails to reject this hypothesis at $p < 0.05$, then there are insufficient correlations between variables and factor analysis is futile (Colman and Pulford, 2006).

During the data collection period, 213 responses are received via online questionnaire collection method. After checking the data, one response is deleted because of the standard deviation test (all answers are same). Totally, 212 responses are used for statistical tests. SPSS version 20, Data Reduction Factor Analysis program is used to evaluate the measurement items. As a result of the factor and reliability analyses;

Trust variable: Originally this variable had two factors, Honest Trust and Benevolence Trust. The Bartlett Test of Sphericity and the Kaiser-Meyer-Olkin measure are very good, anti-image correlation matrix values that all are above 0,50 but TH1 question's factor loading is very low (0,586) after eliminating this question because of the low score, 9 questions are loaded on one factor. KMO score is 0,938 and reliability score is α : 0,944. The details of the factor loading and KMO scores are in Table 4.2.

Transaction Cost (TC) variable: Originally this variable have four factors; Developing Association (DA), Monitoring Performance (MP), Addressing problems (AP) and Opportunism (OP). During TC factor analysis, three questions (TCMP4, TCAP8, TACP9) are reversed to calibrate the data. After factor analysis applied, anti-image correlation matrix values all are above 0,50 but TA10 question's factor loading is very low (0,563) after eliminating this question because of the low score, factor analysis is applied to the rest of the questions. In this run, TCMP7 question has low loading and it is loaded under another factor. Because of this reason, TCMP7 is also eliminated. Finally, three factors are found in this variable. First factor, TC Developing Association (TCDP) is combined with five measurement items (TCDA1, TCDA2, TCDA3, TCMP5, TCMP6). Second factor, TC Opportunism (TCOP) is combined with 4 measurement items (TCOP12, TCOP13, TCOP14, TCAP11). Third factor, TC Addressing Problems (TCAP) are combined with three factors

which are reversed questions (TCAP8, TCAP9, TCMP4). KMO score is 0,819 and reliability scores are F1 α : 0,855, F2 α : 0,782, F3 α : 0,762 (Table 4.3).

Supply Chain Performance (SCP) variable: Normally this variable is one factor but has sub phrases which are performance of final products, speed of deliveries, volume and capacity flexibility, production costs. During factor analysis, SCP7 question is eliminated because of low loading and it is loaded under another factor. In the second run of factor analysis, measurement items are loaded on two factors, PERSPEED (Performance and Speed) and FLEXCOST (Flexibility and Cost). Factor 1 consists of SCP1, SCP2, SCP3, SCP4, SCP5, SCP6, SCP7 measurement items. Factor 2 consists of SCP8, SCP9, SCP10, SCP11 measurement items. In reliability test of Factor 2, SCP8 is eliminated because of the low reliability score, only cost related questions left in Factor 2. Because of this reason, factor 2 is called COST factor. Finally, KMO score is 0,895 and reliability scores is F1 α : 0,917, F2 α : 0,878 (Table 4.4).

Supply Chain Collaboration (SCC) variable: Questionnaire is originally designed for seven factors; Information Sharing (IS), Goal Congruence (GC), Decision Synchronization (DS), Incentive Alignment (IA), Resource Sharing (RS), Collaborative Communication (CC), Joint Knowledge Creation (JKC). After making factor analysis on SPSS Data Reduction Factor Analysis program, first run showed 4 factors. The Bartlett Test of Sphericity and the Kaiser-Meyer-Olkin measure is very good, anti-image correlation matrix values all are above 0,50 but in rotated component matrix, the items' factor loadings are very close (closer than 0.1 difference) in different factors. This means, these questions are assumed that they are measuring different factors at the same time for this questionnaire. The items which have close factor loadings in different factors are eliminated in first run to avoid multi collinearity. Items; SCCIS5, SCCIA19, SCCIA20, SCCRS21, SCCJKC31, SCCRS25 and SCCJKS32 are eliminated. After this elimination, rotated component matrix give clear four factors; Factor 1 consists of 12 questions. Factor 2 consists of 10 questions. Factor 3 consists of 3 questions. Factor 4 consists of 3 questions. The results are very satisfying according to KMO score and factor variances. Final factor and reliability analyses' results with all details are in Table 4.5.

Table 4.2. Factor Analysis for Trust Variable

FACTOR NO	QUESTIONS	FACTOR LOADING	FACTOR VARIANCE	RELIABILITY
TB10	When it comes to things that are important, we can depend on the major supplier's support.	,879	69,429	0,944
TH4	We believe that the major supplier is sincere.	,872		
TH3	Whenever the major supplier gives us advice on our business operations, we know that it is sharing its best judgement.	,859		
TB7	Our major supplier is concerned about our welfare or interests when he makes important decisions.	,847		
TB6	We believe that our major supplier is willing to offer us assistance and support even if the circumstance changes.	,844		
TH5	We feel that the dominant partner negotiates with us honestly.	,817		
TB8	We believe that our major supplier would understand us when we have difficulty to meet his demand.	,805		
TB9	In the future, our major supplier can consider our expectation in its decision.	,799		
TH2	Our major supplier usually keeps the promise that it makes to our firm.	,771		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.				,938
Bartlett's Test of Sphericity			Approx. Chi-Square	1543,566
			df	36
			Sig.	,000

Table 4.3. Factor Analysis for Transaction Cost Variable

FACTOR	FACTOR NO	QUESTIONS	FACTOR LOADING	FACTOR VARIANCE	RELIABILITY
Transaction Cost Developing Association	TCDA3	It required significant effort to determine individual roles to be performed by our firm and our major supplier.	,857	34,223	0,855
	TCDA2	There were many unspecified terms which had to be worked out as the relationship with our major supplier.	,799		
	TCMP6	Accurately evaluating our major supplier requires a lot of effort.	,737		
	TCMP5	Significant effort is required to gather the information necessary to outline the working relationship with our major supplier.	,722		
	TCDA1	It takes significant effort to determine whether or not our major supplier confirms to specifications and quality standards.	,717		
Transaction Cost Opportunism	TCOP14	Our major supplier has the opportunity to take advantage of unspecified or unenforceable contract terms.	,810	21,456	0,782
	TCOP13	There is strong temptation for our major supplier to withhold or distort information for their benefit.	,805		
	TCOP12	It is easy for our major supplier to alter the facts in order to get what they wanted.	,779		
	TCAP11	Although solutions to problems with our major supplier can be achieved they often need to be highly customizable.	,617		
Transaction Cost Addressing Problems	TCAP8R	The approach to solving problems in our relationship with our major supplier is clear-cut.	,841	10,048	0,762
	TCMP4R	It is easy to tell if we were receiving fair treatment from our major supplier.	,806		
	TCAP9R	There are standard solutions or approached to problems that might occur with our major supplier.	,770		
				65,727	0,764
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,772
			Bartlett's Test of Sphericity	Approx. Chi-Square	1144,124
				df	66
				Sig.	,000

Table 4.4. Factor Analysis for Supply Chain Performance Variable

FACTOR	FACTOR NO	QUESTIONS	FACTOR LOADING	FACTOR VARIANCE	RELIABILITY	
PERSPEED	SCP1	This organization's primary supply chain has the ability to deliver zero-defect products to final customers.	,834	43,904	0,917	
	SCP2	This organization's primary supply chain has the ability to deliver value-added services to final customers.	,800			
	SCP6	This organization's primary supply chain has the ability to deliver precise quantities to final customers.	,783			
	SCP3	This organization's primary supply chain has the ability to eliminate late, damaged and incomplete orders to final customers.	,763			
	SCP5	This organization's primary supply chain has the ability to deliver products precisely on-time to final customers.	,760			
	SCP4	This organization's primary supply chain has the ability to quickly respond to and solve problems of the final customers.	,735			
COST	SCP9	This organization's primary supply chain has the ability to minimize total product cost to final customers.	,868	30,669	0,878	
	SCP11	This organization's primary supply chain has the ability to minimize channel safety stock throughout the supply chain.	,838			
	SCP10	This organization's primary supply chain has the ability to minimize all types of waste throughout the supply chain.	,805			
				74,574	0,926	
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,895	
			Bartlett's Test of Sphericity	Approx. Chi-Square	1422,309	
				df	36	
				Sig.	,000	

Table 4.5. Factor Analysis for Supply Chain Collaboration Variable

FACTOR	FACTOR NO	QUESTIONS	FACTOR LOADING	FACTOR VARIANCE	RELIABILITY
SCC Information Sharing, Goal Congruence	SCCIS3	Our firm and major supplier exchange accurate information	,866	28,927	0,96
	SCCIS2	Our firm and major supplier exchange timely information	,856		
	SCCGC7	Our firm and major supplier have agreement on the importance of collaboration across the supply chain	,818		
	SCCGC8	Our firm and major supplier have agreement on the importance of improvements that benefit the supply chain as a whole	,806		
	SCCIS1	Our firm and major supplier exchange relevant information	,794		
	SCCGC6	Our firm and major supplier have agreement on the goals of the supply chain	,792		
	SCCIS4	Our firm and major supplier exchange complete information	,771		
	SCCGC9	Our firm and major supplier agree that our own goals can be achieved through working toward the goals of the supply chain	,759		
	SCCCCC26	Our firm and major supplier have frequent contacts on a regular basis	,699		
	SCCDS15	Our firm and major supplier jointly work out solutions	,658		
	SCCGC10	Our firm and major supplier jointly layout collaboration implementation plans to achieve the goals of the supply chain	,643		
	SCCCCC27	Our firm and major supplier have open and two-way communication	,629		
SCC Decision Synchronization, Joint Knowledge Creation, Incentive Alignment	SCCDS13	Our firm and major supplier jointly manage inventory	,804	24,362	0,936
	SCCDS11	Our firm and major supplier jointly plan on promotional events	,803		
	SCCDS14	Our firm and major supplier jointly plan on product assortment	,802		

	SCCDS12	Our firm and major supplier jointly develop demand forecasts	,785		
	SCCJKC34	Our firm and major supplier jointly discover new or emerging markets	,765		
	SCCJKC35	Our firm and major supplier jointly learn the intentions and capabilities of our competitors	,722		
	SCCIA18	Our firm and major supplier share benefits (e.g. saving on reduced inventory costs)	,691		
	SCCIA17	Our firm and major supplier share costs (e.g. loss on order changes)	,682		
	SCCJKC33	Our firm and major supplier jointly identify customer needs	,678		
	SCCIA16	Our firm and major supplier co-develop systems to evaluate and publicize each other's performance (e.g. key performance index, scorecard, and the resulting incentive)	,657		
SCC Resource Sharing	SCCRS23	Our firm and major supplier share technical supports	,752	9,283	0,895
	SCCRS24	Our firm and major supplier share equipment (e.g. computers, networks, machines)	,720		
	SCCRS22	Our firm and major supplier dedicate personnel to manage the collaborative processes	,658		
SCC Collaborative Communication	SCCCC29	Our firm and major supplier have many different channels to communicate	,793	7,922	0,755
	SCCCC28	Our firm and major supplier have informal communication	,792		
	SCCCC30	Our firm and major supplier influence each other's decisions through discussion rather than request	,752		
				70,493	0,960
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,931
			Bartlett's Test of Sphericity	Approx. Chi-Square	5372,448
				df	378
				Sig.	0,000

4.2. REGRESSION ANALYSES

In the dissertation model, there is one independent variable, one mediator variable and two independent variables. After the factor analysis is applied, the modified model of the research has changed as in Figure 4.1.

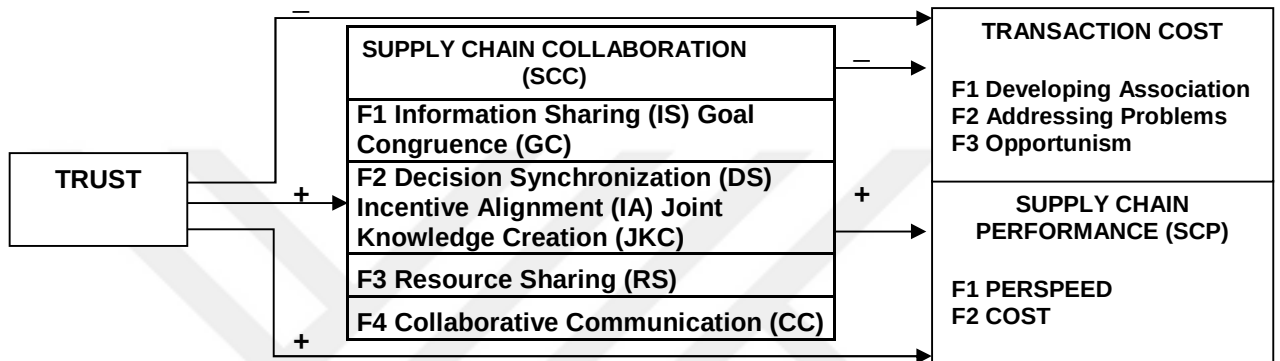


Figure 4.1. Model of the research after factor analysis

To test the hypotheses, regression analyses are applied to see if any regression could be found between variables and how independent and mediating variables explain dependent variables if there is any regression.

In order to apply linear regression analysis, some assumptions have to be checked. Correlation analysis is one of these assumptions to check if there is any high correlation between dependent variables which may cause multicollinearity. If there is a high correlation ($r > 0.7$) between independent variables, there may be multicollinearity. As seen on Figure 4.2, there is a correlation between variables where all the r values smaller than 0,7, but only SCCISGC and SCCRS factors have value (0,717) higher than 0,7. However, as the collinearity statistics (i.e., Tolerance and VIF) are all within accepted limits, the assumption of multicollinearity is deemed to have been met (Coakes, 2005; Hair et al., 1998).

Table 4.6. Correlation Analysis

		Correlations									
		TRUST	TCDA	TCOP	TCAP	SCCISGC	SCCDSJKCIA	SCCRS	SCCCC	PERSPEED	COST
TRUST	Pearson	1	,147*	-,188**	-,596**	,661**	,394**	,408**	,318**	,525**	,432**
	Correlation										
	Sig. (2-tailed)		,032	,006	,000	,000	,000	,000	,000	,000	,000
	N	212	212	212	212	212	212	212	212	212	212
TCDA	Pearson	,147*	1	,406**	-,268**	,284**	,209**	,281**	,221**	,209**	,148*
	Correlation										
	Sig. (2-tailed)	,032		,000	,000	,000	,002	,000	,001	,002	,031
	N	212	212	212	212	212	212	212	212	212	212
TCOP	Pearson	-,188**	,406**	1	,113	-,131	,085	,023	,262**	-,031	-,015
	Correlation										
	Sig. (2-tailed)	,006	,000		,100	,057	,215	,742	,000	,650	,824
	N	212	212	212	212	212	212	212	212	212	212
TCAP	Pearson	-,596**	-,268**	,113	1	-,645**	-,450**	-,450**	-,240**	-,528**	-,496**
	Correlation										
	Sig. (2-tailed)	,000	,000	,100		,000	,000	,000	,000	,000	,000
	N	212	212	212	212	212	212	212	212	212	212
SCCISGC	Pearson	,661**	,284**	-,131	-,645**	1	,597**	,717**	,351**	,636**	,633**
	Correlation										
	Sig. (2-tailed)	,000	,000	,057	,000		,000	,000	,000	,000	,000
	N	212	212	212	212	212	212	212	212	212	212
SCCDSJKCIA	Pearson	,394**	,209**	,085	-,450**	,597**	1	,624**	,378**	,395**	,562**
	Correlation										
	Sig. (2-tailed)	,000	,002	,215	,000	,000		,000	,000	,000	,000
	N	212	212	212	212	212	212	212	212	212	212
SCCRS	Pearson	,408**	,281**	,023	-,450**	,717**	,624**	1	,349**	,523**	,547**
	Correlation										
	Sig. (2-tailed)	,000	,000	,742	,000	,000	,000		,000	,000	,000
	N	212	212	212	212	212	212	212	212	212	212
SCCCC	Pearson	,318**	,221**	,262**	-,240**	,351**	,378**	,349**	1	,269**	,170*
	Correlation										
	Sig. (2-tailed)	,000	,001	,000	,000	,000	,000	,000		,000	,013
	N	212	212	212	212	212	212	212	212	212	212
PERSPEED	Pearson	,525**	,209**	-,031	-,528**	,636**	,395**	,523**	,269**	1	,672**
	Correlation										
	Sig. (2-tailed)	,000	,002	,650	,000	,000	,000	,000	,000		,000
	N	212	212	212	212	212	212	212	212	212	212
COST	Pearson	,432**	,148*	-,015	-,496**	,633**	,562**	,547**	,170*	,672**	1
	Correlation										
	Sig. (2-tailed)	,000	,031	,824	,000	,000	,000	,000	,013	,000	
	N	212	212	212	212	212	212	212	212	212	212

*. Correlation is significant at the 0.05 level (2-tailed).

After checking correlation analysis, linear regression analyses are applied with dependent and independent variables according to the modified model of the research to test the hypotheses. As a result of the factor analysis, hypothesizes are also modified accordingly. In the section below, all hypotheses are tested with regression analyses in lieu

with modified hypotheses. All regressions are tested and the results are discussed in separate sections.

4.2.1 H1 - Trust and SCC Regression (H1a, H1b, H1c, H1d)

Regression Analysis between Trust and SCC factors are tested separately for each factor. Model Summary tables is combined to see all factors in the same table (Table 4.7).

Table 4.7. H1 Hypothesis Model Summary (combined)

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,661 ^a	,437	,434	,69203
2	,394 ^a	,155	,151	1,01525
3	,408 ^a	,166	,162	1,04365
4	,318 ^a	,101	,097	1,00277
a. Predictors: (Constant), TRUST				
b. Dependent Variables: 1- SCCISGC, 2-SCCDSJKCIA, 3- SCCRS, 4-SCCCC				

Anova tables of these regression tests are all significant (< 0.01). F Values are as follows; SCCISGC – 162,690, SCCDSJKCIA – 38,530, SCCRS – 41,894, SCCCC - 23,689. Coefficient tables of these models are also combined to see all factors in the same table (Table 4.8).

Table 4.8 H1 Hypothesis Combined Coefficients Table

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,333	,230		5,801	,000		
	SCCISGC	,721	,057	,661	12,755	,000	1,000	1,000
2	(Constant)	1,176	,337		3,487	,001		
	SCCDSJKCIA	,515	,083	,394	6,207	,000	1,000	1,000
3	(Constant)	1,767	,347		5,097	,000		
	SCCRS	,552	,085	,408	6,473	,000	1,000	1,000
4	(Constant)	2,150	,333		6,454	,000		
	SCCCC	,399	,082	,318	4,867	,000	1,000	1,000

a. Dependent Variables: 1- SCCISGC, 2-SCCDSJKCIA, 3- SCCR, 4-SCCCC

According to above listed results, there is a significantly positive regression between trust and SCC factors. When the results are compared between SCC factors, Trust has the best regression with SCC Information Sharing and Goal Congruence factor. R square in the model summary is 0,437 and beta in the coefficients table is $\beta = 0,661$.

As a result of above regression analysis, H1 hypothesis is supported with all SCC factors (Table 4.9).

Table 4.9. Modified H1 Hypothesis and Results

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS		
Hypothesis 1	In a supply-chain relationship, inter-organizational trust has a significant positive effect on supply chain collaboration (SCC). The higher the level of trust, the better in terms of supply chain collaboration.	RESULT
H1a	The higher level of Trust, the better in terms of SCC IS and GC	SUPPORTED
H1b	The higher level of Trust, the better in terms of SCC DS, JKC and IA	SUPPORTED
H1c	The higher level of Trust, the better in terms of SCC RS.	SUPPORTED
H1d	The higher level of Trust, the better in terms of SCC CC.	SUPPORTED

4.2.2 H2 - SCC and SCP Regression

Dependent variable, SCP, has two factors after factor analysis. Independent variable SCC has four factors; each SCC factor is separately representing different collaboration styles between organizations. This means, organizations may have different types of collaborations between their key suppliers. While one organization may share information as a collaboration tool, may not share resources. SCC measurement construct in this study is drawn from Cao et.al. 2010 study. According to this study, the definition and measures of SCC can help managers to determine some certain actions to be considered to improve in shared supply chain processes that will be beneficial for all members in the chain. These definition and measurements of SCC can serve as a powerful and useful tool for managers to establish effective collaborative relationships. They can be used to measure and monitor the level of collaboration with partners and benchmark the performance of a supply chain. To be able to see the different levels of collaboration between organizations, regression analyses are conducted separately for each SCC factor. Each dependent factor's regression results are explained below.

4.2.2.1 SCC and SCP Perspeed Regression (H2a, H2b, H2c, H2d)

Even each SCC factor regression analysis is done separately, SCP Perspeed model summary tables are combined to see all SCC factors in the same table (Table 4.10) for convenience.

Table 4.10. H2 Hypothesis combined Model Summary (SCC – SCP PERSPEED)

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,636 ^a	,405	,402	,72101
2	,395 ^a	,156	,152	,85876
3	,523 ^a	,273	,270	,79691
4	,269 ^a	,072	,068	,90025

a. Predictors: (Constant), 1- SCCISGC, 2- SCCDSJKCIA, 3-SCCRS, 4-SCCCC

b. Dependent Variable: PERSPEED

Anova tables of these regression tests are all significant, p values 0,000 (< 0.05). F values are; SCCISGC 142,936, SCCDSJKCIA 38,793, SCCRS 78,912, SCCCC 16,389. Coefficient tables are also combined to see all factors in the same table (Table 4.11). The most powerful effect on SCP perspeed factor is SCCISGC factor, R square in the model summary is 0,405, the beta value is $\beta = 0,636$.

Table 4.11. H2 Hypothesis Combined Coefficients Table (SCC factors – SCP PERSPEED)

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,578	,232		6,798	,000		
	SCCISGC	,645	,054	,636	11,956	,000	1,000	1,000
2	(Constant)	3,212	,183		17,574	,000		
	SCCDSJKCIA	,334	,054	,395	6,228	,000	1,000	1,000
3	(Constant)	2,596	,198		13,089	,000		
	SCCRS	,427	,048	,523	8,883	,000	1,000	1,000
4	(Constant)	3,401	,228		14,921	,000		
	SCCCC	,238	,059	,269	4,048	,000	1,000	1,000

a. Dependent Variable: PERSPEED

a. Dependent Variable: PERSPEED

4.2.2.2 SCC and SCP Cost Regression (H2e, H2f, H2g, H2h)

The other SCP factor is Cost; this factor's model summary tables are also combined to see all SCC factors in the same table (Table 4.12).

Table 4.12. H2 Hypothesis combined Model Summary (SCC – SCP COST)

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,633 ^a	,401	,398	,83941
2	,562 ^a	,315	,312	,89729
3	,547 ^a	,299	,296	,90795
4	,170 ^a	,029	,024	1,06868

a. Predictors: (Constant), 1- SCCISGC, 2- SCCDSJKCIA, 3-SCCRS, 4-SCCCC

b. Dependent Variable: COST

Anova tables of these regression tests are all significant, p values 0,000 (< 0.05). F values are; SCCISGC 140,489, SCCDSJKCIA 96,727, SCCRS 89,573, SCCCC 6,234. Coefficient tables are also combined to see all factors in the same table (Table 4.13). The most powerful effect on SCP cost factor is SCCISGC factor, R square in the model summary is 0,401, the beta value is $\beta = 0,633$.

Table 4.13. H2 Hypothesis Combined Coefficients Table (SCC factors – SCP COST)

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,718	,270		2,657	,008		
	SCCISGC	,745	,063	,633	11,853	,000	1,000	1,000
2	(Constant)	2,070	,191		10,839	,000		
	SCCDSJKCIA	,551	,056	,562	9,835	,000	1,000	1,000
3	(Constant)	1,792	,226		7,930	,000		
	SCCRS	,519	,055	,547	9,464	,000	1,000	1,000
4	(Constant)	3,197	,271		11,816	,000		
	SCCCC	,174	,070	,170	2,497	,013	1,000	1,000

a. Dependent Variable: COST

a. Dependent Variable: COST

As a result of the regression analyses above, H2 hypothesis is supported with all factors (Table 4.14).

Table 4.14. H2 Modified Hypotheses and Results

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (REGRESSION)		
Hypothesis 2	In a supply-chain relationship, Supply chain collaboration has a significant positive effect on supply chain performance. The higher level of supply chain collaboration (SCC), the better in terms of supply chain performance	RESULT
H2a	The higher level of SCC IS and GC, the better in terms of supply chain performance (PERSPEED).	SUPPORTED
H2b	The higher level of SCC DS, JKC and IA, the better in terms of supply chain performance (PERSPEED).	SUPPORTED
H2c	The higher level of SCC RS, the better in terms of supply chain performance (PERSPEED).	SUPPORTED
H2d	The higher level of SCC CC, the better in terms of supply chain performance (PERSPEED).	SUPPORTED
H2e	The higher level of SCC IS and GC, the better in terms of supply chain performance (COST).	SUPPORTED
H2f	The higher level of SCC DS, JKC and IA, the better in terms of supply chain performance (COST).	SUPPORTED
H2g	The higher level of SCC RS, the better in terms of supply chain performance (COST).	SUPPORTED
H2h	The higher level of SCC CC, the better in terms of supply chain performance (COST).	SUPPORTED

4.2.2.3 SCC and SCP Multiple Regression Analyses

After having results for each SCC factors, multiple regression analyses between SCC and SCP factors, SCC is considered as whole with all four factors which means; to have a total collaboration, one organization must have all types of collaboration at the same time. When SCC is considered as whole with all factors, these are the multiple regression analyses results (Table 4.15 and 4.16).

Table 4.15. H2 Multiple regression results for SCC – SCP Perspeed

Independent Variables			Dependent Variable	
SCC Factors	β coefficients	p value	SCP Perspeed	R ² =0.416 F=36,825 p=0.000
SCCISGC	0,539	0,000		
SCCDSJKCIA	-0,030	0,674		
SCCRS	0,140	0,088		
SCCCC	0,042	0,470		

Multiple regression results for SCC – SCP Perspeed, SCCISGC have a significant (p-value < 0,001) and positive correlation with the dependent at $\beta = 0.539$ (Table 4.15). On the other hand, SCC RS factor and SCP perspeed have a significant regression (0,088) on 0,1 level. As a result, H2 SCC – SCP Perspeed regression is only supported for SCCISGC and SCCRS factors in multiple regression analysis.

Table 4.16. H2 Multiple regression results for SCC – SCP Cost

Independent Variables			Dependent Variable	
SCC Factors	β coefficients	p value	SCP Cost	R ² =0.459 F=45,821 p=0.000
SCCISGC	0,434	0,000		
SCCDSJKCIA	0,288	0,000		
SCCRS	0,100	0,199		
SCCCC	-0,126	0,024		

Multiple regression results for SCC – SCP Cost, both SCCISGC and SCCDSJKCIA have a significant ($p\text{-value} < 0,001$) and positive correlation with the dependent at $\beta = 0,434$, $\beta = 0,288$ respectively (Table 4.16). On the other hand, even though SCCCC had a significant regression, it is negative $\beta = -0,126$. As a result, H2 SCC – SCP Cost multiple regression is only supported for SCCISGC and SCCDSJKCIA factors.

According to these results, SCC IS and GC factor has a positive effect on both SCP factors. While SCC DS, JKC and IA factor has a regression with SCP Cost factor, it doesn't have a regression with SCP Perspeed factor. The results of multiple regression analyses are shown below (Table 4.17)

Table 4.17. H2 Modified Hypotheses (Multiple Regression)

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (MULTIPLE REGRESSION)					
Hypothesis 2	In a supply-chain relationship, Supply chain collaboration has a significant positive effect on supply chain performance. The higher level of supply chain collaboration (SCC), the better in terms of supply chain performance	RESULTS			
		SCCISGC	SCCDSJKCIA	SCCRS	SCCCC
H2	The higher level of SCC, the better in terms of supply chain performance (PERSPEED).	SUPPORTED	NOT SUPPORTED	SUPPORTED	NOT SUPPORTED
H2	The higher level of SCC, the better in terms of supply chain performance (COST).	SUPPORTED	SUPPORTED	NOT SUPPORTED	NOT SUPPORTED

4.2.3 H3 – SCC and TC Regression

Regression Analyses between SCC and TC factors are applied separately for each factor to test H3 hypothesis. TC has three factors after factor analysis. Regression analyses are listed below.

4.2.3.1 SCCISGC and TC Factors (H3a, H3b, H3c)

SCCISGC is the first SCC factor applied regression analyses with TC factors. Model Summary tables are combined to see all factors in the same tables (Table 4.18) for convenience.

Table 4.18. H3a, H3b, H3c Hypotheses Combined Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,284 ^a	,080	,076	,90883
2	,645 ^a	,415	,413	,64101
3	,131 ^a	,017	,012	,98699

a. Predictors: (Constant), SCCISGC

b. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP

According to Anova tables of these regression tests, TCAP and TCDA have a significant correlation with SCCISGC. However, TCOP has only significant (0,057) on the level of 0,1. F values for TC factors are as follows; TCDA 18,377, TCAP 149,230, TCOP 3,659. Coefficient tables for SCCISGC are combined to see all TC factors in the same table (Table 4.19).

Table 4.19. H3a, H3b, H3c Hypotheses Combined Coefficients Table

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,699	,293		9,225	,000		
	SCCISGC	,292	,068	,284	4,287	,000	1,000	1,000
2	(Constant)	5,345	,206		25,900	,000		
	SCCISGC	-,586	,048	-,645	-12,216	,000	1,000	1,000
3	(Constant)	3,535	,318		11,125	,000		
	SCCISGC	-,141	,074	-,131	-1,913	,057	1,000	1,000

a. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP

As seen on Table 4.19, SCCISGC factor has a regression with all three TC factors but the regression between SCCISGC and TCOP is significant only on the level of 0,1. In the study, it is hypothesized that “SCC has a significant negative effect on TC”. For TCAP and TCOP factors, there is a significant negative relation with SCCISC factor at $\beta = -0,645$, $\beta = -0,131$ respectively and H3b and H3c hypotheses are supported. Even though there is a regression between SCCISGC and TCDA, this relation is not negative and H3a is not supported.

4.2.3.2 SCCDSJKCIA and TC Factors (H3d, H3e, H3f)

SCCDSJKCIA is the second SCC factor applied regression analyses with TC factors. Model Summary tables are combined to see all factors in the same tables (Table 4.20) for convenience.

Table 4.20. H3d, H3e, H3f Hypotheses Combined Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,209 ^a	,044	,039	0,926901
2	,450 ^a	,203	,199	0,748643
3	,085 ^a	,007	,003	0,991917
a. Predictors: (Constant), SCCDSJKCIA				
b. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP				

In this regression's Anova table, SCCDSJKCIA factor has two significant regressions with TC factors, TCDA and TCAP (p value < 0,05), TCOP has an insignificant relation. F values for TC factors are as follows; TCDA 9,558, TCAP 53,365, TCOP 1,544. Coefficient tables for SCCDSJKCIA are combined to see all TC factors in the same table (Table 4.21). While SCCDSJKCIA significantly and negatively affects TCAP factor ($\beta = -0,450$), the relationship with TCDA is significant but positive. With these results, H3e is supported but H3d and H3f are not supported.

Table 4.21. H3d, H3e, H3f Hypotheses Combined Coefficients Table

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,347	,197		16,968	,000		
	SCCDSJKCIA	,179	,058	,209	3,092	,002	1,000	1,000
2	(Constant)	3,984	,159		25,003	,000		
	SCCDSJKCIA	-,342	,047	-,450	-7,305	,000	1,000	1,000
3	(Constant)	2,693	,211		12,756	,000		
	SCCDSJKCIA	,077	,062	,085	1,242	,215	1,000	1,000
a. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP								

4.2.3.3 SCCRS and TC Factors (H3g, H3h, H3i)

SCCRS is the third SCC factor applied regression analyses with TC factors. Model Summary tables are combined to see all factors in the same tables (Table 4.22) for convenience.

Table 4.22. H3g, H3h, H3i Hypotheses Combined Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,281 ^a	,079	,075	,90957
2	,450 ^a	,203	,199	,74860
3	,023 ^a	,001	-,004	,99530

a. Predictors: (Constant), SCCRS

b. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP

In this regression, SCCRS factor has two significant regressions with TC factors, TCDA and TCAP. One of this relationship is significantly negative with TCAP factor ($\beta = -0,450$), the other relationship is significantly positive with TCDA (Table 4.23). F values for TC factors are as follows; TCDA 18,005, TCAP 53,399, TCOP 0,109. SCC Resource Sharing has a significant effect on reducing TC Addressing Problems which means H3h is supported. On the other hand, SCCRS has a positive effect on TC Developing Association which is contrary to the H3g hypothesis and H3g is not supported. Since SCC Resource sharing has no significant regression with TC opportunism, H3i hypothesis is not supported either.

Table 4.23. H3g, H3h, H3i Hypotheses Combined Coefficients Table

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,001	,226		13,258	,000		
	SCCRS	,233	,055	,281	4,243	,000	1,000	1,000
2	(Constant)	4,191	,186		22,493	,000		
	SCCRS	-,330	,045	-,450	-7,307	,000	1,000	1,000
3	(Constant)	2,862	,248		11,556	,000		
	SCCRS	,020	,060	,023	,330	,742	1,000	1,000

a. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP

4.2.3.4 SCCCC and TC Factors (H3j, H3k, H3l)

SCCCC is the fourth and the last SCC factor applied regression analyses with TC factors. Model Summary tables are combined to see all factors in the same tables (Table 4.24) for convenience.

Table 4.24. H3j, H3k, H3l Hypothesis Combined Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,221 ^a	,049	,044	0,92441602
2	,240 ^a	,058	,053	0,8138642
3	,262 ^a	,069	,064	0,96077297

a. Predictors: (Constant), SCCCC

b. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP

In this regression, SCCCC factor has significant regressions (p value<0,05) with all TC factors but only one of the relationship is significantly negative, TC Addressing Problems ($\beta = -0,240$) (Table 4.25). F values for TC factors are as follows; TCDA 10,740, TCAP 12,846, TCOP 15,481. With these results, the higher SCCCC between SC partners, the lower TC Addressing problems are which supports H3k. The other relationships are significantly positive which means SCC Collaborative Communication has

no negative effect on TC Developing Association and Opportunism. Because of these results, H3j and H3l are not supported.

Table 4.25. H3j, H3k, H3l Hypothesis Combined Coefficients Table

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,186	,234		13,613	,000		
	SCCC	,198	,060	,221	3,277	,001	1,000	1,000
2	(Constant)	3,593	,206		17,436	,000		
	SCCC	-,190	,053	-,240	-3,584	,000	1,000	1,000
3	(Constant)	2,020	,243		8,303	,000		
	SCCC	,247	,063	,262	3,935	,000	1,000	1,000

a. Dependent Variable: 1.TCDA, 2.TCAP, 3.TCOP

Among all TC factors, TCDA is the only factor which has a positive regression with all SCC factors and no hypotheses related with this factor are supported. According to the above regressions, H3 hypotheses test results are presented in the table below (Table 4.26).

Table 4.26. Modified H3 Hypotheses and Results

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (REGRESSION)		
Hypothesis 3	Supply chain collaboration has a significant negative effect on transaction cost (TC). The higher level of supply chain collaboration (SCC), the lower in terms of transaction cost.	RESULT
H3a	The higher level of SCC IS and GC, the lower in terms of TC Developing Association.	NOT SUPPORTED
H3b	The higher level of SCC IS and GC, the lower in terms of TC Addressing Problems.	SUPPORTED
H3c	The higher level of SCC IS and GC, the lower in terms of TC Opportunism.	SUPPORTED
H3d	The higher level of SCC DS, JKC and IA, the lower in terms of TC Developing Association.	NOT SUPPORTED
H3e	The higher level of SCC DS, JKC and IA, the lower in terms of TC Addressing Problems.	SUPPORTED
H3f	The higher level of SCC DS, JKC and IA, the lower in terms of TC Opportunism.	NOT SUPPORTED
H3g	The higher level of SCC RS, the lower in terms of TC Developing Association.	NOT SUPPORTED
H3h	The higher level of SCC RS, the lower in terms of TC Addressing Problems.	SUPPORTED
H3i	The higher level of SCC RS, the lower in terms of TC Opportunism.	NOT SUPPORTED
H3j	The higher level of SCC CC, the lower in terms of TC Developing Association.	NOT SUPPORTED
H3k	The higher level of SCC CC, the lower in terms of TC Addressing Problems.	SUPPORTED
H3l	The higher level of SCC CC, the lower in terms of TC Opportunism.	NOT SUPPORTED

4.2.3.5 SCC and TC Multiple Regression

Again, considering SCC as a whole factor, multiple regression analyses are done between SCC and TC factors. If organizations consider all SCC factors as an essential part of SCC, these are the result of H3 hypothesis with multiple regression.

When multiple regression analyses are conducted for SCC and TCDA, there is no significant relation found. Only SCCCC had a significant result on the level of 0,1 but this correlation is positive which is not in line with the hypothesis (Table 4.27). As a result, H3 hypothesis for SCC - TCDA regression is not supported.

Table 4.27. H3 Multiple regression results for SCC – TCDA

Independent Variables			Dependent Variable	
SCC Factors	β coefficients	p value	TCDA	$R^2=0.089$ $F=6,132$ $p=0.000$
SCCISGC	0,148	0,136		
SCCDSJKCIA	-0,014	0,873		
SCCRS	0,140	0,166		
SCCCC	0,125	0,085		

In multiple regression analysis for SCC – TCAP, SCCISGC factor has a significant (p-value < 0,001) and negative correlation with dependent at $\beta = -0.624$. On the p value level 0,1 SCCDSJKCIA factor has also a significant and negative correlation with TCAP at $\beta = -0.124$ (Table 4.28). As a result, H3 SCC – TCAP regression is only supported for SCCISGC and SCCDSJKCIA.

Table 4.28. H3 Multiple regression results for SCC – TCAP

Independent Variables			Dependent Variable	
SCC Factors	β coefficients	p value	TCAP	$R^2=0.413$ $F=38,166$ $p=0.000$
SCCISGC	-0,624	0,000		
SCCDSJKCIA	-0,124	0,083		
SCCRS	0,075	0,356		
SCCCC	0,000	0,997		

SCC and TCOP regression analysis gives these results; there is one significant result on the level of 0,001, SCCISGC had negative correlation with TCOP at $\beta = -0.409$. Even though SCCCC had also a significant result, the correlation is positive with the dependent variable (Table 4.29). As a result, H3 SCC – TCOP regression is only supported for SCCISGC.

Table 4.29. H3 Multiple regression results for SCC – TCOP

Independent Variables			Dependent Variable	
SCC Factors	β coefficients	p value	TCOP	$R^2=0.133$ $F=9,102$ $p=0.000$
SCCISGC	-0,409	0,000		
SCCDSJKCIA	0,135	0,121		
SCCRS	0,123	0,213		
SCCCC	0,312	0,000		

According to multi regression results, the best collaboration factor to reduce the transaction costs is SCCISGC factor. SCCISGC has a significant negative effect on TC Addressing Problems and TC opportunism factors. H3 hypotheses test results for multiple regression analyses are in the table below (Table 4.30).

Table 4.30. H3 Modified Hypothesis Results (Multiple Regression)

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (MULTIPLE REGRESSION)					
Hypothesis 3	Supply chain collaboration has a significant negative effect on transaction cost (TC). The higher level of supply chain collaboration (SCC), the lower in terms of transaction cost.	RESULTS			
		SCCISGC	SCCDSJKCIA	SCCRS	SCCCC
H3	The higher level of SCC, the lower in terms of TC Developing Association.	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED
H3	The higher level of SCC, the lower in terms of TC Addressing Problems.	SUPPORTED	SUPPORTED	NOT SUPPORTED	NOT SUPPORTED
H3	The higher level of SCC, the lower in terms of TC Opportunism.	SUPPORTED	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED

4.2.4 H4 – Trust and SCP Regression

Regression Analysis between Trust and SCP factors are tested to find out the result of H4 hypotheses. Since SCP is divided into two factors (Perspeed - Performance and speed is the first factor and Cost is the second factor) during factor analysis, hypotheses are tested accordingly.

4.2.4.1 Trust and SCP Perspeed Regression (H4a)

When regression analysis is conducted for trust and SCP perspeed, there is a significant relation ($R^2=0.275$, $F=79.762$, $p=0.000$). Model summary showing trust and SCP perspeed regression is below (Table 4.31).

Table 4.31. H4a Hypothesis Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,525 ^a	,275	,272	,79574
a. Predictors: (Constant), TRUST				
b. Dependent Variable: PERSPEED				

Coefficients table shows that p value is significant ($<0,05$) and $\beta = 0,525$ (Table 4.32). According to this result of the study, trust has a significant positive effect on SCP perspeed factor and H4a hypothesis is supported.

Table 4.32. H4a Hypothesis Coefficients Table

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1,980	,264		7,490	,000	1,459	2,501
	TRUST	,580	,065	,525	8,931	,000	,452	,708

a. Dependent Variable: PERSPEED

4.2.4.2 Trust and SCP Cost Regression (H4b)

When regression analysis is conducted for trust and SCP cost, there is a significant relation ($R^2=0.187$, $F=48.276$, $p=0.000$). Model summary showing trust and SCP cost regression is shown below (Table 4.33).

Table 4.33. H4b Hypothesis Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,432 ^a	,187	,183	,97784
a. Predictors: (Constant), TRUSTFACTOR				
b. Dependent Variable: COST				

Coefficients table shows that p value is significant ($<0,05$) and $\beta = 0,432$ (Table 4.34). According to this result of the study, trust has a significant positive effect on SCP cost factor and H4b hypothesis is supported.

Table 4.34. H4b Hypothesis Coefficients Table

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1,640	,325		5,048	,000	,999	2,280
	TRUST	,555	,080	,432	6,948	,000	,397	,712
a. Dependent Variable: COST								

According to regression analyses H4 hypotheses test results are listed in the table below (Table 4.35).

Table 4.35. H4 Modified Hypothesis and Results

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (REGRESSION)		
Hypothesis 4	In a supply-chain relationship, inter-organizational trust has a significant positive effect on supply chain performance (SCP). The higher level of trust, the better in terms of supply chain performance.	RESULT
H4a	The higher level of Trust the better in terms of supply chain performance (PERSPEED).	SUPPORTED
H4b	The higher level of Trust the better in terms of supply chain performance (COST).	SUPPORTED

4.2.5 H5 – Trust and TC Regression

Regression Analysis between Trust and TC factors are tested to find out the results of H5 hypotheses. According to regression analysis results between trust and TC factors, trust factor has a significant regression with all TC factors. To give detailed information about each factor the results are listed below.

4.2.5.1 Trust and TCDA Regression (H5a)

When regression analysis is conducted for trust and TCDA, the result gives a significant relation ($R^2=0.022$, $F=4.664$, $p=0.032$). Model summary showing trust and TCDA regression is in the table below (Table 4.36).

Table 4.36. H5a Hypothesis Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,147 ^a	,022	,017	,93741
a. Predictors: (Constant), TRUST				
b. Dependent Variable: TCDA				

Coefficients table shows that trust has a significant and positive contribution to TC Developing Association with $\beta = 0,147$ (Table 4.37). Trust and TC Developing Association factor has a significant relation but this relation is positive which is contradicting H5a. According to this result, H5a hypothesis is not supported.

Table 4.37. H5a Hypothesis Coefficients Table

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	3,267	,311		,000
	TRUST	,165	,077	,147	,032

a. Dependent Variable: TCDA

4.2.5.2 Trust and TCAP Regression (H5b)

When regression analysis is conducted for trust and TCAP, the result gives a significant relation ($R^2=0.355$, $F=115.698$, $p=0.000$). Model summary showing trust and TCAP regression is in the table below (Table 4.38).

Table 4.38. H5b Hypothesis Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,596 ^a	,355	,352	,67320
a. Predictors: (Constant), TRUST				
b. Dependent Variable: TCAP				

Coefficients table shows that the relation between trust and TCAP is significant on the level of 0,01 and beta value is -0,596 (Table 4.39). TC Addressing Problems has a significant negative correlation with trust factor. This result is supporting H5b which is "In a supply-chain relationship, inter-organizational trust has a significant negative effect on Transaction Cost (TC). The higher level of trust, the lower in terms of TC Addressing Problems are. According to this result, in this study H5b is supported.

Table 4.39. H5b Hypothesis Coefficients Table

Coefficients ^a								
		Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5,235	,224		23,413	,000	4,795	5,676
	TRUST	-,591	,055	-,596	-10,756	,000	-,700	-,483
a. Dependent Variable: TCAP								

4.2.5.3 Trust and TCAP Regression (H5c)

When regression analysis is conducted for trust and TCOP, the result gives a significant relation ($R^2=0.035$, $F=7.656$, $p=0.006$). Model summary showing trust and TCOP regression is in the table below (Table 4.40).

Table 4.40. H5c Hypothesis Model Summary

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,188 ^a	,035	,031	,97789
a. Predictors: (Constant), TRUST				
b. Dependent Variable: TCOP				

Coefficients table shows that the relation between trust and TCOP is significant on the level of 0,01 and beta value is -0,188 (Table 4.41). TC opportunism has a significant negative correlation with the trust factor. This result is supporting H5c which is in a supply-chain relationship, inter-organizational trust has a significant negative effect on Transaction Cost (TC). The higher level of trust, the lower in terms of TC opportunism is. According to this result, in this study H5c is supported.

Table 4.41. H5c Hypothesis Coefficients Table

Coefficients ^a								
		Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Model					t	Sig.		
1	(Constant)	3,820	,325		11,762	,000	3,180	4,461
	TRUST	-,221	,080	-,188	-2,767	,006	-,378	-,064
a. Dependent Variable: TCOP								

All H5 hypotheses' test results according to regression analysis are below (Table 4.42).

Table 4.42. H5 Modified Hypothesis and Results

MODIFIED HYPHOTHESISES AFTER FACTOR ANALYSIS (REGRESSION)		
Hypothesis 5	In a supply-chain relationship, inter-organizational trust has a significant negative effect on Transaction Cost (TC). The higher level of trust, the lower in terms of TC.	RESULT
H5a	The higher level of Trust the lower in terms of TC Developing Association.	NOT SUPPORTED
H5b	The higher level of Trust the lower in terms of TC Addressing Problems.	SUPPORTED
H5c	The higher level of Trust the lower in terms of TC Opportunism.	SUPPORTED

4.2.6 H6 – SCC Mediation in Trust and SCP Regression

H6 hypothesis is in which Supply Chain Collaboration (SCC) mediates a positive effect of Trust on Supply Chain Performance. The mediating effect of SCC factors between trust and SCP factors is tested by hierarchical regression analyses.

4.2.6.1 Trust – SCCISGC - SCP Perspeed Regression (H6a)

In order to test SCCISGC mediation effect on trust and SCP perspeed regression, hierarchical regression analyses are conducted. The results are listed intables below.

Table 4.43. H6a Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,525 ^a	,275	,272	,79574	,275	79,762	1	210	,000
2	,651 ^b	,424	,419	,71094	,149	54,085	1	209	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCISGC

Hierarchical regression analysis for trust, SCCISGC and SCP perspeed reveals significant F changes between two models. In model one, trust has a significant and positive contribution to SCP perspeed factor with $\beta = 0.525$. When SCCISGC is included into the second model, trust still has significant and positive relations with the dependent ($\beta = 0.185$). The second model is significant and R square increases to 0.424

from 0.275 (Table 4.43). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCISGC has significant and positive contributions to SCP perspeed with $\beta = 0.514$ (Table 4.44). As a result, SCCISGC partially mediates the relationship between trust and SCP perspeed and H6a is supported.

Table 4.44. H6a Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,980	,264		7,490	,000
	TRUST	,580	,065	,525	8,931	,000
2	(Constant)	1,285	,254		5,050	,000
	TRUST	,205	,077	,185	2,645	,009
	SCCISGC	,521	,071	,514	7,354	,000

a. Dependent Variable: PERSPEED

4.2.6.2 Trust – SCCDSJKCIA - SCP Perspeed Regression (H6b)

In order to test SCCDSJKIA mediation effect on trust and SCP perspeed regression, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.45. H6b Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,525 ^a	,275	,272	,79574	,275	79,762	1	210	,000
2	,563 ^b	,317	,311	,77421	,042	12,844	1	209	,000

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCDSJKCIA

Hierarchical regression analysis for trust, SCCDSJKCIA and SCP perspeed reveals significant F changes between two models. In model one, trust has a significant and positive contribution to SCP perspeed factor with $\beta = 0.525$. When

SCCDSJKCIA is included into the second model, trust still has significant and positive relations with the dependent ($\beta = 0.437$). The model is significant and R square increases to 0.317 from 0.275 (Table 4.45). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCDSJKCIA has significant and positive contributions to SCP perspeed with $\beta = 0.223$ (Table 4.46). As a result, SCCDSJKCIA partially mediates the relationship between trust and SCP perspeed and H6b is supported.

Table 4.46. H6b Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,980	,264		7,490	,000
	TRUST	,580	,065	,525	8,931	,000
2	(Constant)	1,758	,265		6,646	,000
	TRUST	,483	,069	,437	7,027	,000
	SCCDSJKCIA	,189	,053	,223	3,584	,000

a. Dependent Variable: PERSPEED

4.2.6.3 Trust – SCCRS - SCP Perspeed Regression (H6c)

In order to test SCCRS mediation effect on trust and SCP perspeed regression, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.47. H6c Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,525 ^a	,275	,272	,79574	,275	79,762	1	210	,000
2	,624 ^b	,390	,384	,73206	,114	39,124	1	209	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCRS

Hierarchical regression analysis for trust, SCCRS and SCP perspeed reveals significant F changes between two models. In model one, trust has a significant and positive contribution to SCP perspeed factor with $\beta = 0.525$. When SCCRS is included in the second model, trust still has significant and positive relations with dependent ($\beta = 0.374$). The second model is significant and R square increases to 0.390 from 0.275 (Table 4.47). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCRS has significant and positive contributions to SCP perspeed with $\beta = 0.370$ (Table 4.48). As a result, SCCRS partially mediates the relationship between trust and SCP perspeed and H6c is supported.

Table 4.48. H6c Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,980	,264		7,490	,000
	TRUST	,580	,065	,525	8,931	,000
2	(Constant)	1,445	,258		5,605	,000
	TRUST	,413	,065	,374	6,313	,000
	SCCRS	,303	,048	,370	6,255	,000

a. Dependent Variable: PERSPEED

4.2.6.4 Trust – SCCCC - SCP Perspeed Regression (H6d)

In order to test SCCCC mediation effect on trust and SCP perspeed regression, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.49. H6d Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,525 ^a	,275	,272	,79574	,275	79,762	1	210	,000
2	,536 ^b	,287	,280	,79124	,012	3,394	1	209	,067

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC

Hierarchical regression analysis for trust, SCCCC and SCP perspeed reveals significant F changes between two models. In model one, trust has a significant and positive contribution to SCP perspeed factor with $\beta = 0.525$. When SCCCC is included in the second model, trust still has significant and positive relations with dependent ($\beta = 0.489$). The second model is significant and R square increases to 0.287 from 0.275 (Table 4.49). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCCC has significant and positive contributions to SCP perspeed with $\beta = 0.114$ (Table 4.50). But p value of mediator is 0,067 which is slightly over 0,05. This model might be considered as significant on the p level of 0,1. As a result, SCCCC partially mediates the relationship between trust and SCP perspeed and H6d is also supported.

Table 4.50. H6d Hypothesis Coefficients Table

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,980	,264		,000
	TRUST	,580	,065	,525	,000
2	(Constant)	1,764	,288		,000
	TRUST	,540	,068	,489	,000
	SCCCC	,100	,054	,114	,067

a. Dependent Variable: PERSPEED

4.2.6.5 Trust – SCCISGC - SCP Cost Regression (H6e)

In order to test SCCISGC mediation effect on trust and SCP cost regression, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.51. H6e Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,432 ^a	,187	,183	,97784	,187	48,276	1	210	,000
2	,633 ^b	,401	,395	,84117	,214	74,786	1	209	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCISGC

Hierarchical regression analysis for trust, SCCISGC and SCP Cost reveals significant F changes between two models. In model one, trust has a significant and positive contribution to SCP cost factor with $\beta = 0.432$. When SCCISGC is included in the second model, trust has insignificant and positive relations with the dependent ($\beta = 0.025$). The second model is significant and R square increases to 0.401 from 0.187 (Table 4.51). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCISGC has significant and positive contributions to SCP cost with $\beta = 0.617$ (Table 4.52). As a result, SCCISGC fully mediates the relationship between trust and SCP cost and H6e is supported.

Table 4.52. H6e Hypothesis Coefficients Table

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,640	,325		,000
	TRUST	,555	,080	,432	,000
2	(Constant)	,672	,301		,027
	TRUST	,032	,091	,025	,727
	SCCISGC	,725	,084	,617	,000

a. Dependent Variable: COST

4.2.6.6 Trust – SCCDSJKCIA - SCP Cost Regression (H6f)

In order to test SCCDSJKCIA mediation effect on trust and SCP cost regression, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.53. H6f Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,432 ^a	,187	,183	,97784	,187	48,276	1	210	,000
2	,607 ^b	,368	,362	,86406	,181	59,951	1	209	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCDSJKCIA

Hierarchical regression analysis for trust, SCCDSJKCIA and SCP Cost revealed significant F changes between two models. In model one, trust has a significant and positive contribution to SCP cost factor with $\beta = 0.432$. When SCCDSJKCIA is included in the second model, trust still has significant and positive relations with the dependent ($\beta = 0.250$). The second model is significant and R square increases to 0.368 from 0.187 (Table 4.53). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCDSJKCIA has significant and positive contributions to SCP cost with $\beta = 0.463$ (Table 4.54). As a result, SCCDSJKCIA partially mediates the relationship between trust and SCP cost and H6f is supported.

Table 4.54. H6f Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,640	,325		5,048	,000
	TRUST	,555	,080	,432	6,948	,000
2	(Constant)	1,105	,295		3,742	,000
	TRUST	,321	,077	,250	4,179	,000
	SCCDSJKCIA	,455	,059	,463	7,743	,000

a. Dependent Variable: COST

4.2.6.7 Trust – SCCRS - SCP Cost Regression (H6g)

In order to test SCCRS mediation effect on trust and SCP cost regression, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.55. H6g Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,432 ^a	,187	,183	,97784	,187	48,276	1	210	,000
2	,593 ^b	,352	,345	,87533	,165	53,070	1	209	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCRS

Hierarchical regression analysis for trust, SCCRS and SCP Cost reveals significant F changes between two models. In model one, trust has a significant and positive contribution to SCP cost factor with $\beta = 0.432$. When SCCRS is included in the second model, trust still has significant and positive relations with the dependent ($\beta = 0.251$). The second model is significant and R square increases to 0.352 from 0.187 (Table 4.55). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCRS has significant and positive contributions to SCP cost with $\beta = 0.444$ (Table 4.56). As a result, SCCRS partially mediates the relationship between trust and SCP cost and H6g is supported.

Table 4.56. H6g Hypothesis Coefficients Table

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,640	,325		,000
	TRUST	,555	,080	,432	,000
2	(Constant)	,894	,308		,004
	TRUST	,322	,078	,251	,000
	SCCRS	,422	,058	,444	,000

a. Dependent Variable: COST

4.2.6.8 Trust – SCCCC - SCP Cost Regression (H6h)

In order to test SCCCC mediation effect on trust and SCP cost regression, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.57. H6h Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,432 ^a	,187	,183	,97784	,187	48,276	1	210	,000
2	,434 ^b	,188	,180	,97949	,001	,296	1	209	,587

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC

Hierarchical regression analysis for trust, SCCCC and SCP Cost doesn't reveal significant F changes between two models. In model one, trust has significant and positive relations with SCP cost factor with $\beta = 0.432$. When SCCCC is included in the second model, the model is insignificant, p value (0,587) and R square doesn't increase (Table 4.57). With this result, hierarchical regression analysis shows that SCCCC has no mediation effect on Trust and SCP Cost regression and H6h is not supported.

According to hierarchical regression analyses conducted for testing H6 mediation test results are in below. (Table 4.58)

Table 4.54. H6 Mediation tests and Results

MEDIATION TEST RESULTS		
H6a	SCC IS and GC mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	PARTIAL MEDIATION
H6b	SCC DS, JKC and IA mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	PARTIAL MEDIATION
H6c	SCC RS mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	PARTIAL MEDIATION
H6d	SCC CC mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	PARTIAL MEDIATION
H6e	SCC IS and GC mediates positive effect of Trust on Supply Chain Performance (COST).	FULL MEDIATION
H6f	SCC DS, JKC and IA mediates positive effect of Trust on Supply Chain Performance (COST).	PARTIAL MEDIATION
H6g	SCC RS mediates positive effect of Trust on Supply Chain Performance (COST).	PARTIAL MEDIATION
H6h	SCC CC mediates positive effect of Trust on Supply Chain Performance (COST).	NO MEDIATION

With above listed results, modified H6 hypotheses' results are listed below (Table 4.59).

Table 4.59. H6 Modified Hypotheses and Results

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (REGRESSION)		
Hypothesis 6	Supply Chain Collaboration (SCC) mediates positive effect of Trust on Supply Chain Performance.	RESULT
H6a	SCC IS and GC mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	SUPPORTED
H6b	SCC DS, JKC and IA mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	SUPPORTED
H6c	SCC RS mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	SUPPORTED
H6d	SCC CC mediates positive effect of Trust on Supply Chain Performance (PERSPEED).	SUPPORTED
H6e	SCC IS and GC mediates positive effect of Trust on Supply Chain Performance (COST).	SUPPORTED
H6f	SCC DS, JKC and IA mediates positive effect of Trust on Supply Chain Performance (COST).	SUPPORTED
H6g	SCC RS mediates positive effect of Trust on Supply Chain Performance (COST).	SUPPORTED
H6h	SCC CC mediates positive effect of Trust on Supply Chain Performance (COST).	NOT SUPPORTED

4.2.6.9 Trust – SCC - SCP Hierarchical Multiple Regression Analyses

In Hierarchical regression analysis, SCC factors are included to the mediation analysis separately to see each SCC factor's mediation effects on trust and SCP regressions. To have a different view on the total effect of SCC as a whole factor, hierarchical multiple regression analyses are applied to Trust-SCC-SCP factors. The findings and results of this regression analysis are below.

Table 4.60. H6 (SCP Perspeed) Model Summary of Hierarchical Multiple Regression

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.525 ^a	.275	.272	.79574	.275	79,762	1	210	.000
2	.662 ^b	.438	.424	.70753	.163	14,906	4	206	.000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC, SCCRS, SCCDSJKCIA, SCCISGC

Hierarchical multiple regression analysis for trust, SCC and SCP Perspeed reveals significant F changes between two models. In model one, trust has a

significant and positive contribution to SCP perspeed factor with $\beta = 0.525$. When SCC factors are included in the second model, trust still has significant and positive relations with the dependent ($\beta = 0.202$). The second model is significant and R square increases to 0.662 from 0.525 (Table 4.60). The investigation of the individual variables' regression coefficients and standardized regression coefficients shows that SCCISGC and SCCRS have significant and positive contributions to SCP perspeed with $\beta = 0.392$ and $\beta = 0.174$ respectively (Table 4.61).

Table 4.61. H6 Hierarchical multiple regression analysis and Results

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,980	,264		7,490	,000		
	TRUST	,580	,065	,525	8,931	,000	1,000	1,000
2	(Constant)	1,196	,269		4,454	,000		
	TRUST	,224	,078	,202	2,853	,005	,543	1,843
	SCCISGC	,397	,095	,392	4,176	,000	,310	3,227
	SCCDSJKCIA	-,029	,060	-,034	-,486	,627	,545	1,834
	SCCRS	,142	,066	,174	2,143	,033	,414	2,413
	SCCCC	,017	,051	,019	,335	,738	,812	1,232

a. Dependent Variable: PERSPEED

As a result, SCC as whole partially mediates the relationship between trust and SCP perspeed and H6 is supported for SCCISGC and SCCRS factors.

Table 4.62. H6 (SCP Cost) Model Summary of Hierarchical Multiple Regression

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,432 ^a	,187	,183	,97784	,187	48,276	1	210	,000
2	,687 ^b	,471	,459	,79600	,285	27,727	4	206	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC, SCCRS, SCCDSJKCIA, SCCISGC

Hierarchical multiple regression analysis for trust, SCC and SCP Cost reveals significant F changes between two models. In model one, trust has a significant and

positive contribution to SCP cost factor with $\beta = 0.432$. When SCC factors are included in the second model, trust has insignificant and positive relations with the dependent ($\beta = 0.058$). The second model is significant and R square increases to 0.687 from 0.432 (Table 4.62). The investigation of the individual variables' regression coefficients and standardized regression coefficients shows that SCCISGC and SCCDSJKCIA have significant and positive contributions to SCP cost with $\beta = 0.391$ and $\beta = 0.287$ respectively (Table 4.63). But, SCCCC has a significant and negative correlation to SCP cost with $\beta = -0.133$.

Table 4.63. H6 Hierarchical multiple regression analysis and Results

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,640	,325		5,048	,000		
	TRUST	,555	,080	,432	6,948	,000	1,000	1,000
2	(Constant)	,803	,302		2,658	,008		
	TRUST	,075	,088	,058	,850	,396	,543	1,843
	SCCISGC	,460	,107	,391	4,300	,000	,310	3,227
	SCCDSJKCIA	,281	,067	,287	4,177	,000	,545	1,834
	SCCRS	,104	,075	,110	1,397	,164	,414	2,413
	SCCCC	-,136	,058	-,133	-2,362	,019	,812	1,232

a. Dependent Variable: COST

As a result, SCC fully mediates the relationship between trust and SCP Cost and H6 is supported for SCCISGC and SCCDSJKCIA. Summary of Trust – SCC – SCP hierarchical multiple regression analyses' results are presented below (Table 4.64).

Table 4.64. H6 Hierarchical multiple regression analysis and Results

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (MULTIPLE HIERARCHICAL REGRESSION)					
Hypothesis 7	Supply Chain Collaboration mediates negative effect of Trust on Transaction Cost (TC).	RESULTS			
		SCCISGC	SCCDSJKCIA	SCCRS	SCCCC
H7	SCC mediates negative effect of Trust on TC Developing Association.	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED
H7	SCC mediates negative effect of Trust on TC Addressing Problems.	SUPPORTED	SUPPORTED	NOT SUPPORTED	NOT SUPPORTED
H7	SCC mediates negative effect of Trust on TC Opportunism.	SUPPORTED	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED

4.2.7 H7 – SCC Mediation in Trust and TC Regression

H7 hypothesis is “Supply Chain Collaboration (SCC) mediates a negative effect of Trust on Transaction Cost”. To be able to see the mediation effect of SCC on Trust and TC, the direction of effect is not considered during mediation tests but during hypotheses testing the result is given considering the direction of the effects. The mediating effect of SCC factors between trust and TC factors is tested by hierarchical regression analyses.

4.2.7.1 Trust – SCCISGC - TCDA Regression (H7a)

In order to test SCCISGC mediation effect on trust and TCDA, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.65. H7a Hypothesis Model Summary

Model Summary ^a									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.147 ^a	.022	.017	.93741	.022	4,664	1	210	.032
2	.289 ^b	.083	.075	.90959	.062	14,041	1	209	.000
a. Predictors: (Constant), TRUST									
b. Predictors: (Constant), TRUST, SCCISGC									
c. Dependent Variable: TCDA									

Hierarchical regression analysis for trust, SCCISGC and TC Developing Association reveals significant F changes between two models (Table 4.65). In model one, trust has a significant and positive contribution to TCDA with $\beta = 0.147$ which is contrary to the H7a hypothesis. When SCCISGC is included in the second model, p value of the mediator is significant ($<0,01$), and p value of trust (0,422) becomes insignificant ($>0,05$) (Table 4.66). Even though there is a complete mediation in the model, the relation is positive which means H7a is not supported because of the direction of the relation.

Table 4.66. H7a Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,267	,311		10,491	,000
	TRUST	,165	,077	,147	2,160	,032
2	(Constant)	2,813	,325		8,645	,000
	TRUST	-,080	,099	-,071	-,805	,422
	SCCISGC	,340	,091	,331	3,747	,000

a. Dependent Variable: TCDA

4.2.7.2 Trust – SCCISGC - TCAP Regression (H7b)

In order to test SCCISGC mediation effect on trust and TCAP, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.67. H7b Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,596 ^a	,355	,352	,67320	,355	115,698	1	210	,000
2	,683 ^b	,467	,462	,61365	,112	43,736	1	209	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCISGC

c. Dependent Variable: TCAP

Hierarchical regression analysis for trust, SCCISGC and TC Addressing Problems reveals significant F changes between two models. In model one, trust has a significant and negative contribution to TCAP factor with $\beta = -0.405$. When SCCISGC is included in the second model, trust still has significant and negative relations with the dependent ($\beta = -0.302$). The second model is significant and R square increases to 0.467 from 0.355 (Table 4.67). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCISGC has significant and negative

contributions to TCAP with $\beta = -0.445$ (Table 4.68). As a result, SCCISGC partially mediates the relationship between trust and TCAP and H7b is supported.

Table 4.68. H7b Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,235	,224		23,413	,000
	TRUST	-,591	,055	-,596	-10,756	,000
2	(Constant)	5,775	,220		26,303	,000
	TRUST	-,300	,067	-,302	-4,488	,000
	SCCISGC	-,405	,061	-,445	-6,613	,000

a. Dependent Variable: TCAP

4.2.7.3 Trust – SCCISGC - TCOP Regression (H7c)

In order to test SCCISGC mediation effect on trust and TCOP, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.69. H7c Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,188 ^a	,035	,031	,97789	,035	7,656	1	210	,006
2	,188 ^b	,035	,026	,98018	,000	,019	1	209	,892

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCISGC

c. Dependent Variable: TCOP

Hierarchical regression analysis for trust, SCCISGC and TCOP revealed insignificant F changes (0,892) between two models (Table 4.69). This result cannot pass the hierarchical regression analysis test. This means, in trust and TCOP regression, SCCISGC has no mediation effect at all. With this result H7c is not supported.

4.2.7.4 Trust – SCCDSJKCIA - TCDA Regression (H7d)

In order to test SCCDSJKCIA mediation effect on trust and TCDA, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.70. H7d Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,147 ^a	,022	,017	,93741	,022	4,664	1	210	,032
2	,220 ^b	,049	,039	,92667	,027	5,897	1	209	,016

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCDSJKCIA
c. Dependent Variable: TCDA

Hierarchical regression analysis for trust, SCCDSJKCIA and TC Developing Association reveals significant F changes between two models. In model one, trust has a significant and positive contribution to TCDA with $\beta = 0.147$ (Table 4.70) which is contrary to the H7d hypothesis. When SCCDSJKCIA is included in the second model, the model is still significant and R square increases to 0.049 from 0.022, p value of the mediator is significant ($<0,01$), and p value of trust (0,294) becomes insignificant ($>0,05$) (Table 4.71). Even though there is a complete mediation in the model, the relation is positive, which means H7d is not supported because of the direction of relation.

Table 4.71. H7d Hypothesis Coefficients Table

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	3,267	,311		,000
	TRUST	,165	,077	,147	,032
2	(Constant)	3,087	,317		,000
	TRUST	,087	,082	,077	,294
	SCCDSJKCIA	,153	,063	,178	,016

a. Dependent Variable: TCDA

4.2.7.5 Trust – SCCDSJKCIA - TCAP Regression (H7e)

In order to test SCCDSJKCIA mediation effect on trust and TCAP, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.72. H7e Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,596 ^a	,355	,352	,67320	,355	115,698	1	210	,000
2	,640 ^b	,410	,405	,64542	,055	19,470	1	209	,000

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCDSJKCIA
c. Dependent Variable: TCAP

Hierarchical regression analysis for trust, SCCDSJKCIA and TC Addressing Problems reveals significant F changes between two models. In model one, trust has a significant and negative contribution to TCAP factor with $\beta = -0.596$. When SCCDSJKCIA is included in the second model, trust still has significant and negative relations with the dependent ($\beta = -0.302$). The second model is significant and R square increases to 0.410 from 0.355 (Table 4.72). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCDSJKCIA has significant and negative contributions to TCAP with $\beta = -0.255$ (Table 4.73). As a result, SCCDSJKCIA partially mediates the relationship between trust and TCAP and H7e is supported.

Table 4.73. H7e Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,235	,224		23,413	,000
	TRUST	-,591	,055	-,596	-10,756	,000
2	(Constant)	5,463	,221		24,775	,000
	TRUST	-,492	,057	-,496	-8,576	,000
	SCCDSJKCIA	-,194	,044	-,255	-4,412	,000

a. Dependent Variable: TCAP

4.2.7.6 Trust – SCCDSJKCIA - TCOP Regression (H7f)

In order to test SCCDSJKCIA mediation effect on trust and TCOP, hierarchical regression analyses are conducted. The results are listed in the tables below..

Table 4.74. H7f Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,188 ^a	,035	,031	,97789	,035	7,656	1	210	,006
2	,255 ^b	,065	,056	,96486	,030	6,712	1	209	,010

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCDSJKCIA
c. Dependent Variable: TCOP

Hierarchical regression analysis for trust, SCCDSJKCIA and TC Opportunism reveals significant F changes between two models. In model one, trust has a significant and negative contribution to TCDA with $\beta = -0.188$. When SCCDSJKCIA is included in to the second model, trust still has significant and negative relations with the dependent ($\beta = -0.262$). The second model is significant and R square increases to 0.065 from 0.035 (Table 4.74). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCDSJKCIA has significant and positive contributions to TCAP with $\beta = 0.188$ (Table 4.75). Even though there is a partial mediation in the model, mediator's direction in the relation is positive which means H7f is not supported because of the direction of the relation.

Table 4.75. H7f Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,820	,325		11,762	,000
	TRUST	-,221	,080	-,188	-2,767	,006
2	(Constant)	3,621	,330		10,983	,000
	TRUST	-,308	,086	-,262	-3,598	,000
	SCCDSJKCIA	,170	,066	,188	2,591	,010

a. Dependent Variable: TCOP

4.2.7.7 Trust – SCCRS - TCDA Regression (H7g)

In order to test SCCRS mediation effect on trust and TCDA, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.76. H7g Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,147 ^a	,022	,017	,93741	,022	4,664	1	210	,032
2	,283 ^b	,080	,071	,91110	,059	13,301	1	209	,000

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCRS
c. Dependent Variable: TCDA

Hierarchical regression analysis for trust, SCCRS and TC Developing Association reveals significant F changes between two models. In model one, trust has a significant and positive contribution to TCDA with $\beta = 0.147$ which is contrary to the H7g hypothesis. When SCCRS is included in the second model, trust still has significant and positive relations with the dependent variable ($\beta = 0.039$). The second model is still significant and R square increases to 0.080 from 0.022 (Table 4.76). In the second model, p value of the mediator is significant ($<0,01$), and p value of trust (0,589) becomes insignificant ($>0,05$) (Table 4.77). Even though there is a complete mediation in the model, the relation is positive which means H7g is not supported because of the direction of the relation.

Table 4.77. H7g Hypothesis Coefficients Table

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	3,267	,311		,000
	TRUST	,165	,077	,147	,032
2	(Constant)	2,878	,321		,000
	TRUST	,044	,081	,039	,589
	SCRS	,220	,060	,265	,000

a. Dependent Variable: TCDA

4.2.7.8 Trust – SCCRS - TCAP Regression (H7h)

In order to test SCCRS mediation effect on trust and TCAP, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.78. H7h Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,596 ^a	,355	,352	,67320	,355	115,698	1	210	,000
2	,638 ^b	,407	,401	,64731	,051	18,140	1	209	,000

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCRS
c. Dependent Variable: TCAP

Hierarchical regression analysis for trust, SCCRS and TC Addressing problems reveals significant F changes between two models. In model one, trust has a significant and negative contribution to TCAP factor with $\beta = -0.596$. When SCCRS is included in the second model, trust still has significant and negative relations with the dependent ($\beta = -0.249$). The second model is significant and R square increases to 0.407 from 0.355 (Table 4.78). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCRS has significant and negative contributions to TCAP with $\beta = -0.249$ (Table 4.79). As a result, SCCRS partially mediates the relationship between trust and TCAP and H7h is supported.

Table 4.79. H7h Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,235	,224		23,413	,000
	TRUST	-,591	,055	-,596	-10,756	,000
2	(Constant)	5,557	,228		24,383	,000
	TRUST	-,491	,058	-,495	-8,477	,000
	SCCRS	-,182	,043	-,249	-4,259	,000

a. Dependent Variable: TCAP

4.2.7.9 Trust – SCCRS - TCOP Regression (H7i)

In order to test SCCRS mediation effect on trust and TCOP, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.80. H7i Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,188 ^a	,035	,031	,97789	,035	7,656	1	210	,006
2	,217 ^b	,047	,038	,97420	,012	2,592	1	209	,109

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCRS
c. Dependent Variable: TCOP

Hierarchical regression analysis for trust, SCCRS and TC Opportunism reveals insignificant F changes (0,109) between two models (Table 4.80). This result cannot pass hierarchical regression analysis test. This means, in trust and TCOP regression, SCCRS has no mediation effect at all. With this result H7i is not supported.

4.2.7.10 Trust – SCCCC - TCDA Regression (H7j)

In order to test SCCCC mediation effect on trust and TCDA, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.81. H7j Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,147 ^a	,022	,017	,93741	,022	4,664	1	210	,032
2	,235 ^b	,055	,046	,92339	,034	7,424	1	209	,007

a. Predictors: (Constant), TRUST
b. Predictors: (Constant), TRUST, SCCCC
c. Dependent Variable: TCDA

Hierarchical regression analysis for trust, SCCCC and TC Developing Association reveals significant F changes between two models. In model one, trust has significant and positive relations with TCDA with $\beta = 0.147$ which is contrary to the H7j hypothesis. When SCCCC is included in the second model, trust still has significant and positive relations with the dependent ($\beta = 0.086$). The second model is still significant and R square increases to 0.055 from 0.022 (Table 4.81). In the second model, p value of the mediator is significant ($<0,01$), and p value of trust (0,227) becomes insignificant ($>0,05$) (Table 4.82). Even though there is a complete mediation in the model, the relation is positive which means H7j is not supported because of the direction of the relation.

Table 4.82. H7j Hypothesis Coefficients Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,267	,311		10,491	,000
	TRUST	,165	,077	,147	2,160	,032
2	(Constant)	2,894	,336		8,621	,000
	TRUST	,096	,080	,086	1,211	,227
	SCCCC	,173	,064	,193	2,725	,007

a. Dependent Variable: TCDA

4.2.7.11 Trust – SCCCC - TCAP Regression (H7k)

In order to test SCCCC mediation effect on trust and TCAP, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.83. H7k Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,596 ^a	,355	,352	,67320	,355	115,698	1	210	,000
2	,598 ^b	,358	,352	,67334	,003	,918	1	209	,339

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC

c. Dependent Variable: TCAP

Hierarchical regression analysis for trust, SCCCC and TC Addressing Problems reveals insignificant F changes (0,339) between two models (Table 4.83). This result cannot pass the hierarchical regression analysis test. This means, in trust and TCAP regression, SCCCC has no mediation effect at all. With this result H7k is not supported.

4.2.7.12 Trust – SCCCC - TCOP Regression (H7l)

In order to test SCCCC mediation effect on trust and TCOP, hierarchical regression analyses are conducted. The results are listed in the tables below.

Table 4.84. H7l Hypothesis Model Summary

Model Summary ^c									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,188 ^a	,035	,031	,97789	,035	7,656	1	210	,006
2	,388 ^b	,150	,142	,91985	,115	28,336	1	209	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC

c. Dependent Variable: TCOP

Hierarchical regression analysis for trust, SCCCC and TC Opportunism reveals significant F changes between two models. In model one, trust has a significant and negative contribution to TCDA with $\beta = -0.188$. When SCCCC is included in the second model, trust still has significant and negative relations with the dependent ($\beta = -0.302$). The second model is significant and R square increases to 0.150 from 0.035 (Table 4.84). The investigation of the mediator's regression coefficients and standardized regression coefficients shows that SCCCC has significant and positive contributions to TCAP with $\beta = 0.358$ (Table 4.85). Even there is a partial mediation in the model, mediator's relation is positive which means H7l is not supported because of the direction of the relation.

Table 4.85. H7I Hypothesis Coefficients Table

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	3,820	,325		,000
	TRUST	-,221	,080	-,188	,006
2	(Constant)	3,096	,334		,000
	TRUST	-,355	,079	-,302	,000
	SCCCC	,337	,063	,358	,000

a. Dependent Variable: TCOP

According to hierarchical regression analyses conducted for testing H7 mediation test results are in the table below. (Table 4.86)

Table 4.86. H7 Mediation tests and Results

MEDIATION TEST RESULTS		
H7a	SCC IS and GC mediates effect of Trust on TC Developing Association.	COMPLETE MEDIATION
H7b	SCC IS and GC mediates effect of Trust on TC Addressing Problems.	PARTIAL MEDIATION
H7c	SCC IS and GC mediates effect of Trust on TC Opportunism.	NO MEDIATION
H7d	SCC DS, JKC and IA mediates effect of Trust on TC Developing Association.	COMPLETE MEDIATION
H7e	SCC DS, JKC and IA mediates effect of Trust on TC Addressing Problems.	PARTIAL MEDIATION
H7f	SCC DS, JKC and IA mediates effect of Trust on TC Opportunism.	PARTIAL MEDIATION
H7g	SCC RS mediates effect of Trust on TC Developing Association.	COMPLETE MEDIATION
H7h	SCC RS mediates effect of Trust on TC Addressing Problems.	PARTIAL MEDIATION
H7i	SCC RS mediates effect of Trust on TC Opportunism.	NO MEDIATION
H7j	SCC CC mediates effect of Trust on TC Developing Association.	COMPLETE MEDIATION
H7k	SCC CC mediates effect of Trust on TC Addressing Problems.	NO MEDIATION
H7l	SCC CC mediates effect of Trust on TC Opportunism.	PARTIAL MEDIATION

With above listed results modified H7 hypotheses' results are listed in the table below (Table 4.87).

Table 4.87. H7 Modified Hypothesis and Results

MODIFIED HYPHOTHESISES AFTER FACTOR ANALYSIS (REGRESSION)		
Hypothesis 7	Supply Chain Collaboration mediates negative effect of Trust on Transaction Cost (TC).	RESULT
H7a	SCC IS and GC mediates negative effect of Trust on TC Developing Association.	NOT SUPPORTED
H7b	SCC IS and GC mediates negative effect of Trust on TC Addressing Problems.	SUPPORTED
H7c	SCC IS and GC mediates negative effect of Trust on TC Opportunism.	NOT SUPPORTED
H7d	SCC DS, JKC and IA mediates negative effect of Trust on TC Developing Association.	NOT SUPPORTED
H7e	SCC DS, JKC and IA mediates negative effect of Trust on TC Addressing Problems.	SUPPORTED
H7f	SCC DS, JKC and IA mediates negative effect of Trust on TC Opportunism.	NOT SUPPORTED
H7g	SCC RS mediates negative effect of Trust on TC Developing Association.	NOT SUPPORTED
H7h	SCC RS mediates negative effect of Trust on TC Addressing Problems.	SUPPORTED
H7i	SCC RS mediates negative effect of Trust on TC Opportunism.	NOT SUPPORTED
H7j	SCC CC mediates negative effect of Trust on TC Developing Association.	NOT SUPPORTED
H7k	SCC CC mediates negative effect of Trust on TC Addressing Problems.	NOT SUPPORTED
H7l	SCC CC mediates negative effect of Trust on TC Opportunism.	NOT SUPPORTED

4.2.7.13 Trust – SCC - TC Hierarchical Multiple Regression Analyses

In hierarchical regression analysis, SCC factors are included in the mediation analysis separately to see each SCC factor's mediation effects to trust and TC regressions. To have a different view on the total effect of SCC as a whole factor, the hierarchical multiple regression analyses are applied to Trust-SCC-TC factors. The findings and results of these regression analyses are below.

Table 4.88. H7 (TCDA) Model Summary of Hierarchical Multiple Regression

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,147 ^a	,022	,017	,93741	,022	4,664	1	210	,032
2	,330 ^b	,109	,088	,90320	,087	5,052	4	206	,001
a. Predictors: (Constant), TRUST									
b. Predictors: (Constant), TRUST, SCCCC, SCCRS, SCCDSJKCIA, SCCISGC									

Hierarchical multiple regression analysis for trust, SCC and TC Developing Association reveals significant F changes between two models. In model one, trust has significant and positive relations with TCDA factor with $\beta = 0.147$. When SCC factors are included in the second model, trust becomes insignificant and relations with the dependent becomes negative ($\beta = -0.077$). The second model is significant and R square increases to 0.109 from 0.022 (Table 4.88). The investigation of the individual variables' regression coefficients and standardized regression coefficients shows that there are no significant contributions to the model (Table 4.89). Even though there is full mediation in the model, none of the variables have a significant correlation with TCDA factor.

Table 4.89. H7 (TCDA) Hierarchical multiple regression analysis and Results

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,267	,311		10,491	,000		
	TRUST	,165	,077	,147	2,160	,032	1,000	1,000
2	(Constant)	2,556	,343		7,455	,000		
	TRUST	-,086	,100	-,077	-,858	,392	,543	1,843
	SCCISGC	,209	,121	,203	1,722	,087	,310	3,227
	SCCDSJKCI	-,011	,076	-,013	-,143	,886	,545	1,834
	SCCRS	,106	,085	,128	1,249	,213	,414	2,413
	SCCCC	,120	,065	,134	1,834	,068	,812	1,232

a. Dependent Variable: TCDA

As a result, SCC fully mediates the relationship between trust and TCDA but H7 for TCDA factor is not supported.

Table 4.90. H7 (TCAP) Model Summary of Hierarchical Multiple Regression

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,596 ^a	,355	,352	,67320	,355	115,698	1	210	,000
2	,689 ^b	,475	,462	,61346	,120	11,725	4	206	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC, SCCRS, SCCDSJKCIA, SCCISGC

Hierarchical multiple regression analysis for trust, SCC and TC Addressing Problems reveals significant F changes between two models. In model one, trust has significant and negative relations with TCAP with $\beta = -0.596$. When SCC factors are included in the second model, trust still has significant and negative relations with TCAP with $\beta = -0.305$. The second model is significant and R square increases to 0.475 from 0.355 (Table 4.90). The investigation of the individual variables' regression coefficients and standardized regression coefficients shows that SCCISGC and SCCDSJKCIA have significant and negative contributions to TCAP with $\beta = -0.402$ and $\beta = -0.118$ respectively (Table 4.91). But, SCCDSJKCIA has a significant negative correlation on p level of 0,1 (0,085).

Table 4.91. H7 (TCAP) Hierarchical multiple regression analysis and Results

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5,235	,224		23,413	,000		
	TRUST	-,591	,055	-,596	-10,756	,000	1,000	1,000
2	(Constant)	5,739	,233		24,643	,000		
	TRUST	-,302	,068	-,305	-4,443	,000	,543	1,843
	SCCISGC	-,366	,082	-,402	-4,432	,000	,310	3,227
	SCDSJKCIA	-,090	,052	-,118	-1,729	,085	,545	1,834
	SCCRS	,018	,058	,024	,307	,759	,414	2,413
	SCCCC	,027	,044	,034	,611	,542	,812	1,232

a. Dependent Variable: TCAP

As a result, SCC partially mediates the relationship between trust and TCAP but H7 is only supported for SCCISGC and SCCDSJKCIA.

Table 4.92. H7 (TCOP) Model Summary of Hierarchical Multiple Regression

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,188 ^a	,035	,031	,97789	,035	7,656	1	210	,006
2	,420 ^b	,176	,156	,91243	,141	8,804	4	206	,000

a. Predictors: (Constant), TRUST

b. Predictors: (Constant), TRUST, SCCCC, SCCRS, SCCDSJKCIA, SCCISGC

Hierarchical multiple regression analysis for trust, SCC and TC Opportunism reveals significant F changes between two models. In model one, trust has significant and negative relations with TCAP with $\beta = -0.188$. When SCC factors are included in the second model, trust still has significant and negative relations with TCAP with $\beta = -0.221$. The second model is significant and R square increases to 0.176 from 0.035 (Table 4.92). The investigation of the individual variables' regression coefficients and standardized regression coefficients tell that SCCISGC has significant and negative contribution to TCOP with $\beta = -0.248$ (Table 4.93). But, SCCCC has a significant positive correlation to TCOP which is contradicting H7 hypothesis. As a result, SCC partially mediates the relationship between trust and TCOP but H7 is only supported for SCCISGC.

Table 4.93. H7 (TCOP) Hierarchical multiple regression analysis and Results

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,820	,325		11,762	,000		
	TRUST	-,221	,080	-,188	-2,767	,006	1,000	1,000
2	(Constant)	3,216	,346		9,285	,000		
	TRUST	-,260	,101	-,221	-2,572	,011	,543	1,843
	SCCISGC	-,268	,123	-,248	-2,187	,030	,310	3,227
	SCDSJKCIA	,126	,077	,140	1,630	,105	,545	1,834
	SCCRS	,075	,086	,086	,878	,381	,414	2,413
	SCCCC	,317	,066	,337	4,797	,000	,812	1,232

a. Dependent Variable: TCOP

Summary of Trust – SCC – TC hierarchical multiple regression analyses' results are presented below (Table 4.94).

Table 4.94. H7 Hierarchical multiple regression analyses results

MODIFIED HYPOTHESES AFTER FACTOR ANALYSIS (MULTIPLE HIERARCHICAL REGRESSION)					
Hypothesis 7	Supply Chain Collaboration mediates negative effect of Trust on Transaction Cost (TC).	RESULTS			
		SCCISGC	SCCDSJKCIA	SCCRS	SCCCC
H7	SCC mediates negative effect of Trust on TC Developing Association.	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED
H7	SCC mediates negative effect of Trust on TC Addressing Problems.	SUPPORTED	SUPPORTED	NOT SUPPORTED	NOT SUPPORTED
H7	SCC mediates negative effect of Trust on TC Opportunism.	SUPPORTED	NOT SUPPORTED	NOT SUPPORTED	NOT SUPPORTED

After concluding hierarchical regression analyses, Sobel mediation test (Sobel, 1982) is also conducted to confirm all the results and check if they are also significant in Sobel test results. Sobel test results are in line with hierarchical regression results. Sobel Test calculator is used to conduct Sobel tests (<http://quantpsy.org/sobel/sobel.htm>).

4.3. ANOVA TESTS

In the questionnaire of this study, besides the construct measurements some demographic questions are asked to have some idea about the differences between organizations. Specifically, to differentiate the collaboration approaches of organizations, each SCC factor is checked if there are same variances according to some demographics of the respondents. The questions related with the respondent organization are selected; annual gross sales, number of employees, age of the organization, average quantity of suppliers regarding the respondent organization. An also via 5 relational questions, it is intended to have information about the relation between supply chain partner. Power and Dependence relation, partnership duration, percentage of this supplier in all purchases in this supply chain, material purchased from this supplier.

Some of these information is not enough to apply anova tests for SCC factors because the number of the groups couldn't reach the limit of 30 responses. For the rest of the information, it is intended to see if the dependent variables' variances are same or not according to these demographics. Only the significant anova test results are presented in this section.

4.3.1. ANOVA Test on Annual Gross Sale

H0: According to Annual Gross Sale (AGS) of organizations, SCC variables' (SCCISGC, SCCDSJKCIA, SCCRS and SCCCC) sector group variances are same.

H1: According to Annual Gross Sale (AGS) of organizations, at least one of the group variances of four dependent variables (SCCISGC, SCCDSJKCIA, SCCRS and SCCCC) is different than the others.

AGS of organizations are grouped as “Less than 10,000,000 TL, 10,000,001 TL – 100,000,000 TL, 100,000,001 TL – 1,000,000,000 TL, More than 1,000,000,000 TL. As seen on Levene test (Table 4.95), all variable’s p value is bigger than 0,05 and meets the pre-condition for ANOVA test.

Table 4.95. Test of Homogeneity of Variances according to AGS (SCC Factors)

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
SCCISGC	,155	3	208	,926
SCCDSJKCIA	,831	3	208	,478
SCCRS	,191	3	208	,902
SCCCC	,391	3	208	,760

In Anova test (Table 4.96.), p-values are checked and SCCISGC and SCCCC variables have p-values>0,05, so H₀ is accepted for these variables. This means SCCISGC and SCCCC variable’s variances are same for all sector groups. At this point, for these variables, one-way ANOVA test is finished.

But for SCCDSJKCIA and SCCRS variables, H₀ is rejected, because p values are smaller than 0,05, it means these variables’ variances are different according to one of organizations’ AGS.

Table 4.96. ANOVA Table for AGS (SCC Factors)

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
SCCISGC	Between Groups	6,307	3	2,102	2,540	,058
	Within Groups	172,178	208	,828		
	Total	178,485	211			
SCCDSJKCIA	Between Groups	9,443	3	3,148	2,654	,050
	Within Groups	246,724	208	1,186		
	Total	256,167	211			
SCCRS	Between Groups	13,998	3	4,666	3,728	,012
	Within Groups	260,367	208	1,252		
	Total	274,365	211			
SCCCC	Between Groups	4,328	3	1,443	1,301	,275
	Within Groups	230,657	208	1,109		
	Total	234,985	211			

After rejecting H0, for SCCDSJKCIA and SCCRS variables, Scheffe and Tukey tests are checked in the comparison table to see which AGS group variances are different.

According to Scheffe and Tukey tests, only organizations which have AGS between 10,000,001 TL – 100,000,000 TL, and organizations which have AGS more than 1,000,000,000 TL variances are different for SCCDSJKCIA (p value=0,047) and SCCRS (p value 0,006). Organizations which have more than 1 billion TL AGS tend to have more collaboration via decision synchronization, joint knowledge creating, incentive alignment and resource sharing comparing to organizations which have AGS between 10,000,001 TL – 100,000,000 TL.

4.3.2. ANOVA Test on the respondent's position in partnership

H0: According to the respondent's position in partnership, SCC variables' (SCCISGC, SCCDSJKCIA, SCCRS and SCCCC) sector group variances are same.

H1: According to the respondent's position in the partnership, at least one of the group variances of four dependent variables (SCCISGC, SCCDSJKCIA, SCCRS and SCCCC) is different than the others.

Respondent's position in the partnership is grouped as "Big partner, Equal partner, Small Partner". As seen on Levene test (Table 4.97), all variables' p value is bigger than 0,05 and meets the pre-condition for ANOVA test.

Table 4.97. Test of Homogeneity of Variances according to the position in the partnership (SCC Factors)

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
SCCISGC	1,076	2	209	,343
SCCDSJKCIA	2,370	2	209	,096
SCCRS	2,884	2	209	,058
SCCCC	,097	2	209	,908

In Anova test (Table 4.98.), p-values are checked and SCCDSJKCIA, SCCRS and SCCCC variables have p-values>0,05, so H0 is accepted for these variables. This means SCCDSJKCIA, SCCRS and SCCCC variable's variances are same for all sector groups. At this point for these variables, one-way ANOVA test is finished.

But for SCCISGC variable, H0 is rejected, because p value 0,005 is smaller than 0,05 and it means this variable's variances are different according to respondent's position in partnership.

Table 4.98. ANOVA Table for position in the partnership (SCC Factors)

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
SCCISGC	Between Groups	8,755	2	4,377	5,390	,005
	Within Groups	169,730	209	,812		
	Total	178,485	211			
SCCDSJKCIA	Between Groups	2,789	2	1,395	1,150	,319
	Within Groups	253,378	209	1,212		
	Total	256,167	211			
SCCRS	Between Groups	6,893	2	3,447	2,693	,070
	Within Groups	267,471	209	1,280		
	Total	274,365	211			
SCCCC	Between Groups	,303	2	,152	,135	,874
	Within Groups	234,682	209	1,123		
	Total	234,985	211			

After rejecting H0, for SCCISGC variable, Scheffe test is checked in the comparison table to see which respondent's position in partnership group variances are different.

According to Scheffe test, only organizations which have equal partnership with their major supplier and organizations which are the small partner in this relationship variances are different; $p \text{ value } 0,006 < 0,05$. Organizations which have equal partnership with their major supplier tend to have more information sharing and goal congruence compared to organizations which are the smaller partner according to their major supplier.

4.3.3. ANOVA Test on Partnership Duration

H0: According to partnership duration of supply chain partners, SCC variables' (SCCISGC, SCCDSJKCIA, SCCRS and SCCCC) sector group variances are same.

H1: According to partnership duration of supply chain partners, at least one of the group variances of four dependent variables (SCCISGC, SCCDSJKCIA, SCCRS and SCCCC) is different than others.

Partnership duration of supply chain partners are grouped as "Less than 5 years, 5 – 10 years, more than 10 years. As seen on Levene test (Table 4.99), all variable's p value is bigger than 0,05 and meets the pre-condition for ANOVA test.

Table 4.99. Test of Homogeneity of Variances according to Partnership duration (SCC Factors)

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
SCCISGC	,283	2	209	,754
SCCDSJKCIA	,835	2	209	,435
SCCRS	1,267	2	209	,284
SCCCC	1,357	2	209	,260

In Anova test (Table 4.100.), p-values are checked and SCCDSJKCIA and SCCCC variables have p-values>0,05, so H0 is accepted for these variables. This means SCCDSJKCIA and SCCCC variable's variances are same for all sector groups. At this point for these variables, one-way ANOVA test is finished.

But for SCCISGC and SCCRS variables, H0 is rejected, because p values 0,029 and 0,007 are smaller than 0,05 and it means these variables' variances are different according to Partnership duration of supply chain partners.

Table 4.100. ANOVA Table for Partnership duration (SCC Factors)

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
SCCISGC	Between Groups	5,939	2	2,969	3,597	,029
	Within Groups	172,546	209	,826		
	Total	178,485	211			
SCCDSJKCIA	Between Groups	4,805	2	2,402	1,997	,138
	Within Groups	251,363	209	1,203		
	Total	256,167	211			
SCCRS	Between Groups	12,583	2	6,291	5,023	,007
	Within Groups	261,782	209	1,253		
	Total	274,365	211			
SCCCC	Between Groups	,984	2	,492	,440	,645
	Within Groups	234,001	209	1,120		
	Total	234,985	211			

After rejecting H0, for SCCISGC and SCCRS variables, Scheffe and Tukey tests are checked in the comparison table to see which Partnership duration group variances are different.

According to Scheffe and Tukey tests, for SCCISGC p value is 0,039<0,05, SCCRS p value is 0,008<0,05. Organizations which have less than 5 year partnership with their major suppliers and organizations which have more than 10 year partnership with their major suppliers' variances are different. The more focal firms have

partnership with their major suppliers the more they have SCC regarding information sharing, goal congruence and resource sharing as collaboration tool.



PART 5. DISCUSSION AND CONCLUSION

In this chapter, discussions on the overall findings of the dissertation are presented by the support of the literature. After the discussion of the findings, conclusion of the study is presented. Then, possible implications of these findings for researchers and supply chain organizations are provided. The chapter ends with limitations of the research.

5.1. Discussions on the Findings

The main aim of this dissertation is to find out the relationship between trust, SCC, SCP and TC in the supply chain. In order to reach this objective, several analyses are conducted and explained in previous part, findings of the research. In this part, the overall findings are discussed.

5.1.1. Findings of Reliability and Factor Analyses

SPSS version 20, Data Reduction Factor Analysis program is used to do these analyses. The scores and distribution of factors in each variable are already given in the previous section, findings of the research/data analysis.

Trust variable has originally two factors, honest and benevolence but they are loaded on one factor. According to the findings, if an organization trusts its major supplier, this trust covers both honesty and benevolence acts and considered as one single behaviour. This variable items are intended to measure perceived trust of focal firm to its major supplier. The mean of this construct is 3,98 in six point likert scale. This gives the average perceived trust of focal firms to major suppliers.

Supply chain performance variable is originally considered under one factor but the items are measuring different sub factors which are performance of final products, speed of deliveries, volume and capacity flexibility, production costs. Factor and reliability analyses show that the items are loaded on two factors which are consisted of performance of final products, speed of deliveries under the first factor (SCP perspeed) and production costs under the second factor (SCP cost). Volume and capacity flexibility sub

factors are disappeared. This variable items are intended to measure the perceived SCP of the focal firm in the final customer side of supply chain related with its major supplier. The means of this construct are 4,29 for SCP Perspeed, 3,85 for SCP Cost in six point likert scale. These give the average perceived SCP of focal firms to final customer.

Transaction Cost variable is originally considered under 4 factors, Developing Association (DA), Monitoring Performance (MP), Addressing problems (AP), Opportunism (OP). Factor and reliability analyses show that items are loaded on three factors in this variable. Monitoring Performance factor is mostly disappeared but two items of this factor are loaded on Developing Association factor. This variable items are intended to measure the perceived TC of the focal firm in the relationship with its major supplier. The means of this construct are 3,92 for TC Developing Association, 2,92 for TC Opportunism and 2,88 for TC Addressing Problems in six point likert scale. These mean the scores give the average perceived TC of focal firms to final customer.

Supply chain collaboration variable is originally considered under 7 factors, Information Sharing (IS), Goal Congruence (GC), Decision Synchronization (DS), Incentive Alignment (IA), Resource Sharing (RS), Collaborative Communication (CC), Joint Knowledge Creation (JKC). Each factor has 5 questions to measure the factor. Even though the seven items are eliminated during analysis, none of the factors are disappeared totally. But some of the questions from a different factor are loaded on the same factor. The most effective factor, F1, SCCISGC, 12 questions, mostly consists of information sharing and goal congruence, two items from collaborative communication loaded on this factor which is already related with information sharing, this makes sense. The second factor has three factors' questions, decision synchronization, joint knowledge creation, incentive alignment. The third one is only consisting of resource sharing. The last one has only collaborative communication. There is no factor lost during factor analysis. This variable items are intended to measure perceived SCC of the focal firm in the relationship with major supplier. The means of this construct are 4,20 for SCC ISGC, 3,22 for SCC DSJKCIA, 3,96 for SCC RS and 3,73 for SCC CC in six point likert scale. These mean scores give the average perceived SCC of focal firms to final customer.

5.1.2 Regression Analyses findings

Hypotheses of the study are tested with regression analyses, detailed results of these analyses are explained in the previous part. The findings' results are explained in this part by the literature support. In this part, research questions of this dissertation will be answered with the support of the results and the related literature.

Regression analyses testing the relationship between trust and SCC show that there is a statistically significant and positive relationship between two variables. Current literature also supports this result in various researches (e.g. Barney and Hansen, 1994; Bradach and Eccles, 1989; Bunduchi, 2008; Langfield-Smith and Smith, 2003). According to the findings, trust has the highest beta value in regression with SCC Information Sharing and Goal Congruence factor. This finding is also parallel with the literature, there is a strong relationship between trust and information sharing in research results (Dyer and Chu 2003, p.59). Trust facilitates a more open communication, information sharing and conflict management for organizations (Blomqvist, 2002). Trust is central for creating an environment of information sharing as the collaboration requires trust in the other party (Thomas, 1979). Trust is referred as a sociological resistor of collaboration (Fawcett et al., 2015). The first research question of the study is "Is there any relation between perceived trust among the members of a supply chain (SC) and SCC, SCP, TC?". First part of this question has been answered with this regression analysis. There is a relation between perceived trust among supply chain partners and SCC, this relation is significant and positive. The more organizations have trust in their major supplier, the more they establish supply chain collaboration with them.

Regression analyses testing the relationship between SCC and SCP show that there is a statistically significant and positive relationship between two variables. As supported with the literature, SCC can reduce the risk and cost and increase the productivity and profit (Cao and Zhang, 2011, p.168). Knowledge sharing in a supply chain shortens the lead time, reduces input costs, and improves product quality (Kotabe et al., 2003, p.312). This research indicates that all SCC factors are effecting SCP factors positively in line with the literature. The most powerful effect on both SCP factors is information sharing and goal

congruence factor according to beta values. The power of information sharing on SCP is also supported with these results. Information sharing is also one of the most important supply chain management practice which significantly and positively affects organizational performance (Doğanay, 2011). With this regression test, second question of this dissertation is answered, the degree of perceived SCC can determine the perceived degree of SCP. The more organizations have supply chain collaboration with their major supplier, the more they increase supply chain performance on final customer side of the chain.

Regression analyses testing the relationship between SCC and TC developing association show that there is a statistically significant and positive relationship between variables. In SCC and TC regression test, the relationships hypothesize negatively, but even though there are significant relations between all SCC factors and TCDA, these relations are positive according to the results. This means that the more organizations collaborate, the more they spend on Transaction Cost Developing Association. Organizations spend more time and effort to establish collaborative relationship with their major suppliers, building trusted relationships and planning activities collaboratively requires some effort to spend at the beginning. This issue also mentioned in the literature under collaboration failures comments. Collaboration needs to be embedded in a wider set of governance mechanisms that should include relationship controlling, dependence monitoring and trust building. Finding the right balance of governance modes in collaboration is generally takes more effort than setting-up the necessary collaborative processes. Complex trade-offs in collaborative relations must be considered because the benefits of the collaboration do not come for free for organizations (Corsten and Felde, 2005, p.456).

TC addressing problems factor has significant and negative relations with all SCC factors. When the focal firms have more collaboration with their major suppliers, they will reduce addressing problems related transaction costs. This result is parallel with the literature. SCC resource sharing factor as a collaboration type is the process that helps to improve capabilities and assets and investing in them with supply chain partners (Harland et al., 2004, p,2). In this research, according to focal firms' perceptions, all SCC factors have a significant role to reduce addressing problems related transaction cost with their major

supply chain partners. Focal firms can use supply chain collaboration as a tool to solve their transaction related problems with their major suppliers.

TC opportunism factor has significant and negative relations with all SCC information sharing and goal congruence factor. When the focal firms have more collaborations via information sharing and goal congruence with their major suppliers, they will reduce the opportunism related transaction costs. There are similar results in the literature, supporting these findings. Shared information is not only essential for daily operations but also essential for more strategic collaborative activities, it is at the center of collaboration (Min et al., 2005, p.245). SCC helps firms reduce the costs of opportunism by process integration and mutual trust (Kaufman et al., 2000, p.654). Co-operation between supply chain members, teamwork and the fast data exchange in a supply chain will reduce transaction costs. These new relationships can reduce costs, because transaction costs require information which only firms can provide (Hobbs, 1996, p.26).

The third question of this research has been answered with these regression analyses. Perceived SCC can determine the perceived degree of TC but the direction of regression is not always negative as hypothesized. Collaboration helps to reduce transactions costs but at the beginning of the partnership, to establish collaboration with supply chain partners will increase monitoring costs of the relation until having total trust that supply chain partner will not behave opportunistically.

In trust and SCP regression analyses, the results are in line with the literature, trust has a significant positive effect on SCP related with performance, speed and cost of the supply chain. The literature supports that partnerships help to achieve cost savings and reduce duplication of efforts by the organizations involved (Lambert et al., 2004). It is also supported in the literature that trust has a significant and positive effect on performance which includes improved flexibility, responsiveness, and cost reduction (e.g., Handfield and Bechtel, 2002; Narasimhan and Nair, 2005; Ireland and Webb, 2007; Laaksonen et al., 2009). This regression analysis is also an answer for the first question of this study. This answer is also positive like the other relation between trust and SCC. The

higher level of trust between focal firm and its major supplier is, the better supply chain performance has with final customer is.

In trust and TC regression analyses, trust and TC Developing Association factor has a significant relation but this relation is positive which is contradicting the hypothesis. This means, the more focal firm has trust to his major supplier, the more it has transaction cost in terms of Developing Association. To build trust with suppliers also has some costs like building associations, nothing comes free but once this trust is built, collaboration will help to reduce the transaction costs in the long run. Once the relationship gets older, trust builds up between supply chain partners and that will start to decrease this cost during partnership.

In trust and other TC factors regressions, trust has a significant negative correlation with TC Addressing problems and TC Opportunism factors. Trust provides a stable relationship with lower transactional costs, promotes desirable behavior, decreases the extent of legal contracts, and helps to address problems (Sahay, 2003, p.77). These results of this study are in line with the literature that shows “trust between supply chain partners could lead to a reduction in transaction costs” (Piboonrungsroj and Disney, 2015, p.30). According to the literature, trust helps decreasing the opportunistic behavior (Hosmer, 1995, p.386; Lander et al., 2004). In a high level inter-organizational trust environment, organizations are more focused on engaging in committed relationships and not concerned about opportunistic behaviors (Thomas, 1979). Trust is a positive force that can reduce perceived risk and opportunism through intrinsic motivation, which in return reduces monitoring costs, both important components of TC. This analysis result is the last answer for the first question, there is a relation between perceived trust among the members of a supply chain (SC) and TC. The more focal firm trust the major supplier, the less it has transaction cost regarding to addressing problems and opportunism.

5.1.3 Multiple Regression Analyses Findings

Multiple regression analyses are conducted where SCC is assumed as the dependent variable. SCC is considered as a whole with all four factors, it is considered that to have SCC, one organization must have all types of collaboration at the same time.

In Multiple regression analysis on SCC and SCP, perspeed relation results are as follows; while SCCDSJKCIA and SCCCC factors didn't give significant results, SCCISGC and SCCRS factors' results are positive and significant. As an important factor of SCC, information sharing and goal congruence has a significant and positive effect on SCP perspeed along with SCC resource sharing. This result is supported by the literature as it is explained in the findings of regression analyses.

In Multiple regression analysis on SCC and SCP cost relation, SCCISGC and SCCDSJKCIA factors have a significant and positive regression as in the regression analyses. SCCRS factor didn't give a significant result but SCCCC factor gave negative significant results. SCC Collaborative Communication might fail to succeed between organizations in some examples. Miscommunication and misunderstanding between supply chain partners are other reasons for many supply chain collaboration failures (Tuten and Urban, 2001, p.158). Besides, collaborating with partners can sometimes increase the costs of coordination, compromise, and inflexibility (Das et al., 2006, p.568). According to Ramanathan and Gunasekaran's (2014) study, collaborative alliances help to improve SCP. In both SCP factor, the most powerful effect came from SCC Information sharing and goal congruence factor as it is in regression analyses. These results are the different ways to answer the second question of this study because this question is answered previously in regression analysis when SCC factors are tested separately. But perceived SCC, as a whole factor, also can determine the perceived SCP.

According to multiple regression analyses between SCC and TC factors, in all SCC factors, SCC information sharing and goal congruence factor has the most powerful influence between SC partners, this also shows the benefits of SCC over transaction cost factors. However, collaboration is not always having positive effects over transaction costs.

Even if the collaboration is good for organizations, it might increase the cost of coordination and inflexibility, to set a balance on this, an optimal level of collaborative efforts should be found by managers (Das et al., 2006, p,568).

If organizations want to receive the benefits of collaboration, they should be ready for the possible consequences the collaboration may bring. Even if there are some positive relations between SCC and TC, perceived SCC as a whole factor, also can determine the perceived TC.

5.1.4. Findings of Hierarchical Regression Analyses

Hierarchical regression analyses are applied to test the mediation effect of SCC factor on trust and SCP and TC relations. In these analyses, the last two questions are answered.

All SCC factors mediate the relationship between trust and SCP, except SCC collaborative communication and SCP cost relation. Among these relations, only SCC information sharing and goal congruence factor fully mediate trust and SCP cost factor relation, all the other mediations are partial. These analyses answer the fourth research question of this dissertation; the degree of perceived SCC mediates the relation between perceived trust and SCP. These results suggest that trust predicts supply chain performance, and that it does so by strengthening the supply chain collaboration. The degree of trust established between the supply chain partners is a major determinant of the level of collaboration that is possible in a relationship (Hoyt and Huq, 2000). But mutual trust is essential for a successful collaboration between two organizations (Ramanathan and Gunasekaran, 2014, p,258). Trust also supports higher capacity for collaboration, adaptation, and commitment in the relationship. This situation helps eliminating frictions in daily operations, leads to better coordination, which will finally result in improved financial performance for organizations (Wicks et al., 1999, p,112). The fourth question of this dissertation was "Does the degree of perceived SCC mediate the relation between perceived trust and SCP?". According to the results, trust predicts SCP and that it does so by strengthening SCC elements among supply chain partners.

The other hierarchical regression analyses are applied on trust-SCC-TC relation. Results show that except in three analyses, SCC factors have either full or partial mediation in all mediation analyses. In trust and TC developing associations relation, all SCC factors have full mediation but the directions of the relations are positive in all of them as it is in regression analyses. All SCC factors except SCC collaborative communication factor mediate a significant and negative relationship between trust and TC addressing problems factor. These results suggest that trust predicts transaction costs related to addressing problems, and that it does so by strengthening supply chain collaboration activities among supply chain partners. When unforeseen contingencies arise, such as costs not explicitly covered by the terms of a contract, high levels of trust between supply chain partners facilitates the development of an agreement about the contingent situations and solutions (Zaheer et al., 1998, p.144). Organizations which have trust in their partners are generally eager to collaborate with their partners because they assume that there won't be any opportunistic behavior from those partners (e.g. Barney and Hansen, 1994; Bradach and Eccles, 1989). According to the results of this study, the degree of perceived SCC mediates the relation between perceived trust and TC. These analyses answer the last research question. Trust predicts transaction costs (but only addressing problems related), and that it does so by strengthening SCC elements among supply chain partners.

5.1.5. Findings of Multiple Hierarchical Regression Analyses

Beside hierarchical regression analyses, to have a different view on the total effect of SCC as a whole factor, hierarchical multiple regression analysis is applied to Trust-SCC-SCP factors. As a result, SCCISGC and SCCRS partially mediate the relationship between trust and SCP perspeed. Among all the supply chain collaboration types, only information sharing, goal congruence and resource sharing have a significant and positive effect on trust and SCP perspeed relation. This result suggests that trust predicts supply chain performance related to performance of final product and speed of delivery, and that it does so by strengthening SCC information sharing, goal congruence and resource sharing activities among the supply chain partners. This result is also

supported in the literature as explained in hierarchical regression analyses and answered the research question of this study.

In trust and SCP cost relationship, SCC has similar findings as with trust and SCP perspeed. Thus, SCC fully mediates the relationship between trust and SCP Cost for SCCISGC and SCCDSJKCIA factors. Information sharing, goal congruence, decision synchronization, joint knowledge creation and incentive alignment have a significant and positive effect on trust and SCP cost relation. This result suggests that trust predicts supply chain performance related to production cost, and that it does so by strengthening SCC information sharing, goal congruence decision synchronization, joint knowledge creation and incentive alignment activities among supply chain partners. The results are in line with the literature, information sharing and goal congruence are the most powerful collaboration types which have positive effect on the performance of the supply chain. Information sharing in a supply chain shortens the lead time, reduces the input costs, and improves product quality (Kotabe et al., 2003, p.312). In a recent empirical study, it is stated that, trust and collaboration have a significant and positive relation and this relation also affects the operational performance of the organization (Salam, 2017).

Hierarchical multiple regression analyses are also applied to Trust-SCC-TC factors. According to the results of these analyses, even if SCC fully mediates the relationship between trust and TC developing association, the direction of relationship is positive which is contradicting the suggested hypotheses. In the literature, SCC failures are mentioned and managers are warned about the possible consequences of collaboration efforts. Some reasons that lead organizations to a collaborative failure are poor internal communications prior to collaboration, maintaining long-term strategic coordination between partners, and the late coming expected benefits (e.g. Bowersox et al., 1999; Fawcett and Magnan, 2002; Barratt, 2004; Daugherty et al., 2006).

SCC partially mediates the relationship between trust and TC addressing problems, SCCISGC and SCCDSJKCIA factors have a partial mediation effect on trust and TCAP significant and negative relationship. Information sharing, goal congruence, decision synchronization, joint knowledge creation and incentive alignment have a mediation effect

on the significant and negative relationship between trust and TC addressing problems. This result suggests that trust predicts transaction cost related to addressing problems, and that it does so by strengthening SCC information sharing, goal congruence decision synchronization, joint knowledge creation and incentive alignment activities among supply chain partners.

SCC partially mediates the relationship between trust and TC opportunism. Among all the supply chain collaboration types, only information sharing and goal congruence have a mediation effect on the significant and negative relationship between trust and TC opportunism. This result suggests that trust predicts transaction cost related opportunism, and that it does so by strengthening SCC information sharing and goal congruence activities among supply chain partners. Trust in a supplier improves the overall effects of collaboration for a buyer since it gives additional confidence against opportunism (Artz, 1999, p.117).

5.1.6 Findings of ANOVA Tests

Besides the regression analyses, Anova tests are applied for some demographic and relational differences of respondent organizations. Only significant test results are presented.

According to the annual gross sales (AGS) of the focal firms, there are some differences among AGS groups' SCC levels. Organizations which have more than 1 billion TL AGS tend to have more collaboration via decision synchronization, joint knowledge creating, incentive alignment and resource sharing comparing to organizations which have AGS between 10,000,001 TL – 100,000,000 TL. Financially bigger firms are more confident in collaborative relationships with their suppliers. They build long time relationships with trusted suppliers and collaborate with them.

According to the respondent's position in the partnership of the focal firms and their suppliers, there are some differences among groups' SCCISGC levels. The firms which have more equal positions in supply chain partnership tend to be more collaborative on the level of SCCISGC. Organizations which perceive that they are equal partner in the

partnership with their major supplier tend to have more information sharing compared to organizations which perceive that they are the smaller partner according to their major supplier. Smaller sized focal firms are more concerned about opportunistic behaviors of suppliers and more careful in building collaborations.

According to the partnership duration of the focal firms with their suppliers, there are some differences among groups' SCCISGC and SCCRS levels. Organizations which have more than a 10-year partnership with their major suppliers tend to have more information sharing, goal congruence and resource sharing collaboration than organizations which have less than a 5-year partnership with their major suppliers. The longer focal firms have partnership with their major suppliers the more they have SCC regarding information sharing and goal congruence as a collaboration tool. Long time partnership shows the trust between partners which helps collaboration building.

5.2 Conclusion

In an uncontrollable environment, organizations are after finding long term reliable partnerships for their supply chain to stabilize the flow as much as they can. It is critically important to have strong and reliable suppliers for a focal firm which produce value for customers in the chain. It is not logical and practical to control all supply chains for an organization but some chains must be controlled and managed closely to achieve the ultimate goal which is customer satisfaction. In this dissertation, with a quantitative research method, it is aimed to gather data about controlled and managed supply chains between supplier-focal firm-ultimate customer.

Supply chain collaboration is the main topic of this dissertation and the research is built on this topic. Among the different antecedents of SCC, trust is the most important and mostly studied factor which helps establishing a collaboration between supply chain partners. Trust based SCC is one of the strategic goals of the organizations which would like to have a long-term partnership with their major suppliers. Some specific supply chains are heavily depended on specific products or services that need to be controlled and managed along with the supply chain process. These are called critical components for this

specific supply chain and the suppliers which supply these critical components are the major suppliers for focal organization. To be able to manage this supply chain, organizations need to collaborate with major suppliers by building trust. Collaboration built on trust will have long life and strong base in supply chain partnership.

Turkish organizations which joined the survey as focal firm are mostly in ISO 500-1 and ISO 500-2 lists which means they are in the first 1000 industrial organizations announced annually by Istanbul Chamber of Industry in Turkey. Most of the respondent organizations (%75) are applying SCM applications in their organizations and 94% of them are having supply chain collaboration with their suppliers. Respondent organizations are big organizations as the size of annual gross sales and number of employees indicate. Age of the organizations is also high; %78 of the organizations are older than 10 years. Most of the respondents (%62) are dealing more than 51 suppliers that requires to be selective while choosing which supply chain to be managed. This profile gives a good picture that the correct sample as focal firm is reached in the research.

According to the dissertation's findings, trust is a very important antecedent for mediator, SCC and the dependents, SCP and TC. Trust in supply chain creates an environment where collaboration and performance can flourish and transaction cost decreases. Building trust between supply chain partners is a priority to achieve collaborative supply chain relations, as a result of this collaboration, organizations can increase their supply chain performance and reduces the transaction cost resulted from this partnership. Collaboration has also intangible outcomes other than these tangible outcomes, improved processes, information sharing, improved relationships and communication, better visibility long-term commitment, increased level of trust, problem-solving environment and change culture are intangible outcomes of the successful collaboration (Salam, 2017).

In this dissertation, according to the literature review and to the knowledge of the author, most recent and comprehensive collaboration types are used to measure SCC between focal firm and its major supplier. In this research, among SCC types, information sharing and goal congruence (loaded in one factor) are the most powerful collaboration elements in almost all aspects. According to frequency mean results, SCC ISGC has the

highest mean (4,20) in all collaboration elements. During regression, hierarchical regression and multiple regression analyses, SCC ISGC factor has significant level of regressions with the highest beta values. These results are again in parallel with the literature. The second strong element of collaboration is SCC RS (3,96), third is SCCCC (3,74) and the last one is SCC DSJKCIA (3,22) element. But in the regression analyses with dependents, the second most effective collaboration element is SCC DSJKCIA. These results show that, the organizations attended to this study perceived SCC with their major supplier are mostly related with information sharing and goal congruence. In this study sample, the organizations prefer to collaborate via information sharing which is also very common in the literature. In information age, organizations are in virtual relationship and collaboration activities are more likely to be also virtual like information sharing on computers. In the mean time, activities like decision synchronization, joint knowledge creation and incentive alignment are less preferable activities between focal firms and major suppliers. This result is understandable for Turkish organizations, synchronizing decisions, aligning incentives require a lot of effort even in internally in organizations.

SCC is a good mediator in the relation between trust and SCP according to the results. Even though trust has a significant relationship both with reducing transaction cost and increasing SCC, the mediation effect of SCC on trust and transaction cost relationship isn't as strong as it is on trust and SCP.

As a result of the dissertation findings, it can be concluded that;

- ✓ Trust has a significant and positive relation with supply chain performance, which means trust may help to increase organizations' supply chain performance related with the ultimate customer.

- ✓ Trust has a significant and negative relation with transaction cost, which means trust may help to reduce transaction cost of organizations related with major supplier transactions.

- ✓ Trust has a significant and positive relation with supply chain collaboration, which means trust may help to increase organizations' supply chain collaboration with major suppliers.

✓ SCC has a significant and positive relation with supply chain performance, which means supply chain collaboration may help to increase organization's supply chain performance related with ultimate customer.

✓ SCC has a significant and negative relation with transaction cost, which means supply chain collaboration may help to reduce the transaction cost of organizations related with major supplier transactions.

✓ Trust predicts supply chain performance and that it does so by strengthening supply chain collaboration elements; information sharing, goal congruence, decision synchronization, joint knowledge creation, incentive alignment activities and resource sharing among supply chain partners. Trust based SCC may help to increase organizations' supply chain performance related with ultimate customer.

✓ Trust predicts transaction costs, and that it does so by strengthening supply chain collaboration elements; information sharing, goal congruence, decision synchronization, joint knowledge creation and incentive alignment activities among supply chain partners. Trust based SCC may help to reduce organizations' transaction costs regarding to addressing problems with major suppliers.

✓ Organizations which have more annual gross sales tend to have more collaboration than organizations that have less annual gross sales. Financially bigger firms have more collaborative relations with their major suppliers than financially smaller firms.

✓ Organizations in an equal relationship with their major suppliers have more collaborative relations with them than organizations that are in small partner position according to their major supplier.

✓ Organizations which have longer partnership with their major suppliers tend to have more collaboration than organizations that have shorter partnership with their major suppliers. Partnership duration between supply chain partners is related with collaboration between partners, long term partnership increases collaboration level.

Organizations in supply chain can achieve better organizational performance by increasing their supply chain performance and reducing transactional cost. Resource based view suggests using organizational strenghts to achieve the organizational goals. Collaboration capability, which is one of the most important strenghts for organizations,

helps organizations to achieve their organizational goals. Transaction cost theory explains the reasons that cause transaction costs in purchasing which are inevitable for organizations that decide outsourcing for their inputs. But, trust based collaboration in supply chain can help to reduce this inevitable costs for organizations.

As a result, trust based SCC will affect SCP positively and TC negatively according to the findings. Trust based supply chain collaboration is the capability of the organizational capital resource and it is a very important asset which can be listed under organization's strengths according to resource based view (RBV). For the organizations which would like to improve their supply chain performance and reduce transaction cost, trust based supply chain collaboration will be a good asset in their own resources in line with RBV. Transaction cost theory also supports trust based supply chain collaboration effect on transaction costs resulted from supplier relationship. SCC helps organizations to reduce the costs of opportunism and monitoring regards to transactions with members through process integration and mutual trust. In the light of both resource based view and transaction cost theory, the study has empirical evidences on trust based supply chain collaboration effects on supply chain performance and transaction cost.

Trust is considered as the vital construct in this relationship by the respondents. The factors extracted from the data with high reliability, suggest that organizations need to verify that the mechanisms of trust will function properly and they will not be exposed to adverse impacts stemming from the opportunistic acts. Being vulnerable to opportunistic behavior of the major suppliers in the chain appears as one of the major concerns for the respondents who have attended to the survey. This is also compliant with the basic assumptions of TCT.

Tested model, hypotheses and analyses showed that the respondent organizations perceive that the trust between focal firms and their suppliers improves supply chain performance and reduces transaction cost via developing collaboration activities between supply chain partners.

5.3. Implications

There are some implications of this research for both researchers and the practitioner organizations. The importance of the study in Turkish context for Turkish organizations is also explained in this section.

5.3.1. Implications for Researchers

Supply Chain Collaboration is a very popular subject for researchers and can be interconnected to different management and strategic research subjects. According Ralston et al.'s, (2017) study, SCC is studied in different aspects like internal, relational and technological. Firms are choosing different type of collaboration with their partners. SCC is an active subject in the literature but it is understudied. This subject should be studied from different aspects like; what is the strategy behind, what contributes to SCC and what should be expected from. SCC is a valuable research area to help academicians and practioners in understanding of the working of collaboration in better (Narayanan et al., 2015).

The results of this dissertation have some implications for researchers who are interested in supply chain and collaboration fields. First, this is one of the very few examples about supply chain collaboration empirical research in Turkey. By having this kind of empirical research in Turkish context, researchers will have an idea about Turkish organizations' perceptions for supply chain collaboration which measure with the most recent and comprehensive measurement tool in the literature to the knowledge of the author. Collaboration types are grouped under four main factors for Turkish organizations. This research showed that information sharing and goal congruence are the most important collaboration activities between supply chain partners as in supply chain practices. Researchers may concentrate on these collaboration types (information sharing and goal congruence) while setting their supply chain collaboration emprical researches. It is also confirmed emprically that trust is one of the most important antecedent of collaboration between partners. SCP is very much related to trust and collaboration. The weakest relation in the study is between trust, SCC and TC. This result also gives some clues about these variables in Turkish organizations' supply chain partnership relations. All these factors

should be considered by the researchers who are interested in supply chain collaboration research. For the researchers who would like to make a qualitative research about this subject, this information could help to build structured qualitative research questions.

5.3.2. Implications for Practitioner Organizations

The results of this dissertation also have some implications for the organizations which are in supply chain relationship. In supply chain collaboration fields, organizations have limited information and are lack of empirical evidences about the collaboration and its advantages for the organizations. With this research, an awareness is created for the importance of trust based supply chain collaboration to Turkish organizations. During the survey, many organization requested to have results of the study. The e-mail address of the organizations are asked to send the results of this research and 86 organizations gave their e-mail addresses to receive the results. With this opportunity, organizations will have the results of the study which they are in by joining the survey.

According to the results, these outcomes will have possible implications on the organizations; information sharing is core activity for collaboration with their major suppliers, organizations will give more importance to share information to build strong collaborations. Building trust over a long term partnership with major suppliers will bring better supply chain performance via having collaboration with them. Trust based collaboration will also reduce the transaction costs resulted from transactions with major suppliers via having a collaboration with them. Organizations should consider building a trust based collaboration with their major supplier to achieve these goals in their selected supply chains.

Organizations must be ready to collaborate. There might be many benefits in collaborating, but if organizations are not willing to work with others for win-win cases and value creation, collaboration won't be successful (Ralston et al., 2017). Top management support for collaboration is a very important prerequisite, this is the foundation for collaboration and shows the importance to organization (Jin et al., 2013; Chen et al., 2010; Fawcett et al.,

2008, p.94). That's why firstly top management of the organizations should support SCC activities in the organization and inter-organizational level.

5.3.3. The Importance of the Study in Turkish Context

Organizations are after superior performance and reduced costs to be profitable while they are satisfying customers with good service level. In the global business world, customers have lots of opportunities to pick among the companies which can not change the price levels much in this competing environment. It is really hard to maximize the gains and minimize the costs alone. But organizations are actually not alone in this competition, because supply chains are competing against other supply chains. Organized and collaborated supply chains have more chance in this competition. Successful collaboration is related to the capability of managers to establish trust and relationships among supply chain partners (Panayides and Lun, 2009). That's why managers should spend more relational time with the partners to build trust and collaboration to achieve a better performance in all aspects. Supply Chain Performance is becoming one of the most important criteria for managers who are responsible not only for their own goals but also SC goals. SCC has a positive influence on SCP (Liao et al., 2014) and it helps to improve SCP via reducing costs and increasing customer responsiveness, not only profit but also non-profit performance (Sheu et al., 2006). To reach SCP advantages, organizations should search for SCC opportunities among efficient and responsive partners in supply chain (Wu et al., 2014).

However, high level of trust and commitment between supply chain partners are important factors to achieve collaboration successfully (Yi et al., 2016). Trust is a dynamic construct. Therefore, organizations should take this account to sustain SCC and monitor trust changes between partners (Daudi et al., 2016). Because once the trust is broken, it is hard to repair it and to continue SCC successfully. Organizations in Turkey should concentrate on the supply chain partners relationship management to build and sustain trusted relationships especially for critical/major suppliers which have a direct effect on the supply chain. This study emphasize on the importance of trust based supply chain collaborations with an empirical research conducted in an important sample which

represents Turkish Industrial companies. This study draws the attention of the organizations which are the focal firms in supply chain and manage both side of the chain to achieve successful results.

Trust is a very important antecedent for SCC but it is not enough alone to make an effective SCC. There are seven SCC constructs used in this research, the results of the research show that information sharing is the most important factor for successful collaboration. SCC can only be effective as information transparency established between partners, seamless data flow is essential to make sure that partners obtain real time information in supply chain. The future of SCC will be based on multi partner information exchange with vital supply chain partners, collaborative resource sharing like warehouse, delivery system etc. in supply chain network (Yi et al., 2016). The literature supports the importance of information sharing through supply chain in many cases. This study also highlights the importance of information sharing, Turkish organizations should consider using this collaboration asset primarily to build long term collaboration relations with their major suppliers.

There are many international empirical studies that refer to the relationships between trust, collaboration and performance. But, per the knowledge of the author, there are not much empirical studies related to these constructs in the Turkish literature. This study adds to researchers' and practitioners' understanding of trust, collaboration and supply chain performance relationship through the empirical findings from organizations which are operating in Turkish Industrial sector. Moreover, this study analyses the trust based SCC as an important factor to increase SCP and decrease the transaction cost through an empirical setting based on RBV and TCT in Turkey's emerging economy context.

5.4. Limitations

Finally, there are also some limitations of this research as all do. Like every study, this study also has limitations. First limitation is the sample size; low response rate is one of the limitations, even though correct target group have been chosen mostly from

supply chain associations members, respondent organizations are reluctant about answering the questionnaires. Big organizations' supply chain managers or purchasing managers are generally very busy people and they don't have enough time to answer long questionnaires.

This survey is designed as self reported responses from a single respondent from each firm, so the answers represent one individual's perceptions for the entire organization. To reach the best possible answers for the organization, it is necessary to reach the correct key person who has the most visibility for organization's supply chain. For the future researches, two respondent can be surveyed with qualitative methods to have multi informant views from same organization.

Internal collaboration of the focal firm could be included to research to measure the internal collaboration's effect to the organization. In the questionnaire, there were some relational questions which could be used as a control variable, but they did not give any significant results in analyses.

REFERENCES

Books

Alavudeen, A., and Venkateshwaran, N. (2008). *Computer integrated manufacturing*. PHI Learning Pvt. Ltd.

Akyuz, G. A., Gursay, G., and Celebi, N. E. (2014). *Supply Chain Collaboration: A Conceptual Maturity Model*. In *Encyclopedia of Business Analytics and Optimization* (pp. 2333-2349). IGI Global.

Blomqvist, K. (2002). *Partnering in the dynamic environment: The role of trust in asymmetric technology partnership formation*. Lappeenranta University of Technology.

Bowersox, D. J., Closs, D. J., and Stank, T. P. (1999). *21st Century Logistics: Making Supply Chain Integration a Reality*.

Camp, R. C. (1989). Benchmarking: the search for best practices that lead to superior performance. *Quality progress*, 22(1), 61-68.

Christopher, M., (1992). *Logistics and Supply Chain Management*. Pitman Publishing, London.

Christopher, M. (2016). *Logistics and Supply Chain Management*. Pearson UK.

Coakes, E. (Ed.). (2005). *Encyclopedia of Communities Of Practice in Information and Knowledge Management*. IGI Global.

Colman, A., and Pulford, B. (2006). *A crash course in SPSS for Windows: updated for versions 10, 11, 12 and 13*. Blackwell Publishers, Inc.

Hair, J. F., Anderson, R. E., Tatham, R. L., and Black, W. C. (1998). *Multivariate Data Analysis*. Englewood Cliff. New Jersey, USA.

Heizer, J. and Render, B. (2006), *Operations Management, 8th ed.*, Pearson Education, Upper Saddle River, NJ.

Kaplan, R. S., and Narayanan, V. G. (2001). *Customer profitability measurement and management*. Harvard Business School.

Macbeth, D. K., and Ferguson, N. (1994). *Partnership sourcing: An integrated supply chain approach*. Financial Times Management/Pitman.

McClellan, M. (2003) *Collaborative Manufacturing: Using Real Time Information to Support the Supply Chain*. St. Lucie Press, Florida.

Oliver, R. K., and Webber, M. D. (1982). *Supply-chain management: logistics catches up with strategy*. Outlook, 5(1), 42-47.

Penrose, E. (1959), *The theory of the growth of the firm*. Wiley, New York.

Porter, M.E. (1980), *Competitive Strategy*. New York, Free Press.

Salmon, K. (1993), *Efficient Consumer Response. Enhancing Consumer Value in the Grocery Industry*, FMI, Ishington, DC.

Sekaran, U. (2003). *Research methods for business: A skill approach*. New Jersey: John Willey and Sons, Inc.

Simchi-Livi, D., Kaminsky, P., and Simchi-Livi, E. (2000). *Designing and Managing the SC-Concepts. Strategies*. McGraw-Hill, Singapore. Tomado de: Tyan y Wee.

Sipahi, B., Yurtkoru, E. S., and Çinko, M. (2010). *Sosyal bilimlerde SPSS'le veri analizi*. Beta.

Simon, H. A. (1957). *Models of Man: Social and Rational: Mathematical Essay on Rational Human Behavior in a Social Setting*. Wiley and Sons.

Slack, N., Chambers, S., and Johnston, R. (2010). *Operations management*. Pearson education.

Williamson, O. E. (1975). *Markets and hierarchies*. New York, 26-30.

Williamson, O. E. (1985). *The Economic Institutions of Capitalism*. Simon and Schuster.

Womack, J. P., Jones, D. T., and Roos, D. (1990). *Machine that changed the world*. Simon and Schuster.

Periodicals

Ailawadi, K.L., Farris, P.W., Parry, M.E., (1999). Market share and ROI: observing the effect of unobserved variables. *International Journal of Research in Marketing* 16 (1), 17–33.

Akyuz, G.A., and Erman Erkan, T. (2010). Supply chain performance measurement: a literature review. *International Journal of Production Research*, 48(17), 5137-5155.

Alberto, A. F. T., and Zamolo, E. (2005). From a traditional replenishment system to VMI. *International Journal of Production Economics*, 96(1), 63-79.

Anderson, J. C., and Narus, J. A. (1990). A model of distributor firm and manufacturer firm working partnerships. *The Journal of Marketing*, 42-58.

Angeles, R., and Nath, R. (2001). Partner congruence in electronic data interchange (EDI)-enabled relationships. *Journal of Business Logistics*, 22(2), 109-127.

Artz, K.W. (1999), "Buyer-supplier performance: the role of asset specificity, reciprocal investments and relational exchange", *British Journal of Management*, 10, pp. 113-26.

Aulakh, P. S., Kotabe, M., and Sahay, A. (1996). Trust and performance in cross-border marketing partnerships: A behavioral approach. *Journal of International Business Studies*, 27(5), 1005-1032.

Bailey, K., and Francis, M. (2008). Managing information flows for improved value chain performance. *International Journal of Production Economics*, 111(1), 2-12.

Barney, J. B. (1990). The debate between traditional management theory and organizational economics: substantive differences or intergroup conflict? *Academy of Management Review*, 15(3), 382-393.

Barney, J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, 17(1), pp99-120.

Barney, J. B., and Hansen, M. H. (1994). Trustworthiness as a source of competitive advantage. *Strategic management journal*, 15(S1), 175-190.

Barney, J. B. (1999). How a firm's capabilities affect boundary decisions? *MIT Sloan Management Review*, 40(3), 137.

Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6), 643-650.

Barratt, M., and Oliveira, A. (2001). Exploring the experiences of collaborative planning initiatives. *International Journal of Physical Distribution and Logistics Management*, 31(4), 266-289.

Barratt, M. (2004). Understanding the meaning of collaboration in the supply chain. *Supply Chain Management: An International Journal*, 9(1), 30-42.

Barringer, B. R., and Harrison, J. S. (2000). Walking a tightrope: Creating value through interorganizational relationships. *Journal of management*, 26(3), 367-403.

Beamon, B. M. (1999). Measuring supply chain performance. *International Journal of Operations and Production Management*, 19(3), 275-292.

Bidault, F., and Jarillo, C. J. (1997). Trust in economic transactions. *Trust: Firm and Society*, 271-86.

Bowersox, D. J. (1990). The strategic benefits of logistics alliances (pp. 2-8). *Harvard Business Review*.

Bowersox, D. J., Closs, D. J., and Stank, T. P. (2000). Ten mega-trends that will revolutionize supply chain logistics. *Journal of Business Logistics*, 21(2), 1-15.

Bowersox, D. J., Closs, D. J., and Stank, T. P. (2003). How to master cross-enterprise collaboration. *Supply Chain Management Review*, V. 7, NO. 4 (July/Aug. 2003), P. 18-27: ILL.

Bradach, J. L., and Eccles, R. G. (1989). Price, authority, and trust: From ideal types to plural forms. *Annual review of sociology*, 15(1), 97-118.

Brewer, P. C., and Speh, T. W. (2000). Using the balanced scorecard to measure supply chain performance. *Journal of Business logistics*, 21(1), 75.

Bunduchi, R. (2008). Trust, power and transaction costs in B2B exchanges—A socio-economic approach. *Industrial Marketing Management*, 37(5), 610-622.

Cai, S., Goh, M., de Souza, R., and Li, G. (2013). Knowledge sharing in collaborative supply chains: twin effects of trust and power. *International Journal of Production Research*, 51(7), 2060-2076.

Cao, M., Vonderembse, M. A., Zhang, Q., and Ragu-Nathan, T. S. (2010). Supply chain collaboration: conceptualization and instrument development. *International Journal of Production Research*, 48(22), 6613-6635.

Cao, M., and Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance. *Journal of Operations Management*, 29(3), 163-180.

Carmeli, A., and Tishler, A. (2004). Resources, capabilities, and the performance of industrial firms: A multivariate analysis. *Managerial and decision economics*, 25(6-7), 299-315.

Cheng, J. H., and Fu, Y. C. (2013). Inter-organizational relationships and knowledge sharing through the relationship and institutional orientations in supply chains. *International Journal of Information Management*, 33(3), 473-484.

Chopra, S., and Meindl, P. (2007). Supply chain management. Strategy, planning and operation. In *Das summa summarum des management* (pp. 265-275). Gabler.

Chow, S., and Holden, R. (1997). Toward an understanding of loyalty: the moderating role of trust. *Journal of Managerial Issues*, 275-298.

Clemons, E. K., Reddi, S. P., and Row, M. C. (1993). The impact of information technology on the organization of economic activity: The "move to the middle" hypothesis. *Journal of Management Information Systems*, 10(2), 9-35.

Coase, R. H. (1960). The problem of social cost. In *Classic Papers in Natural Resource Economics* (pp. 87-137). Palgrave Macmillan UK.

Cooper, M. C., and Ellram, L. M. (1993). Characteristics of supply chain management and the implications for purchasing and logistics strategy. *The International Journal of Logistics Management*, 4(2), 13-24.

Corbett, C. J., Blackburn, J. D., and Issenrove, L. N. V. (1999). Partnerships to improve supply chains. *Sloan Management Review*, 40(4), 71.

Corsten D. and Felde J., (2005), "Exploring the performance effects of key-supplier collaboration", *International Journal of Physical Distribution and Logistics Management*, 35, 6 pp. 445 – 461.

Cousins, P. D. (2005). The alignment of appropriate firm and supply strategies for competitive advantage. *International Journal of Operations and Production Management*, 25(5), 403-428.

Cox, A. (2001). Understanding buyer and supplier power: a framework for procurement and supply competence. *Journal of Supply Chain Management*, 37(1), 8-15.

Cravens, D. W., Piercy, N. F., and Shipp, S. H. (1996). New organizational forms for competing in highly dynamic environments: the network paradigm. *British Journal of management*, 7(3), 203-218.

Crook, T. R., Giunipero, L., Reus, T. H., Handfield, R., and Williams, S. K. (2008). Antecedents and outcomes of supply chain effectiveness: an exploratory investigation. *Journal of Managerial Issues*, 161-177.

- Croxtan, K. L., Garcia-Dastugue, S. J., Lambert, D. M., and Rogers, D. S. (2001). The supply chain management processes. *The International Journal of Logistics Management*, 12(2), 13-36.
- Danese, P. (2007). Designing CPFR collaborations: insights from seven case studies. *International Journal of Operations and Production Management*, 27(2), 181-204.
- Das, A., Narasimhan, R., and Talluri, S. (2006). Supplier integration—finding an optimal configuration. *Journal of Operations Management*, 24(5), 563-582.
- Daugherty, P. J., Richey, R. G., Roath, A. S., Min, S., Chen, H., Arndt, A. D., and Genchev, S. E. (2006). Is collaboration paying off for firms? *Business Horizons*, 49(1), 61-70.
- Dell, M., and Fredman, C. (1999). Direct from Dell: Strategies that revolutionized an industry. New York, NY: *Harper Business*. (pp. 9-10).
- Derrouiche, R., Neubert, G., and Bouras, A. (2008). Supply chain management: a framework to characterize the collaborative strategies. *International Journal of Computer Integrated Manufacturing*, 21(4), 426-439.
- De Toni, A., and Tonchia, S. (2001). Performance measurement systems-models, characteristics and measures. *International Journal of Operations and Production Management*, 21(1/2), 46-71.
- De Vita, G., Tekaya, A., and Wang, C. L. (2011). The many faces of asset specificity: A critical review of key theoretical perspectives. *International Journal of Management Reviews*, 13(4), 329-348.
- Dirks, K. T., and Ferrin, D. L. (2001). The role of trust in organizational settings. *Organization science*, 12(4), 450-467.
- Drake, M. J., and Schlachter, J. T. (2008). A virtue-ethics analysis of supply chain collaboration. *Journal of Business Ethics*, 82(4), 851-864.
- Dyer, J. H., and Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660-679.
- Dyer, J. H., Cho, D. S., and Chu, W. (1998). Strategic supplier segmentation: The next" best practice" in supply chain management. *California Management Review*, 40(2), 57-77.
- Dyer, J. H., and Chu, W. (2000). The determinants of trust in supplier-automaker relationships in the US, Japan and Korea. *Journal of International Business Studies*, 31(2), 259-285.

Dyer, J. H., and Chu, W. (2003). The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, Japan, and Korea. *Organization science*, 14(1), 57-68.

Duffy, R., and Fearne, A. (2004). The impact of supply chain partnerships on supplier performance. *The International Journal of Logistics Management*, 15(1), 57-72.

Dwyer, F. R., Schurr, P. H., and Oh, S. (1987). Developing buyer-seller relationships. *The Journal of Marketing*, 11-27.

Elofson, G., and Robinson, W. N. (2007). Collective customer collaboration impacts on supply-chain performance. *International Journal of Production Research*, 45(11), 2567-2594.

Ellram, L. M., and Hendrick, T. E. (1995). Partnering characteristics: a dyadic perspective. *Journal of Business Logistics*, 16(1), 41.

Elrod, C., Murray, S., and Bande, S. (2013). A review of performance metrics for supply chain management. *Engineering Management Journal*, 25(3), 39-50.

Fahy, J., and Smithee, A. (1999). Strategic marketing and the resource based view of the firm. *Academy of Marketing Science Review*, 1999, 1.

Fawcett, S. E., and Magnan, G. M. (2002). The rhetoric and reality of supply chain integration. *International Journal of Physical Distribution and Logistics Management*, 32(5), 339-361.

Fawcett, S. E., Magnan, G. M., and McCarter, M. W. (2008). A three-stage implementation model for supply chain collaboration. *Journal of Business Logistics*, 29(1), 93-112.

Fawcett, S. E., Magnan, G. M., and Fawcett, A. M. (2010). Mitigating resisting forces to achieve the collaboration-enabled supply chain. *Benchmarking: An International Journal*, 17(2), 269-293.

Fawcett, S. E., McCarter, M. W., Fawcett, A. M., Webb, G. S., and Magnan, G. M. (2015). Why supply chain collaboration fails: the socio-structural view of resistance to relational strategies. *Supply Chain Management: An International Journal*, 20(6), 648-663.

Fisher, M., Hammond, J., Obermeyer, W., and Raman, A. (1997). Configuring a supply chain to reduce the cost of demand uncertainty. *Production and operations management*, 6(3), 211-225.

Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *The Journal of Marketing*, 1-19.

Geyskens, I., Steenkamp, J. B. E., and Kumar, N. (2006). Make, buy, or ally: A transaction cost theory meta-analysis. *Academy of management journal*, 49(3), 519-543.

Giannakis, M., and Croom, S. R. (2004). Toward the development of a supply chain management paradigm: a conceptual framework. *Journal of Supply Chain Management*, 40(1), 27-37.

Golicic, S. L., Foggin, J. H., and Mentzer, J. T. (2003). Relationship magnitude and its role in interorganizational relationship structure. *Journal of business logistics*, 24(1), 57-75.

Goffin, K., Lemke, F., and Szwajczewski, M. (2006). An exploratory study of 'close' supplier–manufacturer relationships. *Journal of operations management*, 24(2), 189-209.

Gosain, S., Malhotra, A., and El Sawy, O. A. (2004). Coordinating for flexibility in e-business supply chains. *Journal of Management Information Systems*, 21(3), 7-45.

Grant, R. M. (1991). "The Resource Based Theory of Competitive Advantage: Implications for Strategy Formulation". *California Management Review*, 33, No. 3. 114-135.

Green, K. W., and Inman*, R. A. (2005). Using a just-in-time selling strategy to strengthen supply chain linkages. *International Journal of Production Research*, 43(16), 3437-3453.

Green Jr, K. W., Whitten, D., and Inman, R. A. (2008). The impact of logistics performance on organizational performance in a supply chain context. *Supply Chain Management: An International Journal*, 13(4), 317-327.

Griffith, D. A., Harvey, M. G., and Lusch, R. F. (2006). Social exchange in supply chain relationships: The resulting benefits of procedural and distributive justice. *Journal of Operations Management*, 24(2), 85-98.

Grover, V., Teng, J. T., and Fiedler, K. D. (2002). Investigating the role of information technology in building buyer-supplier relationships. *Journal of the Association for Information Systems*, 3(1), 7.

Grover, V., and Malhotra, M. K. (2003). Transaction cost framework in operations and supply chain management research: theory and measurement. *Journal of Operations management*, 21(4), 457-473.

Gulati, R., and Sytch, M. (2007). Dependence asymmetry and joint dependence in interorganizational relationships: Effects of embeddedness on a manufacturer's performance in procurement relationships. *Administrative Science Quarterly*, 52(1), 32-69.

Gunasekaran, A., Patel, C., and Tirtiroglu, E. (2001). Performance measures and metrics in a supply chain environment. *International Journal of Operations and Production Management*, 21(1/2), 71-87.

Gunasekaran, A., Patel, C., and McGaughey, R. E. (2004). A framework for supply chain performance measurement. *International Journal of Production Economics*, 87(3), 333-347.

Gunasekaran, A., and Ngai, E. W. (2004). Information systems in supply chain integration and management. *European Journal of Operational Research*, 159(2), 269-295.

Gunasekaran, A., and Kobu, B. (2007). Performance measures and metrics in logistics and supply chain management: a review of recent literature (1995–2004) for research and applications. *International Journal of Production Research*, 45(12), 2819-2840.

Han, S. L., Wilson, D. T., and Dant, S. P. (1993). Buyer-supplier relationships today. *Industrial Marketing Management*, 22(4), 331-338.

Handfield, R. B., and Bechtel, C. (2002). The role of trust and relationship structure in improving supply chain responsiveness. *Industrial Marketing Management*, 31(4), 367-382.

Harland, C., Zheng, J., Johnsen, T., and Lamming, R. (2004). A conceptual model for researching the creation and operation of supply networks. *British Journal of Management*, 15(1), 1-21.

Harland, C. M., Lamming, R. C., Walker, H., Phillips, W. E., Caldwell, N. D., Johnsen, T. E., and Zheng, J. (2006). Supply management: is it a discipline? *International Journal of Operations and Production Management*, 26(7), 730-753.

Harrigan, K. R. (1988). Joint ventures and competitive strategy. *Strategic Management Journal*, 9(2), 141-158.

Harrison, A., and New, C. (2002). The role of coherent supply chain strategy and performance management in achieving competitive advantage: An International Survey. *Journal of the Operational Research Society*, 53(3), 263-271.

Hewett, K., and Bearden, W. O. (2001). Dependence, trust, and relational behavior on the part of foreign subsidiary marketing operations: Implications for managing global marketing operations. *Journal of Marketing*, 65(4), 51-66.

Hobbs, J. E. (1996). A transaction cost approach to supply chain management. *Supply Chain Management: An International Journal*, 1(2), 15-27.

Holmberg, S. (2000). A systems perspective on supply chain measurements. *International Journal of Physical Distribution and Logistics Management*, 30(10), 847-868.

Holweg, M., Disney, S., Holmström, J., and Småros, J. (2005). Supply chain collaboration: Making sense of the strategy continuum. *European Management Journal*, 23(2), 170-181.

Horvath, L. (2001). Collaboration: the key to value creation in supply chain management. *Supply Chain Management: An International Journal*, 6(5), 205-207.

Hosmer, L. T. (1995). Trust: The connecting link between organizational theory and philosophical ethics. *Academy of Management Review*, 20(2), 379-403.

Houlihan, J. B. (1985). International supply chain management. *International Journal of Physical Distribution and Materials Management*, 15(1), 22-38.

Houlihan, J. B. (1988). International supply chains: a new approach. *Management Decision*, 26(3), 13-19.

Hoyt, J., and Huq, F. (2000). From arms-length to collaborative relationships in the supply chain: An evolutionary process. *International Journal of Physical Distribution and Logistics Management*, 30(9), 750-764.

Huan, S. H., Sheoran, S. K., and Wang, G. (2004). A review and analysis of supply chain operations reference (SCOR) model. *Supply Chain Management: An International Journal*, 9(1), 23-29.

Hudnurkar, M., Jakhar, S., and Rathod, U. (2014). Factors affecting collaboration in supply chain: a literature review. *Procedia-Social and Behavioral Sciences*, 133, 189-202.

Ian Stuart, F., and McCutcheon, D. (1996). Sustaining strategic supplier alliances: profiling the dynamic requirements for continued development. *International Journal of Operations and Production Management*, 16(10), 5-22.

Ireland, R., and Bruce, R. (2000). CPFR: only the beginning of collaboration. *Supply Chain Management Review*, 4(4), 80-88.

Ireland, R. D., and Webb, J. W. (2007). A multi-theoretic perspective on trust and power in strategic supply chains. *Journal of Operations Management*, 25(2), 482-497.

Jagdev, H. S., and Thoben, K. D. (2001). Anatomy of enterprise collaborations. *Production Planning and Control*, 12(5), 437-451.

Jain, V., Wadhwa, S., and Deshmukh, S. G. (2009). Select supplier-related issues in modelling a dynamic supply chain: potential, challenges and direction for future research. *International Journal of Production Research*, 47(11), 3013-3039.

Johnston, D. A., McCutcheon, D. M., Stuart, F. I., and Kerwood, H. (2004). Effects of supplier trust on performance of cooperative supplier relationships. *Journal of Operations Management*, 22(1), 23-38.

Kalwani, M. U., and Narayandas, N. (1995). Long-term manufacturer-supplier relationships: do they pay off for supplier firms? *The Journal of marketing*, 1-16.

Kampstra, R. P., Ashayeri, J., and Gattorna, J. L. (2006). Realities of supply chain collaboration. *The International Journal of Logistics Management*, 17(3), 312-330.

Kaufman, A., Wood, C. H., and Theyel, G. (2000). Collaboration and technology linkages: a strategic supplier typology. *Strategic Management Journal*, 21(6), 649-663.

Kidd, J., Richter, F. J., and Li, X. (2003). Learning and trust in supply chain management. *Management Decision*, 41(7), 603-612.

Knudsen, D. (2003). Aligning corporate strategy, procurement strategy and e-procurement tools. *International Journal of Physical Distribution and Logistics Management*, 33(8), 720-734.

Kogut, B. (1988). Joint ventures: Theoretical and empirical perspectives. *Strategic Management Journal*, 9(4), 319-332.

Koka, B. R., and Prescott, J. E. (2002). Strategic alliances as social capital: A multidimensional view. *Strategic Management Journal*, 23(9), 795-816.

Kotabe, M., Martin, X., and Domoto, H. (2003). Gaining from vertical partnerships: knowledge transfer, relationship duration, and supplier performance improvement in the US and Japanese automotive industries. *Strategic Management Journal*, 24(4), 293-316.

Krause, D.R. 1999 "The Antecedents of Buying Firms-Efforts to Improve Suppliers", *Journal of Operations Management*, 17(2), pp. 205–224

Krishnan, R., Martin, X., and Noorderhaven, N. G. (2006). When does trust matter to alliance performance? *Academy of Management Journal*, 49(5), 894-917.

Kumar, N., Scheer, L. K., and Steenkamp, J. B. E. (1995). The effects of perceived interdependence on dealer attitudes. *Journal of Marketing Research*, 348-356.

Kulp, S. C., Lee, H. L., and Ofek, E. (2004). Manufacturer benefits from information integration with retail customers. *Management Science*, 50(4), 431-444.

Laaksonen, T., Jarimo, T., and Kulmala, H. I. (2009). Cooperative strategies in customer-supplier relationships: The role of interfirm trust. *International Journal of Production Economics*, 120(1), 79-87.

- Lado, A. A., Boyd, N. G., and Hanlon, S. C. (1997). Competition, cooperation, and the search for economic rents: a syncretic model. *Academy of Management Review*, 22(1), 110-141.
- Lambert, D.M., Emmelhainz, M.A. and Gardner, J.T. (1999), "Building successful partnerships", *Journal of Business Logistics*, 20 No. 1, pp. 165-81.
- Lambert, D.M., Cooper M.C. (2000). Issues in Supply Chain Management. *Industrial Marketing Management* 29, 65–83 (2000).
- Lambert, D. M., Knemeyer, A. M., and Gardner, J. T. (2004). Supply chain partnerships: model validation and implementation. *Journal of Business Logistics*, 25(2), 21-42.
- Lamming, R. (1996). Squaring lean supply with supply chain management. *International Journal of Operations and Production Management*, 16(2), 183-196.
- Lander, M. C., Purvis, R. L., McCray, G. E., and Leigh, W. (2004). Trust-building mechanisms utilized in outsourced IS development projects: a case study. *Information and Management*, 41(4), 509-528.
- Langfield-Smith, K., and Smith, D. (2003). Management control systems and trust in outsourcing relationships. *Management Accounting Research*, 14(3), 281-307.
- Larson, P. D. (1994). An empirical study of inter-organizational functional integration and total costs. *Journal of Business Logistics*, 15(1), 153.
- Larzelere, R. E., and Huston, T. L. (1980). The dyadic trust scale: Toward understanding interpersonal trust in close relationships. *Journal of Marriage and the Family*, 595-604.
- Lee, H. L., Padmanabhan, V., and Whang, S. (1997). Information distortion in a supply chain: The bullwhip effect. *Management Science*, 43(4), 546-558.
- Lejeune, M. A., and Yakova, N. (2005). On characterizing the 4 C's in supply chain management. *Journal of Operations Management*, 23(1), 81-100.
- Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., and Rao, S. S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega*, 34(2), 107-124.
- Liao, S. H., and Kuo, F. I. (2014). The study of relationships between the collaboration for supply chain, supply chain capabilities and firm performance: A case of the Taiwan' s TFT-LCD industry. *International Journal of Production Economics*, 156, 295-304.

Liu, Y., Luo, Y., and Liu, T. (2009). Governing buyer–supplier relationships through transactional and relational mechanisms: Evidence from China. *Journal of Operations Management*, 27(4), 294-309.

Liu, H., Ke, W., Wei, K. K., and Hua, Z. (2015). Influence of power and trust on the intention to adopt electronic supply chain management in China. *International Journal of Production Research*, 53(1), 70-87.

Madhok, A. (1995). Revisiting multinational firms' tolerance for joint ventures: A trust-based approach. *Journal of international Business studies*, 26(1), 117-137.

Malhotra, A., Gosain, S., and Sawy, O. A. E. (2005). Absorptive capacity configurations in supply chains: gearing for partner-enabled market knowledge creation. *MIS quarterly*, 145-187.

Martin, P. R., and Patterson, J. W. (2009). On measuring company performance within a supply chain. *International Journal of Production Research*, 47(9), 2449-2460.

Manthou, V., Vlachopoulou, M., and Folinas, D. (2004). Virtual e-Chain (VeC) model for supply chain collaboration. *International Journal of Production Economics*, 87(3), 241-250.

McCarthy, T. M., and Golobic, S. L. (2002). Implementing collaborative forecasting to improve supply chain performance. *International Journal of Physical Distribution and Logistics Management*, 32(6), 431-454.

McCormack, K., Bronzo Ladeira, M., and Paulo Valadares de Oliveira, M. (2008). Supply chain maturity and performance in Brazil. *Supply Chain Management: An International Journal*, 13(4), 272-282.

Mentzer, J. T., Foggin, J. H., and Golobic, S. L. (2000). Collaboration: the enablers, impediments, and benefits. *Supply Chain Management Review*, 4(4), 52-58.

Min, S., Roath, A. S., Daugherty, P. J., Genchev, S. E., Chen, H., Arndt, A., and Richey Jr, R. G. 2005. "Supply Chain Collaboration: What's Happening?" *International Journal of Logistics Management* 16(2):237-256.

Mohr, J., and Nevin, J. R. (1990). Communication strategies in marketing channels: A theoretical perspective. *The Journal of Marketing*, 36-51.

Mohr, A. T., and Puck, J. (2013). Revisiting the trust-performance link in strategic alliances. *Management International Review*, 53(2), 269-289.

Montoya-Torres, J. R., and Ortiz-Vargas, D. A. (2014). Collaboration and information sharing in dyadic supply chains: A literature review over the period 2000–2012. *Estudios Gerenciales*, 30(133), 343-354.

Morgan, R. M., and Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *The Journal of Marketing*, 20-38.

Matopoulos, A., Vlachopoulou, M., Manthou, V., and Manos, B. (2007). A conceptual framework for supply chain collaboration: empirical evidence from the agri-food industry. *Supply Chain Management: An International Journal*, 12(3), 177-186.

Mowery, D. C., Oxley, J. E., and Silverman, B. S. (1996). Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal*, 17(S2), 77-91.

Nahapiet, J., and Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242-266.

Narasimhan, R., and Nair, A. (2005). The antecedent role of quality, information sharing and supply chain proximity on strategic alliance formation and performance. *International Journal of Production Economics*, 96(3), 301-313.

Narasimhan, R., Kim, S. W., and Tan, K. C. (2008). An empirical investigation of supply chain strategy typologies and relationships to performance. *International Journal of Production Research*, 46(18), 5231-5259.

Narayanan, V.G. and Raman, A. (2004). Aligning Incentives in Supply Chains. *Harvard Business Review*, November 2004.

Noordewier, T. G., John, G., and Nevin, J. R. (1990). Performance outcomes of purchasing arrangements in industrial buyer-vendor relationships. *The Journal of Marketing*, 80-93.

Nyaga, G. N., Whipple, J. M., and Lynch, D. F. (2010). Examining supply chain relationships: do buyer and supplier perspectives on collaborative relationships differ? *Journal of Operations Management*, 28(2), 101-114.

Panayides, P. M., and Lun, Y. V. (2009). The impact of trust on innovativeness and supply chain performance. *International Journal of Production Economics*, 122(1), 35-46.

Park, N. K., Mezas, J. M., and Song, J. (2004). A resource-based view of strategic alliances and firm value in the electronic marketplace. *Journal of Management*, 30(1), 7-27.

Parkhe, A. (1993). Strategic alliance structuring: A game theoretic and transaction cost examination of interfirm cooperation. *Academy of Management Journal*, 36(4), 794-829.

Paulraj, A., Lado, A. A., and Chen, I. J. (2008). Inter-organizational communication as a relational competency: Antecedents and performance outcomes in collaborative buyer-supplier relationships. *Journal of Operations Management*, 26(1), 45-64.

Pérez, L., and Cambra-Fierro, J. (2015). Learning to work in asymmetric relationships: insights from the computer software industry. *Supply Chain Management: An International Journal*, 20(1), 1-10.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: a resource-based view. *Strategic Management Journal*, 14(3), 179-191.

Piboonrungraj, P., and Disney, S. M. (2015). Supply chain collaboration in tourism: A transaction cost economics analysis. *International Journal of Supply Chain Management*, 4(3), 25-31.

Pimentel Claro, D., Borin de Oliveira Claro, P., and Hagelaar, G. (2006). Coordinating collaborative joint efforts with suppliers: the effects of trust, transaction specific investment and information network in the Dutch flower industry. *Supply Chain Management: An International Journal*, 11(3), 216-224.

Powell, W. W., Koput, K. W., and Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 116-145.

Prahalad C.K. and Hamel, G. (1990), "The Core Competence of the Corporation", *Harvard Business Review*, 68(3), pp79-91.

Prahinski, C., and Benton, W. C. (2004). Supplier evaluations: communication strategies to improve supplier performance. *Journal of Operations Management*, 22(1), 39-62.

Rai, A., Patnayakuni, R., and Seth, N. (2006). Firm performance impacts of digitally enabled supply chain integration capabilities. *MIS quarterly*, 225-246.

Ralston, P., Richey, R. G., and Grawe, S. (2017). The past and future of supply chain collaboration: a literature synthesis and call for research. *International Journal of Logistics Management, The*, 28(2).

Ramanathan, U. (2014). Performance of supply chain collaboration—A simulation study. *Expert Systems with Applications*, 41(1), 210-220.

Ramanathan, U., and Gunasekaran, A. (2014). Supply chain collaboration: Impact of success in long-term partnerships. *International Journal of Production Economics*, 147, 252-259.

Rempel, J. K., Holmes, J. G., and Zanna, M. P. (1985). Trust in close relationships. *Journal of Personality and Social Psychology*, 49(1), 95.

Rindfleisch, A., and Heide, J. B. (1997). Transaction cost analysis: Past, present, and future applications. *The Journal of Marketing*, 30-54.

Robson, M. J., Katsikeas, C. S., and Bello, D. C. (2008). Drivers and performance outcomes of trust in international strategic alliances: The role of organizational complexity. *Organization Science*, 19(4), 647-665.

Rungtusanatham, M., Salvador, F., Forza, C., and Choi, T. Y. (2003). Supply-chain linkages and operational performance: a resource-based-view perspective. *International Journal of Operations and Production Management*, 23(9), 1084-1099.

Russell, S. H. (2007). More Than Integrated Logistics. *Air Force Journal of Logistics*; Gunter AFS31.2 (Summer 2007): 56-63.

Ryu, I., So, S., and Koo, C. (2009). The role of partnership in supply chain performance. *Industrial Management and Data Systems*, 109(4), 496-514.

Quinn, J. B., and Hilmer, F. G. (1994). Strategic outsourcing. *Sloan Management Review*, 35(4), 43.

Sabath, R. E., and Fontanella, J. (2002). The unfulfilled promise of supply chain collaboration. *Supply chain management review*, v. 6, no. 4 (July/Aug. 2002), p. 24-29: ill.

Sahay, B. S. (2003). Supply chain collaboration: the key to value creation. *Work study*, 52(2), 76-83.

Samaddar, S., and Kadiyala, S. S. (2006). An analysis of interorganizational resource sharing decisions in collaborative knowledge creation. *European Journal of operational research*, 170(1), 192-210.

Scheer, L. K., and Stern, L. W. (1992). The effect of influence type and performance outcomes on attitude toward the influencer. *Journal of Marketing Research*, 128-142.

Schonberger, R. J. (1996). Strategic collaboration: Breaching the castle walls. *Business Horizons*, 39(2), 20-26.

Seppänen, R., Blomqvist, K., and Sundqvist, S. (2007). Measuring inter-organizational trust—a critical review of the empirical research in 1990–2003. *Industrial Marketing Management*, 36(2), 249-265.

Sheu, C., Rebecca Yen, H., and Chae, B. (2006). Determinants of supplier-retailer collaboration: evidence from an international study. *International Journal of Operations and Production Management*, 26(1), 24-49.

Simatupang, T. M., and Sridharan, R. (2002). The collaborative supply chain. *The International Journal of Logistics Management*, 13(1), 15-30.

Simatupang, T. M., Wright, A. C., and Sridharan, R. (2004). Applying the theory of constraints to supply chain collaboration. *Supply Chain Management: An International Journal*, 9(1), 57-70.

Simatupang, T. M., and Sridharan, R. (2004). A benchmarking scheme for supply chain collaboration. *Benchmarking: An International Journal*, 11(1), 9-30.

Simatupang, T. M., and Sridharan, R. (2005). The collaboration index: a measure for supply chain collaboration. *International Journal of Physical Distribution and Logistics Management*, 35(1), 44-62.

Simatupang, T. M., and Sridharan, R. (2008). Design for supply chain collaboration. *Business Process Management Journal*, 14(3), 401-418.

Skjoett-Larsen, T., Thernøe, C., and Andresen, C. (2003). Supply chain collaboration: theoretical perspectives and empirical evidence. *International Journal of Physical Distribution and Logistics Management*, 33(6), 531-549.

Slater, S. F., and Narver, J. C. (1995). Market orientation and the learning organization. *The Journal of Marketing*, 63-74.

Sobrero, M., and Roberts, E. B. (2001). The trade-off between efficiency and learning in interorganizational relationships for product development. *Management Science*, 47(4), 493-511.

Soosay, C. A., Hyland, P. W., and Ferrer, M. (2008). Supply chain collaboration: capabilities for continuous innovation. *Supply Chain Management: An International Journal*, 13(2), 160-169.

Stank, T., Crum, M., and Arango, M. (1999). Benefits of interfirm coordination in food industry supply chains. *Journal of Business Logistics*, 20(2), 21.

Stank, T. P., Keller, S. B., and Daugherty, P. J. (2001). Supply chain collaboration and logistical service performance. *Journal of Business logistics*, 22(1), 29-48.

Stewart, G. (1995). Supply chain performance benchmarking study reveals keys to supply chain excellence. *Logistics Information Management*, 8(2), 38-44.

Sundaramurthy, C., and Lewis, M. (2003). Control and collaboration: Paradoxes of governance. *Academy of Management Review*, 28(3), 397-415.

Talay, M. B., and Akdeniz, M. B. (2014). In time we trust?: the effects of duration on the dynamics of trust-building processes in inter-organizational relationships. *Strategic Management Review*, 8(1), 77-90.

Tan, K. C., Kannan, V. R., and Handfield, R. B. (1998). Supply chain management: supplier performance and firm performance. *Journal of Supply Chain Management*, 34(3), 2.

Thomas, G. S. (1979). Gardens of the National Trust. *London: The National Trust and Weidenfeld and Nicolson* 292p.-Illus., col. illus. Geog, 1.

Turk, T. A., and Ybarra, C. E. (2011). Commitment to high-tech strategic alliances: A comparison of direct-competitor and non-competitor alliances. *Strategic Management Review* 5(1), 1–21.

Tuten, T. L., and Urban, D. J. (2001). An expanded model of business-to-business partnership formation and success. *Industrial marketing management*, 30(2), 149-164.

Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 35-67.

Verwaal, E., and Hesselms, M. (2004). Drivers of Supply Network Governance: An Explorative Study of the Dutch Chemical Industry. *European Management Journal*, 22(4), 442-451.

Vieira, J., Yoshizaki, H., and Ho, L. (2009). Collaboration intensity in the Brazilian supermarket retail chain. *Supply Chain Management: An International Journal*, 14(1), 11-21.

Walter, A. (2003). Relationship-specific factors influencing supplier involvement in customer new product development. *Journal of Business Research*, 56(9), 721-733.

Wang, E. T., Tai, J. C., and Wei, H. L. (2006). A virtual integration theory of improved supply-chain performance. *Journal of Management Information Systems*, 23(2), 41-64.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic management journal*, 5(2), 171-180.

Wernerfelt, B. (1989), "From critical resources to corporate strategy", *Journal of General Management*, 14(3), pp4-12

Wicks, A. C., Berman, S. L., and Jones, T. M. (1999). The structure of optimal trust: Moral and strategic implications. *Academy of Management Review*, 24(1), 99-116.

Wiengarten, F., Humphreys, P., Cao, G., Fynes, B., and McKittrick, A. (2010). Collaborative supply chain practices and performance: exploring the key role of information quality. *Supply Chain Management: An International Journal*, 15(6), 463-473.

Williamson, O. E. (1979). Transaction-cost economics: the governance of contractual relations. *The Journal of Law and Economics*, 22(2), 233-261.

Whipple, J. M., Lynch, D. F., and Nyaga, G. N. (2010). A buyer's perspective on collaborative versus transactional relationships. *Industrial Marketing Management*, 39(3), 507-518.

Won Lee, C., Kwon, I. W. G., and Severance, D. (2007). Relationship between supply chain performance and degree of linkage among supplier, internal integration, and customer. *Supply Chain Management: An International Journal*, 12(6), 444-452.

Wong, P. K. (1999). University-industry technological collaboration in Singapore: emerging patterns and industry concerns. *International Journal of Technology Management*, 18(3-4), 270-284.

Wu, L., Chuang, C. H., and Hsu, C. H. (2014). Information sharing and collaborative behaviors in enabling supply chain performance: A social exchange perspective. *International Journal of Production Economics*, 148, 122-132.

Yi, W. S., Jamal, N. B. M., and Chin, T. A. (2016). Exploring Supply Chain Collaboration: Evolution, Definition and Benefits. *The Social Sciences*, 11(11), 2845-2851.

Zaheer, A., McEvily, B., and Perrone, V. (1998). Does trust matter? Exploring the effects of inter organizational and interpersonal trust on performance. *Organization Science*, 9(2), 141-159.

Zand, D. E. (1972). Trust and managerial problem solving. *Administrative Science Quarterly*, 229-239.

Zelbst, P. J., Green Jr, K. W., Sower, V. E., and Reyes, P. (2009). Impact of supply chain linkages on supply chain performance. *Industrial Management and Data Systems*, 109(5), 665-682.

Other Publications

Abushaikha, I. (2014). Supply Chain Integration from a Resource-based View Perspective Empirical Evidence from Jordan's Garment Manufacturers International Supply Chains. *PhD Thesis*. Edinburgh: Heriot-Watt University School of Management and Languages.

Bäckstrand, J. (2007). Levels of interaction in supply chain relations. *Doctoral dissertation*. Göteborg: Department of Industrial Engineering and Management, School of Engineering, Jönköping University.

Callioni, G., and Billington, C. (2001). Effective collaboration. *OR/MS Today*, 28(5), 34-39.

Cooke, J.A. (1998), "VMI: very mixed impact?", *Logistics Management Distribution Report*, 37 No. 12, 31 December.

Cummings, L. L., and Bromiley, P. (1996). The organizational trust inventory (OTI). Trust in organizations: *Frontiers of theory and research*, 302, 330.

Das, T. K., and Teng, B. S. (2001). Trust, control, and risk in strategic alliances: An integrated framework. *Organization studies*, 22(2), 251-283.

Daudi, M., Hauge, J. B., and Thoben, K. D. (2016). On Analysis of Trust Dynamics in Supply Chain Collaboration. In *6th International Conference on Information Systems, Logistics and Supply Chain, ILS 2016, 1 June 2016 through 4 June 2016*. International Conference on Information Systems, Logistics and Supply Chain.

Doğanay, A. (2011). The Impact of Supply Chain Management (SCM) Practices on Organizational Performance. *Master Thesis*. İstanbul: Marmara University.

Ekanayake, S. (2007, January). Understanding the factors contributing to inter-partner trust in joint ventures. In *Ninth West Lake International Conference on SMB and Waitro Forum 2007 Proceedings* (pp. 1-14). Zhejiang University of Technology.

Global Logistics Research Team, and Council of Logistics Management (US). (1995). Michigan State University. World class logistics: the challenge of managing continuous change. *Council of Logistics Management*.

Lee, H. L., and Whang, S. (2001). E-business and supply chain integration. In *Stanford Global Supply Chain Management Forum* (2).

Ralston, P. (2014). "Supply chain collaboration: A literature review and empirical analysis to investigate uncertainty and collaborative benefits in regards to their practical impact on collaboration and performance" *Graduate Theses and Dissertations*. Iowa: Iowa State University.

Sobel Test calculator (<http://quantpsy.org/sobel/sobel.htm>).

<http://www.merriam-webster.com/dictionary/collaborate>

Troyer, C., and Denny, D. (1992). Quick response evolution. *Discount Merchandiser*, 32(5), 104-107.

Yüksel, A.H. (2007). The Attitudes of Purchasing Managers Working at the Leading Manufacturing Enterprises in Turkey towards Supply Chain Collaboration: A Proposed Model Based on Inter-Organizational Trust, Information Sharing and Commitment. *PhD Thesis*. İstanbul: Işık University.

VICS: Voluntary Interindustry Commerce Standards Association. Available online at: https://www.gs1us.org/DesktopModules/Bring2mind/DMX/Download.aspx?command=core_download&entryid=492&language=en-US&PortalId=0&TabId=134 (accessed January 2017).

Ziegler, K. (2004). Communication in inter organizational collaboration: a case study of a strategic partnership. *Doctoral dissertation*. Helsinki: Helsinki University Of Technology.

ANNEX – A ENGLISH VERSION OF QUESTIONNAIRE

FACTOR	NO	QUESTIONS
DEMOGRAPHIC QUESTIONS		This section consists of questions which are related to you and your organization.
	1	City of establishment
	2	Sector
	3	Number of Employees
	4	Age of the Organization
	5	Annual Gross Sale
	6	Is SCM applied in the organization?
	7	Is there any collaboration with the suppliers?
	8	Average number of the suppliers
		Information about the respondent
	9	Your position in the organization
	10	Education
	11	Age
	12	How many years have you worked in this organization?
	13	How many years have you worked in the business?
FACTOR	FACTOR NO	QUESTIONS
Honest Trust	TH1	Even when the major supplier gives us a rather unlikely explanation, we are confident that they are telling the truth.
	TH2	Our major supplier usually keeps the promise that they make to our firm.
	TH3	Whenever the major supplier gives us advice on our business operations, we know that they are sharing their best judgement.
	TH4	We believe that the major supplier is sincere.
	TH5	We feel that the major supplier negotiates with us honestly
Benevolence Trust	TB6	We believe that our major supplier is willing to offer us assistance and support even if the circumstance changes.
	TB7	Our major supplier is concerned about our welfare or interests when they make important decisions.
	TB8	We believe that our major supplier would understand us when we have difficulty to meet their demand.
	TB9	In the future, our major supplier can consider our expectation in their decision.

	TB10	When it comes to things that are important, we can depend on the major supplier's support.
SCC Information Sharing	SCCIS1	Our firm and major supplier exchange relevant information.
	SCCIS2	Our firm and major supplier exchange timely information.
	SCCIS3	Our firm and major supplier exchange accurate information.
	SCCIS4	Our firm and major supplier exchange complete information.
	SCCIS5	Our firm and the major supplier exchange confidential information.
SCC Goal Congruence	SCCGC6	Our firm and major supplier have an agreement on the goals of the supply chain.
	SCCGC7	Our firm and major supplier have an agreement on the importance of collaboration across the supply chain.
	SCCGC8	Our firm and major supplier have an agreement on the importance of improvements that benefit the supply chain as a whole.
	SCCGC9	Our firm and major supplier agree that our own goals can be achieved through working toward the goals of the supply chain.
	SCCGC10	Our firm and major supplier jointly layout collaboration implementation plans to achieve the goals of the supply chain.
SCC Decision Synchronization	SCCDS11	Our firm and major supplier jointly plan on promotional events.
	SCCDS12	Our firm and major supplier jointly develop demand forecasts.
	SCCDS13	Our firm and major supplier jointly manage inventory.
	SCCDS14	Our firm and major supplier jointly plan on product assortment.
	SCCDS15	Our firm and major supplier jointly work out solutions.
SCC Incentive Alignment	SCCIA16	Our firm and major supplier co-develop systems to evaluate and publicize each other's performance (e.g. key performance index, scorecard, and the resulting incentive).
	SCCIA17	Our firm and major supplier share costs (e.g. loss on order changes).
	SCCIA18	Our firm and major supplier share benefits (e.g. saving on reduced inventory costs).
	SCCIA19	Our firm and major supplier share any risks that can occur in the supply chain.
	SCCIA20	The incentive for our firm commensurate with our investment and risk.

SCC Resource Sharing	SCCRS21	Our firm and major supplier use cross-organizational teams frequently for process design and improvement.
	SCCRS22	Our firm and major supplier dedicate personnel to manage the collaborative processes.
	SCCRS23	Our firm and major supplier share technical supports.
	SCCRS24	Our firm and major supplier share equipment (e.g. computers, networks, machines).
	SCCRS25	Our firm and major supplier pool financial and non-financial resources (e.g. time, money, training).
SCC Collaborative Communication	SCCCC26	Our firm and major supplier have frequent contacts on a regular basis
	SCCCC27	Our firm and major supplier have open and two-way communication.
	SCCCC28	Our firm and major supplier have informal communication.
	SCCCC29	Our firm and major supplier have many different channels to communicate.
	SCCCC30	Our firm and major supplier influence each other's decisions through discussion rather than requesting.
SCC Joint Knowledge Creation	SCCJKC31	Our firm and major supplier jointly search and acquire new and relevant knowledge.
	SCCJKC32	Our firm and major supplier jointly assimilate and apply relevant knowledge.
	SCCJKC33	Our firm and major supplier jointly identify customer needs.
	SCCJKC34	Our firm and major supplier jointly discover new or emerging markets.
	SCCJKC35	Our firm and major supplier jointly learn the intentions and capabilities of our competitors.
Transaction Cost Developing Association	TCDA1	Significant effort was required to gather the information necessary to outline the working relationship with our major supplier.
	TCDA2	There were many unspecified terms which had to be worked out as the relationship with our major supplier.
	TCDA3	It required significant effort to determine individual roles to be performed by our firm and our major supplier.
Transaction Cost Monitoring Performance	TCMP4	It was easy to tell if we were receiving fair treatment from our major supplier.
	TCMP5	It takes significant effort to determine whether or not our major supplier confirms to specifications and quality standards.
	TCMP6	Accurately evaluating our major supplier requires a lot of effort.

	TCMP7	It is costly in time and effort to clearly monitor the performance of our major supplier.
Transaction Cost Addressing Problems	TCAP8	The approach to solving problems in our relationship with our major supplier is clear-cut.
	TCAP9	There are standard solutions or approached to problems that might occur with our major supplier.
	TCAP10	Problem solving is often challenging due to the nature of components handled by our major supplier.
	TCAP11	Although solutions to problems with our major supplier can be achieved they often need to be highly customizable.
Transaction Cost Opportunism	TCOP12	It is easy for our major supplier to alter the facts in order to get what they wanted.
	TCOP13	There is a strong temptation for our major supplier to withhold or distort information for their benefit.
	TCOP14	Our major supplier has the opportunity to take advantage of unspecified or unenforceable contract terms.
Performance of Final Products	SCP1	This organization's primary supply chain has the ability to deliver zero-defect products to final customers.
	SCP2	This organization's primary supply chain has the ability to deliver value-added services to final customers.
	SCP3	This organization's primary supply chain has the ability to eliminate late, damaged and incomplete orders to final customers.
Speed of Deliveries	SCP4	This organization's primary supply chain has the ability to quickly respond to and solve problems of the final customers.
	SCP5	This organization's primary supply chain has the ability to deliver products precisely on-time to final customers.
Volume or Capacity Flexibility	SCP6	This organization's primary supply chain has the ability to deliver precise quantities to final customers.
	SCP7	This organization's primary supply chain has the ability to deliver shipments of variable size on a frequent basis to final customers.
	SCP8	This organization's primary supply chain has the ability to deliver small lot sizes and shipping case sizes to final customers.
Production Costs	SCP9	This organization's primary supply chain has the ability to minimize total product cost to final customers.
	SCP10	This organization's primary supply chain has the ability to minimize all types of waste throughout the supply chain.
	SCP11	This organization's primary supply chain has the ability to minimize channel safety stock throughout the supply chain.

FACTOR	NO	QUESTIONS
QUESTIONS REGARDING TO SC PARTNERSHIP		These questions in this part were asked to understand generally the relationship between supply chain partners.
	1	Your organization position in this partnership. Big partner - Equal partner - Small partner
	2	What is the power and dependence relationship in this partnership? Supplier has the power - Balanced - Customer has the power
	3	How long this partnership exists?
	4	What is the percentage of this supplier in your overall purchases?
	5	What is the product group of your purchases?

ANNEX – B TURKISH VERSION OF QUESTIONNAIRE

FAKTÖR	NO	SORULAR
DEMOGRAFİK SORULAR		Bu bölüm işletmeniz ve formu dolduran siz değerli katılımcı ile ilgili genel bilgileri içermektedir. İşletmenin Bilgileri :
	1	Bulunduğu şehir
	2	Bulunduğu sektör
	3	Çalışan Personel Sayısı
	4	İşletmenin yaşı
	5	Yıllık ortalama cirosu (TL)
	6	Tedarik Zinciri Yönetimi uygulanıyor mu?
	7	Tedarikçilerle İşbirliği yapılıyor mu?
	8	Ortalama tedarikçi sayısı
		Formu Dolduran kişinin bilgileri:
	9	İşletmedeki pozisyonunuz
	10	Eğitim Durumunuz (mezuniyete göre)
	11	Yaşınız
	12	Bu iş yerinde çalışma süreniz
	13	Meslekteki tecrübeniz (yıl olarak)
FAKTÖR	NO	SORULAR
Dürüstlük Güven	TH1	Tedarikçimiz bize beklenmedik bir açıklama dahi yapsa, doğruyu söylediğine güveniniz.
	TH2	Tedarikçimiz genellikle bize verdiği sözleri tutar.
	TH3	Tedarikçimiz ne zaman firmamıza iş süreçleri ile ilgili bir öneride bulursa en iyi yargısını paylaştığını biliriz.
	TH4	Tedarikçimizin samimi olduğuna inanırız.
	TH5	Tedarikçimiz bizimle pazarlık yaparken dürüştür.

Yardımseverlik Güven	TB6	Koşullar değişse bile, tedarikçimizin bize yardım ve destek vermek için istekli olduğuna inanırız.
	TB7	Tedarikçimiz önemli kararlar alırken bizim iyiliğimizi ve menfaatlerimizi düşünür.
	TB8	Tedarikçimizin taleplerini karşılamakta zorluk yaşadığımızda bizi anlayacağına inanırız.
	TB9	Gelecekte, tedarikçimiz kararlarında bizim beklentilerimizi düşünecektir.
	TB10	İş önemli konulara geldiğinde, tedarikçimizin desteğine güvenebiliriz.
Tedarik Zinciri İşbirliği Bilgi Paylaşma	SCCIS1	Firmamız ve tedarikçimiz tedarik zincirimizle alakalı bilgiyi paylaşır.
	SCCIS2	Firmamız ve tedarikçimiz bilgiyi zamanında paylaşır.
	SCCIS3	Firmamız ve tedarikçimiz doğru bilgiyi paylaşır.
	SCCIS4	Firmamız ve tedarikçimiz tam bilgiyi paylaşır.
	SCCIS5	Firmamız ve tedarikçimiz gizli bilgiyi paylaşır.
Tedarik Zinciri İşbirliği Hedef Birlikteliği	SCCGC6	Firmamızın ve tedarikçimizin tedarik zinciri hedeflerinde mutabakatı vardır.
	SCCGC7	Firmamızın ve tedarikçimizin tedarik zinciri boyunca işbirliğinin önemi konusunda mutabakatı vardır.
	SCCGC8	Firmamızın ve tedarikçimizin tedarik zincrinin bütününe yarar sağlayacak gelişmelerin önemi konusunda mutabakatı vardır.
	SCCGC9	Firmamız ve tedarikçimiz kendi hedeflerine tedarik zinciri hedefleri doğrultusunda çalışarak ulaşabileceği konusunda aynı fikirdedir.
	SCCGC10	Firmamız ve tedarikçimiz tedarik zinciri hedeflerine ulaşmak için işbirliği uygulama planlarını birlikte yayınlar.
Tedarik Zinciri İşbirliği Karar Senkronizasyonu	SCCDS11	Firmamız ve tedarikçimiz promosyonları birlikte planlar.
	SCCDS12	Firmamız ve tedarikçimiz talep tahminlerini birlikte geliştirir.
	SCCDS13	Firmamız ve tedarikçimiz envanteri birlikte yönetir.
	SCCDS14	Firmamız ve tedarikçimiz ürün çeşitliliğini birlikte planlar.

	SCCDS15	Firmamız ve tedarikçimiz çözümler için birlikte çalışır.
Tedarik Zinciri İşbirliği Teşvik Uyuşması	SCCIA16	Firmamız ve tedarikçimiz birbirlerinin performansını değerlendirmek ve açıklamak için birlikte sistem geliştirir (örn. kritik performans göstergesi ve skor cetveli)
	SCCIA17	Firmamız ve tedarikçimiz maliyetleri paylaşır (örn. sipariş değişikliklerindeki zararlar).
	SCCIA18	Firmamız ve tedarikçimiz faydaları paylaşır (örn. azaltılmış envanter maliyetindeki tasarruf).
	SCCIA19	Firmamız ve tedarikçimiz tedarik zincirinde oluşabilecek riskleri paylaşır.
	SCCIA20	Firmamızı teşvik eden unsur, yatırım ve risklerimizle orantılıdır.
Tedarik Zinciri İşbirliği Kaynak Paylaşımı	SCCRS21	Firmamız ve tedarikçimiz süreç dizaynı ve gelişimi için çapraz örgütsel takımları sıklıkla kullanır.
	SCCRS22	Firmamız ve tedarikçimiz işbirliği süreçlerini yönetecek personel görevlendirir.
	SCCRS23	Firmamız ve tedarikçimiz teknik destek paylaşımı yapar.
	SCCRS24	Firmamız ve tedarikçimiz malzeme paylaşımı yapar (örn. bilgisayar, network, makine) .
	SCCRS25	Firmamız ve tedarikçimiz finansal ve finansal olmayan kaynakları ortaklaşa kullanır (örn. zaman, para, eğitim).
Tedarik Zinciri İşbirliği İşbirlikçi İletişim	SCCCC26	Firmamızın ve tedarikçimizin düzenli sıklıkta bir iletişimi vardır.
	SCCCC27	Firmamızın ve tedarikçimizin açık ve iki yönlü bir iletişimi vardır.
	SCCCC28	Firmamızın ve tedarikçimizin resmi olmayan (samimi) bir iletişimi vardır.
	SCCCC29	Firmamızın ve tedarikçimizin iletişim için bir çok farklı kanalları vardır.
	SCCCC30	Firmamızın ve tedarikçimizin karşılıklı olarak birbirlerinin fikirlerini talepten çok müzakere yoluyla etkiler.
Tedarik Zinciri İşbirliği Ortak Bilgi Yaratma	SCCJKC31	Firmamız ve tedarikçimiz tedarik zincirimizle alakalı yeni bilgiyi birlikte araştırır ve elde eder.
	SCCJKC32	Firmamız ve tedarikçimiz tedarik zincirimizle alakalı bilgiyi birlikte uyarlar ve uygular.

	SCCJKC33	Firmamız ve tedarikçimiz müşteri taleplerini birlikte belirler.
	SCCJKC34	Firmamız ve tedarikçimiz yeni ve gelişmekte olan pazarları birlikte keşfeder.
	SCCJKC35	Firmamız ve tedarikçimiz rakiplerimizin niyetlerini ve yeterliliklerini birlikte öğrenir.
İşlem Maliyeti Birlikte Geliştirme	TCD1	Tedarikçimizle olan iş ilişkisini belirlemek için gerekli bilgiyi toplamak önemli bir gayret gerektirmiştir.
	TCD2	Tedarikçimizle olan ilişkide belirlenmemiş ve üzerinde çalışılması gereken bir çok husus vardır.
	TCD3	Tedarikçimiz ve şirketimizce yerine getirilecek görevleri belirlemek için önemli bir gayret gerektirmiştir.
İşlem Maliyeti Performansı Takip etmek	TCM4	Tedarikçimizin bize karşı adil davranıp davranmadığını söylemek kolaydır.
	TCM5	Tedarikçimizin belirli özellikleri ve kalite standartlarını karşılayıp karşılamadığını belirlemek önemli bir gayret gerektirir.
	TCM6	Tedarikçimizi doğru olarak değerlendirmek çok fazla gayret gerektirir.
	TCM7	Tedarikçimizin performansını açıkça takip etmek zaman ve gayret bakımından maliyetlidir.
İşlem Maliyeti Problemleri ele alma	TCA8	Tedarikçimizle ilişkimizdeki sorunların çözümü konusunda yaklaşım açık ve nettir.
	TCA9	Tedarikçimizle oluşabilecek problemler için standart çözümler ve yaklaşımlar vardır.
	TCA10	Tedarik zincirimizdeki malzemelerin doğası gereği problem çözümü genelde çok zorlayıcıdır.
	TCA11	Tedarikçimizle olan problemlerin çözümleri olsa da genellikle son derece özelleştirilebilir olması gerekir
İşlem Maliyeti Fırsatçılık	TCO12	Tedarikçimiz istediğini almak için gerçekleri çok kolay değiştirebilir.
	TCO13	Tedarikçimizin kendi yararı için bilgiyi saklamak ve çarpıtmak konusunda güçlü bir eğilimi vardır.
	TCO14	Tedarikçimiz tam belirlenmemiş ve uygulanamaz sözleşme şartlarını istismar etme fırsatına sahiptir.

Son ürün performansı	SCP1	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteriye sıfır hatalı ürün sunma kabiliyetine sahiptir.
	SCP2	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteriye katma değerli hizmetler sunma kabiliyetine sahiptir.
	SCP3	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteri siparişlerinde geç, hasarlı ve eksik siparişleri elimine etme kabiliyetine sahiptir.
Dağıtım hızı	SCP4	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşterinin problemlerine çabuk cevap verme ve çözme kabiliyetine sahiptir.
	SCP5	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteriye tam zamanında ürün teslim etme kabiliyetine sahiptir.
Miktar ve kapasite esnekliği	SCP6	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteriye tam ve eksiksiz ürün teslim etme kabiliyetine sahiptir.
	SCP7	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteriye değişik miktarlarda ve sık aralıklarla ürün teslim etme kabiliyetine sahiptir.
	SCP8	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteriye küçük lotlarda ve küçük ebatlarda ürün teslim etme kabiliyetine sahiptir.
Üretim Maliyetleri	SCP9	Tedarikçimizle oluşturduğumuz tedarik zinciri son müşteriye olan ürün maliyetini minimize etme (enazlama) kabiliyetine sahiptir.
	SCP10	Tedarikçimizle oluşturduğumuz tedarik zinciri, tedarik zincirindeki her türlü israfı minimize etme (enazlama) kabiliyetine sahiptir.
	SCP11	Tedarikçimizle oluşturduğumuz tedarik zinciri, tedarik zincirindeki her türlü emniyet stoğunu minimize etme (enazlama) kabiliyetine sahiptir.

FAKTÖR	NO	SORULAR
TEDARİK ZİNCİRİ ORTAKLIĞI İLE İLGİLİ SORULAR		Bu bölümdeki sorular sizin bu tedarikçinizle aranızdaki ortaklık ilişkisini genel olarak anlamak için sorulmuştur.
	1	Bu zincirdeki ortaklıkta tedarikçinize göre şirketinizin pozisyonu nedir? Büyük Ortak Eşit Ortak Küçük Ortak

2	Bu zincirdeki tedarikçinizle aranızdaki güç ve bağımlılık dengesi nasıldır? Tedarikçi Güçlü Dengeli Müşteri Güçlü
3	Bu ortaklık kaç yıldır devam etmektedir?
4	Bu tedarikçinizle yaptığınız satın alma genel satın almanızın ne kadarını oluşturmaktadır?
5	Bu tedarikçinizden aldığınız ürün hangi gruba girmektedir?



VITA

Ahmet Doğanay was born in M.Ereğlisi, Tekirdağ on 15th of June 1970. After graduating from military high school in 1988, he served in Turkish Navy for 27 years. He has graduated from Anadolu University, Economics Faculty in 1996.

During his military carrier, he has been on several duties shaping his career. He has completed EOD course in 1991, served in EOD teams for 5 years, then became an instructor in Turkish Navy SAS school. He has served 13 years as an instructor, prepared books, programs and courses during this period.

He has been in USA for three years (2001-2004) as a Liaison Officer representing Turkish MoD in a Freight Forwarder company. He has studied Inventory Management in USA. He has been in Afghanistan in 2007 as Purchasing and Contracting officer.

He has received master's degree in Management and Organization from Marmara University in 2011. He started his PhD study in Marmara University in 2013 and completed in Spring 2017. His areas of research interest are management and organization, supply chain management, strategic management and total quality management.

After he retired from Navy in 2014, he worked in NSPA as a quality assurance supervisor for a project in Ankara. Currently he is working in the United Nations Development Programme (UNDP) as a field coordinator to demining project.

He is married with three children. He can speak fluent English.