Impact of Supply Chain Integration on Competitive Performance and Customer Satisfaction: Analysing the Role of Supply Chain Agility and Supply Chain Finance

Taimoor Ishtiaq Butt

Registration ID: 00000400077

Thesis Supervisor: Dr. Afshan Naseem

Department of Engineering Management

College of Electrical and Mechanical Engineering (CEME)

National University of Sciences and Technology Islamabad (NUST)

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THESIS ACCEPTANCE CERTIFICATE

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Signature: _____

Name of Supervisor: Dr. Afshan Naseem

Dated: 23 Sep 2024

Signature: _____

Name of HOD: Dr. Yasir Ahmad

Dated: 23 Sep 2024

Signature (Dean/Principal): _____

Dated: 23 SEP 2024

DEDICATION

I dedicate this thesis to my beloved parents, whose unconditional love, guidance, and sacrifices have been the source of my success. Their constant encouragement has motivated me to pursue and achieve my goals. To my dear siblings, thank you for your unconditional support, patience, and trust in my ability throughout this challenging journey.

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Abstract

The impact of Supply Chain Integration (SCI): Supplier Integration (SI), Customer Integration (CI), and Internal Integration (II) on Competitive Performance (CP) and Customer Satisfaction (CS) will be investigated and analyzed in this research study. As globalization in the supply chain is significantly increasing, the concept of agile supply chain has significantly gained its importance. Another important factor linked with supply chain that has not been studied much till date is of Supply Chain Finance (SCF). In addition, this study will also analyze and investigate the mediation role of Supply Chain Agility (SCA) and Supply Chain Finance (SCF). Using a comprehensive literature review and empirical data collected from industry professionals, the research investigates how the supply chain integration processes impact on organization's competitive performance and customer satisfaction. Then this research study will investigate how the presence of factors of supply chain agility and supply chain finance may mediate the relationship between Supply chain Integration: supplier integration, customer integration and internal integration on competitive performance and customer satisfaction. The results of this research will eventually help the managers of different departments of an organization to give prime importance to the factors linked with the supply chain agility and supply chain finance that positively mediate the effect of Supply chain Integration: supplier integration, customer integration, and internal integration on competitive performance and customer satisfaction.

Table of Contents

LIST OF TABLES

List of Abbreviations

SCI

Supply Chain Integration

SI

Supplier Integration

CI

Customer Integration

II

Internal Integration

SCA

Supply Chain Agility

SCF

Supply Chain Finance

CP

Competitive Performance

CS

Customer Satisfaction

CHAPTER 1: INTRODUCTION

1.1. Background

In today's globalization and technological advancements, businesses are bound to rethink managing their supply chain (SCM) operations. The supply chain is considered the core of any organization. However, for the manufacturing sector, supply chain management (SCM) is essential for an organization to gain a competitive advantage by optimizing its supply chain operations (Vidrova, 2020)**.**Supply chain management (SCM) is a broader term. Different areas of supply chain management (SCM) operations collectively comprise an organization's entire supply chain. In this thesis, our focus will be to talk about three dimensions that are linked with supply chain integration (SCI) and then find their impact on the competitive performance and customer satisfaction of an organization (Haddouch et al., 2019). Supply chain integration (SCI) is divided into three categories: supplier integration, customer integration, and internal integration. Our thesis will also analyse the mediating role played by supply chain agility and supply chain finance between the relationship between supply chain integration and competitive performance and the relationship between supply chain integration and an organization's customer satisfaction.

An integrated supply chain management operation that is appropriately integrated and well managed can enhance the success of an organization by improving and increasing its efficiency and productivity. In addition, it can enhance customer satisfaction and reduce the cost of its products. In this modern era of technological advancements and innovations, SCI has gained importance for managerial concern. It highlights how a different linkage, like different sub-departments of supply chain operations of an organization, coordinates, collaborates, and exchanges information about the processes and resources to achieve the common aim and goals effectively and efficiently (Erboz & Szegedi, 2020). This collaboration and information exchange can be internal, like sharing information and collaboration between workers of different departments within an organization. It can also be external, including cooperation and coordination with the organization's suppliers and distributors. Also, it includes collaboration with the company's customers, termed customer integration.

As the world moves to introduce innovative products, rapid technological advancements result in significant changes in customer demands from time to time. An organization needs to effectively understand the changing customer demands alongside the changes within supply

chain operations and then react appropriately to these changes while gaining an advantage from opportunities and minimizing and mitigating threats, which have gained significant importance for an organization (Gu et al., 2015). Organizations having prompt supply chain agility will ultimately gain a competitive advantage. Due to the increasing importance of an agile supply chain, I have used it as a mediator in my thesis. It involves identifying any change in the supply chain, analysing it, and then making desirable changes in supply chain operations so that the changes cannot adversely affect the supply chain operations of an organization and become a source of loss to the organization (Christopher & Towill, 2001).

The first mediator used in our research is supply chain finance (SCF). The prime objective of SCF is to use financial processes that reduce costs, improve cash flows, increase efficiency, and add value to an organization's overall supply chain management operations.

We have two dependent variables in our research. These variables are competitive performance and customer satisfaction. Every company strives to gain a competitive advantage, gain the most profit, and increase its brand value and customer loyalty. Competitive performance and customer satisfaction are critical to gaining a competitive advantage. Competitive performance is a company's strategy to outperform its competitors and gain high profits. There are different ways through which an organization achieves competitive performance. This includes using a cost leadership strategy, making differentiation products, bringing innovation in their products, and providing exceptional customer care service. (Herrera Madueño et al., 2016).

The other dependent variable is customer satisfaction. Customers are the prime area of focus of any organization. Making one’s customers satisfied is one of the main challenges an organization faces. Customer satisfaction means the level to which the organization’s products and services fulfil the customers' requirements and expectations (Bowen & Chen, 2001). Customers will be more satisfied when the organization properly understands their perception of quality and standards regarding a product or service and takes steps to produce a product or provide a service aligned with customers' expectations. For this very reason, properly communicating with customers is of prime importance, which in turn forms the basis of customer integration. The justification behind finding and investigating the impact of SCI, SI, CI, II on CP and CS lies in achieving sustainable growth and creating value.

Nowadays, the risks to different businesses are significantly increasing compared to old times. The primary and essential reasons for the increase in business risks are supply chain globalization, increasing outsourcing of different project parts, and declining product life cycle.

(Christopher & Holweg, 2011).As the supply chain risk has significantly increased in recent times, the supply chain management operations become more sensitive to time and more complicated than before. Therefore, organizations and companies must collaborate with their key customers and suppliers within their supply chain to gain competitive advantage, survive, and prosper. (Frohlich & Westbrook, 2001)**.**The key area used to make an organization's supply chain management operations valuable is SCI. Although SCI is considered an essential aspect that mediates an organization to gain competitive advantage, there are still some unclear and unanswered questions that are linked with the mechanism by which SCI implementation takes place. Many empirical studies have taken SCI as single variable to measure SCI dimensions (Rosenzweig et al., 2003). Also, some other work of SCI mainly focused on internal integration and external integration, e.g. (Stank et al., 2024)**;** (Gimenez & Ventura, 2005)**.** In addition to this, very few of the latest works have focused on three different dimensions of SCI, which include internal integration, external integration, and customer integration, e.g. (Swink et al., 2007). Moreover, some previous SCI-related studies focused only on the limited performance measures, e.g. (Gimenez & Ventura, 2005). More work is needed to further investigate different SCI dimensions of SCI and to see how these dimensions influence organizational performance.

1.2. Problem Statement

Today's era is an era of a dynamic and continuously changing business environment. This aspect of the dynamic business environment pressures organizations to increase their operational efficiency and achieve sustainable competitive advantage (Sołoducho-Pelc, Letycja, and Adam Sulich.et.al 2020). Supply chain integration has recently increased in importance due to the dynamic business environment. Organizations now consider SCI as a critical area of concern when formulating their organizational strategy to enhance their coordination among their suppliers and customers and to increase their internal department coordination and collaboration (Khanuja, Anurodhsingh, and Rajesh Kumar Jain.et.al 2020). The main aim of organizations is to make an organizational strategy while focusing on SCI to increase their competitive performance and customer satisfaction. This will result in an organization achieving a sustainable competitive advantage. Although SCI is increasingly important, there remains a gap in understanding the real impact of SCI-Supplier-Customer and internal integration on the competitive performance of an organization and customer satisfaction level. Additionally, in a dynamic and changing business environment, supply chain agility is a crucial area of concern for an organization (Patel, Bharat Singh, and Murali

Sambasivan.et.al 2022). Every organization aims to increase its profit from proper and organized supply chain finance methods. So, this research aims to find the impact of SCI-Supplier, Customer, and Internal Integration on competitive performance and customer satisfaction with the mediating role of supply chain agility and supply chain finance in this relationship.

1.3. Research Questions

I have formulated the following research questions to achieve the goals of my thesis: -

1. What is the impact of supply chain integration on customer satisfaction, and what effects do Supply Chain Agility (SCA) and Supply Chain Finance (SCF) have in this relationship?

2. What is the impact of supplier integration, customer integration, and internal integration on customer satisfaction and what effects do supply chain agility (SCA), and supply chain finance (SCF) have in this relationship?

3. What is the impact of supply chain integration on the competitive performance of an organization, and what effects do supply chain agility (SCA) and supply chain finance (SCF) have in this relationship?

4. What is the impact of supplier integration, customer integration, and internal integration on the competitive performance of an organization, and what effects do supply chain agility (SCA), and supply chain finance (SCF) have in this relationship?

1.4. Research Objectives

The research objectives that are formulated to answer the above research questions are:-

1. To assess the impact of Supply Chain Integration (SCI): Supplier integration, Customer integration, and Internal Integration on customer satisfaction.
2. To assess the impact of Supply Chain Integration (SCI): Supplier integration, Customer integration, and Internal Integration on competitive performance.
3. To assess how the relationship between Supply Chain Integration (SCI): Supplier integration, Customer integration, Internal Integration, and customer satisfaction is mediated by Supply Chain Agility (SCA) and Supply Chain Finance (SCF).

4. To assess how the relationship between Supply Chain Integration (SCI): Supplier integration, Customer integration, Internal Integration, and competitive performance is mediated by Supply Chain Agility (SCA) and Supply Chain Finance (SCF).

1.5. Research Rationale

The results derived from my research will help managers of different organizations and businesses enhance their competitive performance and customer satisfaction. By finding and investigating how SI, CI, and II impact competitive performance and customer satisfaction alongside the moderating role of SCA and SCF in their relationship. These results will offer insights for the managers to enhance the overall competitive efficiency which will eventually results in gaining customer satisfaction of their organizations and businesses. This is the main reason and justification for selecting this topic for my research. The results that will be derived from this research will provide a robust framework that can be used for theoretical exploration. The results of my research will provide an in-depth knowledge and understanding of the synergy of different variables that contribute to the theoretical foundation, which can be used in managing SI, CI, and II to gain maximum CP and CS.

1.6. Definition of Terms

1.6.1. Supplier Integration

The importance and value of integration in the supply chain operations of an organization cannot be ignored or overlooked. Supplier integration is an organization's integration involving collaboration and coordination with its suppliers. Supplier integration involves not thinking of suppliers as just a provider of supplies and raw materials but to think of them as a business partner (Yeung et al., 2009). Supplier integration involves the supplier as a partner in different stages of product and market development, from idea generation to market planning. By exchanging information and collaborating, an organization can help its suppliers understand their product development technicalities and perceive the organization's expectations of them accurately.

1.6.2. Customer Integration

Another important factor linked with supply chain integration (SCI) is customer integration. CI is a process that involves the customer directly in different operations of an organization including problem-solving and decision-making processes, different activities related to value creation, and strategy-making within the supply chain management operations of an

organization. This led organizations to understand what the customer wants from them. Also by customer integration, an organization can perceive more accurately what their customers need and then they can develop and manufacture the products that meet their customer's needs in this way, they can increase their customer loyalty (Schweitzer et al., 2020).

1.6.3. Internal Integration

Now the third factor of supply chain integration (SCI) that we are going to discuss in our thesis is internal integration. An organization consists of different departments. The output of different departments merges to make a final product for an organization. For this reason, the coordination between different departments within an organization is of great importance. Internal integration is the coordination and internal linkages of various departments and their functions within an organization which results in smooth operation and optimization of the overall operational performance of an organization (Turkulainen et al., 2017). It involves inter-department meetings and establishing a common approach for achieving collective organizational goals.

1.6.4. Competitive Performance

Competitive performance is the capability of an organization to outperform its rivals by managing its products and services efficiently while meeting quality standards. It consists of getting superior outcomes, which include a high share in the market, more customer satisfaction, an increase in sales volume, and more profit than competitors, and managing their stakeholders efficiently (Herrera Madueño et al., 2016).

1.6.5. Customer Satisfaction

Customer satisfaction is defined as how satisfied a customer is with the service and products received by an organization. It also involves the extent to which a customer experiences a feeling of contentment and fulfilment in the interaction with a company. Customer satisfaction is defined as the measure of the extent to which a company can satisfy its customers through its products and services. Customer satisfaction is one of the key areas of concern for a company because it directly impacts customer loyalty and retention (Bowen & Chen, 2001).

1.6.6. Supply Chain Agility

The capability of an organization to effectively, efficiently, and swiftly adapt to changing demands, changes in customers' expectations, and changes in the supply chain due to any disruptions is termed as Supply Chain Agility (Eckstein et al., 2015).

1.6.7. Supply Chain Finance

Supply chain finance (SCF) is explained as the strategic management of different financial methods and techniques that occur in the supply chain management operations of an organization. This consists of financial activities and processes such as financing options, payment methods, invoicing, and reduction of risk of finance among all the people involved in the supply chain like suppliers, distributors, and customers (Li et al., 2022).

1.7. Thesis Structure

This research thesis comprises five chapters. A detailed overview of all the chapters is explained below: -

1.7.1. Chapter 1

In chapter number 1 of this thesis, the topic's background is discussed. In the background, all the variables, including independent, dependent, and moderating variables, are first discussed. Then, the formulated model of the thesis is explained. This chapter includes the research questions formulated to conduct this study and the research objectives that answer these research questions. Then, the study justifications are presented, which explain why the need of this study is required. After discussing it, all the variables are explained one by one. At the end of Chapter 1, the structure of the thesis is discussed, with a brief overview of all the chapters of this thesis.

1.7.2. Chapter 2

In the second chapter of this thesis, the existing and relevant study related to this thesis topic was reviewed. This chapter carried out a thorough literature review of the existing body of knowledge and explained the previous research in depth. It includes broad details about the results derived from the previous research. Additionally, in this chapter, explanations about the research methods that were used in the previous studies are discussed. A detailed literature review presented the research gaps and shortcomings of the previous literature, and then a hypothesis was pulled out for the future study.

1.7.3. Chapter 3

The methodology used for conducting this thesis is explained in detail in the third chapter. This chapter explains the type of study that is used for this thesis, the approach for gathering data from the targeted population, and the method that is used to analyse the collected data, which is discussed in detail.

1.7.4. Chapter 4

In the fourth chapter, the validated conceptual framework of my thesis is presented. This result consists of the data analysis results and includes this study's findings. The tables presented in this chapter explain the results of the data analysis in detail. There are several figures included in this chapter that explain the results graphically.

1.7.5. Chapter 5

In the fifth chapter, the conclusion and summary of the entire thesis were presented. The conclusions were drawn from the results that were presented in chapter 4 of this thesis. This chapter includes the application, contribution, prospects, and future recommendations for the research.

CHAPTER 2: LITERATURE REVIEW

This chapter starts with an examination of the theoretical framework and evaluation of the literature of the existing body of knowledge. This chapter provides a brief introduction of all seven variables of this study: supplier integration, customer integration, internal integration, supply chain agility, supply chain finance, supply chain agility, and competitive performance. After explaining all the variables, this chapter explains how these variables are related to each other. In recent times, the literature has expanded to find research gaps. To formulate a more in-depth knowledge of the linkage, the research contributions made by the previous studies have been assessed, and the research gap has been pinpointed. Several different theoretical perspectives have been investigated to develop a conceptual framework for this study.

2.1. Theoretical Background-Dynamic Capability Theory

The firm's potential to gain a competitive edge by renewing its competencies in response to the ever-changing business environment is explained by the Dynamic Capabilities Perspective (Teece et al., 1997)**,** (Eisenhardt & Martin, 2024)**.** In order to adapt to changes in the market, dynamic capabilities involve processes that integrate, reconfigure, and develop resource configurations. Product development procedures, alliance procedures, exit procedures, and knowledge management procedures are a few instances of dynamic capabilities. Although they don't directly produce long-term competitive advantage, dynamic capabilities facilitate businesses to arrange their resources to gain competitive advantage shortly. Management must exhibit quick reactivity, quick invention, and efficient resource coordination based on market conditions to establish dynamic capabilities. Dynamic capacities, facilitated by mechanisms built around knowledge and learning, produce adaptive but unpredictable outcomes in high-velocity marketplaces (Teece et al., 1997).

2.2. Supplier Integration

The condition of synergy achieved through a range of integration strategies across an organization's purchasing, manufacturing, and supplier groups is termed supplier integration (Das et al., 2006). The main theme of several research based on supply chain management is integration (Mustafa Kamal & Irani, 2014). By properly integrating suppliers, an organization can benefit from the additional skills, capabilities, and resources of the supplier, and then by using it, they can develop and sustain a competitive advantage by reducing the cost and cycle time by providing more enhanced and customized product characteristics (Fliess & Becker, 2006). Supplier integration has a positive impact on the buyer, for which empirical evidence is

present (Koufteros et al., 2012). Supplier integration is modelled as a separate construct from internal and customer integration in some studies(Swink et al., 2007).In addition, there is a chance that the supplier may not be able to execute the project efficiently or as per the requirements of the project due to incompetence, and this, in this case, leads to project obstruction (Goldberg & Schiele, 2018). There exists a strong relationship between SCI, which includes SI, CI, and II (Shukor et al., 2021). Clear decision-making, trust, and constant communication are the key factors for successfully integrating suppliers in the co-development processes. Supplier integration has not received as much attention as customer integration in collaborative product development (Fliess & Becker, 2006). The six important practices of supplier integration that have a direct impact on the manufacturing firm's performance include joint problem solving, direct communication between production schedulers, use of buyer-supplier councils, emphasis on supplier development and certification, joint establishment of goals with manufacturing and purchasing, and corporate strategy meetings. Firms that do not align themselves properly with these supplier integration practices will hurt their organizational performance (Das et al., 2006).

2.3. Customer Integration

Customer integration is defined as the extent to which a manufacturer works with its customers to structure their inter-organizational processes, methods, and strategies into a coordinated, collaborative, manageable, and organized process to meet customer needs efficiently (Zhang et al., 2022). CI has a positive impact on an organization's new product and business performance, many organizations cannot integrate their customer successfully in their new product development process (Enkel et al., 2005). Customer integration is considered more of a social process. For this reason, different technological tools are not the sole solution to all the hurdles of customer integration. For this reason, there is also a need to consider factors other than technological factors to enhance customer integration for future research studies (He et al., 2014). CI is an organization's dynamic capability to engage with its key customers to understand their needs accurately. By integrating the customers, an organization can more efficiently understand what their customers want from them and fulfill their needs in the best possible manner. By effectively integrating customers, an organization can come to know about deeper market opportunities and expectations of its customers, which results in superior performance (Aslam et al., 2023). Customer integration is recommended as an important aspect of marketing, specifically from the implementation point of view of service provision. Customer integration identifies three levels of service provision: facilities, transformation, and

usage (FTU). These three levels are differentiated in terms of the perceived value of customers, companies, and customers' decision-making and resource origin. Alongside an activity-focused perspective, customer integration involves integrating the customer's resources. It supports the organization's manufacturing and operational processes by providing access to the resources that are required (Moeller, 2008). Customer integration consists of two dimensions. The first one is integration with the customer (IWC) and integration by the customer (IBC). IWC means to share information and resources with customers. IBC consists of clear procedures to understand and meet the demands of customers. Increased customer satisfaction, reduction in errors, improvement in efficiency, and enhanced relationships can be achieved by an organization by properly integrating its customers. Organizations should give key importance to customer integration to improve their supply chain management operations. Customer integration involves planning, coordination, and control at the strategic as level well as at operational levels (Ruzo-Sanmartín et al., 2023).

2.4. Internal Integration

The internal supply chain of an organization is explained as a network of functions within an organization that together provide a product to its customers. To properly integrate these networks of functions within an organization, functions need to be carried out in proper sequence across the different departments within an organization (Basnet, 2013). An up-to-the-mark organizational performance and customer service results from a well-integrated internal supply chain management. Concerning the concept of internal integration, different departments and functional regions within an organization opt to work as a single integrated process (Flynn et al., 2010). II explains that for an employee to be an effective member, he/she is required to have the ability to resolve inter-departmental disputes within an organization and transform personal and professional skills into organizational competencies (Kim, 2013). II is capable of impacting customer and supplier integration. The foundation on which an organization can absorb, understand, and apply external information rapidly is Internal Integration (X. Zhao et al., 2011). Internal integration is a key factor in ensuring an inter-departmental team's effectiveness in managing supply chain disruptions and increasing organizational resilience. The relationship between information scouting and organizational resilience is moderated by the degree of extent to which internal integration takes place in an organization. The higher the internal integration takes place, the strengthened the relationship between information scouting and organizational resilience will be. Lacking internal integration can result in cross-functional teams not effectively using information scouting to

ensure resilience, especially in high-vulnerability supply chain contexts (Van Den Adel et al., 2023). II is a prerequisite for external integration, which involves integration with customers and suppliers and has a positive impact on global sourcing success. II facilitates an organization in reducing opportunistic behaviour, increasing trust, and developing relational capital. II is positively related to external integration. It supports the structural linkage that exists between individuals or functions within an organization. The creation of structural capital with external partners is supported by the successful implementation of internal integration (Horn et al., 2014). For gaining competitive advantage and enhancing organizational performance, internal integration plays a vital role. It consists of lean production systems and concurrent engineering, which are consistent with internal integration practices. For exceptional performance, every function within an organization should be integrated properly (X. Zhao et al., 2011).

2.5. Supply Chain Agility

To explain what SCA means. Firstly, we need to learn about agility. Agility is defined as the capability to respond to unexpected disruptions and unwanted changes and to utilize opportunities that take place due to these changes to get benefits (Sharifi, H. and Zhang, Z. et al. 1999). SCA is defined as the capability of any business to respond rapidly and promptly to the unpredictable and dynamic business atmosphere (Swafford et al., 2006). When unexpected changes take place in the supply chain of an organization then the general definition of agility is termed supply chain agility. SCA is considered a crucial element at the strategic level that has an impact on the organizational competitiveness advantage. This is because organizations that have prompt supply chain agility result in better performance in case of any unexpected disruptions and unwanted situations (Tse et al., 2016). The integration of supply chain agility and transformational leadership increases the SME's organizational performance. Transformational leaders are the ones who initiatives the agility in the supply chain of an organization by setting up a vision and communicating this vision to all the employees of the organization, supporting innovative solutions, and playing the role of mentor for the employees to achieve the superior performance (Prabhu & Srivastava, 2023). There are no significant differences that were found in the supply chain agility performance correlations depending upon the economic region and industry. In the context of performance measures including financial, operations, and in general, the correlation between supply chain agility and performance is positive and significant. However, there exists a great dispersion, which indicates that the topic lacks consensus, and more work is needed to find the specific subgroups and factors that influence the supply chain agility and performance relationship (Alfalla-Luque

et al., 2023). Supply chain integration positively influences supply chain agility and organizational flexibility (Shukor et al., 2021).

2.6. Supply Chain Finance

Supply chain finance is defined as achieving mutual benefits between two or more organizations, including supply chain organizations and outside vendors, by strategically controlling and managing the smart and efficient flow of money between them (Lekkakos & Serrano, 2016). The supply chain is an innovative financial technique to enhance the inter-organizational capital flows alongside the product and statistics flows in the supply chain management operation of an organization (Wang et al., 2021). SCF is a payment plan that differs from the traditional method of payment (L. Zhao et al., 2013). SCF focus is the optimization of financial flows at a cross-organizational level (Hofmann, et.al 2005). SCF methods mainly increase profitability and trust throughout the supply chain (Randall and Farris II, et.al 2009). SCF extends its scope beyond just a financial method by taking into consideration the supply chain procedures and inventories (Pfohl & Gomm, 2009). The pivot role of supply chain finance is to align the financial flows of an organization with the information flow within the supply chain operations which as a result enhances the cash flow management in the whole supply chain of an organization (Wuttke et al., 2016). An important basis of potential growth and profit for financial institutions is Supply chain finance. Core enterprises, third-party e-commerce, or third-party service providers' platforms drive the different types of financial models. Supply chain finance development is carried out by continuous innovations in service models to achieve sustainable growth. Factors that influence financial strategy in the financial supply chain include cooperation strategy, credit rating, and model selection. To facilitate an organization to increase its performance, supply chain leadership is found to be an impactful factor while the credit rating analysis considers the impact of cooperation mechanisms, and service types on the market value of service providers and enterprise characteristics. Cooperation strategy analysis investigates the financial strategies results from capital-constrained suppliers and creditworthy retailers (H. Zhao et al., 2024). Indicators of an inefficient financial supply chain include low straight-through processing rates and a high number of uncollectible receivables on the balance sheet. Day's sales outstanding or days in receivables are other key performance indicators that can be used to benchmark companies with their competitors. The definitions of supply chain finance present in the literature do not consider important business partners like banks. Various dimensions related to the optimization of business processes within supply chain finance have not been given due

attention. SCF is defined as the materials or physical supply chain that includes activities related to the flow of cash from the time the customer orders through reconciliation and payment to the seller. Intra- and inter-company financial transaction-based functions and processes that extend beyond the settlement process are other definitions of SCF that emphasize the collaborative nature of supply chain finance (Weiss, 2011) .

2.7. Competitive Performance

An organization's accomplishment of its common business goals and objectives about its competitors is called competitive performance (M. Ahmad et al., 2023). Competitive performance is related to the outcomes of an organization concerning cycle time quality, cost, and flexibility (Amoako-Gyampah & Acquaah, 2008). Additionally, the factor of "product launch on time" is also taken into consideration as they are very critical for finding how successful an organization is concerning its competitors (Phan et al., 2011). (Herrera Madueño et al., 2016) explains the relationship that exists between corporate social responsibility (CSR) and the competitive performance of a firm, which mainly focuses on small and medium enterprises (SMEs). The main theoretical framework presented in this study was based on stakeholders' theory, which highlights the significance of managing the relationship with the company's stakeholders to achieve competitive advantages. (Phan et al., 2011) identifies the relationship between Just-In-Time (JIT) production and Human Resource Management (HRM) practices and then finds their effect on the firm's competitive performance. The study finds that the HRM practices, most importantly the cooperation and training of employees, have a positive impact on JIT production. Additionally, both the JIT implementation and HRM have a positive impact on a firm's competitive performance. There is empirical evidence present in this study that highlights the importance of HRM as a qualifier for successful JIT implementation and firm's superior competitive performance (Beheregarai Finger et al., 2014).It was found that supplier partnership and supplier lead time reduction are the two supplier relationship practices that have a positive impact on the competitive performance of the buying firms. Additionally, supplier quality involvement, trust-based relationships with suppliers, and supplier collaboration in new product development are the three other types of SRM practices that did not have a significant impact on competitive performance. This study highlights the significance of different SRM strategies that effectively improve the competitive performance of manufacturing firms.

2.8. Customer Satisfaction

With the increased advantages linked with increased loyalty, organizations have started to consider customer satisfaction as a more important organizational goal (U. S. Mishra, 2010). The extent to which the level of customer satisfaction can be increased is related to how well the organization integrates its trading partners (Johnston, 2004). The role of customer satisfaction in an organization's achieving a competitive advantage has been investigated in both the manufacturing and service industries. For a firm to have better supply chain finance, customer satisfaction plays a crucial part. By the use of strategic partnership, a high level of customer service can be achieved, which, in turn, is likely to offer more opportunities for the manufacturing sector organizations (Yu et al., 2013). An organization can increase its technological and market competitiveness by working with its vendors and suppliers, which results in the production of more quality products that satisfy customer needs and increase brand loyalty (Ireland et al., 2003). Customer satisfaction acts as a mediator in the relationship between customer loyalty and corporate social responsibility (CSR) (Islam et al., 2021). Customer loyalty is positively impacted by company reputation and customer relationship management (CRM). Customer satisfaction mediates the relationship between company reputation, CRM and customer loyalty, CRM. CS plays an important role in the marketing context of small and medium-sized enterprises Khan (Tahir et al., 2022). There are five different dimensions of online food delivery (OFD): service quality reliability, system operation, maintenance of meal quality, security, hygiene, and assurance, which were identified as important forecasters of customer loyalty (Koay et al., 2022). A weak relationship exists between CS and customer retention, as presented in empirical investigation done in this study (Hennig-Thurau & Klee, 1997).

2.9. Research Gap

This study aims to recognize and analyse the link that exists between supply chain integration: supplier integration, customer integration, internal integration, and organizational performance. For organizational performance, two factors are considered in this study, which include competitive performance and customer satisfaction. Two mediators are used in this study: supply chain agility and supply chain finance. This study is focused on the manufacturing industries located within Pakistan. Earlier studies have examined the impact of supplier integration, customer integration, and internal integration on customer satisfaction and competitive performance, but the role of mediators, supply chain agility, and supply chain finance, in this relationship have not been examined in depth in previous literature. The

inclusion of mediators of supply chain agility and supply chain finance is the focus area of this study, and the research gap motivated the start of this study.

2.10. Hypotheses Development

After carrying out a detailed literature review, I identified the areas that were not addressed in depth and required further research. This study will contribute to the previously researched studies linked to the impact of supply chain integration, which includes supplier integration, customer integration, and internal integration on competitive performance and customer satisfaction. This study will also analyse the impact of the mediating role of supply chain agility and supply chain finance in the relationship between supply chain integration and customer satisfaction, as well as the relationship between supply chain integration and competitive performance. The hypothesis for this study was created by first analysing the relationship between supplier integration and competitive performance and the relationship between supplier integration and customer satisfaction. Then, the mediating role played by supply chain agility and supply chain finance in this relationship was reviewed from the existing literature, and a hypothesis was developed for supplier integration. The hypothesis for this study was created by first analysing the relationship between supplier integration and competitive performance and the relationship between supplier integration and customer satisfaction. Similarly, the relationship between customer integration and competitive performance and between customer integration and customer satisfaction was analysed from existing literature and a hypothesis was developed. Then, the mediating role played by supply chain agility and supply chain finance in this relationship was analysed, and a hypothesis was designed. Similarly, the relationship between internal integration and customer satisfaction was analysed from existing literature, and a hypothesis was developed. Then, the mediating role played by supply chain agility and supply chain finance in this relationship was analysed, and a hypothesis was designed. In this way, a total of 16 hypotheses were designed for this study.

2.10.1. Supply Chain Integration and Competitive Performance

Internal and external supply chain integration done strategically can impact an organization's capability to respond to changing customer demands, which, as a result, impacts the financial and operational performance of an organization. Firm conduct, especially demand response, is positively influenced by strategic customer and supplier integration. Integrating external supply chain partners enables an organization to streamline business processes and has a positive impact on customer service, innovation, and new product development. Internal and

external supply chain integration improves efficiency, increases value to customers, and provides a competitive advantage (Ralston et al., 2015). External integration is improved by internal integration and company performance is enhanced by both external integrations done directly or indirectly. This study found the mediating effects between supply chain integration and organizational performance and highlights that previous studies lack consistent findings regarding the impact of supply chain integration on performance. Knowledge sharing between supply chain partners is supported by supply chain integration which enables an organization to deal with environmental uncertainty efficiently which increases competitive advantage. Good relationships should be developed with internal and external supply chain partners of an organization and proper information-sharing systems and coordination among them result in achieving improved competitive performance (Huo, 2012). Different types of supply chain integration practices significantly affect organizational performance under different competitive strategy which includes differentiation and cost leadership. In addition to this, competitive strategies don't have a significant moderating effect on the relationship between supply chain integration and operational performance. Internal integration plays a moderating role in the relationship between downstream integration and logistics performance. In addition, product integration, internal integration, and process integration have a positive relation with operational performance. By aligning supply chain integration with competitive strategies, practitioners can allocate their limited resources in the process of building various supply chain integration capabilities on their strategic choices (Huo et al., 2014). The previous literatures have mixed findings on the relationship of Supply Chain Integration and competitive performance. Supplier integration may increase the time that is required to build a product, especially in unreliable circumstances (Eisenhardt & Tabrizi, 1995). Collaboration increased the cost, complexity, inefficiency, time required, and difficulty of control and management during the product development process.

2.10.2. Supply Chain Integration and Customer Satisfaction

Supply chain integration enables an organization to transfer products, services, and information among all the components of the supply chain, which results in increased added value for the customers, increasing customer satisfaction. SCI is an important process that helps organizations manage the transfer of raw materials, products, and information from the sources to the end users or customers which results in gaining a competitive advantage and increasing customer satisfaction. Supply chain integration, which is done by using ERP systems, which is in alignment with business strategy and has a strong relationship with its supplier has a positive

impact on customer satisfaction. Supply chain integration and customer satisfaction are impacted by the supplier's quality-related certification; performance history and rejection rate (H. Ahmad, 2022). Most of the previous SCI-related literature is based on resource-based theory, which emphasizes firm-level capabilities whereas this study is linked with dynamic capability theory which focuses on the organization's ability to adapt and reconfigure resources to meet market demands. Supplier, customer, and internal integration have a significant direct effect on customer satisfaction in Tuna Fillets SME industries. The impact of SCI on customer loyalty in Tuna Fillets SME industries is mediated by customer satisfaction and operational performance (Zaid et al., 2021). Collaboration with customers and suppliers and higher levels of performance are linked with knowledge flows. This enables an organization to customize their products and services according to the customer requirements and by doing so; the customer satisfaction level increases. Customer satisfaction acts as a mediator in the relationship between supply chain finance and customer integration (Yu et al., 2013).

2.10.3. Competitive Performance and Supply Chain Agility

For manufacturing SMEs, supply chain agility is considered as a winning option that enables them to quickly reach the marketplace changes and disruptions. Agile initiatives are driven by the transformational leaders in the supply chain of an organization by setting and communicating a vision, acting as a mentor for the employees, and encouraging innovative solutions to achieve high standards of performance. By the integration of transformational leadership and supply chain agility elements, organizational performance among SMEs is improved (Prabhu & Srivastava, 2023). Supply chain operations that are agile perform better with time and flexibility as compared to supply chain operations that are non-agile. Global supply chain agility of an organization has a positive effect on its supply chain performance. An organization's ability for global competition through its supply chain is positively influenced by increasing its global supply chain agility (Swafford et al., 2006). Supply chain agility directly impacts organizational supply chain finance. This highlights the importance of an agile supply chain in enhancing the supply chain finance of an organization. Supply chain agility is a critical success factor in an organization that enables it to improve its financial outputs and gain competitive advantage (Avelar-Sosa et al., 2018). Many organizations have not recognized the importance of close relationship with suppliers in achieving competitive advantage (Christopher, 2000). Previous finding explains that agility is only achieved with the synergy of both internal and external aspects of the SC. (Abdelilah et al., 2023) show that the impact of lean and SC integration on operational performance is mediated by supply chain

agility. No previous studies have studied the mediating effect of supply chain agility in the relationship of Supply chain integration and competitive with three dimensions of SCI.

2.10.4. Supply Chain Integration and Supply Chain Finance

An organization achieves higher levels of supply chain finance by integrating the supply chain to greater degrees. SCI enables an organization to enhance its knowledge management practices and organizational efficiency which in turn leads to improved supply chain finance. Customer satisfaction and supplier integration both have significant positive relations with supply chain finance. The relationship between supply chain finance and customer satisfaction is fully mediated by customer satisfaction (Yu et al., 2013). Previously done research studies have found that SCI has a significant effect on the supply chain finance of an organization and financial success is a key part of supply chain integration. For both manufacturing and trade, cash flow is needed for financing. Because of this reason, supply chain finance become an integral part of the supply chain management of an organization (Pakurár et al., 2019). Prior studies have often focused on the resource-based view, which emphasizes firm-level capabilities, whereas this study applies dynamic capability theory, focusing on the firm's ability to reconfigure resources and financial strategies to adapt to market demands. SCF, as a dynamic capability, is increasingly critical as global supply chains face disruptions and financial volatility. The previous literature has not much studied the Supply Chain finance. The relationship of SCF with Supply Chain Collaboration has been evaluated in some of the previous studies like (Zaman et al., 2024). But the mediating role of SCF in the relationship of SCI and customer satisfaction as well as in the relationship of SCI and competitive performance is not studied.

2.10.5. Competitive Performance and Customer Satisfaction

For customer satisfaction, reliability and experience of purchasing are the dominant factors. Customer satisfaction and e-store performance are directly related to each other. Quality characteristics have an important role in e-retailer competitiveness and customer satisfaction. Selection of logistics and competitiveness are affected by the reliability and purchasing experience of the customers (Subramanian et al., 2014). There exists a correlation between customer satisfaction and company performance, but the statistical significance is yet to be proved. Customer satisfaction comprises of number of partial variables that have a complex influence on organizational performance. A product's performance can be measured by evaluating it to competitors' offerings to find areas where consumer satisfaction is possible to improve and hence enhance the performance of the company (Suchánek et al., 2015). Customer

satisfaction plays an important role in achieving successful performance in the tourism sector. For both satisfied and dissatisfied customers, perceived quality has the most impact on customer satisfaction. Concerning customer loyalty, customer satisfaction is a more focused area of concern than image for both happy and unhappy customers. Customer satisfaction and image impact customer loyalty (Lee et al., 2016).

*2.10.6. C*ustomer Satisfaction and Supply Chain Agility

Supply chain agility is an important aspect for e-retailers to quickly respond to customer needs. Customer satisfaction is positively influenced by e-retailer agility which is then influenced by the perceived system quality. The ability to promptly respond to changing customer demands and maintain competitive advantage is termed e-retailer agility (Roy et al., 2017). The changing marketplace dynamics and customer demands require a quick response from the organizations. For this reason, supply chain agility increases its importance for achieving an appropriate level of consumer satisfaction. Supply chain performance significantly affects the market's performance, selling prices, service standards, and overall worth and value of an organization. Customer satisfaction has a direct link with on-time delivery of the products and delays in the delivery affect the brand's reputation negatively. Previously conducted studies have explored the relationship that exists between supply chain agility and customer satisfaction emphasising its relationship importance for organizational success (Mustafa Hussain Naqvi et al., 2020).The satisfaction level and worth of both end customers and business customers are directly influenced by supply chain agility. Supply chain agility has a major influence on the end user's happiness regardless of the extent of loyalty of the end customer. The key performance outcomes are linked with how satisfied the customers are in both the management and marketing literature (Gligor et al., 2020). Research in the concept of supply chain agility has been fuelled by the need for organizations to become more responsive to the dynamic competitive landscape, customer needs, and increasingly unpredictable environmental conditions or turbulence (Mustafa Hussain Naqvi et al., 2020).

2.10.7. Supply Chain Integration and Supply Chain Agility

Process integration (PI) is a functional mechanism of supply chain integration and is termed a dynamic capability required for supply chain agility and flexibility. PI aligns the key process enhances buyer-supplier relationship and strengthens ordinal capabilities including adaptability and flexibility which as a result makes an organization more agile, responsive, and flexible. PI consists of activities such as customer services, demand forecasting, inventory planning, and logistics integration which results in better competitive performance of an organization and

better performance eventually leads to gaining competitive performance (Irfan et al., 2019). Supply chain integration has a significant contribution to enhancing supply chain agility by imparting coordination and collaboration between different linkages within the supply chain. Supply chain agility is positively influenced by supply chain integration in Indonesia's banking sector which supports tourism and maritime business. Competitive advantage can be achieved by an organization by making proper supply chain integration to enhance their supply chain agility and survive in the dynamic market environment (Sudapet et al., 2019).

2.11. Research Hypotheses

After doing a literature review of my thesis, the following research hypotheses are designed: -

H1: Supply Chain Integration (SCI) positively impacts customer satisfaction.

H1a: Supplier integration positively impacts customer satisfaction.

H1b: Customer integration positively impacts customer satisfaction.

H1c: Internal integration positively impacts customer satisfaction.

H2: Supply Chain Integration (SCI) positively impacts the competitive performance of an organization.

H2a: Supplier integration positively impacts the competitive performance of an organization.

H2b: Customer integration positively impacts the competitive performance of an organization.

H2c: Internal integration positively impacts the competitive performance of an organization.

H3: Supply chain agility mediates the relationship between Supply Chain Integration (SCI) and customer satisfaction.

H3a: Supply chain agility mediates the relationship between supplier integration and customer satisfaction.

H3b: Supply chain agility mediates the relationship between customer integration and customer satisfaction.

H3c: Supply chain agility mediates the relationship between internal integration and customer satisfaction.

H4: Supply chain agility mediates the relationship between Supply Chain Integration (SCI) and the competitive performance of an organization.

H4a: Supply chain agility mediates the relationship between supplier integration and the competitive performance of an organization.

H4b: Supply chain agility mediates the relationship between customer integration and the competitive performance of an organization.

H4c: Supply chain agility mediates the relationship between internal integration and the competitive performance of an organization.

H5: Supply chain finance mediates the relationship between Supply Chain Integration (SCI) and customer satisfaction.

H5a: Supply chain finance mediates the relationship between supplier integration and customer satisfaction.

H5b: Supply chain finance mediates the relationship between customer integration and customer satisfaction.

H5c: Supply chain finance mediates the relationship between internal integration and customer satisfaction.

H6: Supply chain finance mediates the relationship between Supply Chain Integration (SCI) and the competitive performance of an organization.

H6a: Supply chain finance mediates the relationship between supplier integration and the competitive performance of an organization.

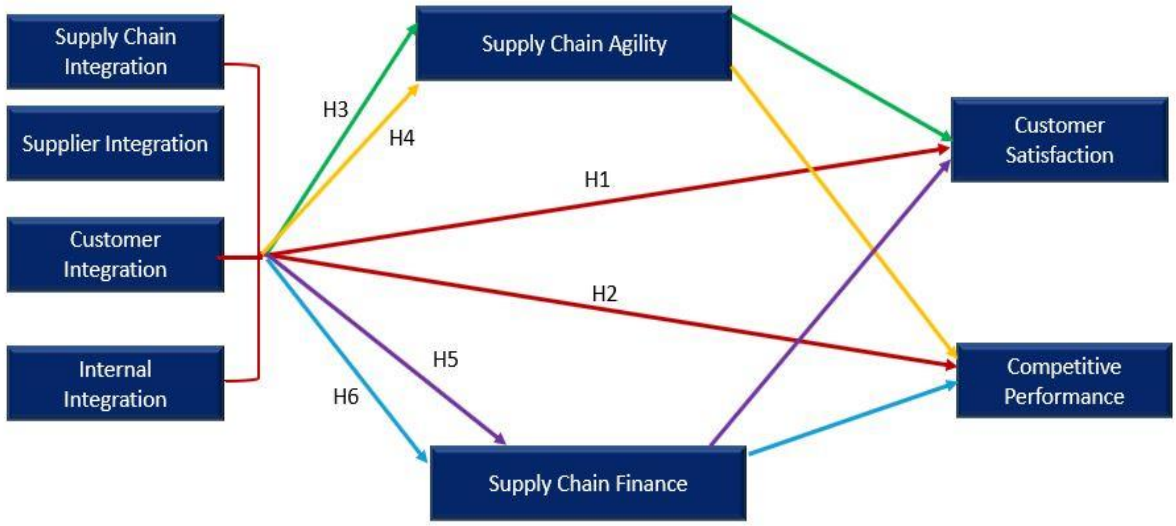
H6b: Supply chain finance mediates the relationship between customer integration and the competitive performance of an organization.

H6c: Supply chain finance mediates the relationship between internal integration and the competitive performance of an organization.

2.12. Theoretical Framework: -

A total of seven variables are used in this study which includes Supply Chain Integration: Supplier Integration, Customer Integration, Internal Integration as independent variables, Supply Chain Agility and Supply Chain Finance as mediating variable while Customer

Satisfaction and Competitive Performance as the dependent variables. The theoretical framework is shown as: -



CHAPTER 3: RESEARCH METHODOLOGY

In the following chapter, the complete process that takes place in conducting this study from the start to its completion is discussed in detail. It includes the description of the methodology used for this study and the justification explaining the idea and need behind conducting this study. In addition to this, the questionnaire design, data collection procedure, and different phases of conducting the research are explained.

3.1. Research Paradigm

A research paradigm is defined as a set of beliefs about how a specific problem exists in the world and a set of collective understandings about how these problems can be investigated and solved. In addition, paradigms are regarded as the values and beliefs of the researchers about the world, the definition of the world concerning their perspective, and their way of working in the world. Concerning the research work, the key area for guiding the actions in the process of the research is the researcher's own beliefs and thoughts (Abdullah Kamal, 2019).The three primary structures that are used for this research work include the critical thinking process, optimism, and construct theories (Yue, 2023).Positivism is a method of conducting research that urges that reality and truth are independent of any biases by both the observer and viewers. Positivism is mostly related to research that is based on quantitative analysis because it is typically considered an empirical method of study that is used by the researchers to verify the true nature of the work done. In the process of sending data to the targeted sample getting their response and then applying data analysis methods to get the outcomes from these responses, positivism is altogether used. Based on positivism, the study research objectives were achieved, the designed hypotheses were confirmed and problems concerning the study were answered. For doing quantitative research, mathematical data analysis methods are used. Due to this reason, the key feature of qualitative study was formal computation. The dependent, independent, and moderating variables for this research were defined and a questionnaire was designed and then it was used to collect the data. Once the data is collected, SPSS is used for data analysis to generate results.

3.2. Research Setting

3.2.1. Sampling

In research, sampling is explained as the procedure of choosing a subset of the population from a larger population to collect information and data related to the population. The selection of

the subset from the population is based on defined criteria and relates to the type of study that is been conducted. It is very important to use a sample for research that aligns with the research topic accurately and becomes a source of valid results for the study.

3.2.2. Sampling Procedure

Firstly, a survey-based questionnaire was designed that relates to the variables used in this thesis. The questionnaire design consists of 7 variables. We have used a 5-point Likert scale to record the responses from the respondents. The 5-point Likert scale is a type of rating scale that is most used in research comprising quantitative analysis. This scale is used to record the perceptions and attitudes of the respondents regarding a particular subject. This scale ranges from 1 being strongly disagree to 5 being strongly agree. As a result, this scale provides a more focused insight into the target population that aligns with our thesis topic.

The type of sampling that is used to collect data from the sample is purposive sampling. The questionnaire was designed in Google form and then it was distributed to the targeted audience by sending the Google form link via WhatsApp, email, and Linked In. The survey is conducted from February 2024 to April 2024. Purposeful sampling which is an approach of a non-sampling sampling method is used. In this type of sampling, the respondents are selected by the research author based on predetermined criteria which include, gender, age, location, type of industry they work in, level of education they have, and more. The other name for this type of sampling is selective sampling. In this thesis, purposeful sampling is used based on the industry the respondents work in and their designation in that industry. The focus was on the people working in the manufacturing industry and their designation is in the supply chain, finance, and management departments of the manufacturing industry.

3.2.3. Variables of the study

A total of seven variables are used in this study which includes three independent variables, two dependent variables, and two mediators. The independent variables include supplier integration, customer integration, and internal integration. The dependent variables include competitive performance and customer satisfaction. Additionally, supply chain finance and supply chain agility are termed as mediators variables. The survey items/instruments are collected from the already published studies. This study mainly uses a 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree and 1 = much worse than competitors, 5 = much better than competitors, and 1=Very Nervous to 5=Very Sufficient. In a few questions, a nominal scale (Yes or No) is used. The instruments designed for this study are

completely in the English language. The description of variables that are used to find the impact of supply chain integration on competitive performance and customer satisfaction along with the mediating role of supply chain finance and supply chain agility is as follows: -

- **Supplier Integration**

The three major types of supply chain integration include supplier integration, customer integration, and internal integration. Supplier integration involves fundamental abilities to coordinate and collaborate with crucial and critical vendors or suppliers (Huo, 2012) .By integrating with the crucial suppliers, the organization can better convey to them what products, services, or raw materials are expected from them. By doing so, suppliers can correctly perceive the expectations from the products or raw materials and as a result, the gap between perceived and expected product quality can be significantly reduced. A total of seven instruments are used for measuring supplier integration. A sample instrument used in the questionnaire is as follows "Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization: We maintain cooperative relationships with our suppliers" with answers based on 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree.

- **Customer Integration**

Customer integration is one of the important parts of supply chain integration. In the present era, supply chain management in businesses faces new challenges mainly due to the continuously changing demands of customers, technological advancements, and globalization. Due to these reasons, organizations need to remodel themselves in linkage networks having more flexibility and adaptability. Some researchers and authors have suggested a supply chain approach based on customers (Martinelli & Tunisini, 2019). Customer integration gains the significant importance due to these very reasons. A total of six instruments are used in this study to measure customer integration. A sample instrument used in the questionnaire is "Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization: We are frequently in close contact with our customers." with answers based on 5 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree.

- **Internal Integration**

Internal integration is one part of supply chain integration that enables an organization to properly collaborate and coordinate interdepartmentally. Integral integration facilitates an organization to establish an instant communication structure that includes collaborating beyond organizational boundaries. Integrating an organization's information system and inter-departmental collaboration and coordination is a key factor that defines internal integration (Riley et al., 2016). A total of six instruments are used in the designed questionnaire to measure internal integration. A sample instrument is "Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization: Departments in the plant frequently communicate with each other." with answers based on 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree.

- **Supply Chain Agility**

Organizations consider supply chain agility as a feasible method to perform with greater effectiveness and achieve a sustained competitive advantage (Eckstein et al., 2015).Supply chain agility includes the ability of an organization to sense short-term and temporary changes in an organization's supply chain and react accurately to mitigate the threats and take maximum benefits from the possible opportunities that may arise due to these changes. Supply chain agility is measured by using 3 sub-variables which include: Dynamic Sensing, Dynamic Flexibility, and Dynamic speed. One of the sample questions that are used in measuring supply chain agility is "Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization: -

"You can sense short-term and temporary changes in technology (e.g. revisions of existing technologies) with an answer based on a 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree".

- **Supply Chain Finance**

Supply chain financing is an approach linked to financing that includes longer payment options and high flexibility in the capital in the complete supply chain of an organization as proposed by researchers as well as practitioners. The financial service provider which includes financial institutions like banks facilitates the financial products and services of an organization by linking it with its upstream as well as downstream organizational chain (Li et al., 2022). A total of eight instruments were used to measure the supply chain finance. A sample instrument of

the questionnaire is “Please indicate whether your company has adopted the guaranteed financing?” with the nominal scale (Yes or No) options.

- **Competitive Performance**

Competitive performance is related to how a company performs relative to its rival companies. A good competitive performance results in gaining a competitive advantage for the company. Several methods can be used for the measurement of competitive performance. The most widely used measures for measuring competitive performance include: delivery, quality, flexibility, and cost (Al-Abdallah et al., 2014). A total of seven instruments are used in this study’s questionnaire to measure competitive performance. A sample instrument is “For the following indicators, compare the results of your company to other competitors in terms of Sales” with options in 5 5-point Likert scale (1 = much worse than competitors, 5 = much better than competitors.

- **Customer Satisfaction**

Customer satisfaction is regarded as a consumer attitude towards a product or service. Customer satisfaction takes place after a product, or a service is purchased by the customer, and it is a measure of how much a customer likes or dislikes the products or services received (Woodside et.al. 1989). Customer will be more satisfied when their perceived quality is equal to the actual product or service quality delivered. The more the gap between the expected quality of a product or service and the received quality of the product or service, the less customer satisfaction. A total of five instruments are used in the questionnaire to measure customer satisfaction. One of the sample instruments used is “Please indicate the extent to which you agree or disagree with the statement about your plant and organization: Our customers are pleased with the products and services we provide for them” with answers based on a 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree.

3.3. Research Methodology

The method that is adopted to complete the objectives of the research from start to completion is termed research methodology. In this study, the method that is used is a quantitative method in which a questionnaire is designed by picking up instruments from already published studies for measuring the variables linked to this research. All the data is properly quantified and then this quantified data is used for data analysis to generate results. The data analysis technique used in this paper is SPSS.

3.3.1. Research Design

The research design used was quantitative. The sample for this research is the first-line workers, managers, administration workforce, and workforce working in the finance department of manufacturing industries located in Pakistan. The authors selected the initial people by looking for the people who fulfilled the criteria designed for selecting the sample population for submitting Google forms from the social circle. After finding these people, they were sent the Google form link via WhatsApp and email, and their responses were recorded. Then, these people were requested to float the Google form in their companies further, so 350 legit responses were collected.

3.3.2. Research Process

The research begins by looking at local and global industries and then identifying and defining an issue as a problem. After the problem is identified, the literature published related to the related variables is found and reviewed to find the possible research gap. After going through this procedure in detail, the research problem is successfully identified and defined. The identified problem was the "Impact of Supply Chain Integration: supplier integration, customer integration and internal integration on competitive performance and customer satisfaction: Analysing the role of supply chain agility and supply chain finance." After the problem statement was defined, the next step was to find and identify the variables and the instruments for measuring these variables. The instruments were found from already published studies, and then a questionnaire was formulated that comprised instruments for measuring all the variables of this study. After the questionnaire was designed, the next step included floating it to the targeted population and recording their responses. In the next phase of this research, a thorough literature review was conducted for this study in which a previously published study related to our study was completed.

After formulating the research problem and conducting a thorough literature review, we have made a framework for this study, explaining the key variables and the relationship that exists between them. The framework developed consists of the design hypothesis that will be used to test the variables in this study. The research design is the strategy by which the study is conducted. In this study, the research design used is quantitative, which is suitable for collecting and analysing the data and then generating the results. In this study, the survey is used for the collection of data from the employees of the manufacturing industry to investigate and analyze the relationship that exists between supplier integration, customer integration,

internal integration competitive performance, and customer satisfaction and how supply chain agility and supply chain finance.

3.4. Data Collection

There are two categories for data collection: quantitative and qualitative. Quantitative data involves quantifying, or in simple words, giving a numeric weight to a specific variable (Valsiner, 2000), while qualitative data involves gathering data that is not numerical. It may involve data or information collected by interviews, observation, or discussion. Qualitative data is mainly used to study behavioural aspects like attitude and individual experiences in depth. (Maymone et al., 2018). Quantitative data is used for quantitative analysis to test the hypothesis and find the relationship between different variables. This research study comprises quantitative research data. The data is collected by designing a questionnaire comprising 54 instruments to measure the variables used in this research study. This survey or questionnaire form is sent to the targeted sample population, and a request is made to complete the form appropriately. Once we have received 300+ accurate responses. The next step involves using data analysis techniques to analyze the gathered data and generate results. The data analysis is performed using SPSS**.** In the process of conducting a survey-based questionnaire, to make sure that all the items present in the questionnaire are clear and utterly relevant to the variables of the research, and there must be no bias present in the questionnaire. These steps are crucial to guarantee that the response received from the questionnaire will be valid and form the basis of accurate results of the study.

3.4.1. Data Preparation

The data gathered from the respondents' responses to the questionnaire is then gathered and put in an accessible format. SPSS tool was used to analyze this data. A total of 1000 questionnaire forms were sent to the targeted sample. In response to 1000 questionnaires, we received 352 responses at first, corresponding to a 39% response rate. After analyzing these 352 responses to make sure that the responses are accurate to use for analysis, a total of 50 responses were discarded due to the following criteria: -

- If any unusual trend is noticed, e.g., a response containing all responses as strongly disagree, strongly agree.
- Response having most answers as Neutral.

After discarding these responses, a total of 302 responses were used for the data analysis, which equalled approximately 33.5% of the response rate. Then, these 302 responses were fed into SPSS to find the following data: -

- Report of descriptive statistics.
- Regression report.
- Frequency distribution report.
- Mediation analysis for hypotheses testing and validation.

3.5. Ethical Considerations

Ethical attributes are of prime importance when conducting any research. However, when the research comprises views and personal answers from the respondents, ethical considerations further increase their importance. For this very reason, ethical attributes should be implemented right from the start of the research. All the researchers should have an in-depth knowledge of ethical values and considerations and must fully adhere to them when conducting their study (Arifin, 2017). We have considered all the ethical aspects of our data-gathering process from the targeted sample. All the respondents of our study were voluntary, and they were free to withdraw from the study at any stage of the research. All the respondents were given equal respect with no bias for any reason. We have used a strategy for data collection in which every response remains confidential, and even we have not asked for an email from the respondents in the questionnaire to make sure that respondents do not feel any kind of risk in filling the questionnaire accurately and that no bias will take place in responses. The data collected from the respondents was just used for the dissertation. We have not used any personal questions in our questionnaire to ensure respondents are not insecure in answering it.

3.6. Limitations of the research design

Following are the limitations of the research design of this study: -

- Make Sure all the respondents read the complete questionnaire form and answer accurately without getting annoyed.
- Finding the targeted audience in the manufacturing sector who are fully qualified to understand all the items in the questionnaire, as all the questionnaires were in English.

CHAPTER 4: RESULTS AND DISCUSSION

In this chapter, the results and the findings of the research are discussed. The data that was collected was analyzed using SPSS. The primary aim of this chapter is to analyze the proposed hypothesis of this result through the analysis technique. In this chapter, different tables indicate the analysis result and diagrams that explain how the research model is utilized with the information extracted from this research study. This chapter included the importance of the research model and its ability to offer critical insights about the connection and relationship between different variables used for this research study. The data analysis gives the results, which are mentioned and discussed in a simple way that is easy for readers to understand both theoretically and conceptually. Overall, in this chapter, a detailed review of the empirical research was carried out and includes an explanation of how the research model can further enhance the comprehension of the supply chain management domain.

4.1. Demographics

The exploratory method used in this research study is based on logical reasoning. The study sample is collected from the manufacturing industries located in Pakistan, including textile mills, cement manufacturers, pharmaceuticals, and automotive industries. The target sample was workers in the manufacturing sector's administration, management, customer support representation, and supply chain departments. The minimum education criteria for this sample are 16 years of education. Purposive sampling was used to gather data. The data was collected from the targeted sample via Google Forms and social media platforms, including WhatsApp and LinkedIn. The Google form was emailed to the target audience, and their responses, including details about their demographics and research items, were recorded in the Google sheet. The purpose of conducting the research was communicated to the target audience so they could know that their responses would be used for conducting the research. Ethical considerations were fully considered while getting responses from the participants, and they were communicated and taken into confidence that their responses would remain completely private. In this way, the participants were comfortable while submitting their responses. A total of 302 responses via Google were received, and all were valid. The research survey was distributed among 1000 personnel working in various manufacturing companies around Pakistan. Out of 302 valid responses, 202 were submitted by males, which is almost 66.9% of the valid responses, and 100 were submitted by females, which makes up 33.1% of the valid responses. The respondents were the project managers, team leads, finance managers, and

supply chain management managers of different manufacturing companies in Pakistan. Table 4.1 below shows the demographics of the participants of this research.

Table 1: Demographics

Years of Experience	Responses	Percentage
1 – 5	184	61%
6 - 10	58	19.2%
11 - 15	38	12.5%
15 -25	22	7.3%
Gender	**Responses**	**Percentage**
Female	100	33.1%
Male	202	66.9%

4.2. Measurement model

The measurement model is a statistical model used to assess the validity and reliability of the measurements and results of the research study. The measurement model is a crucial research study phase for measuring constructs. A construct is defined as a concept or an abstract idea that cannot be directly observed but can be measured using indicators like survey questions, rating scales, or observations. The extent to which a measure or combination of different measurements fulfils the intended purpose of constructs is termed construct validity. Construct validity comprises two types that are evaluated through the measurement model: convergent validity and discriminant validity.

4.2.1. Cronbach's alpha

Cronbach's alpha (Cronbach, 1951) is a popular and widely accepted technique used as a scale quality indicator (Taber, 2018). The alpha values inside a specific range are used to look for internal consistency for the scale items of our study.

The internal consistency of the items of the variable's supplier integration, customer integration, internal integration, supply chain agility, supply chain finance, competitive performance, and customer satisfaction is calculated by the value of Cronbach alpha, which is equal to or greater than 0.600, indicating strong reliability (Ramli, 2019). Using SPSS, we measured our research variables' overall and individual reliability. The reliability coefficient alpha values are shown in the table below.

Table 2:Cronbach's Alpha

Variable	Cronbach Alpha
Supplier Integration	0.900
Customer Integration	0.875
Internal Integration	0.901
Supply Chain Agility	0.938
Supply chain finance	0.600
Customer Satisfaction	0.901
Competitive Performance	0.946

4.3. Direct Relation

Sample means (M): According to the data collected from the respondents, the mean value of each sample is termed sample means (M), which is displayed in this column. Based on the data acquired, the sample mean estimates the population mean.

Standard deviation (STDEV): Standard deviation calculates how much each sample's data is deviated from the mean value. It is a measure of how evenly the data is distributed throughout each sample. A smaller value of standard deviation describes that the data is closer to the mean value, while a greater value of standard deviation explains that the sample's data is far from the mean and is more widely dispersed.

T statistics: The t value describes the sample mean's distance from the population's mean, expressed in the sample's standard deviation units. For calculating the t-statistic, standard deviation (STDEV), original mean (O), sample mean (M), and sample size (n) formulas are taken into consideration. The column in the results table below shows the absolute value of t statistics.

P values: The P value explains the probability that the difference between the sample and the original mean is due to chance. A difference of less than 0.05 between the sample mean and the original mean is considered statistically significant, which indicates that it is doubtful due to chance. In this study, the entire hypothesis has a value of P less than 0.05, which explains that all the hypotheses are considered statistically significant.

4.4. Results and Hypotheses Testing

4.4.1 Normality Test

A statistical method called a normality test assesses whether a data collection is roughly regularly distributed. In statistics, the normal distribution—also referred to as the Gaussian distribution or the bell curve—is a typical and significant probability distribution (Ghasemi & Zahediasl, 2012). It is symmetric about its mean, with fewer observations happening as you travel away from the mean, and most observations are concentrated around the central peak. The normality test values are mentioned in the table below: -

Table 3: Normality Test

Variable	**N**	**Skewness**		**Kurtosis**		**Mean**	
		Statistic	Std. Error	Statistic	Std. Error	Statistic	Std. Error
Supply Chain Integration	302	-.804	.140	.227	.280	3.6026	.04674
Supplier Integration	302	-.603	.140	-.316	.280	3.6131	.05184
Customer Integration	302	-.496	.140	-.462	.280	3.5403	.05215
Internal Integration	302	-.761	.140	.029	.280	3.6545	.05134
Supply Chain Agility	302	-.755	.140	.180	.280	3.4493	.04725
Supply Chain Finance	302	-.374	.140	-.240	.280	2.1053	.02194
Competitive Performance	302	-.430	.140	-.738	.280	3.4546	.05898
Customer Satisfaction	302	-.757	.140	-.042	.280	3.6404	.05354

Mean is the mathematical average value of data set. Mean value is calculated by dividing the summation of the observations by total number of observations. It is easy to calculate and popular measure. Mean is a unique value for one group, which is important when comparing between the groups. The median is the middle most observation of data when the data is arranged either in ascending or descending order of magnitude. Median value occupies the central value of the distribution. Standard error is the approximate difference between sample mean and population mean. When many samples are taken from same population having same sample size through random sampling technique, then SD among the sample means is called standard error. Skewness is a measure of symmetry, or more precisely, the lack of symmetry

of the normal distribution. Kurtosis is a measure of the peakiness of a distribution. A distribution is called approximate normal if skewness or kurtosis of the data are between − 1 and + 1 (P. Mishra et al., 2019).

Table 4: Normality Test

Variable	N	95% Confidence Interval for Mean								
		Lower Bound	Upper Bound	5% Trimmed Mean	Median	Variance	Std. Deviation	Min	Max	Range
Supply Chain Integration	302	3.5106	3.6946	3.6427	3.7738	.660	.81227	1.00	5.00	4.00
Supplier Integration	302	3.5110	3.7151	3.6488	3.8571	.812	.90089	1.00	5.00	4.00
Customer Integration	302	3.4377	3.6429	3.5700	3.6667	.821	.90624	1.00	5.00	4.00
Internal Integration	302	3.5535	3.7556	3.6975	3.9167	.796	.89224	1.00	5.00	4.00
Supply Chain Agility	302	3.3563	3.5423	3.4842	3.6250	.674	.82109	1.00	5.00	4.00
Supply Chain Finance	302	2.0622	2.1485	2.1144	2.1429	.145	.38129	1.00	2.86	1.86
Competitive Performance	302	3.3385	3.5706	3.4823	3.5714	1.050	1.02491	1.00	5.00	4.00
Customer Satisfaction	302	3.5350	3.7458	3.6877	4.0000	.866	.93045	1.00	5.00	4.00

4.4.2. Correlations Results

A correlation coefficient is that single value or number which establishes a relationship between the two variables being studied. The method employed in this study is Pearson's correlation. The Pearson's coefficient establishes a relationship between the two variables based on three assumptions which are: -

a: Relationship between the variable is linear

b. Variables are independent of each other.

c. There is normal distribution between variables.

Analyzing the relationship or association between two or more quantitative variables is known as correlation analysis or correlation. By employing a correlation coefficient to quantify the relationship between the variables, the analysis aims to determine its direction and strength

(Gogtay & Thatte, 2017). The interval of the correlation coefficient is -1 to +1: For a perfect positive linear relationship, a value of +1 is used. For a perfect negative linear relationship, a value of -1 is used. A value of 0 indicates that the variables have no linear relationship.

Table 5 contains the correlation results of the variables of the study. Between -1 and +1, the Pearson correlation coefficient indicates the level and trend of a linear relationship between two continuous variables. For any conclusion about the population to be valid, certain assumptions about the data, such as independence and normal distribution, must be made (Schober et al., 2018)

Table 5: Correlation Analysis

		SCA	SI	CI	II	SCF	CS	CP	SCI
SCA	Pearson Correlation	1	.664**	.637**	.674**	.283**	.679**	.512**	.730**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	302	302	302	302	302	302	302	302
SI	Pearson Correlation	.664**	1	.703**	.716**	.276**	.675**	.556**	.893**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	302	302	302	302	302	302	302	302
CI	Pearson Correlation	.637**	.703**	1	.748**	.255**	.722**	.600**	.906**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	302	302	302	302	302	302	302	302
II	Pearson Correlation	.674**	.716**	.748**	1	.247**	.824**	.598**	.909**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000
	N	302	302	302	302	302	302	302	302
SCF	Pearson Correlation	.283**	.276**	.255**	.247**	1	.208**	.270**	.288**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	302	302	302	302	302	302	302	302
CS	Pearson Correlation	.679**	.675**	.722**	.824**	.208**	1	.639**	.820**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	302	302	302	302	302	302	302	302
CP	Pearson Correlation	.512**	.556**	.600**	.598**	.270**	.639**	1	.648**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	302	302	302	302	302	302	302	302
SCI	Pearson Correlation	.730**	.893**	.906**	.909**	.288**	.820**	.648**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	302	302	302	302	302	302	302	302
**. Correlation is significant at the 0.01 level (2-tailed).									

Table 5 contains correlation results. Supply Chain Agility shows strong positive correlations with Supplier Integration (0.664), Customer Integration (0.637), and Internal Integration (0.674), indicating that as agility increases, so do these integrations. All correlations are statistically significant ($p < 0.01$). Internal Integration is very highly correlated with Supply Chain Finance (0.824) and Customer Satisfaction (0.679), suggesting that better internal processes lead to improved supply chain finance and higher customer satisfaction. Competitive Performance correlates positively with Customer Satisfaction (0.639) and Supply Chain Integration (0.648), implying that organizations that perform well competitively also tend to have satisfied customers and effective supply chain integration. Supply Chain Integration strongly correlates with Supply Chain Agility (0.730) and Customer Integration (0.906), indicating that a well-integrated supply chain enhances agility and customer relationships.

4.4.3. Hypotheses Testing

H1. Supply Chain Integration positively impacts customer satisfaction

Beta	R2	T	P	Result
0.820	0.672	24.770	0.000	Supported

Hypothesis 1 defines supply chain integration as positively influencing manufacturing firms' customer satisfaction.

H1a. Supplier integration positively impacts customer satisfaction

Beta	R2	T	P	Result
0.675	0.455	15.833	0.000	Supported

Hypothesis 1a defines supplier integration as positively influencing a firm's customer satisfaction in the manufacturing sector. The result shows that supplier integration and customer satisfaction are linked significantly, based on which hypothesis 1a is accepted. The beta value for this hypothesis is 0.675, which confirms that this hypothesis is true and shows a significant effect of supplier integration on customer satisfaction of a firm in the manufacturing sector.

H1b: Customer integration positively impacts customer satisfaction

Beta	R2	T	P	Result
0.722	0.521	18.066	0.000	Supported

Hypothesis 1b defines customer integration as positively influencing a firm's customer satisfaction in manufacturing. The result shows that a firm's customer integration and customer satisfaction are linked significantly, based on which hypothesis 1b is accepted. The beta value for this hypothesis is 0.722, which confirms that this hypothesis is true and shows a significant effect of customer integration on a firm's customer satisfaction in the manufacturing sector.

H1c: Internal integration positively impacts customer satisfaction.

Beta	R2	T	P	Result
0.824	**0.679**	**25.168**	**0.000**	**Supported**

Hypothesis 1c defines internal integration as positively influencing a firm's customer satisfaction in manufacturing. The result shows that internal integration and customer satisfaction are linked significantly, and this assumes that hypothesis 1c is accepted. The beta value for this hypothesis is 0.824, which confirms that this hypothesis is true. It shows a significant effect of internal integration on customer satisfaction of a firm in the manufacturing sector.

H2: Supply Chain Integration positively impacts the competitive performance of a firm

Beta	R2	T	P	Result
0.648	0.419	14.179	0.000	Supported

Hypothesis 2 defines supply chain integration as positively influencing the competitive performance of manufacturing firms.

H2a. Supplier integration positively impacts the competitive performance of a firm

Beta	R2	T	P	Result
0.556	0.309	11.573	0.000	Supported

Hypothesis 2a defines supplier integration as positively influencing the competitive performance of a firm in the manufacturing sector. From the result, it is evident that supplier integration and the competitive performance of a firm are linked significantly and based on which hypothesis 2a is accepted. The beta value for this hypothesis comes to be 0.556, which confirms that this hypothesis is true and shows a significant effect of supplier integration on the competitive performance of a firm in the manufacturing sector.

H2b. Customer integration positively impacts the competitive performance of a firm

Beta	R2	T	P	Result
0.600	0.360	12.989	0.000	Supported

Hypothesis 2b defines customer integration as positively influencing the competitive performance of a firm in the manufacturing sector. From the result, it is evident that customer integration and the competitive performance of a firm are linked significantly and based on which hypothesis 2b is accepted. The beta value for this hypothesis comes to be 0.600, which confirms that this hypothesis is true and shows a significant effect of customer integration on the competitive performance of a firm in the manufacturing sector.

H2c. Internal integration positively impacts the competitive performance of a firm

Beta	R2	T	P	Result
0.598	0.358	12.931	0.000	Supported

Hypothesis 2c defines internal integration as positively influencing the competitive performance of a firm in the manufacturing sector. From the result, it is evident that internal integration and the competitive performance of a firm are linked significantly and based on which hypothesis 2c is accepted. The beta value for this hypothesis comes to be 0.598, which confirms that this hypothesis is true and shows a significant effect of internal integration on the competitive performance of a firm in the manufacturing sector.

H3. Supply chain agility mediates the relationship between Supply Chain integration and customer satisfaction.

Hypothesis 3 states that supply chain agility mediates the relationship between supply chain integration and customer satisfaction for manufacturing firms.

Beta	LLCI	ULCI	Result
0.1450	0.0674	0.2339	Supported

H3a. Supply chain agility mediates the relationship between supplier integration and customer satisfaction.

Beta	LLCI	ULCI	Result
0.2835	0.1925	0.3833	Supported

Hypothesis 3a defines supplier integration as having an indirect relationship to a firm's customer satisfaction through the mediating effect of supply chain agility. The data analysis carried out on SPSS confirmed that internal integration influences a firm's customer satisfaction, which is mediated by the presence of the factor of supply chain agility. The value of beta is 0.2835, and both the values of LLCI and ULCI are positive and lie in the same quadrant. Hence, this hypothesis is true and supported.

H3b. Supply chain agility mediates the relationship between customer integration and customer satisfaction.

Beta	LLCI	ULCI	Result
0.2413	0.1679	0.3272	Supported

Hypothesis 3b defines customer integration as having an indirect relationship to a firm's customer satisfaction through the mediating effect of supply chain agility. The data analysis carried out on SPSS confirmed that customer integration influences a firm's customer satisfaction, which is mediated by the presence of the factor of supply chain agility. The value of beta is 0.2413, and both the values of LLCI and ULCI are positive and lie in the same quadrant. Hence, this hypothesis is true and supported.

H3c. Supply chain agility mediates the relationship between internal integration and customer satisfaction.

Beta	LLCI	ULCI	Result
0.1593	0.0907	0.2355	Supported

Hypothesis 3c defines internal integration as having an indirect relationship to a firm's customer satisfaction through the mediating effect of supply chain agility. The data analysis carried out on SPSS confirmed that internal integration influences a firm's customer satisfaction, which is mediated by the presence of the factor of supply chain agility. The value of beta is 0.1593, and both the values of LLCI and ULCI are positive and lie in the same quadrant. Hence, this hypothesis is true and supported.

H4. Supply chain agility mediates the relationship between Supply Chain integration and competitive performance

Beta	LLCI	ULCI	Result
0.776	-0.0403	0.2141	Not Supported

Hypothesis 4 states that supply chain agility mediates the relationship between supply chain integration and manufacturing firms' competitive performance.

H4a. Supply chain agility mediates the relationship between supplier integration and competitive performance

Beta	LLCI	ULCI	Result
0.1931	0.0598	0.0786	Supported

Hypothesis 4a defines supplier integration as having an indirect relationship to the competitive performance of a firm through the mediating effect of supply chain agility. The data analysis carried out on SPSS confirmed that supplier integration influences the competitive performance of a firm are mediated by the presence of the factor of supply chain agility. The beta value comes to be 0.1931, and both the values of LLCI and ULCI are positive and lie in the same quadrant. Hence, this hypothesis is true and supported.

H4b. Supply chain agility mediates the relationship between customer integration and competitive performance.

Beta	LLCI	ULCI	Result
0.1571	0.0672	0.2657	Supported

Hypothesis 4b defines customer integration as having an indirect relationship to the competitive performance of a firm through the mediating effect of supply chain agility. The data analysis carried out on SPSS confirmed that customer integration influences the competitive performance of a firm are mediated by the presence of the factor of supply chain agility. The beta value comes to be 0.1571, and both the values of LLCI and ULCI are positive and lie in the same quadrant. Hence, this hypothesis is true and supported.

H4c. Supply chain agility mediates the relationship between internal integration and competitive performance.

Beta	LLCI	ULCI	Result
0.1540	0.0409	0.2748	Supported

Hypothesis 4c defines internal integration as having an indirect relationship to the competitive performance of a firm through the mediating effect of supply chain agility. The data analysis carried out on SPSS confirmed that internal integration influences the competitive performance of a firm and is mediated by the presence of supply chain agility. The beta value comes to be 0.1540, and both the values of LLCI and ULCI are positive and lie in the same quadrant. Hence, this hypothesis is true and supported.

H5. Supply chain finance Mediates the relationship between Supply Chain integration and customer satisfaction

Beta	LLCI	ULCI	Result
0.0332	-0.0006	0.0767	Not Supported

Hypothesis 5 states that supply chain finance mediates the relationship between supply chain integration and customer satisfaction for manufacturing firms.

H5a. Supply chain finance mediates the relationship between supplier integration and customer satisfaction

Beta	LLCI	ULCI	Result
0.0067	- 0.0174	0.0379	Not Supported

Hypothesis 5a defines supplier integration as having an indirect relationship to a firm's customer satisfaction through the mediating effect of supply chain finance. From the data analysis carried out on SPSS, it is confirmed that supplier integration influences a firm's customer satisfaction and is not mediated by the presence of the factor of supply chain finance. The value of beta comes to be 0.0067. The value of LLCI is negative, and the value of ULCI is positive; hence, this hypothesis is not supported.

H5b. Supply chain finance mediates the relationship between customer integration and customer satisfaction

Beta	LLCI	ULCI	Result
0.0397	0.0065	0.0843	Supported

Hypothesis 5b defines customer integration as something that indirectly relates to a firm's customer satisfaction through the mediating effect of supply chain finance. From the data analysis carried out on SPSS, it is confirmed that the presence of the factor of supply chain finance mediates customer integration and influences a firm's customer satisfaction. The beta value is 0.0397, and the values of LLCI and ULCI are both positive; hence, this hypothesis is true and supported.

H5c. Supply chain finance mediates the relationship between internal integration and customer satisfaction

Beta	LLCI	ULCI	Result
0.0013	- 0.0159	0.022	Not Supported

Hypothesis 5c defines internal integration as something that indirectly relates to a firm's customer satisfaction through the mediating effect of supply chain finance. The data analysis

carried out on SPSS confirmed that the presence of the factor of supply chain finance does not mediate internal integration influences on a firm's customer satisfaction. The value of beta comes to be 0.0013, the value of LLCI is negative, and the value of ULCI is positive; hence this hypothesis is not supported.

H6. Supply chain finance Mediates the relationship between Supply Chain integration and the competitive performance of a firm.

H6 Beta	LLCI	ULCI	Result
0.0332	0.0197	- 0.0017	Not Supported

Hypothesis 6 states that supply chain finance mediates the relationship between supply chain integration and manufacturing firms' competitive performance.

H6a. Supply chain finance mediates the relationship between supplier integration and competitive performance.

Beta	LLCI	ULCI	Result
0.0397	0.0065	0.0843	Supported

Hypothesis 6a defines supplier integration as indirectly related to a firm's competitive performance through the mediating effect of supply chain finance. From the data analysis carried out on SPSS, it is confirmed that the presence of the factor of supply chain finance mediates supplier integration and influences a firm's competitive performance. The beta value is 0.0397, and both the values of LLCI and ULCI are positive; hence, this hypothesis is true and supported.

H6b. Supply chain finance mediates the relationship between customer integration and competitive performance.

Beta	LLCI	ULCI	Result
0.0353	0.0076	0.0748	Supported

Hypothesis 6b defines customer integration as being indirectly related to a firm's competitive performance through the mediating effect of supply chain finance. From the data analysis

carried out on SPSS, it is confirmed that the presence of the factor of supply chain finance mediates customer integration and influences a firm's competitive performance. The beta value is 0.0353, and both the values of LLCI and ULCI are positive; hence, this hypothesis is true and supported.

H6c.Supply chain finance mediates the relationship between internal integration and competitive performance.

Beta	LLCI	ULCI	Result
0.0370	0.0086	0.0773	Supported

Hypothesis 6c defines internal integration as an indirect relationship between a firm's competitive performance and the mediating effect of supply chain finance. From the data analysis carried out on SPSS, it is confirmed that the presence of the factor of supply chain finance mediates internal integration and influences a firm's competitive performance. The beta value is 0.0370, and both the values of LLCI and ULCI are positive; hence, this hypothesis is true and supported.

4.5. Discussion

This study used data obtained from the manufacturing sector of Pakistan to find the influence of supply chain integration: Supplier integration, customer integration, and internal integration on customer satisfaction and competitive performance of manufacturing firms and analyze the effects of supply chain finance and supply chain agility as a mediator. Based on the literature, a conceptual model was first designed. Afterward, it was tested to analyze the impacts of Supply Chain Integration: supplier integration, customer integration, and internal integration directly on customer satisfaction and competitive performance of the manufacturing firms and then evaluate the mediating relationship of supply chain agility and supply chain finance between SCI: Supplier integration, customer integration and internal integration and customer satisfaction as well as competitive performance.

Six main hypotheses and three sub-hypotheses were designed for 24 hypotheses. According to the results obtained from SPSS, 20 of these 24 hypotheses were confirmed and supported.

The results of Hypothesis 1 show that Supply Chain Integration positively impacts an organization's customer satisfaction level and competitive performance. (H. Ahmad, 2022) The

study's findings indicate that the supply chain can be integrated using an ERP system (Enterprise System), depending on internal integration support from business strategy and maintaining a solid rapport with suppliers. Integration with suppliers positively impacts customer satisfaction. Organizations should make their supply chains more customer-focused or consumer-driven to enhance customer satisfaction. (Mustafa Hussain Naqvi et al., 2020). Enhancing customer satisfaction is a crucial goal linked with supply chain integration, and customer satisfaction levels are related to organizational performance. (Yu et al., 2013).Hypotheses 2 findings explain that Supply Chain Integration positively impacts competitive performance. The high degree of SCI results in the enhancement of organizational performance (Frohlich & Westbrook, 2001). Manufacturers who integrated their suppliers and customers the most had the most gains in overall performance (Zailani & Rajagopal, 2005). To enhance long-term performance, supply chain integration (SCI) helps organizations restructure their internal and external resources and competencies to unify their supply chain as a whole (Huo, 2012).

Manufacturers who integrate their suppliers and customers to the highest degree can grow their market share and revenue (Frohlich & Westbrook, 2001). The three hypotheses' findings show that supply chain agility mediates the relationship between supply chain integration and customer satisfaction. Supply chain agility is essential for organizations to achieve a certain level of customer satisfaction (Mustafa Hussain Naqvi et al., 2020).

The results of Hypothesis 4 show that supply chain agility does not mediate the relationship between integration and competitive performance. In addition, hypotheses 4a, 4b, and 4c show that supply chain agility mediates the relationships of supplier integration, customer integration, and internal integration with competitive performance individually. Organizations require a more agile supply chain to operate effectively constantly because there are more variations in global markets, including achieving delivery dates. Agility's include quality, quickness, and flexibility (Khan & Wisner, 2019). With the mediating role of supply chain agility, flexibility, agility, and information technology (IT) all work collectively to establish an indirect relationship between integration and performance. (Swafford et al., 2006).

Hypothesis 5 indicates that Supply Chain Finance does not mediate the relationship between Supply Chain Integration and customer satisfaction. However, results from hypothesis 5b indicate that supply chain finance mediates the relationship between customer integration and

customer satisfaction. Providing enhanced customer service ought to bring higher revenue and profitability. (Vickery et al., 2003).

Hypothesis 6 indicates that Supply Chain Finance does not mediate the relationship between Supply Chain Integration and competitive performance. However, when hypotheses 6a,6b, and 6c are tested by considering Supplier Integration, Customer Integration, and Internal Integration as separate constructs, the results show that supply chain finance mediates their relationship with competitive performance. Through time-based performance, there was a relationship between financial performance and both internal and external integration. (Droge et al., 2004).

CHAPTER 5: CONCLUSION AND FUTURE RECOMMENDATIONS

These research findings addressed in Chapter 4 are summarized in this chapter. This chapter starts with a summary of the findings of this research, which includes the impacts of the dependent, independent, and meditating variables, as well as their interactions and effects. The contribution of the research findings to the body of knowledge is described in this chapter, along with the managerial implications that will help the organizational head to produce better output for the organization's projects. This chapter summarizes and presents the most important findings of this study. In addition, this chapter included the study's shortcomings, future research suggestions, and ideas.

5.1. Summary

The findings of this study confirm that supplier integration, customer integration, and integration positively influence the competitive performance of an organization. The findings suggested that by properly integrating its suppliers and customers, an organization can improve its competitive performance related to its competitors. In addition, when an organization improves its internal linkages, including inter-departmental coordination and collaboration, its competitive performance significantly increases. The second main findings of this study confirm that supplier integration, customer integration, and internal integration positively influence customer satisfaction in an organization. An organization can enhance its customer level by providing them with products that are of the best quality. By integrating supplier and customer, an organization can understand its customer's requirements more accurately and then convey these requirements to its supplier to make the products according to the expectations of its customers. By increasing inter-organizational coordination, the different departments of an organization can work efficiently to produce products more efficiently. All these aspects increase an organization's customer satisfaction.

This study analyzed the mediating role of supply chain agility in the relationship between SCI: supplier integration, Customer Integration, Internal Integration, and competitive performance. The results confirmed that supply chain agility mediates the relationship between SCI: supplier integration, Customer Integration, Internal Integration, and a firm's competitive performance.

This study analyzed the mediating role of supply chain finance in the relationship between SCI: supplier integration, Customer Integration, Internal Integration, and competitive performance. The research findings confirmed that supply chain finance mediates the relationship between

SCI: supplier integration, Customer Integration, Internal Integration, and a firm's competitive performance.

This study analyzed the mediating role of supply chain agility in the relationship between SCI: supplier integration, Customer Integration, Internal Integration, and customer satisfaction, and the results confirmed that supply chain agility mediates the relationship between SCI: supplier integration, Customer Integration, Internal Integration, and customer satisfaction.

The mediating role of supply chain finance in the relationship between SCI: Supplier integration, Customer Integration, Internal Integration, and customer satisfaction was analyzed in this study. It was confirmed from the research findings that supply chain finance does not mediate the relationship between supplier integration and customer satisfaction, and it does not mediate the relationship between internal integration and customer satisfaction. However, supply chain finance mediates the relationship between customer integration and customer satisfaction.

5.2. Managerial implication

To enhance their competitive performance and customer satisfaction, managers should first focus on properly integrating their suppliers, customers, and departments. Firms should spend time growing their relationship with suppliers and customers and increasing inter-organizational collaboration. A proper strategy should be formulated and implemented in an organization that considers its suppliers and customers as its strategic partners, increasing inter-departmental coordination and minimizing any problems that may negatively affect inter-departmental collaboration. Organizations should give formal training to their employees highlighting the importance of supplier integration, customer integration, and internal integration and how these factors contribute to gaining competitive performance and customer satisfaction for an organization. Finance managers should implement a financial and cash flow policy that best suits the organization, its suppliers, and customers. Similarly, in the present market environment, which is continuously changing, the importance of supply chain agility dramatically increases its value in gaining a competitive advantage and enhancing customer satisfaction. Managers should provide formal training for their employees to make them capable of getting maximum profit from short-term opportunities and mitigating the sudden risks associated with their business due to the dynamically changing environment.

5.3. Theoretical implications

The literature on supplier integration, customer integration, and internal integration is significantly theoretically advanced by this research study. First, it adds to the body of research on Supply chain integration: Supplier integration, customer integration, and internal integration by providing empirical evidence of the beneficial relationship between SCI and competitive performance and the relationship between SCI and customer satisfaction. Then, the evidence was collected and tested about how supply chain agility mediates the relationships between Supply chain integration: Supplier integration, customer integration, internal integration, and customer satisfaction as well as competitive performance. Then, the evidence was collected and tested about how supply chain finance mediates the relationships between Supply chain integration: Supplier integration, customer integration, internal integration, and customer satisfaction as well as competitive performance. These findings significantly contribute to the domain of supply chain management.

5.4. Practical implications

The results derived from my research will help managers of different organizations and businesses enhance their competitive performance and customer satisfaction. By finding and investigating how supplier integration, customer integration, and internal integration impact competitive performance and customer satisfaction alongside the moderating role of supply chain agility and supply chain finance in their relationship. The results will offer insights for managers to improve their overall competitive performance and customer satisfaction with their organizations and businesses. This is the main reason and justification for selecting this topic for my research.

5.5. Limitations

There were a few limitations of this research study, which is as follows: -

- **Self-reported data:** The study is based on respondents' self-reported data, which may contain biases or mistakes due to personal reasons.
- **Socially desirable bias:** Social desirability bias: Respondents of the survey forms may be more likely to provide socially acceptable responses, neglecting the effect that this could compromise the validity of the results and findings.

Future researchers can consider these limitations and try to overcome these limitations for future research.

5.6. Delimitation

The designed questionnaire was circulated to the employees working in the manufacturing industry via online platforms, which include Linked In, Email, and WhatsApp. We have ensured each of our respondents that their identity will remain confidential. The strategy behind online platforms for questionnaire circulation was to send the questionnaire to the maximum number of employees in the manufacturing sector. This process helps us by saving time and resources that can be utilized in other aspects of our research work. The questionnaire consists of closed-ended statements and is accessible to all responders.

5.7. Future Recommendations

This study assessed the impact of SCI: Supplier integration, customer integration, and internal integration on competitive performance and customer satisfaction. The mediating role of supply chain agility and finance in these relationships was also analyzed. However, this research study has certain limitations and drawbacks. Our research has been limited to only the manufacturing sector companies within Pakistan. This limits the generalizability of this research study. Future research will be done in other industries, including the service sector. Also, this research may be done in other countries to make the results of this thesis more generalized. Another future recommendation for this research is to add supply chain risks as a moderating variable to analyze the existing relationship between variables of this research study.

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ANNEXURE

SUPPLY CHAIN AGILITY ITEMS

Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization

A.1. Dynamic sensing

(1): You have ability to sense short-term and temporary changes in technology (e.g. revisions of existing technologies)."

(2): You have ability to sense short-term and temporary changes in competition (e.g. fluctuations in competitors' product pricing)

(3): You have ability to sense short-term and temporary changes in demand (e.g. demand fluctuations)

(4): You have ability to sense short-term and temporary changes in supply (e.g. changes in suppliers' offers)

A.2. Dynamic flexibility

(1) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of reducing manufacturing throughput times?

(2) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of adjusting production processes?

(3) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of adjusting inventory turnover?

(4) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of adjusting world-wide delivery capacities?

(5) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of reducing delivery times?

(6) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of enhancing delivery reliability?

(7) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of reducing replacement times of purchases?

(8) You have ability to flexibly respond to short-term, temporary changes with the existing supply chain in terms of adjusting ordered of goods and services in the short-term?

A.3. Dynamic speed

(1) You have ability to speedily respond to short-term, temporary changes with the existing supply chain in terms of manufacturing throughput times?

(2) You have ability to speedily respond to short-term, temporary changes with the existing supply chain in terms of customer delivery times?

(3) You have ability to speedily respond to short-term, temporary changes with the existing supply chain in terms of replacement times of purchases?

(4) You have ability to speedily respond to short-term, temporary changes with the existing supply chain in terms of manufacturing set-up times?

SUPPLY CHAIN FINANCE ITEMS: -

(1) Credit financing (the ability of the consumer to acquire goods or services prior to payment with the faith that the payment will be made in the future. In most cases, there is a charge for borrowing, and these come in the form of fees).
(2) Accounts receivable financing (the money a company's customers owe for goods or services they have received but not yet paid for).
(3) Inventory financing (a type of short-term small business funding that has one purpose: to help you buy inventory for your business).
(4) Accounts payable financing (a company's short-term obligations owed to its creditors or suppliers, which have not yet been paid).
(5) Guaranteed financing (Guaranteed financing refers to a type of financial arrangement where a third party guarantees the repayment of a debt if the borrower defaults

(1) Please indicate whether your company has adopted the guaranteed financing?
(2) Please indicate whether your company has adopted the Credit financing?
(3) Please indicate whether your company has adopted the accounts receivable financing?
(4) Please indicate whether your company has adopted the inventory financing?
(5) Please indicate whether your company has adopted the accounts payable financing?

(6) **Customers' capital situation:**

In general, what are the financial situations of your company's major customers? 1. Very nervous; 2. Relatively nervous; 3. Not nervous or abundant; 4. Relatively sufficient; 5. Very sufficient.

(7) **Suppliers' capital situation:**

What are the financial situations of your company's upstream suppliers? 1. Very nervous; 2. Relatively nervous; 3. Not nervous or abundant; 4. Relatively sufficient; 5. Very sufficient.

(8) **Financing demand:**

On average, what is the total amount of your company's annual financing demand (in Pkr)? 1. Less than 1 million; 2.5–9.99 million; 30–99.9 million; 4.100–199.9 million; 5. More than 200 million.

Supplier Integration Items: -

Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization.

(1) We maintain cooperative relationships with our suppliers.

(2) We help our suppliers to improve their quality.

(3) We maintain close communication with suppliers about quality considerations and design changes.

(4) Our suppliers are actively involved in our new product development process.

(5) Our key suppliers provide input into our product development projects.

(6) We strive to establish long-term relationships with suppliers.

(7) We actively engage suppliers in our quality improvement efforts.

Customer Integration Items: -

Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization.

(1) We are frequently in close contact with our customers.

(2) Our customers give us feedback on our quality and delivery performance.

(3) Our customers are actively involved in our product design process.

(4) We work as a partner with our customers.

(5) We strive to be highly responsive to our customers' needs.

(6) We regularly survey our customers' needs.

Internal Integration Items:-

Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization.

(1) Departments in the plant frequently communicate with each other.

(2) The functions in our plant work well together.

(3) The functions in our plant cooperate to solve conflicts between them, when they arise.

(4) Our plant's functions coordinate their activities.

(5) Our plant's functions work interactively with each other.

(6) We work in teams, with members from a variety of areas (marketing, manufacturing, etc.) to introduce new products.

Competitive Performance Items:-

For the following indicators, compare the results of your company to other competitors (1 = much worse than competitors, 5 = much better than competitors)

(1) Sales

(2) Market share

(3) Customer satisfaction

(4) Benefits/utility

(5) Profitability

(6) Quality of products

(7) Technological superiority

Customer satisfaction Items: -

Please indicate the extent to which you agree or disagree with each of the following statements about your plant and organization.

(1) Our customers are pleased with the products and services we provide for them.

(2) Our customers seem happy with our responsiveness to their problems.

(3) Customer standards are always met by our plant.

(4) Our customers have been well satisfied with the quality of our products over the past three years.

(5) Our organization satisfies or exceeds the requirements and expectations of our customers.