THE IMPACT OF SUPPLY CHAIN INTEGRATION ON FIRM PERFORMANCE: THE FOOD RETAIL SECTOR IN TURKEY

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TEDARİK ZİNCİRİ BÜTÜNLEŞMESİNİN FİRMA PERFORMANSINA ETKİSİ: TÜRKİYE'DEKİ GIDA PERAKENDECİLİK İNDÜSTRİSİNDE

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Tedarik zinciri bütünleşmesi kavramı ve firma performansı üzerindeki etkileri bir süredir araştırmacıların dikkatini çekmekte. Daha önce yapılan araştırmalarda tedarik zinciri bütünleşmesi ve firma performansı arasında pozitif bir ilişki bulunmasına rağmen, araştırmacılar gerçek etkiler üzerinde daha derin araştırmalar yapılması konusunda hemfikirler. Daha önce yapılan çalışmalarda, tedarik zinciri yönetiminin diğer taraflarına ve perakendecilere odaklanılmamıştır. Bu nedenle bu çalışmada, tedarik zinciri bütünleşmesinin firma performasına etkisi ve Türkiye'de gıda perakendecileri üzerine etkisi araştırılmıştır.

Bu araştırma için, Türkiye'deki iki büyük şehir ve bu şehirlerdeki büyük gıda perakendecileri seçilmiştir. Tedarik zinciri bütünleşmesi içsel ve dışsal bütünleşme olarak sınıflandırılmış ve firma performansı da operasyonel ve işletme performansı olarak ikiye ayrılmıştır. Katılımcıları seçmek için tabakalı örnekleme yönetimi kullanılmıştır. Toplam 216 firma seçilmiş olup bunlardan sadece 208 firma dağıtılan ankete cevap vermiştir. Verileri analiz etmek için bağımsız değişkenlerin birden fazla olması nedeniyle yapısal eşitlik modeli, özellikle Amos kullanılmıştır.

Bu çalışma neticesinde içsel ve dışsal bütünleşme arasında pozitif ve anlamlı bir ilişki bulunmuştur; bu içsel bütünleşmesinin dış bütünleşmeyi tetiklediği anlamına gelmektedir. İçsel bütünleşme ile işletmelerin operasyonel ve işletme performansı arasında anlamlı ve olumlu bir ilişki bulunmaktadır. Aynı şekilde dışsal bütünleşme ile işletmelerin operasyonel ve işletme performansı arasında olumlu ve anlamlı bir ilişki bulunmaktadır. Sonuç olarak, perakendecilerin ve firmaların, önce içsel işbirliklerini

yönetmeleri, müşteriler ve tedarikçiler olmak üzere dış ortakları ile güçlü işbirliği faaliyetleri yürütmeleri tavsiye edilmektedir.

Anahtar Kelimeler: Tedarik Zinciri Yönetimi, Tedarik Zinciri Bütünleşmesi, Gıda Perakendecilik, Operasyonel Performansı ve İşletme Performansı

ABSTRACT

THE IMPACT OF SUPPLY CHAIN INTEGRATION ON FIRM PERFORMANCE: THE FOOD RETAIL INDUSTRY IN TURKEY

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MBA INTERNATIONAL BUSINESS

Anadolu University, Graduate School of Social Science, February 2017

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The concept of supply chain integration and its effects on firm's performance has received many attentions from researchers for some time. Even though, majority of the previous research have found a positive relationship between supply chain integration and firm performance, researchers are still calling for further research to be conducted on the real effects. None of the previous research has concentrated solely on the other parties of supply chain management including retailers and hence, this study researched into the impact of supply chain integration and firm performance of food retailers in Turkey. Two big cities, Eskişehir and Istanbul, in Turkey were selected for this study due to the availability of major food retailers in these cities. Supply chain integration was classified into internal and external; and firm performance was also classified into operational and business performance. Stratified sampling method was used to select the respondents. In total, 216 firms were selected out of which only 208 firms responded to the questionnaire distributed. Structural Equation Model specifically Amos was used to analyse the data since the independent variables were more than one. The study found a positive and significant relationship between internal and external integration, and a significant and a positive relationship between internal integration and firms' operational and business performance. The study also found a significant and a positive relationship between external integration and firms' operational and business performance. Generally, retailers and firms were admonished to practice strong collaboration activities by first managing internal collaborations and extending it to outside partners namely both customers and suppliers.

Keywords: Supply Chain Management, Supply Chain Integration, Food retailers, Operational Performance and Business Performance.

28/02/2017

STATEMENT OF COMPLIANCE WITH ETHICAL PRINCIPLES AND RULES

I hereby truthfully declare that this thesis is an original work prepared by me; that I have behaved in accordance with the scientific ethical principles and rules throughout the stages of preparation, data collection, analysis and presentation of my work; that I have cited the sources of all the data and information that could be obtained within the scope of this study, and included these sources in the references section; and that this study has been scanned for plagiarism with "scientific plagiarism detection program" used by Anadolu University, and that "it does not have any plagiarism" whatsoever. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.

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(Signature)

Martin Boakye OSEI

(Name-Surname)

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I dedicate this thesis to my family (Augustine Duah Osei, Ophelia Asante and Michael Osei Yaw) who have tolerated my inconsistent behaviour and have shown me constant care, love and indefatigable support throughout my education. With all my heart, I say God bless you all for the role each of you have played in my life and I ask for God's unending mercies, favour and grace on your life in all your endeavours. I love you all.

Finally, I would like to express my appreciation to all my friends who never acted as mere friends but related to me either a brother or a sister. God bless you all.

Martin Boakye OSEI

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1. INTRODUCTION

For more than a decade now, businesses especially manufacturing firms have included the concept of supply chain management (SCM) into their operations. Currently, firms are competing in the international market based on their supply chain. Because supply chain management allows both cost and service trade-offs, firms are simultaneously achieving enormous improvement in economic performance and service quality (Stank, Keller & Daugherty, 2001, p. 3). Essentially, supply chain management encompasses companies or business activities needed to design, make or deliver and use a product or service. An integral part of Supply Chain Management is Logistics. Logistics is most often perceived as value-adding supply chain process. Logistics, generally, makes firms improve their customer services through effectiveness, efficiency and/or differentiation. Therefore, it can be deduced that the main purpose of Supply Chain Management is to create, improve or enhance customer's value. However, Supply Chain Management is not just another name for logistics. It includes elements that are not typically included in a definition of logistics, such as information systems integration and coordination of planning and control activities. Furthermore, firms strive to provide and deliver customer orders/ products without any defects and simultaneously satisfy all the desires and requirements of the customers. In the process of achieving this, firms require a close coordinated effort among all the existing partners and members of the Supply Chain.

Stank, Crum & Arango (1999, p.21&24) and Zailani and Rajagopal (2005, p.380) defines SCM as a network that includes vendors of raw materials, plants that transform those materials into useful products and distribution centres to get those products to customers. SCM also known as the value chain, is the sequence, which involves producing and delivering of a product or service." The supply chain does not only include the manufacturer and suppliers, but also transporters, warehouses, retailers and customers themselves (Chopra & Mendl, 2001, p.3). The above definitions of Supply Chain Management clearly stipulate that SCM involves the effective coordination of all functions and members in the supply chain management. This coordination is what is termed as Integration. The contemporary definitions of Supply Chain Management have been significantly changed to include the element of integration. For instance, Copacino demonstrated how crucial integration is by defining Supply Chain Management as;

> "The new vision of supply chain management links all the players and activities involved in converting raw materials into products and delivering those products to consumers at the right time and at the right place in the most efficient manner (Copacino, 1997, p. 5)".

Similarly, Stein and Voehl (1998, p.12) also defined SCM as a "systematic effort to provide integrated management to the Supply Value Chain to meet customer needs and expectations, from suppliers of raw materials through manufacturing and on to end-customers". Cooper, Lambert and Pagh (1997, p.2) also defined SCM as the integration of business processes from end user through original suppliers that provides products, services, and information that add value for customers. Larson and Rogers (1998, p. 2) provided an extensive definition of Supply Chain Management by merging all ideas (logistics, integration etc) into their definition. They defined SCM as the coordination of activities, within and between vertically linked firms, for the purpose of serving end customers at a profit.

The significance of integration in a firm's supply chain was highlighted ages ago. However, the concept was used in the 1970's by Lambert, Robeson and Stock who viewed integration as a concept to be managed by firms in the impending years (Stank, Keller and Daugherty, 2001, p.6). The management of Supply Chain Integration (SCI) and other relevant concepts relating to the integration were suggested by Stevens in 1989. Supply Chain Integration (SCI) has been defined in several ways with all definitions seemingly arriving at the same meaning. Integration, literally means the extent to which separate parties work together in a cooperative manner to arrive at an expected and agreed outcome (O'Leary-Kelly and Flores, 2002, p.221; Khan and Mentzer, 1996 p.53; Jayram and Tan, 2010, p.262). In other terms, SCI is the coordination of efforts and resources in the form of business processes that are intertwined both within and outside a company's boundaries (Romano, 2003, p.122). The whole concept of integration is being operationalized through another concept termed as arc of integration. The arc of integration suggests that it is relatively easier to integrate internally than integrating across the organizational boundaries. Firms can either integrate widely (wider arc) or narrowly (narrow arc). A typical example of firms integrating widely (i.e wider arc) are firms integrating with second and third party logistics providers (Jayaram and Tan, 2010, p. 262) which is the aim and focus of this study. Additionally, Stevens also suggested the four main phases of SCI which have been adapted by many authors currently. They

include; base line, internal functional integration, integrating supply and demand along the company's own chain and finally, full supply chain integration (Stevens 1989, p.4).

The management of material flow should be viewed from three perspectives, namely; strategic, tactical and operational. Strategically, management should infuse strategic objectives in the supply chain. This can be achieved through; the development of clear objectives and policies for the supply chain, development of the shape of the supply chain in terms of the location and facilities, development of competitive package such as planned product and market segment, detailing the balance between product availability, service level, lead time, technical support and after sales service. Apparently, these strategic practices would simultaneously support the needs of both the business and the supply chain. Tactically, the business should focus on translating the objectives into realizable goals. Operationally, firms should focus on achieving clear details and procedures and should consistently ensure the suitable and appropriate controls and performance measures are put in place. Supply Chain Integration has been characterized by several dimensions. To fully understand the concept of integration and most especially its relationship with performance, there is a need to examine how individual dimensions of Supply Chain Integration are related to the dimensions of performance and additionally, how patterns of SCI are related to different dimensions of performance (Flynn et al., 2010, p.58). However, researchers most often, categorize the dimensions of SCI into three main concepts which also turns out to be the types of integration. The three basic dimensions (types) of integration are; customer, supplier and internal integration. Customer and supplier integration can be further coined into external integration. This study considers integration as external and internal and these two basic dimensions are being used throughout this study.

Over the past years, there has been a consistent increase in the number of research examining the effects or impact of supply chain integration on firm performance. While most of the research has extensively examined both internal and external integration on performance (Droge et al., 2004, p.557; Rosenzweig et al., 2003, p.437; Vickery et al., 2003, p.523), others have investigated the impact of either internal or external integration on performance (Stock et al., 1998; Gimenez and Ventura, 2005). On the other hand, other studies have also examined the impact of integration on just firm level performance such as plant performance (Swink et al., 2007, p.148) and new product development performance (Koufteros et al., 2005, p.97). This study does not deviate from the other

previous studies. This study, basically, examines the impact of internal and external integration on firm performance in the food retail industry in Turkey. Firm performance in this study, is divided into operational and business performance. Many authors have chosen several variables to measure firm performance. Others have categorized firm performance into operational and business performance. Operational performance entails the non-financial performance metrics of a firm. On the other hand, business performance is measured by financial metrics such as Return On Assets (ROA), Return On Investment (ROI), return on sales, low cost and market shares. This study would be adopting these metrics in measuring business performance.

Turkish food retail sector amounted to as high as US$ 121 billion in 2014. The share of food alone in the total sector is around 60% with the food retail sector expected to grow 8% annually from 2015-2018. Moreover, label products are increasing at an accelerating rate against branded products with discount stores increasing at a faster pace. The Turkish Food retail industry is highly dominated by discount chain stores. Irrespective of the economic instability and fluctuations, Turkey has a population of approximately 78 million with almost half of the population below the age of 30 with a fairly high consumption pattern and potential. This strong demand potential is a contributing factor towards the rapidly increasing rate of the food retail sector (Global Agricultural Information Network, 2015, p.1&2). The food retail in Turkey can be categorized into major groups; organized and unorganized retailers. The organized retailers consist the multi-formats retailers, supermarkets, hypermarkets, discount retailers and gas station stores. On the other hand, the unorganized group of retailers includes; traditional markets, individual convenience stores and open-air bazaars. However, this current research classified retailers into organized retailers mainly, supermarkets, hypermarket, wholesalers and all unorganized retailers into mini markets. Food retail industry was chosen because of their significant contributions they make to the Turkish economy. Furthermore, the food industry was selected because of its effective and direct relationship firms in this industry have with customers and suppliers and due to the numerous supply chain practices and initiatives. This research investigates whether these firms have integrated with their supply chain partners and the benefits these firms have derived from integration.

Moreover, many authors have attributed different meanings to SCI and the usage of different dimensions in conducting SCI research has resulted in discrepancies in the

SCI literature and findings. With enormous inconsistencies in the definitions and operationalisations of SCI and performance constructs, more research is needed to further assess and clarify the impact of supply chain Integration on performance while focusing on other sectors such as retailers. Moreover, even though, many investigations have been conducted on supply chain integration, many authors have suggested the need for more careful study into the relationship between manufacturers and supply chain partners. Therefore, this study would be investigating the impact of internal and external integration on firm's operational and business performance.

Organization of the Study

This study focuses on the impact food retailers' internal and external integration have on the firm's business and operational performance. The first chapter of the study would present the preliminaries of the study, namely, the problem statement where the gap in the SCI literature is identified, the true significance of the study, the purpose for which this study is being conducted (Purpose Statement), the hypotheses/ research questions, limitations of the study and finally the definition of the variables to be used in the study. In Chapter 2, several literatures and theories underpinning supply chain integration and firm performance are carefully reviewed. However, the chapter is divided into two; the empirical and the theorectical review where the empirical talks about the findings of the previous and theorectical review presents the various theories regarding supply chain integration and firm performance. Eventually, the whole chapter is summarized and the gap in the literature fully revealed.

Chapter 3 contains the methods used in collecting the data and the analysis of the data. The chapter begins with the conceptual model summarizing the hypotheses of the study. The population, study area and sampling method used in the study are then presented. This is followed by the data collection techniques and tools where the development of measures and tabular representation of the questionnaire are fully discussed. Subsequently, how the data in the study are analysed would be presented. Since the hypothesis is made up of more than one independent variable, a structural equation model specifically, Amos (Analysis of Moment Structures) would be used in analysing the data. The chapter contains a brief introduction of Structural Equation Model. Moreover, the various analytical tools of Amos would be discussed and the various

analysis that would be performed to both test the hypotheses and the Good of Fit of the Structural Equation Model.

Chapter 4 will present the findings accompanied by the various important comments. The demographic information of the data, validity and reliability of the measurement scales, the modification indices and the results of the hypothesis would be enlightened and the implications for the various figures and numbers would be clearly elaborated to reveal their true meanings. In chapter 5, the implications of the hypothesis testing would be further discussed. Secondly, the findings of the study are then contrasted with the previous findings of the previous studies and then suggestions for future research and researchers are made. Finally, the appendix section would contain the details of the data analysis and the various graphs obtained from the confirmatory factor analysis.

1.1. Problem Statement

Over the past decade, the concept of Supply Chain Integration (SCI) has received many attention and has become the subject of focus for many researchers (Frohlich and Westbrook, 2001, p. 185; Braunscheidel and Suresh, 2009, p. 120; Flynn et al., 2010, p. 58; Xhao et al., 2011, p. 368; Marquez et al., 2004, p. 348). Moreover, Power (2006, p. 263) concluded that there is a clear distinction in the literature between promised benefits and there is still limited evidence of its extensive implementation. Even though, a considerable number of research have been conducted on SCI, many authors are calling for a more careful study into the relationship between firms and their supply chain partners (Lambert et al., 1978, p. 74; Armstead and Mapes, 1993, p. 9; Flynn et al., 2010, p. 58). In the same vein, most of the researchers are also suggesting a more careful study into the relationship between Supply Chain Integration and firm performance as research has still not been clear on which type of integration (internal and external) contributes significantly to firm performance. Currently, the integration of suppliers, customers and manufacturers has become feasible, making room for SCI to be studied (Marquez et al., 2004, p.348). With the massive research conducted into SCI, only few could make clear the major influences of SCI. Furthermore, research into other members of Supply Chain Integration such as retailers and customers are limited.

Stevens (1989, p. 3-8) provided the criteria for integration by suggesting that firms should integrate internally in terms of coordinating supply, production and distribution and then, extend this integration to its members of the supply chain (Gimenez and

Ventura, 2005, p. 2). The process of integration outlines the types of integration used in the current literature, thus, internal integration and external integration. Eventually, different firms may be in different stage of integration. There are firms which are coordinating internal processes and functions (internal integration) and there are firms which have extended their integration to include external members of the supply chain, namely, customers and suppliers (external integration). The study considers only internal and external integration as the dimensions (scope) of Supply Chain Integration. In this study, retailers at both internal and external stage of integration would be considered. Many research has classified performance into two; business and operational performance. Significant empirical research has revealed that capabilities such as quality, delivery, flexibility, and cost contribute positively to business performance (Rosenzweig et al., 200, p.438). Advantages such as reduced resource duplication, greater relevance to customer needs, and flexibility in responding to unique customer request and quicker response to change are examples of improvement in operational performance that firms derive from collaborating with external partners (Stank et al., 2001, p. 4). Literally, segment of research on Supply Chain Integration has advocated that integration has a positive relationship with firm performance while a segment of research has proved otherwise.

The gap in the knowledge is that majority of the current supply chain integration studies have focused essentially on the manufacturing firms with relatively lesser research into other areas of business or supply chain such as retailers. Moreover, several other researchers are calling for further studies on the topic and for the theory to be applied in different countries since the previous research concentrated on other European countries with none conducted in Turkey. Additionally, most of the research concentrated on manufacturing industries with none solely concentrating on retailers. Since the results from the previous studies differed based on the country and the kind of industry it was conducted, it is worthwhile for future research to focus on different countries and different industries and the results duly compared. Retailers are literally customers to manufacturing firms and retailers have also got customers. The gap in the knowledge, apparently, has contributed to the inconsistencies and inaccuracies in the definition of Supply Chain Integration and lack of clarity as to which of the types influences firm performance. Moreover, Gimenez and Ventura (2005, p.15) suggested further research on SCI and firm performance should concentrate on grocery supply chain relationships.

Evidently, this research is appropriate and highly essential to the literature of SCI and firm performance as it would address the gap identified by the Gimenez and Ventura.

The main problem is that despite the awareness and the continuous suggestion by researchers about how essential firms should be involved in integration, companies are still failing in their attempts at internal and external integration. This may be due to the changes in the trend of outsourcing and because most of the firms' activities are linked to external parties, the role of integration and how effective integration is very vital in the current global business and trade (Jayaram and Tan, 2010, p. 262). In addition to this, in spite of the importance firms derive from integrating with its supply chain members mainly customers and suppliers, little is known as to which forms of integration is used by firms to establish real links with suppliers and customers. Hence, the type of integration which leads to greater firm performance is still not yet known. Moreover, retailers are not fully aware of the benefits that can be derived from integration supply chain activities to include external parties such suppliers and customers.

This current study will investigate if retailers integrate internally and externally with their customers and suppliers and how this integration affect their performance. Turkey is one of the promising economies in Europe with many firms such as manufacturing and food retailers, moreover, many research have been conducted in other countries with none solely focusing on the Turkish firms. Even though, findings and conclusions from other research can be applied to the retailers in Turkey and same conclusions can be made for them, a valid research is needed to clearly measure the supply chain integration activities in the Turkish Food retailing sector.

This study is expected to aid in the firm conclusion on the effects of integration on firm performance regarding the retail sector. For the current debate on supply chain integration to be valid and reliable, researches must be conducted into major countries with many manufacturing and retailing which supplies some of its products to other parts of the world.

1.2. Significance of The Study

As indicated earlier in this study, the entire process and concept of Supply Chain Management (SCM) is based on integration (Pagell, 2004, p. 460; Fabbe-Costes and Jahre, 2008, p. 131). Supply Chain Integration has been considered to be of high strategic as well as operational significance to firms (Bechtel and Jayaram, 1997, p. 18; Lambert

et al., 1998, p. 4; Frohlich and Westbrook, 2001, p.185; Zailani and Rajagopal, 2005, p. 379; Fabbe-Costes and Jahre, 2008, p.263). Both in theory and practice, it has been proven that SCI has a significant impact on performance both operational and business. It is also believed that, the wider the arc of integration the better and the more improved performance of business. Effective collaboration/integration is a necessary tool to make firms remain competitive (Ragatz et al., 1997, p. 191; Frolich and Westbrook, 2001, p. 186). Mostly, the major aim of integration is to establish and coordinate manufacturing processes efficiently, effectively and uninterruptedly across the supply chain to a point most competitors cannot easily compete (Anderson and Katz, 1998, p. 10; Lumus et al., 1998, p. 50, Frolich and Westbrook, 2001, p. 186). Similarly, firms who integrated their supply chain to include their external members have attained the easy ability to develop their new products and services.

Moreover, integration enforces mutual respect, improves contract duration and encourages smooth and efficient conflict management and resolution and sharing of risks and rewards and sharing of information (Heide and John, 1990, p. 25; Poirier and Reiter, 1996, p. 25; Flynn et al., 2010, p. 59). Firms, who have practiced the concept of integration have witnessed a massive improvement in their performance. Performance such as delivery, quality, flexibility, cost control and other factors of the business. Integration does not only improve the external relationships of businesses but also managers who adopt collaborative concept strives to build esprit de corps internally, thus, across the various functions, units/departments in the organisation. Companies are able to unite their efforts and goals through Synergy (Stank et al., 2001, p.7).

This study is not different from the previous research conducted on the issue of Supply Chain Integration and firm performance as this study adopts the constructs that have been used by the other research. The variables in this study, therefore, are internal and external integration and firm performance as other previous research have. The results of this study would contribute enormously to the prolonged debate of how integration affects performance. Furthermore, the variables that have been used by previous research to effectively measure performance would be adopted by this study. Previous studies never solely concentrated on retailers. Those few studies that involved retailers did not concentrate mainly on them. In view of this, this research would be the first to concentrate on Food retailers and the results should aid in the clear definition and

expansion of knowledge on the impact of Supply Chain Integration and Firm Performance.

As noted earlier on about the importance firms derive from integrating with the supply chain members, this study is not only aimed at contributing to the debate on SCI and firm performance but also expected to help and improve relationships of food retailers with their supply chain members. Secondly, the study should help firms improve internal operations as this relatively improves the external relationship firms have with their supply chain members. Lastly, this study should be able to assist policy makers, managers of various food retailing firms to make better decisions regarding when, how and which areas of business receives massive improvement through integration and most especially when, how and which areas of business to improve to better satisfy customers' needs and wants. In the long run, the improvement of relationships and internal operations would enable firms to attain higher levels of performance.

1.3. Purpose Statement

The main purpose of this study is to explore the impact of integration activities on firm's performance in the food retail industry in Turkey by mainly examining the relationship between internal and external integration and the impact these internal and external integration have on firm's performance in the industry. The independent variables in this study, are internal and external integration. On the other hand, the dependent variable in this study is the firm performance. Generally, internal integration in this study is defined to include all collaboration of processes, information, units/departments and activities in a firm/organisation. External integration involves firms forming strong alliances with customers and suppliers, developing strong partnerships, sharing of pertinent information to overcome market problems by developing good strategies (Narasimhan & Kim, 2002, p.308; Zhao et al., 2011 p. 374). This study further classifies external integration as customer and supplier integration. In measuring supply chain's performance, the most widely used metrics are quality, increase productivity and efficiency, return on assets, cost, dependability and many more. This work will adopt these metrics in trying to measure the firm performance.

This research is to contribute to the existing literatures of supply chain integration and performance in three ways; to examine whether food retailers in Turkey practice integration, secondly, whether internal integration has actual effect on external integration

and whether both external and internal integration have a positive relationship with firm performance. The findings and conclusion of this research is expected to aid in the decision-making process of retailers in Turkey and the world in general, whether to strengthen or ignore integration activities they practice. These decisions are highly essential since the outcome has a major influence on the performance of the firm.

1.4. Hypothesis

As outlined in the immediate previous section of this study, the main purpose of the study is to identify the integration practices of food retailers in Turkey and further investigate the impact of Supply Chain Integration on firm's performance. Previous research on the impact of SCI and firm performance have only concentrated on manufacturing firms with a just a handful of them focusing mainly on retailers. This research stands distinctively from the others by focusing mainly on retailers and identifying the relationship retailers have with their suppliers who could be manufacturers and the customers of these retailers.

1.4.1. Research questions

This study seeks to answer the following questions:

1 Do food retailers in Turkey practice Supply Chain Integration?

2 Does internal integration have a positive relationship with firm performance?

3 Does external integration have a positive relationship with firm performance?

4 Do both internal and external integration have a positive relationship with firm performance?

1.4.1.1. *Research hypothesis*

The research pre-supposes that;

H_1: Internal Integration has a positive relationship with External Integration.

H_2: Internal Integration has a positive relationship with Firm Performance.

H_3: External Integration has a positive relationship with Firm Performance.

1.5. Limitations of The Study

Obviously, every research is inevitably surrounded by challenges. There are a handful of challenges this study encountered. Firstly, the sampling technique reduced the number of respondents drastically. As much as this research aims to contribute to the literature on the impact of SCI and performance, stratified sampling was used to select the number of respondents needed for this research. Only firms with a certain amount of capital and particular number of employees were selected since they are often considered as performing supply chain activities in their firm. This risky type of sampling means generalizing the findings to the whole food retail firms in Turkey would be difficult and inaccurate. Despite the number used for the analysis being useful for the research, more useful firms, thus, supermarkets, hypermarkets and other effective retailers with lesser employees and capital could have been more useful for this research and could have possibly influenced the outcome of this study. Secondly, this study collected data or used respondents from only two cities (Eskisehir and Istanbul) with the assumption that Istanbul is one of the biggest cities in Turkey and the major food retail firms would be present in the city. This impediment restrains the research from being generalized to whole food retail firms in Turkey. The concentration of this research in just two cities is a huge limitation since other retailers can be found in other equally bigger cities in Turkey, where data if collected from these firms could have affected the main outcome of the study. This signifies a high bias with the results of the study. Thirdly, a small number of financial performance metrics were adopted in this research even though other equally important metrics could have been used in the research. It could be concluded that the financial performance measurement in this study is inadequate. Fourthly, one limiting factor of this research is language. The official language of Turkey is Turkish and for respondents to understand and provide a clear and proper information for this research, the data collection instrument should be translated to Turkish. Even though, linguistic experts were employed to translate accurately the data collection instruments, there is an iota of feeling that respondents did not understand some of the definitions, meaning and wordings which obviously affects their understanding and therefore, the answers they provided to the questions in the data collection instrument.

Lastly, majority of the respondents were not specifically the target of this research as this study expected supply chain managers to respond to the questions in the data

collection instrument. Apparently, these respondents in the lower ranks of the business lacks the technical information suitable for this research.

1.6. Definition of Terms

In this study, several terms are used and these terms have their definitions clearly outlined below. The terms in this study are, supply chain management, integration, Supply Chain Integration, internal integration, external integration and firm performance.

1.6.1. Supply chain management

Supply Chain is a web of partners that includes vendors of raw materials on one side, plants and the machinery that transform those materials into semi/finished products, and distribution centres that transfer the finished goods to customers. This study, however, adopts the comprehensive definition provided by The Council of Supply Chain Management Professionals (CSCMP). According to them, "Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities". Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply Chain Management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance and information technology".

1.6.2. Integration

Literally, integration refers to the process of attaining close and seamless coordination between several departments, groups, organizations, systems and so on. Integration is defined in this study as the unified control of a number of successive or similar economic or especially industrial processes formerly carried on independently (Flynn et al., 2010, p. 59).

1.6.3. Supply chain integration (SCI)

SCI is the scope and strength of linkages in supply chain processes across firms. Information, operational and relational integration facilitate the linkages in supply chain processes between firms (Rogers and Charvet, 2013, p. 34). Applying the literal definition of integration to Supply Chain, this study defines SCI as the degree to which a manufacturer strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organization processes (Flynn at al., 2010, p. 59). There are two types of integration this research considers; internal and external integration.

1.6.4. Internal integration

Internal integration involves the collaboration between departments or units in a firm working side by side to achieve the ultimate goal of satisfying customers. However, this study defines internal integration as the degree to which a firm can structure its organizational processes in order to fulfil customer requirements (Kahn & Mentzer, 1996, p. 55; Flynn et al., 2010, p. 59).

1.6.5. External integration

External integration involves firms forming strong alliances with customers and suppliers, developing strong partnerships, sharing of pertinent information to overcome market problems by developing good strategies (Zhao et al., 2011, p. 374). This study classifies external integration as the degree to which a firm can partner with its key supply chain members (customers and suppliers) to structure their inter-organizational strategies, practices, procedures and behaviours into collaborative, synchronized and manageable processes to fulfil customer requirements (Flynn et al., 2010, p. 59). External integration in this study, is made up of customer and supplier integration.

1.6.6. Firm performance

Firm performance in this study essentially refers to both operational and business performance. Rogers and Charvet (2013, p. 43) confirmed a positive relationship between

SCI and firm performance. Operational performance is measured with several metrics which includes delivery speed, delivery dependability, responsiveness to key customers, order fill capacity, delivery time flexibility, advanced delivery notification and customer satisfaction. Meanwhile, financial performance in this study is measured by Return On Assets (ROA), Return On Investment (ROI), low cost and market share. A fervent increase in these metrics signifies improvement in firm performance, thus, both operational and business performance.

2. LITERATURE REVIEW

This section of the study contains the review of several literatures and theories relating to the concept of supply chain integration and firm performance. The first aspect of this section contains the empirical review of the findings of issues related to the fundamentals of supply chain integration and it further presents the findings of the impact of one dimension, thus, external integration on firm performance. Additionally, the empirical review would cover the findings of other literatures relating to the impact of the whole supply chain integration on firm performance. The last section of this chapter contains the review of theories embodying supply chain integration and firm performance.

2.1. Fundamentals of Supply Chain Integration

Fundamentally, many theories and studies relating to the impact of supply chain integration on firm performance are based on the suggestions and theories provided by Stevens. Stevens (1989, p.3-8) provided the main basis for integrating supply chain. The research confirmed that, the effective balancing of the supply chain management involves the concurrent balancing of cost and service. Furthermore, the study confirmed that, for the impediments (obstacles) in the supply chain management to be annihilated, firms need to develop an integrated supply chain which is purposefully driven by the needs of the business. In the view of this study, integration requires the management of material flow and should be viewed from three perspectives, namely; strategic, tactical and operational. Similarly, the research suggested the three distinct phases by which firms can successfully integrate; Phase I encompass the base line which is basically characterised by the firm allocating responsibility for different activities in the supply chain in separate and almost independent departments. The second phase involves functional integration which mainly focuses on the inward flow of goods. The last stage stresses on the firm integrating that aspect of the supply chain that can be directly controlled by the firms (internal integration). The last stage involves firms extending their direct integration to their external boundaries to embrace customers and suppliers (external integration). Thus, internal integration must be solid before external integration can actually take place. In a nutshell, this study confirmed the two types of integration which are mainly; external (supplier and customer) and internal which are eventually adopted by this study.

2.2. Impact of External Integration on Firm Performance

Stank, Crum and Arango (1999, p.21), researched into the benefits of interfirm coordination in Food Industry Supply chain. The food industry was selected because of its proximity to customers and the various supply chain practices it includes in their business. This research reiterated the findings of other research regarding the benefits firms derive from integrating their supply chain. Externally, the research emphasized on communications, information exchange, partnering and performance monitoring as the factors that trigger a firm's source, make and deliver activities of suppliers and customers (El-Ansary, 1992, p.3). The study proposed that interfirm coordination is positively related to logistical performance (firm performance). Communication, information exchange, partnering and performance monitoring were considered as the constructs of interfirm coordination. Absolute performance in delivery service was measured with the following: inventory levels, transporting costs, warehousing, costs, ordering costs, stock outs, order cycle time, order cycle variance, on-time deliveries and unacceptable deliveries. It was revealed that, interfirm coordination has a positive relationship with performance, meaning, communications, information technology, partnering and performance monitoring which are clearly external integration elements have a significant and a positive relationship with logistic (firm) performance. Regardless of the small number of respondents used, it provides to some extent, a basis to the current study since it was conducted with firms from the food industry.

Scannell, Vickery and Droge (2000, p.23) investigated how upstream supply chain management affect competitive performance of firms in the automotive supply industry in United States of America. Performance was represented by the following metrics; improved product quality, technology, cost, delivery. Furthermore, flexibility, innovation, quality and cost were selected as the constructs of competitive performance, which is the dependent variable. 150 first-tier suppliers to the Big Three were identified. Despite supplier partnering having a positive relationship with flexibility and cost and negative relationship with innovation and quality, it was found that, supplier partnering is significantly related to competitive performance. From the research, it can be confirmed that external integration which was represented as supplier partnership, to some extent has a positive relationship with competitive performance (product quality, technology, cost, delivery). Obviously, the study focusing on only suppliers leaves a room for other

research to be conducted with the other members of the supply chain such as retailers to ascertain a firm conclusion on the impact of integration on firm performance.

Zhao, Huo, Flynn and Yeung (2008, p.368) investigated the impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain. The study examines holistically customer integration through the application of transaction cost theory and social exchange theory and simultaneously investigated the impact of power and relationship commitment on customer integration by using power-relationship commitment theory. Power was categorized into expert, referent, legitimate, reward and coercive, however, expert, referent and legitimate power were considered as occurring internally in a firm while customers were deemed to be having enormous influence on reward and coercive power. Only 619 Telecom companies in China were used for the study. Based on the findings of the study, the research suggested that power and relationship commitment are essential for customer integration. Also, the study confirmed that significant utilization of power in a firm can exert and improve relationship commitment which would further improve customer integration. Conducting this research in China provides enough evidence for other studies to focus on other highly industrialized countries of which Turkey is of no exception.

Prajogo and Olhager (2012, p.514) investigated into the effects of supply chain integration on firm performance. The study examined specifically how long-term effects relationships, information technology and sharing and logistics integration have an impact on firm performance. In other words, the research in its measure of integration, adopted information and logistic (material) integration and presumed that, they clearly represent integration in a firm. Contrary to SCI literature, the most commonly used integration dimensions are three; internal, customer and supplier where both customer and supplier are classified as external integration. The metrics used in this study clearly represent the variables of external integration. Performance, on the other hand, was measured with the speed of deliveries, volume of capacity flexibility, degree of product variety and production costs. Nonetheless, performance in this study was measured by only operational performance variables and not financial performance which is a gap in SCI literature. After sampling manufacturing firms in Australia, only 232 manufacturing firms from several industries were eligible for the study. The study revealed that, both information and material flow are positively related to supply chain integration which

implies that integration is significantly related performance and has a positive effect on performance.

2.3. Impact of Internal and External Integration on Firm Performance

Tuning into the impacts of integration (both internal and external) on performance, Stank, Keller and Daugherty (2001, p.1-2) is considered as one of the contemporary bedrock study on the impact of integration and firm performance. The study researched into supply chain collaboration and logistical service performance (firm performance). Impliedly, this research sought to investigate the whole impact of both internal and external integration on logistical service performance (firm performance). The study proposed that external integration rather triggers internal integration and has a positive influence on both logistical service performance and internal collaboration. Logistical service performance in this was measured with metrics such as delivery, quick response to customers, consistent quantity delivery, ability to modify size, volume, accommodate delivery times and the extent to which perceived logistics performance matches customer expectations which represents customer services performance. 306 manufacturing and retail firms from several sectors/industries were selected for the study. The study discovered that internal integration significantly influences logistical service performance and recommended that firms should encourage internal collaboration of processes to achieve improvement in performance exceedingly. Moreover, contrary to other studies, this research discovered that external integration has no influence on logistical service performance (firm performance).

Similarly, Germain and Iyer (2006, p.29) investigated the impact of internal and external integration on logistics performance and financial performance. The study also examined the moderating role that internal integration plays on the relationship between external integration and logistics performance. The research found that internal and external integration have a positive relationship with logistics performance (operational performance). Moreover, the internal integration was found to be highly moderating the relationship between external integration and logistical performance. Meaning, internal integration serves as a precedent for external integration and logistic performance. The more effective the internal affairs of a firm are highly integrated; the more effective external integration is and the more improved performance of the firm. However, both internal and external integration were found to have no positive relationship with financial

performance but the relationship was mediated through logistical performance. Logistical performance impeded the relationship between integration and financial performance.

To confirm and criticize the findings of Stank et al., (2001), Gimenez and Ventura (2008) investigated the issue of supply chain management as a source of competitive advantage in the Spanish grocery sector. Basically, the study researched and analysed the relationship between internal and external integration processes and their effect on firms' performance and their contribution to the achievement of a competitive advantage. This research extensively criticized the findings and methodology used by Stank et al., (2001). The study proposed that internal integration has a positive relationship with firm performance and external integration. The study also proposed that external integration is positively related to firm performance. Performance was measured with costs, stock-outs and lead-time reductions and financial performance metrics. The study used stratified sampling method to select 199 firms. The study discovered that internal integration is a precedent to external integration and both internal and external integration have a positive influence on performance, contrary to the findings of Stank et al., (2001). The study, therefore, recommended that firms should actively engage in integration processes since it would lead to higher firm performance and other subsequent research should focus on other members of the supply chain such as retailers.

Koufteros, Vonderembse and Jayaram (2005, p.97) investigated the internal and external integration for product development and further studied the moderating effects of uncertainty, equivocality and platform strategy on the relationship between integration and performance. Mainly, the research examined the effects on product development and more specifically examined the impact of integration on performance in the form of new product development. The research considered internal integration as concurrent engineering and external integration was represented by both customer and supplier integration, supplier product and supplier process. However, this current research categorizes external integration as supplier and customer integration. The study selected 244 firms from different industry to conduct the research. Akin to previous research, it was indicated that internal integration has a positive relationship with external integration which is customer and supplier integration and internal integration is an antecedent to external integration. In total effect, integration has a positive relationship with new product development (firm performance). With regards to the contingency effects, it was found that equivocality moderates the relationships between integration and performance.

However, performance does not seem to include financial performance measures which makes the findings of this research and especially, the results on performance highly subjective and debatable.

Flynn, Huo and Zhao (2010, p.58) further contributed to the literature of SCI by investigating the impact of supply chain integration on performance with the contingency and configuration approach. The research's main aim was to fully examine how the individual dimensions of SCI are related to different dimensions of performance and to determine how patterns of SCI are related to different dimensions of performance. In order to fully understand the effect of SCI on firm performance, this study applied contingency theory to examine the relationship between internal, customer and supplier integration and both operational and business performance (Flynn et al., 2010, p.59). The study also applied configuration approach to delve more deeply into how the different dimensions of SCI work side by side. The performance was categorized into business and operational. The business performance was represented by financial performance metrics which included Return On Assets (ROA), Return on Investment (ROI) and return on sales. The configurations and contingency approaches would be described further in the theoretical section of this chapter. The study proposed that internal integration, customer and supplier integration (external integration) are positively related to each other and both have a positive impact on operational and business performance. 617 manufacturing firms in China were used to test the hypothesis of the study. After a careful analysis, the research suggested that SCI has a significant relationship with firm performance, although supplier integration was found to have an inverse relationship with performance, both supplier and customer integration together had a positive influence on performance. The study indicated that internal integration is a necessary determinant of external integration.

Droge, Jayaram, and Vickery (2004, p.557) examined the effects of internal and external integration on time-based performance and overall firm performance in the automotive industry in the United States of America. The research focused on the external integration which was characterized as strategic design integration and internal integration was considered as design process integration. This provides another term used by other research to refer to external and internal integration. To measure external integration, the study selected supplier partnerships, supplier development and closer customer relationships and internal integration was measured by concurrent engineering, design for manufacturability, standardization and computer-aided design/computer-aided

manufacturing metrics. Performance in this study was extensively measured with metrics comprising time-to-market, time-to-product and responsiveness and, intermediate performance measures such as market share and financial performance variables. Thus, performance was measured by both operational and business performance measures. 57 firms were selected for the study. In other words, the study discovered that integration enhances product innovation (time-to-product) and product introduction (time-to-market) and these exert a positive influence on firm performance which is market share and financial performance. Nevertheless, the research was conducted on Automotive industry which does not reflect a blend of industry like other research which extensively combined many industries.

Rosenzweig, Roth and Dean Jr. (2003, p.437) tried expanding and highly criticized the already propounded findings of Frolich and Westbrook (2001, p.185) (F-W) who found that supply chain integration influences performance. Based on the findings of the research by F-W, this research investigated the ways that manufacturing-based competitive capabilities mediate the relationship between supply chain integration and business performance. The study selected flexibility capability, cost leadership, quality, delivery capability to represent competitive capabilities. 238 of Consumer Product Manufacturing firms were selected from North America, Europe, Asia-Pacific and Latin America through a stratified sampling method. Contributing to the literature on supply chain integration and performance, the study confirmed that consumer product manufacturers also achieve maximum performance by integrating their supply chain. The findings of the study indicated that, consumer product manufacturers with high level of integration intensity achieve massive improvement in performance specifically in the areas of product quality, delivery reliability, process flexibility and cost leadership. Moreover, the study confirmed that when firms are able to achieve higher levels of the factors listed above, their capabilities become highly cumbersome to imitate which eventually makes firms competitively advantageous over less integrated firms (Grant, 1996, p.375). Surprisingly, this research discovered some aspect of financial performance variables specifically ROA (Return On Assets), ROI (Return On Investment) and return on sales to be positively influenced by integration.

Stank, Daugherty and Autry (1999, p.75) studied varieties of firms that have avoided the medieval Automatic Replenishment Programs (ARP) to adopt Collaborative planning/forecasting/replenishment (CPFR). ARP, basically means inventory restocking

is triggered by actual needs rather than relying on long-range forecasts and layers of safety stock (Andel, 1996, p.54; Cottrill, 1997, p. 52; Keh and Park, 1997, p.836). On the contrary, CPFR is defined as;

> "a collaborative initiative aimed at making inventory management more efficient and cost-effective, while improving customer service, while improving customer service, and leveraging technology to significantly improve profitably. Efficiency measures how well resources expended are utilized while effectiveness involves the extent to which goals are accomplished (Mentzer and Konrad, 1991, p.33)."

Where CPFR actually represents internal and external integration (collaboration). The study aimed at determining the impact of internal and external integration on firm performance. Only 98 American manufacturing and retailing firms were used. Based on findings of this study, the research suggested that firms should engage in high levels of collaboration since it could lead to relatively high levels of process change, achievement of performance goals and information system capabilities. This research was not actually specific on the type of sector or industry the study was conducted, this somehow provides a greenlight to the current study.

Narasimhan and Kim (2002, p.303) researched into the effects of supply chain integration on the relationship between diversification and performance with the Japanese and Korean firms. The main thrust of the study was examination of how coordination between marketing strategies (diversification) and SCI strategies will lead to better and improved performance. Additionally, the paper mainly sought to address how the interaction between strategy and competitive strategies by considering what specific SCI strategies are relatively compactible with product/international market diversification (IMD) and whether there are synergies a firm could exploit to achieve higher levels of performance (Narasimhan and Kim, 2002, p.306). The study used a total of 623 manufacturing firms, 224 from Korea and 379 from Japan to conduct the research. The results from the research indicated that internal integration across the supply chain and external integration with suppliers and customers positively moderates the curvilinear relationships between product diversification and performance. Moreover, the research indicated that SCI may substitute for the role of interaction between PD and IMD as a moderator of the positive relationship between diversification and performance (Narasimhan and Kim, 2002, p.319). This study provides further insight into another

aspect of firm performance that may be influenced by SCI which is currently being ignored by researchers.

Dyer, cho and Chu (1998, p.57) empirically studied the different models of supplier-buyer partnerships that have been implemented by firms for some time now. The research found that US firms made use of arm-length transactions contrary to partnership style being used by Japanese and Korean firms. Compared to arm's length transaction model, the partnership style users realized an increased in performance because partnering firms share relevant information with partners and are relatively better at corresponding interdependent tasks, engage in activities which through the aid of their partners lead to lower costs, improved quality and increased product development and through the trust that governs the relationship, transactions cost is greatly reduced to its minimum. The study used three dominating firms in the US Automotive industry, namely; General Motors, Toyota and Chrysler. General motors in the past made use of arms-length supplier management which yielded them billions of dollars. On the other hand, Toyota and Chrysler made use partnership model (integration) and developed long-term relationship with suppliers. To draw the dichotomy between the two models, the study used 453 supplier-automaker in the U.S., Japan and Korea. The research found no significant difference between arms-length model and the partnership (integration) model in United States. In conclusion, the partner suppliers were tipped as the highest performing suppliers who were more likely to save the firms and receive long term contracts because they were relatively better at meeting automaker expectations (Dyer et al., 1998, p.58). In Japan, however, the research found that even though, firms practiced supplier partner relationship (integration), it was characterized by face-to-face contact and this relationship had a significant contribution to greater investments in relation-specific assets. Korean firms followed the practices of the related firms in Japan by forming a strong alliance with their suppliers and customers, which, has eventually resulted in greater firm performance of Korean Automotive firms. Based on the findings of the study, it was duly recommended that firms should engage in high levels of strategic partnership with suppliers and perhaps customers as this relationship will stimulate the reduction in administrative costs of procurement and also allow suppliers to fully realize economies of scale of production, total procurement cost and reduction in other relevant cost.

Groves and Valsamakis (1998, p.51) also studied the impact supplier-customer relationship has on company performance (firm performance). The study investigated the different types of relationships firms engage in. Although, the study recognised the dominance partnerships (integration) as the dominating and beneficial relationship, two other different types of relationships between supplier and customers were found. In total, the three relationships identified by the study included adversarial, the semi-adversarial and the partnership models. With the adversarial relationship, suppliers were selected based on the price, past performance, the contract duration was short term. The semi-adversarial was characterised by either price or past performance supplier selection, the relationship between customers and suppliers was either long or short term. Meanwhile, the partnership model included all those actions and activities that were not practiced by the adversarial or semi-adversarial firms. The aim of the study was to identify how each of the relationship positively affect performance. The performance metrics used in this study were made up of only financial performance metrics rather than the holistic firm performance measuring metrics. Only 74 manufacturing firms from both clothing and electronics industries in the United Kingdom were used for the study. Base on the findings, it was revealed that there is a potential for better performance for manufacturers who engage in closer relationship with suppliers and customers (external integration). However, the research identified various gaps in the integration process of firms and couldn't wholly adjudge the relationship which should be practiced most by firms.

The recent study of Jayaram and Tan (2010, p.262) investigated into the impact that supply chain integration has on firm performance with firms having third-party logistics (3PL) providers. In this study, third party logistic providers were defined to include transportation and warehouse service providers. Specifically, the study sought to investigate the impact of integration on firm performance. The focal point of this research was information integration (internal and external integration) and how it affects firms' performance. In measuring performance, the research used sales, profits, quality level, market share and customer service level. The study made use of 411 firms in the United States. The propositions of the study were fully supported and it was indicated that there is a strong positive relationship between information integration, 3PL selection criteria, 3PL performance evaluation criteria and relationship building on firm performance. The study recommended that firms should; communicate customer's future strategic needs throughout the supply chain, communicate future strategic needs to suppliers, create

compatible information system with suppliers and customers, improve the integration of activities across the supply chain, use formal information sharing agreement with suppliers and use informal information sharing with suppliers and customers. However, it should be highly noted that information is an aspect of SCI and does not comprehensively cover integration.

Afshan (2013, p.323) investigated the real performance outcomes of dimensions of supply chain integration through a well-defined conceptual framework. The research does not deviate from the other research on SCI. As indicated earlier on, the research confirmed the various gaps that have been pointed out in this current study. The research further identified the gaps in SCI literature to include the need to; identify the immediate performance outcomes of different dimensions, examine the relationship between different dimensions of SCI and their immediate performance outcomes and examine the relationship between immediate performance outcomes and the financial performance. The main objective of this study was to review various literature on SCI and assess if SCI has a real impact on performance. The study used three dimensions of SCI mainly; internal integration, customer and supplier integration (external integration). After extensive review of several literatures on SCI, the study concluded that supplier and customer integration contribute to firm performance and moreover, internal integration would further improve a firm's business and operational performance but recommended that subsequent studies should focus on revealing the real impact of SCI on a firm's financial performance. Providing avenue for future research, this study recommended research on SCI be conducted in developing countries and cited India as a perfect example.

Marquez, Bianchi and Gupta (2004, p. 348) provided an extensive study into the operational and financial effectiveness of e-collaboration tools in supply chain integration. On the verge of contributing to the solution of the gaps in SCI literature, this research aimed at developing and designing a comprehensive SCI model that can be used to evaluate and further determine the operational and financial effectiveness of various levels of the SCI via e-collaboration tools (Marquez et al., 2004, p.350) as such model would enable the true ascertainment of the real impact of SCI on firm performance (both operational and financial). E-collaboration tools was categorized into tools to wire the company mainly offering real time information about material flow, tools to share documents in real time, tools to do collaborative forecasting, tools to do collaborative

planning and tools to implement automated payments. It was suggested that firms implement the tools sequentially, however, the third and fifth tools implementation can differ in the process. Varieties of variables were selected to represent each, the information, material and financial variables. Furthermore, a comprehensive model, system dynamics based simulation, was used to study the impact of various levels of supply chain integration. The study found that integration can be improved through internet tools. Likewise, full integration of supply chain integration provides enormous benefits than partial integration, meaning, full integration has the potential to increase the performance of a business both operational and financial.

Vaart and Donk (2008, p.42) critically reviewed the various survey-based research in supply chain management. The main aim of the study was to critically review the various research on SCI and performance and decipher the number of issues affecting this type of research. Moreover, the main aim was to point out the commonalities and differences in the number of variables used by various authors in this field. The study clearly observed that, the various research in the field of SCI and performance used different constructs and measurements, also different analysis was used by the authors which is apparently leading to the differing views on this topic. After a thorough review of top 46 papers, 33 were selected and their hypothesis, constructs and other key measures were carefully studied. The paper reported that, even though most of the research were conducted in the automotive industry, majority of them concentrated more on food industry. Based on the findings, the research concluded that, whereas there is a positive relationship between SCI and performance, the response rates, the choice of respondents and populations restrains the validity and generalisability of the various research. The research further pointed out that most studies on SCI and performance depicted highly insignificant relationship. From a critical review of the research, the study conspicuously revealed the lack of consistency and insignificant relationship may be due to the non-existence of a common constructs and measurements of SCI and performance. Moreover, the research established that there is a need to categorically relate the level of integration in a single relationship to the performance outcomes of that relationship (Afsan, 2013, p.325). If integration is related categorically to the aims for which this integration was established, a clear impact on performance would be ascertained by researchers. The various studies analysed resulted in a categorisation of items used in measuring SCI into three distinct; attitude, patterns and practices and advised future researchers and

subsequent research to give maximum attention when conducting research on the topic of SCI and performance.

Vickery, Jayaram, Droge and Calantone (2003, p.523) examined the effects of an integrative supply chain strategy on customer service and financial performance through an analysis of direct and indirect relationships. This research recognised the need for supply chain integration to have a positive effect on firm performance. The research aimed mainly to effectively examine the relationships that is currently existing among integrative supply chain strategies, customer service and overall firm performance. With respect to integrative supply chain strategies, the study adopted integrative technologies and supply chain integration as the two dimensions of integrative strategic supply chain strategies and suggested that integrative information technologies are antecedent to supply chain integration. On the other hand, supply chain integration was defined to include both upstream or supplier integration, downstream or customer and internal integration. In measuring performance, the research considered customer service as a mediator between the relationship of SCI and firm performance. Moreover, in this study, customer service is considered also as a prompt outcome of performance and financial performance, which is viewed as firm performance. 57 independently owned first tier suppliers to General Motors, Ford and Chrysler were selected. The result indicated a positive relationship between information technologies and supply chain integration which directly affects customer service and financial performance. However, only customer service and financial performance constructs (ROA, ROI, market shares, stock prices were used to measure the firm performance).

Lee, Kwon and Severance (2007, p.444) examined the relationship between supply chain performance and degree of linkage among supplier, internal and customer integration by using 122 firms in the Midwest region of the United States of America. The main aim of this research was to confirm and prove the findings of the previous literature that investigated the relationship between supply chain integration and firm performance. Linkage (Integration) in this study was characterized by internal and external linkage with external linkage being further categorized into customer and supplier linkage. Performance was measured by two well-known indicators cost containment and reliability indicators. The cost containment indicators included cost in and outbound activities, warehousing costs, inventory-holding cost and increasing asset turnover. The reliability indicators included; order fulfilment rate, inventory turns, safety

stocks, inventory obsolesces, and number of product warranty claims. The research found a positive relationship between internal integration, customer integration and supplier integration and firm performance.

Schoenherr and Swink (2011, p.99) tried revisiting the arcs of integration through series of cross-validations and extensions. The research was to extend the essential findings of the research from Frolich and Westbrook (2011). It is a suggested contemporaneous view on SCI and firm performance. The study contributed to literature on SCI and firm performance by developing a grounded theory for the effects of supply chain integration on performance. Secondly, to determine whether the 'arcs of integration' really affects the sampling difference. Thirdly, the research aimed at investigating how internal integration moderates the relationship between external integration and firm performance. In measuring performance, the study selected quality, delivery, flexibility and cost performance as the main constructs of performance. 403 supply chain executives, managers around the world including senior supply chain managers in procurement, operations and logistics functions were selected to provide a view of the integration activities of their individual firms. The study found that supplier and customer integration (external integration) has a positive relationship with quality, delivery, flexibility and cost performance. Moreover, internal integration served as moderating role between external integration and performance for both delivery and flexibility dimensions of performance, however, the moderating role was not exhibited in quality and cost performance.

Fabbe-Costes and Jahre (2008, p.131) provided an insightful study on the impact of supply chain integration and firm performance through an empirical review of the series of papers. The main aim of the research was to critically examine series of literatures on SCI and firm performance and provide adequate contribution on the issues and gaps in this field. The research covered all aspects of integration by focusing on inter-organisational integration and further included the intra-organisational dimensions (internal integration) (Fabbe-Costes and Jahre, 2008, p.132). After analysing 38 research papers from reputable Supply Chain journals, the study confirmed that majority of the study supports the assertion that SCI has a positive relationship with firm performance. They, therefore, recommended that further research is needed to clearly, prove the real impact of SCI on firm performance.

Wang, Tai and Wei (2003, p.41) researched into the impact of virtual integration on improved performance of Taiwanese manufacturing firms. The main purpose of the study was to examine how virtual integration positively influences performance of the firms and the role that integration plays in mediating the effect of environmental uncertainty and at the same time in enabling supplier responsiveness in a supply chain. The virtual integration was represented by both internal and external integration while performance was measured with flexibility and cost advantage. The study used 149 firms and found that IT-enabled integration should be an integral part of manufacturing firms' supply-chain management efforts, especially supplier development and involvement, while responsive suppliers are critical for both manufacturing flexibility and cost advantage under uncertain environments (Wang et al., 2006, p.59). This implies that, firms should strive to alienate communication channels enabled by IT since it can be beneficial to supply chain integration. However, the performance measurement constructs used in this study were not sufficient to effectively measure performance.

Vargas, Cardenas and Mataranz (2008, p.809) further researched into the internal and external integration of assembly manufacturing activities in the Spanish manufacturing industry. The research focused on analysing the various integration choices by manufacturing firms in the Spanish Economy. The survey instrument was divided into four major sections consisting of strategies, goals and costs, current manufacturing and integration practices, past and planned manufacturing actions and programs and finally, manufacturing performance measures and indicators. After evaluating 32 firms, the research deduced that in terms of strategic priorities, three of the Spanish firms are clearly linked to integration activities with customers, suppliers and only one of them is partly linked to such integration activities. With the Spanish firms, drivers of quality and cost/price had become order qualifiers while delivery, dependability and speed have turned into order winners. Furthermore, the study revealed that integration programs have no relationship with quality. Quality is not mainly influenced by integration activities but other unidentified factors. Internal integration was found to be reflecting positively on firms' strategic goals and priorities in the area of customer service, product design and quality, dependable deliveries and greater order size flexibility than external integration which had a positive influence on just faster deliveries. The study concluded that Spanish firms focus solely on logistical and innovation aspects of integration. Furthermore, the research discovered that firms still

place greater importance on internal integration than external integration for the achievement of their strategic goals and priorities and finally, both dimensions of integration had a positive influence on competitiveness and profitability.

In addition to the empirical review, this paragraph and the subsequent ones below elaborate the various theories embodying the concept of SCI and firm performance. Generally, the emergence of SCI is considered to be relatively new in the field of Supply Chain Management. Literally, integration can be defined as the collaboration between two or more parties. In the context of SCM, integration can be defined as the thorough joining of the internal processes and departments of a firm such that, a unified relationship exists between processes and departments and extending this relationship outside the boundaries of a firm to include customers and suppliers. It can be seen from the above that, effective integration starts with information flow and sharing. This suggest the reason why many literatures consider information as part of the constructs of the supply chain integration. However, most of the authors examine integration as the collaboration between a manufacturer and its customers or suppliers (Paulraj et al., 2008, p.45; Mabert and Venkataramanan, 1998, p.537; Spekman et al., 1998, p.630; Fawcett and Magnan, p.339, Flynn et al., 2010, p.59). The literature review has provided proof of the inconsistencies in SCI constructs. SCI has been studied as a unidimensional construct (Vickery et al, 2003, p.523; Rosenzweig, 2003, p.437; Afshan, 2013, p.323), two dimensional constructs (Stank et al., 2001, p.3; Zailani and Rajagopal, 2005, p.379; Pagell, 2004, p.459; Stanley and Wisner, 2001, p.288) and also as multidimensional (Droge et al., 2004, p.557; Narasimhan and Kim, 2002, p.303; Gimenez and Ventura, 2005, p.1). Recent researchers, have however identified SCI to be having three dimensions namely; internal, customers and supplier integration (Flynn et al., 2010, p.58). The customer and supplier integration, can be further categorized as external integration.

2.4. Dimensions of Integration

2.4.1. Internal integration and its relationship with firm performance

Internal integration in this research refers to the degree to which a firm can structure its organizational practices, procedures and behaviours into collaborative, synchronized and manageable processes to fulfil customer requirements (Zhao et al., 2011, p.19; Cespedes and Piercy, 1996, p.1; Chen & Paulraj, 2004, p.142; Kahn &

Mentzer, 1996, p.9). The internal integration of a firm involves the intra firm operations of a business. It involves the effective and efficient coordination of the internal processes, information, functions and departments. Today's business activities and operations have given much importance to effective integration of suppliers, customers and manufacturers (Zailani & Rajagopal, 2005, p.379). Narasimhan and Kim (2002, p.303) considered system-wide integration which is internal integration, as an essential element and determinant of supply chain performance. The need for constant flow of information, communication and collating of ideas within a firm is essential to improved supply chain performances. Firms on the verge of integrating internally often use Enterprise Resource Planning, real-time searching of inventory and operating data in different functional areas (Zhao et al., 2011, p.19). Basically, it involves the whole departments in a firm working together to achieve a common goal. The concept of synergy applied to integration, also states that the whole is greater than the sum of its component parts, therefore, achieving a consolidated cross functional behaviour is essential, providing enough reasons as to why firms need to be integrated internally (Narasimhan & Kim, 2002, p.305). Firms establishing good system-wide integration among the several functional areas in the organization improves delivery, growth and flexibility of the supply chain.

Various research has also concluded that for external integration to be strengthened and be strong, firms need stronger internal integration. Since internal integration overcomes the functional barriers within a firm and unifies the functional areas in the firm to meet customer's requirement than specification and departmentalization, it is expected to increase performance (Flynn et al., 2010, p.60). While some researchers found no direct relationship between internal integration and performance (e.g Gimenez & Ventura, 2005, p.1; Koufteros et al., 2005, p.97) others found a positive relationship between internal integration and performance (eg. Stank et al., 200, p.1; Zhao et al., 2011, p.17). Research has also indicated that both internal and external integration influences firm performance. Droge et al., (2004, p.557) asserted that both internal and external integration are related to market share and financial performance. This research argues that internal integration has a positive relationship with firm performance.

2.4.2. External integration and its relationship with performance

External integration refers to the degree to which a firm can partner with its key supply chain members (customers and suppliers) to structure their inter-organizational strategies, practices, procedures and behaviours into collaborative, synchronized and manageable processes in order to fulfil customer requirements (Chen & Paulraj, 2004, p.143; Stank et al., 2001, p.6; Zhao et al., 2011, p.19). Whereas internal integration recognizes that a firm's department and functions should function as part of an integrated process, external integration perceive the essence of establishing a close, interactive relationships with customers and suppliers (Flynn etal., 2010, p.59). External integration involves firms forming strong alliances with customers and suppliers, developing strong partnerships, sharing of pertinent information to overcome market problems by developing good strategies (Narasimhan & Kim, 2002, p.304; Zhao et al., 2011, p.374). Consistent sharing of information, planning with suppliers, obtaining feedback from customers consist good practices of external integration. Research has confirmed that external integration is the most essential part of the supply chain (Stevens 1989, p.8; Flynn et al., 2010, p.60). Effective management of a firm's external environment leads to increased performance both operational and business (Flynn et al., 2010, p.60). The above evidence reveals that, external integration can be further classified into customer and supplier integration.

Both the combination of customer and supplier integration provide several benefits to the company. Supplier integration helps firms in achieving drastic reduction in costs especially, production, administrative and logistics costs (Handfield and Nichols, 1999, p.; Gimenez and Ventura, 2005, p.14; Dveraj et al., 2007, p.1212). Integration with both customer and suppliers helps manufacturers in reduction of waste and complete avoidance of redundancy of all efforts necessary for the management of supply chain activities across partner firms (Swink et al., 2007, p.151). Many researchers share opposite views on the effect of external integration on performance. This research proposes a positive relationship between external integration and firm performance.

2.4.3. Firm performance and its constructs

The measurement of performance in SCI has been subjective since different authors have adopted different constructs in measuring firm performance. The literature review provides enough evidence as to the different measurements of performance used by

different authors of SCI. Whereas, several authors have measured performance as consisting of both operational and business (financial) (Flynn et al., 2010, p.58), others have used only financial measures/constructs in measuring performance (Duffy and Fearne, 2004, p.57; Jayaram et al., 2004, p.4377; Narasimhan and Kim, 2002, p.303.; Tan et al., 1999, p.1034). Other researchers have also measured performance with customer service (Stank et al., 2001, p.1; Carter, 2006, p.360). Time based constructs have also been used to measure performance (Droge et al., 2004, p.557) (adopted from Afshan, 2013).

Frolich and Westbrook (2001, p.185) in their measure of performance used three measures namely; productivity, non-productivity and market place performance. Critical analysis of the non-productivity constructs revealed that time based (manufacturing lead time, procurement lead time and so on), cost based (manufacturing cost, overhead cost etc.) and customer service based (customer satisfaction on time delivery and so) were used in the measurement of performance. In total, eight (8) items were used to represent performance (Afshan, 2013, p. 326).

Flynn et al., (2010, p.58) in their comprehensive analysis of SCI and firm performance categorized firm performance into two; business and operational performance. To sufficiently measure operational performance, eight items (on time delivery, quick introduction of new products in the market, quick response to market changes, on-time delivery record to our major customer, lead-time fulfilling customer's orders and important level of customer service). Contrarily, Frolich and Westbrook (2001, p.185) selected three items in measuring operational performance (delivery, transaction cost, inventory turnover). In measuring financial performance, Flynn et al., (2010, p.58) extensively used accurate financial measures in doing that. They were; growth in sales, return on sales, growth in return on sales, growth in profit, growth in market share, return on investment and growth in ROI. However, other authors used Return on Assets (ROA), growth in market share and ROI. This research adopts both operational and business performance to exhaustively cover performance of firms to be used in this research.

2.5. Other Related Theories Underpinning Supply Chain Integration

2.5.1. Configuration approach

Configuration approach perspective has contributed indescribably to the explanation of SCI. It suggests that, a firm should be viewed as having its activities integrated rather than unrelated as suggested by other theories. Meaning, the activities in a firm is not independent but dependent on each other to achieve set goals and objectives. Drazin et al., (1985, p. 514-515) suggested that configuration approach, contrary to contingency approach, views fit in terms of "gestalts" or configurations of various elements and their relationship (adapted from Flynn et al., 2010, p.61). The configuration approach further holds the argument that, when a firm's internal system is highly coordinated and the internal elements are relatively consistent on each other, then a holistic rather than piecemeal analysis should be applied (Miller, 1986, p.233). The configuration approach is significantly useful in the analysis of SCI since it helps in establishing required patterns or profiles (Flynn et al., 2010, p.61). In other words, configuration helps in the induction of patterns particularly for SCI thereby applying analytical approach to empirically develop taxonomy (Flynn et al., 2010, p.61). Configuration approach through taxonomies has enabled authors to assign different measures or constructs to SCI. Because different firms have different supply chain practices, the configuration enables attribution of different constructs and measures to different firms and enhances effective comparison of different constructs from different firms. This helps in the effective measurement of supply chain integration of firms.

2.5.2. Contingency approach

Contingency theory is also another theory used by researchers in SCI because of its ability to explain why some firms form relationship with its external partners. The contingency theory proposes that a firm does not exist in isolation, therefore, firms should strive to establish a formidable relationship with its environment which is basically customers and suppliers. This particular approach recognizes customers and suppliers as inevitable partners of every firm, therefore, in order for a firm to achieve optimum performance, it should establish a very firm relationship with these partners. This approach uses the reductionist approach, which classifies every organisation as being easily destructible by its elements (Sinha et al., 2005, p.396). In the words of (Lawrence

and Lorsch, 1967, p.2; Galbraith, 1973, p.87) the success of a firm is dependent on the extent to which its strategy is properly alienated with its design. In the strategic management literature, the extent to which a firm's strategy are alienated with its design is termed as "fit" (Drazin et al., 1985, p.515; Venkatraman and Prescott, 1990, p.1; Milgrom and Roberts, 1995, p.180; Flynn et al., 2010, p.60). According to contingency theory, in order to achieve high performance from SCI, firms' dimensions of SCI should be alienated to the strategies and design of the firm.

2.5.3. Transaction cost theory (TCT) and social exchange theory (SET)

Transaction Cost Theory (TCT) and Social Exchange Theory are interrelated theories which provides enough explanation as to why firms should develop and maintain key relationships in their SC. Zhao et al., (2008, p.374) examined that TCT and SET serve as a mechanism that explains normative and instrumental relationship commitment in improving customer integration. Transaction cost and other opportunistic behaviours are significantly reduced when SC members establish long-term relationship and are willing to share relevant information and ideas with each other. According to SET, trust is the precedent to long-term and strong relationship between members as this relationship develops shared values, which directly enhances communication and understanding between SC partners (Atuahene and Li, 2002, p.64). Apparently, trust builds and improves commitment, because it helps in reducing risk or opportunistic behaviour, which eventually strengthens SC partners' confidence and encourages them to commit more to the relationship (Moore, 1998, p.25; Ruyter et al., 2001, p.275). "Normative relationship commitment reflects the manufacturer's willingness to maintain a long-term relationship with its customer through effective attachment and the identification of and internalization with the values and norms of the customer" (Zhao et al., 2008, p.375).
The long-term relationship enables repeated transactions and constrains a member's intention to break away from the group. In a nutshell, manufacturers with a greater normative relationship commitment are in most times perceived to integrate effectively with their customers (Zhao et al., 2008, p.375).

2.5.4. Resource based view (RBV) and relational view (RV)

The positive impact supply chain management has on performance is further elaborated by the resource based and relational view approach (RBV and RV). RBV

approach argues that the internal resources of a firm are rare, non-substitutable and represents the source of competitive advantage for the firm (Sabir and Irfan, 2014, p.52-59). Moreover, the RBV theory debates that the differences in firm performance is due to the varieties that exist among firms rather than the structure of the industry on a whole (Barney, 1991, p.108; Rumelt, 1984, p.566, 1991, p.167; Wernerfelt, 1984, p.172). That is, firms can achieve enormous competitive advantage in a particular industry if those firms are able to control and own those that are present in the firm (Dyer and Singh, 1998, p.660).

On the other hand, the relational view theory suggests that every firm in an industry owns a particular resource they have control of, and because sources of advantage cannot be wholly owned by a firm since all firms acquire such resources from a particular source, firm should coordinate activities and trade together to strengthen and improve their performance. Furthermore, the theory argues that a firm's critical resources may extend beyond its boundaries (Dyer and Singh, 1998, p.660). Applied to SCI, the relational view theory argues that productivity gains in value chain are realizable when firms are willing to make relation-specific investments and collaborate their resources exclusively (Asanuma, 1989, p.; Dyer, 1996a, p.271). Consequently, firms who are able to coordinate and combine their resources uniquely attain certain advantages which are not available to firms who are not practicing integration. Idiosyncratic interfirm linkages may be a source of relational rents and competitive advantage (Dyer and Singh, 1998, p.661). The Resource Based and Relational View, therefore, suggest that firms should expect high levels of performance both operational and financial when they integrate their internal processes, resources and departments and also extend such integration to the members of the supply chain especially customers and suppliers.

Many research and theories concerning SCI and firm performance have been comprehensively reviewed above. Whereas, most of the research found a positive relationship between SCI and performance, just a handful of them found otherwise. Some of the research also tried investigating into mediators and moderators of supply chain integration. From the literature, it can be vividly concluded that the relationship between SCI and firm performance differs between countries and authors due to inconsistencies in the usage of constructs/measures and analytical tools in the studies. Moreover, it can be clearly pointed out that studies into the other members of the supply chain such as retailers are limited. This research covers this gap by employing food retailers in Turkey.

This research also seeks to overcome such gaps by comprehensively adopting several constructs which are deemed to effectively measure SCI and firm performance as the performance constructs include financial performance constructs which are lacking in various research. The theories reviewed above also supports perfectly, the positive relationship that exist between SCI and performance.

3. METHODOLOGY

3.1. Conceptual Model

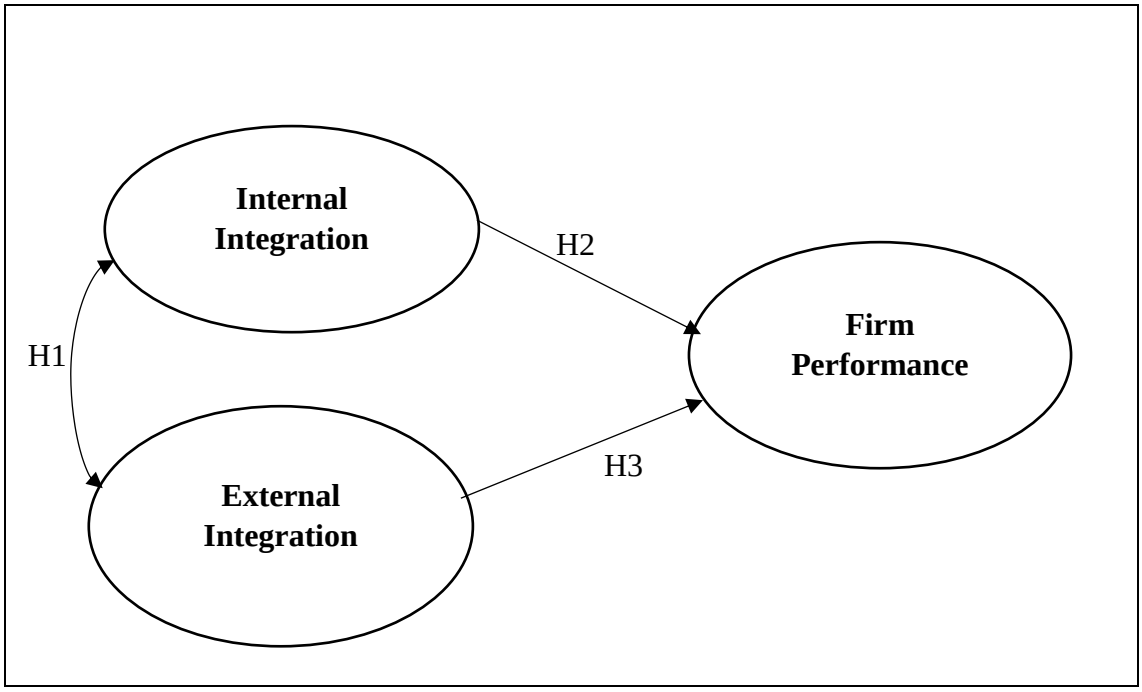

Figure 3.1. *Conceptual Model with Hypotheses*

The variables in this study are internal integration, external integration and firm performance. The figure above represents the conceptual model fully illustrating the hypothesis of the study. In H1, it is hypothesized that internal integration will have a positive relationship with external integration. Similarly, in H2, it is hypothesized that Internal integration will have a positive relationship with firm performance and lastly, H3 stipulates that the external integration of firms will have a positive relationship with firm performance. The oval shaped figures demonstrated in the model was chosen to represent the latent variables in the study. In Structured Equation Modelling (SEM), the unobserved variables are represented in oval shapes and the manifested or observed variables are represented in rectangles. Since the variables in this current study are unobserved variables, it is worthwhile they are represented in oval shapes.

3.2. Population and Sampling Techniques

3.2.1. Population

This study is based on examining the impact of supply chain integration on firm performance of food retailers in Turkey. Food retail industry was selected because of its effective and direct relationship with manufacturing firms. Moreover, food retailers have direct relationship with customers and suppliers. Presumably, the food retailers were chosen because of their consistent engagement in numerous supply chain practices and initiatives.

In this study, retail food is defined as any food, other than a restaurant food, that is purchased by consumers and consumed off-premise. Food retail was categorized under any food sold by sales representatives, who take orders from their immediate customers, send these orders to their manufacturers and the food or the order shipped or transferred to their customers. Retail foods come in various shapes and sizes. Furthermore, food retail in this study is defined to cover meat, fish, vegetables, fruit, milk eggs, snacks, other perishable and non-perishable foods. They also appear in the form of canned and boxed foods. Furthermore, this study defines food retail to include the products listed above and since they are sold by the retailers in the study area.

3.2.2. Target population

Generally, retailers are defined to consist of those small and large for profit businesses that sell goods directly to consumers. Retailers buy products that meet their business criteria and sell them directly to customers. The products are acquired from wholesalers, distributors and sometimes the manufacturers. The definition of Retailers was adopted from the literal definition given by the Association of Small and Medium Scale Enterprise, Turkey. The body defined retailers as those "with employees between the range of 50 to 249, with annual turnover of between 0-1,000,000 TL, an annual balance sheet of 40,000,000 and above and finally, a market share of more than 25%." Retailers in this study, are defined to cover all those outlets which offer the above enlisted products for sale to customers. However, the definition excludes restaurants and other firms which do not offer off-premises consumable products, foods and other edibles.

In this study, the targeted population, that is, retailers are categorized into supermarkets, hypermarkets, mini markets and wholesale firms. Even though, wholesale firms are not legitimately classified as part of retailers, this study targets firms who have direct relationship with suppliers, manufacturers or distributors. Since wholesalers are somehow directly involved with manufacturers, the study found it appropriate to include wholesalers as part of the target population. Furthermore, to sufficiently cover the small retailers in the research area and ensure the definition of retailers is extensively covered in the study, mini markets were categorized into butchery, fish sellers, bakery, fruit sellers, sweets sellers. The list was acquired from the chamber of commerce in both Istanbul and Eskisehir. Supermarkets, hypermarkets, mini markets and wholesale firms which met the criteria of retailers defined by Association of Small and Medium Scale Enterprise and those firms who met the sampling technique were selected for the study. In a nutshell, the study is targeted at supermarkets, hypermarkets, mini markets and whole sale firms. The targeted population is approximately 8,545 firms consisting of the both small and larger retailers, supermarkets, hypermarkets, mini markets and wholesale firms in both Istanbul and Eskisehir.

3.2.3. Study area

As noted earlier, this study is targeted at supermarkets, hypermarkets, mini markets and wholesale markets in Turkey. However, this study will concentrate on two cities in Turkey, namely, Eskişehir and Istanbul. These two cities were selected because of the availability, proximity and accessibility of the target population in this area. These two cities were selected because of the availability, proximity and accessibility of the target population in this area and other retailers relevant to the study have their headquarters situated in this city and mainly due to the availability of other retailers in this city. Even though, Eskişehir is a small city, other unknown huge retailers specifically, supermarkets and other hypermarkets such as Ozbesin, Esmar, Hadim and other firms relevant to the topic under study are available in this city and moreso, due to easy accessibility of the targeted population in this area. Istanbul is made up of 39 major districts with Eskişehir having around 82 smaller communities. Data was collected from at least one district in Istanbul.

3.2.4. Sampling and sampling techniques

3.2.4.1. *Sampling*

With the population clearly defined, a sample frame and techniques are needed to accurately select fair representatives of the population. Because the research areas are Istanbul and Eskişehir, it is highly essential that a reasonable number is chosen from the population to fairly represent all other units in the population.

3.2.4.2. *Sampling frame*

The research targeted retailers basically supermarkets, hypermarkets, mini markets and wholesale markets. Literally, the total number of the population relevant to the study is approximately 8,545. This number comprise the supermarket, hypermarkets, mini markets and wholesalers in both Istanbul and Eskişehir. Nonetheless, since it is cumbersome to cover the whole population in the study, a probability sampling technique specifically stratified sampling technique was used to select a fair size to represent the population. Stratified sampling technique was adopted to select the sample size for the study. The main reason why this sampling method was adopted is vividly explain in the next section.

3.2.4.3. *Sampling technique (Stratified random sampling technique)*

Stratified random sampling deals with dividing population into sub-sections called strata of relatively homogeneous groups with common characteristics and using a random sample from each stratum. The sampling technique is comparatively more accurate and ensures a fair representation of subgroups in the sample. This study divided the population into subgroups mainly, supermarkets, hypermarkets, mini markets and wholesale markets in both study area. Furthermore, certain characteristics were taken into keen consideration to accurately select the required sample; supermarkets and hypermarkets with food consisting of about half of the products offered for sale in store, firms with more than one internal department and more than two branches in more than one city in Turkey, and firms which have direct relationship with manufacturer (supplier) were selected for the study. With the firms in Eskişehir, those with more than two branches in the other geographical areas in the city were selected for the study.

These criteria were considered due to the kind of questions asked in the data collection instrument (questionnaire). Stratified sampling technique is preferred because of its accuracy in predicting the sample size which can fairly represent the population. Firms with more than a department and branch and firms with food stuff covering more than half of the products offered for sale can provide accurate answers to questions in the data collection instrument since firms were asked if there is internal communication between departments and whether the branches shared information continuously. Moreover, these features are used because from the pilot study, it was realized that the smaller firms were acquiring their products from the popular and bigger retailers so the study considered it worthwhile only to select firms with more capital/profit and products and firms with many branches. Moreover, selecting firms with many branches in Turkey will ensure that the answers from the headquarters of the respondents sufficiently cover the activities from the other cities in Turkey.

3.2.4.4. *Sample size*

After considering the characteristics, the study selected 216 firms from the population since these firms met all the criteria of the stratified sampling technique used. 216 firms fairly represent the major retailers in both cities selected for the study and Turkey. Categorically, 100 firms were selected from Eskisehir and 116 firms from Istanbul. The selected figure includes all the major and popular retailers in Turkey from whom other small retailers in Turkey acquire their products. The chosen sample size signifies a thorough and a true representation of all the major supermarkets, hypermarkets, mini markets and wholesale firms in Istanbul, Eskisehir and to some extent Turkey.

3.3. Data Collection Techniques and Tools

This current study is entirely a quantitative research and therefore, primary data will be used in measuring the stated hypotheses. To efficiently collect the data for the study, a questionnaire with metrics measuring internal and external integration and firm performance was developed.

3.3.1. Development of measures

The questionnaire designed purposefully for this study was adopted from the survey instrument developed by (Stank, Keller & Daugherty, 2001, p.12). Their instrument was developed from the survey instrument designed by the World Class Logistics Research at Michigan State University. The team developed the measures from a pilot survey completed by 3700 respondents from three continents, which were, North America, Europe, and the Pacific Rim (Stank et al., 2001, p.10).

However, in 1997 the measures were broadened after case studies with 26 firms were completed. This current study also conducted a pilot study with small retailers in order to broaden the measures for all the variables used in the study. Furthermore, the performance measures were widened by adding more metrics to measure the financial aspect of firms' performance since one of the aims of this study was to measure the business (financial) and operational performance of the firms. Therefore, a questionnaire with four parts/departments was developed. The first part of the questionnaire focused on the demographic information of the respondents. Firms were asked to respond to four questions which basically solicits information about the firms. Firms were asked if they had a supply chain manager. The main aim of this question was to investigate whether firms were practicing supply chain activities since the presence of a supply chain manager would signify the presence of supply chain practices in the firms. Secondly, to substantially cover the definition provided by the Small and Medium Scale Enterprises Association in Turkey, firms were also asked to select their annual sales from four options; i. 0-1,000,000 ii. 1,000,000-8,000,000 iii. 8,000,000-40,000,000 and iv. 40,000,000 and above with all the amount denominated in Turkish currency, Turkish Lira (TL). Respondents were also asked to state their positions or title in the firm. This question was inserted and targeted at generating the authenticity of the research since the responding of the questions from supply chain managers or someone at the upper management would make the information more authentic and genuine. Lastly, respondents were provided with four options which is made up of the various category of retailers defined in this study. Specifically, respondents were asked to state whether their firm was a supermarket, hypermarket, mini market or a wholesale firm.

The second part of the questionnaire measured the internal integration of the firm. Eight (8) metrics were selected to represent internal integration of the firm. Table 3.1 below clearly illustrates the eight (8) metrics used in measuring the internal integration

practices of the firms. Firms were asked to measure their internal integration activities on a five-point Likert scale where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strong agree.

The third section of the questionnaire measured external integration. Firms were asked to respond to nine (9) items representing external integration activities that the firms were likely to practice. The items are clearly listed in Table 3.1 below. Similarly, firms were asked to measure their internal integration activities on a five-point Likert scale where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strong agree.

Finally, the four part of the survey instrument contained items measuring the performance of the firms. The firm performance metrics contained a mixture of financial and operational performance measuring metrics. Firms were asked to rate their performance with respect to the performance of competitors. At this section, firm performance used a slightly different scale where 1=worse than competitors, 2=slightly worse than competitors, 3=neutral, 4=slightly better than competitors and 5=much better than competitors.

After the development of the survey instrument, a pilot study with 20 retailers and 10 academicians were performed to check errors and whether the questions would easily be comprehended by the firms. Suggestions and recommendations led to meagre changes of the questionnaire.

Table 3.1. *Items in the questionnaire*

Internal Integration
INT IG 1 My firm maintains an integrated database and access method to facilitate information sharing.
INT IG 2 My firm effectively shares operational information between departments.
INT IG 3 My firm has adequate ability to share both standardized and customized information internally.
INT IG 4 My firm provides objective feedback to employees regarding integrated on business and logistics performance
INT IG 5 My firm's compensation, incentive and reward systems encourage integration.
INT IG 6 My firm extensively utilizes cross-functional work teams for managing day-to- day operations.

INT IG 7 My firm clearly defines specific roles and responsibilities jointly with our supply chain partners.

INT IG 8 My firm has clearly defined a legal framework to guide involvement in supply chain collaboration

External Integration

EXT IG 1 My firm is willing to share strategic information with selected suppliers and/or customers.

EXT IG 2 My firm has developed performance measures that extend across supply chain relationships.

EXT IG 3 My firm experiences improved performance by integrating operations with supply chain partners.

EXT IG 4 My firm has increased operational flexibility through supply chain collaboration

EXT IG 5 My firm benchmarks best practices/processes and shares results with suppliers.

EXT IG 6 My firm has supply chain arrangements with suppliers and customers that operate under principles of shared rewards and risks.

EXT IG 7 My firm shares technical resources with key suppliers to facilitate operations

EXT IG 8 My firm actively pursues and shares a common set of expectations with supply chain partners.

EXT IG 9 My firm is willing to enter long-term agreements with suppliers.

Firm's Performance

PERF 1 (ROA) The ratio of income before interest expense divided by average total assets.

PERF 2 The ability to achieve the lowest total cost of through efficient operations, technology and/or scale economies.

PERF 3 The ability to reduce the time between order receipt and customer delivery to as close to zero as possible.

PERF 4 The ability to meet quoted or anticipated delivery dates and quantities on a consistent basis.

PERF 5 The ability to respond to the needs and wants to key customers.

PERF 6 The ability to provide desired quantities on a consistent basis.

PERF 7 The ability to accommodate delivery times for specific customers.

PERF 8 The ability to modify customers in advance of delivery when the product will arrive
PERF 9 (ROI) A profitability measure that evaluates the performance of a business by dividing net profit by net worth.
PERF 10 The product supplied matches customer's specification and requirement.
PERF 11 The firm's portion of total sales in relation to the market it operates within

3.3.2. Data collection technique

The study is being conducted in Turkey where the official language is Turkish. The survey instrument was officially translated from English to Turkish language by linguistic experts and was assessed by faculty members and research assistant at Anadolu University whether the translated instrument had the exact meaning as the English version of the questionnaire. The Turkish version was again translated back into English by another linguistic expert and the the English version was checked on sentence by sentence basis to check against the original English Version. Furthermore, this process was conducted to check the discrepancy level. After its clarity was ascertained, the Turkish version was then administered to respondents.

The research was conducted in Istanbul, the biggest and largest city in Turkey and Eskişehir, which is a metropolitan city in central Turkey with quite a number of food retailers. Given the strategic focus of the research and the distance of the respondents, the questionnaire was sent to the selected targeted population in both Eskisehir and Istanbul. The questionnaire was distributed to respondents in Eskişehir by hand because of the easy accessibility of the respondents. However, the same Turkish questionnaire was further developed on google forms and despatched to the firms in Istanbul via electronic mail (e-mail). The selected firms were first contacted on the telephone to make them aware of such kind of research and to ask of the official e-mail address of either the supply chain manager or the CEO. After the e-mail addresses were acquired, the questionnaire was despatched to the various firms. Follow up e-mail and phone calls were made to the firms, however, after a certain period of not receiving a positive response from the respondents, data collection agents were employed to administer the questionnaire to the same firms in Istanbul.

3.4. Data analysis

This study is purely a quantitative study and therefore, an appropriate quantitative analysis tool(s) is/are required to test the hypothesis. Since the independent variables in this study are more than one, it is appropriate for Structural Equation Model (SEM) to be used in analysing and testing the hypothesis of this study.

3.4.1. Structural equation model

Structural Equation Model, popularly known as SEM is a statistical tool or method that simplifies the relationship between one or more independent variables and one or more dependent variables. SEM is a hybrid data analytical method that allows concurrent analysis of variance (ANOVA)/regression and factor analysis. It also provides avenue for performing multiple and multilevel regression. In SEM, those variables that are not influenced by other variables, that is, independent variables are called exogenous variable. Similarly, variables that are not induced by other variables, thus, dependent variables are called endogenous variables. In this current study, firm performance is an endogenous variable which is influenced by both internal and external integration. If no relationship is found to exist between internal and external integration, then, both are endogenous variables. Moreover, variables that cannot be easily observed are termed as latent/ unobserved variables and conversely, those variables that can easily be measured by observation are called manifest or observed variables. The latent variables are normally represented with oval shapes or circles while the manifest variables are represented in rectangular or square shapes. In the case of this study, all the variables are latent variables and since the metrics of the variables were measured with a survey instrument, they are considered as manifest or observed variables. That is why in the conceptual model, the variables were represented in oval shapes. Peculiar to the SEM is its ability to provide path analysis which examines only manifest variables. In SEM, factors literally mean latent variables. The path diagram enables the smooth matching of a latent or manifest variable to its metrics and provides room for unique factors representing the measurement error. The significance of the path diagram makes SEM to be characterized as consisting of two major components; a measurement model linking a set of observed variables to a usually smaller set of latent variables and a structural model linking the latent variables through a series of recursive and non-recursive relationships. In figure 1.2, below, the latent factor, is represented in oval shapes with its metrics

represented in rectangles. The ‘e’ represents an error signifying that the scores or responses on survey items one through to eight are caused by two correlated factors, along with variance that is unique to each item. Some of that unique variance might be due to measurement error (Division of statistics (University of Texas), 2012, p.7). An example of a path diagram is illustrated below

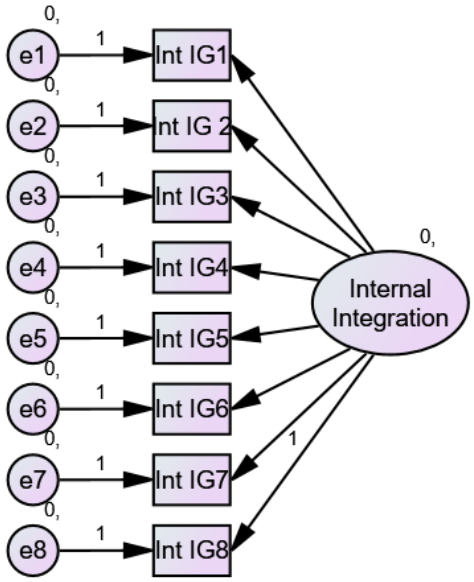

Figure 3.2. *Path Diagram*

Figure 3.2 illustrates an example of a path diagram of this study. The latent variable, internal integration in the oval shape with its eight (8) observed scales (Int IG) accurately mapped onto the latent variable. It provides the measurement error term named ‘e’ for each of the observed variable.

After analyses, the values which appear on the arrows linking the observed variables to the latent variables will represent the factor loadings (regression analysis) of each of the variables. The software packages which can be used in performing SEM analysis are LISREL (linear structural relationship) model, Mplus, Analysis of Moment Structures (AMOS), EQS and SAS/STAT CALIS. For the sake of this study, AMOS would be used in performing the data analysis due to its ability to relatively provide path diagram, supports SPSS data format, provides both standardized and unstandardized estimates and square multiple correlations (R^2), ability to run both covariance and correlation factors,

many of goodness of fit, residual variances and the only SEM software that provides modification indices.

The AMOS software provides several analyses and test of hypotheses such as exploratory and confirmatory analysis, goodness of fit, factor loadings or regression analysis and other modification indices necessary to test the path diagram of this study. The above-mentioned features would be performed in this study to accurately analyse the data and eventually test the hypotheses of the study.

3.4.2. Exploratory factor analysis

In as much as it is crucial for the detailed exploration of data or to explicitly test hypotheses, it imposes no substantive constrains on the data. Meaning, there are no apparent restrictions on the pattern of relationship between the observed and latent variables (Albright and Park, 2009, p.2). However, exploratory factor analysis is data-driven (Brown 2006, p.14). When performing exploratory factor analysis, each common factor is assumed to affect every single variable and interestingly, the common factors are either all correlated or uncorrelated. Once the model (path diagram) has been estimated, the factor scores are calculated for the follow-up analysis (Albright and Park, 2009, p.2).

3.4.3. Confirmatory factor analysis

Confirmatory factor analysis on the other hand is theory or hypothesis driven. Compared to exploratory factor analysis, it is possible to place substantial and logical constraints on the factor model. The researcher can efficiently specify the number of factors or establish the effect of a single latent variable on the observed variables to desired values. Confirmatory factor analysis allows for the testing of hypothesis by providing many goodness of fit measures to evaluate the research model, however, unlike exploratory factor analysis, it does not provide factor scores. Confirmatory factor analysis is a special case of SEM, generally known as, covariance structure (Mcdonald, 1978, p.59) or the linear structural relationship (LISREL) model (Jöreskog and Sörbom, 2004, p.). In fact, the path analysis is the efficient means of displaying confirmatory factor models. The analysis from the path diagram, the factor loadings, regression coefficients, R^2 (Squared Multiple Regression) coefficients and other values derived from the path diagram are all part of the confirmatory factor analysis. Moreover, the overall hypothesis

testing in this study is entirely tested with the confirmatory factor analysis (Albright and Park, 2009, p.2).

3.4.4. Test of goodness of fit

Test of goodness of fit is essential for the determination of how well the path diagram or the model matches the observed data or in other words, it measures how perfect the model accurately represents the data collected (Albright and Park, 2009, p.4). The goodness of fit among other tests exists for evaluating and determining the overall model fit. When performing confirmatory factor analysis, it is highly recommended that the goodness of fit is reported alongside the regression weights (factor loadings) and more importantly some indication of their possible significance (Albright and Park, 2009, p.4). Chi-square (χ^2) is the most widely used goodness of fit measure to determine the overall model fit. χ^2 is used in testing the null hypothesis. Basically, null hypothesis means the predicted covariance is the same as the observed sample covariance. When χ^2 is larger and the null hypothesis is rejected, it signifies that the path diagram relevant for the data for the regression analysis does not fit perfectly with data. Conversely, if the χ^2 is smaller and the null hypothesis is accepted, then the model is deemed to fit perfectly with the data. Nonetheless, χ^2 test is highly sensitive to the sample size, the higher the sample size, the higher the value of χ^2 test. Moreover, χ^2 test sometimes is invalid especially when the distributional assumptions are violated, which may consequently lead to the rejection of good models or the acceptance of bad ones. Due to these setbacks, other model fit indices or statistics have been developed to be reported together with the χ^2. It is important to note that, the chi square test is reported along with the degree of freedom (df) and significance (p-value). These model fit indices are described below.

3.4.5. Model fit indices

Due to the numerous drawbacks with the chi square test, AMOS provides series of significant indices to enable the accurate test of hypothesis and the model. These indices include Root Mean Square Error Approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), GFI (Goodness of Fit Index), PCLOSE and SRMR and sometimes the indices to be reported is dependent on the researcher.

3.4.5.1. *Root mean square of approximation (RMSEA)*

This measure of fit was introduced by Steiger and Lind in 1980. This measure, literally, incorporates a penalty function for poor model parsimony and comparably sensitive to the parameter estimates and insensitive to the sample size (Brown, 2006, p.83-84; Albright and Park, 2009, p.6). Statistically, RMSEA value of 0.05 or less is considered to indicate a good fit of the model (Arbuckle, 2005, p.496). However, Hu and Bentler (1999, p.1) recommend RMSEA of 0.06 or less to indicate a perfect fit model.

3.4.5.2. *Comparative fit index (CFI) and Tucker-Lewis index (TLI)*

Comparative Fit Index and Tucker-Lewis Index (TLI) both effectively compare the absolute fit of the model to the absolute fit of the independence model. The greater the discrepancy between the overall fit of the two models, the more increased the values become (Division of statistics (University of Texas), 2012, p.39). (Hu and Bentler, 1999, p.1) recommend that CFI and TFI values of .95 or higher is considered to indicate a perfect model fit.

3.4.5.3 *PCLOSE, SRMR and GFI*

PCLOSE is used in testing the close fit. Basically, an RMSEA of less than 0.05 indicates a good close fit. SRMR refers to the average of all the standardised residuals which cannot be explained in the model. To indicate a good fit, SRMR should be less than 0.05. GFI on the other hand, also explicitly indicates the fit measure for the percentage of the all the variances which are explained by the specified model. GFI should be approximately 1 or sometimes .95 is accepted for a good fit.

After the above analyses are performed with AMOS software, the research will also perform Principal Component Analysis (PCA) with. The PCA together with Cronbach Alpha scores would be performed to test the validity and reliability of the components/variables of the study. Lastly, basic analyses involving the demographic features would be performed with SPSS.

3.4.6. Principal component analysis

The principal component analysis is performed to reduce the number of variables. Essentially, it is used in testing the validity and reliability of measurement scales. From

the above explanation to factors and observed, it was realized that a factor is assumed to have influence on observed variables, however in principal component analysis the underlying causal relationship is reversed as it involves the linear combinations of observed variables (Albright and Park, 2009, p.2) compared to factor analysis. The principal components account for total variance. Statistically, all components that meet or exceed .60 are normally considered valid for analysis.

3.4.7. Cronbach alpha

Cronbach Alpha is a measure of internal consistency (reliability) used to test the closeness of items in a group. It is most commonly used when a survey instrument involves the use of multiple Likert questions to form the scale and the scale is determined if it is reliable. Statistically, Cronbach Alpha values of 0.60 or above are considered as reliable for analysis (Jayram and Tan, 2010, p.266). Meaning, the survey instrument is highly reliable for the analysis to be valid.

3.4.8. Basic analyses

Lastly, basic analyses involving the number of respondents and the basic features of the respondents would be analysed each reporting the number of respondents, their common features and the corresponding frequency. Respondents were asked to answer a question whether they have supply chain manager in the firm, they were asked to choose from a list of yearly sales that corresponds to the firm, respondents were also asked to choose from a list of involving the number of employees in the firm, the position of the person answering the questionnaire and the type of retailer the firm is. The basic analyses would be exceptionally, performed with SPSS since the software can generate a more accurate basic analysis of a data.

4. FINDINGS AND DISCUSSIONS

4.1. Introduction

This section presents the relevant findings and the implications of the research and its entire outcome. The primary data for this research was obtained from food retailers in Turkey. Mainly, retailers from Eskisehir and Istanbul were used for the research. Stratified method sampling was used to select the retailers relevant to the study. In total, 216 retailers in both cities were selected. 208 of the respondents rightly filled the questionnaire and therefore, 208 data were made available, which means impliedly, the analyses involve the use of only 208 respondents. Moreover, Structural Equation Modelling and specifically Amos was used for the analysis strictly because the research involves more than one independent variables and Structural Equation Modelling is highly suitable for research of that calibre. In the subsequent sections, basic information regarding the respondents and the corresponding frequencies; reliability and validity tests of the measurement scales specifically principal components, factor scores and Cronbach Alpha would be reported. Additionally, the modification indices of the model in Amos would be presented and interpreted accordingly and lastly, regression analysis from the Amos analyses would be presented.

4.2. Results of The Analysis

4.2.1. Basic demographic information

Out of 216 questionnaires issued to the respondents. 208 were filled accurately and returned. This represents 96.30% response rate. This response rate makes the data eligible for further analysis as the response rate is high to qualify the research for analysis. The tables below represent the number or type(s) of item(s) together with their frequency, percentages, valid percentages and cumulative percentages.

In Table 4.2.1 below, out of 208 respondents, 132 responded Yes when asked whether there is a supply chain manager in the firm. On the other hand, 76 responded No to this question. Meaning, these firms are practicing supply chain activities which makes them highly essential for this research. Impliedly, the overall results could have an enormous impact on the firms.

Table 4.2. *Supply Chain Manager Availability*

Category	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	132	63.5	63.5	63.5
No	76	36.5	36.5	100.0
Total	208	100.0	100.0	

Additionally, in Table 4.3 below out of 4 categories of total annual sales presented in the questionnaire, 69 firms have annual sales of between 0-1.000.000TL, 49 of the firms have their annual sales between 1.000.000 and 8.000.000TL, 41 have annual sales between 8.000.000 and 40.000.000TL and 49 of the firms have annual sales above 40.000.000 TL.

Table 4.3. *Total Annual Sales*

Categories	Frequency	Percent	Valid Percent	Cumulative Percent
0-1.000.000 TL	69	33.2	33.2	33.2
1.000.000-8.000.000	49	23.6	23.6	56.7
8.000.000-40.000.000	41	19.7	19.7	76.4
40.000.000 and above	49	23.6	23.6	100.0
Total	208	100.0	100.0	

Moreover, to further ascertain the size of the firm as it is relevant to the results of this section, part of the questionnaire included questions where firms were asked about the number of employees in the firm. 95 of the firms have employees between the range of 0-9, 44 have employees between the range of 10-49, 27 have employees in the range of 50-249 and 42 of the firms have 250 and above employees. Table 4.2.3 below illustrates the analysis of the number of employees in each of the respondent's firm.

Table 1.4. *Number of Employees*

Category	Frequency	Percent	Valid Percent	Cumulative Percent
0-9	95	45.7	45.7	45.7
10-49	44	21.2	21.2	66.8
50-249	27	13.0	13.0	79.8
250 and above	42	20.2	20.2	100.0
Total	208	100.0	100.0	

To ascertain the overall validity of the questionnaire, it was required that people with much authority in the firms filled the questionnaire. The respondents were asked to indicate their position in the firm. Table 4.2.5 below illustrates the categories of positions outlined in the questionnaire and the corresponding number of people in that position that responded to the answers in the questionnaire.

Table 4.5. *Position in the Firm*

Categories		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
	C.E.O	20	9.6	9.6	9.6
	Supply Chain Manager	1	.5	.5	10.1
	General Manager	23	11.1	11.1	21.2
	Marketing and CRM	2	1.0	1.0	22.1
	General Director	4	1.9	1.9	24.0
	Finance Director	4	1.9	1.9	26.0
	Accountant	21	10.1	10.1	36.1
	Sales Director	11	5.3	5.3	41.3
	Branch Manager/Director	42	20.2	20.2	61.5
	Cashier	35	16.8	16.8	78.4

	Strategic Director	1	.5	.5	78.8
	Information Systems Manager	3	1.4	1.4	80.3
	Secretary	17	8.2	8.2	88.5
	Owner	12	5.8	5.8	94.2
	Employee	6	2.9	2.9	97.1
	Shop Assistant	6	2.9	2.9	100.0
	Total	208	100.0	100.0	

Since retailers were the main target in this research, retailers were categorized into supermarket, hypermarket, mini markets and wholesale firms. Table 4.2.7 below clearly depicts the various categories and the number of firms corresponding to each category.

Table 4.6. *Type of Firm*

Category of firms		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
	Supermarket	68	32.7	32.7	32.7
	Hypermarket	18	8.7	8.7	41.3
	Mini market	95	45.7	45.7	87.0
	Wholesale Firm	27	13.0	13.0	100.0
	Total	208	100.0	100.0	

Essentially, 68 of the firms were supermarkets, 18 were hypermarkets, 85 were mini market and 27 of the firms were wholesale firms.

From the basic demographic information about the respondents, most firms have supply chain manager or essentially someone responsible for supply chain activities in the firm which indicates the existence of supply chain practices in the firms. Even though, the Turkish retail market has different kinds of retailers; supermarkets, hypermarkets and wholesale firms, it is dominated by mini market with annual sales between 0-1.000.000TL, with several employees ranging between 0-9. The questionnaires were mostly filled by cashiers even though a considerable number of them were filled by others

in a topmost rank of the firms and just one from a supply chain manager, however, it was presumed that the cashiers were carrying out delegation functions on behalf of the supply chain managers especially with respect to the filling of the questionnaire. Apparently, this makes the data highly eligible for further analysis, thus, testing the validity of the measurement scales.

4.2.2. Validity and reliability of the measurement scales

In quantitative analysis before any analysis of the data is commenced, especially when questionnaire is used as the data collecting instrument, it is highly recommended the measurement scales or the variables are subject to validity and reliability test. In this research, in order to ascertain the true, valid and reliable measurement scales, Cronbach Alpha, Principal component scores and factor scores were used. Table 4.7 below provides a summary of the reliability and validity test performed.

Table 4.7. *Principal component, confirmatory factory analysis and Cronbach Alpha*

ITEMS	PC SCORES	FACTOR SCORES	ITEM-TO-TOTAL CORRELTION	ALPHA IF ITEM IS DELETED	CRONBACH ALPHA FOR SCALE
Internal Integration					.908
INT IG 1	.636	.681	.693	.897	
INT IG 2	.563	.617	.654	.901	
INT IG 3	.713	.759	.738	.894	
INT IG 4	.604	.689	.690	.897	
INT IG 5	.650	.703	.669	.899	
INT IG 6	.660	.710	.674	.898	
INT IG 7	.744	.800	.761	.891	
INT IG 8	.759	.824	.766	.890	
External Integration					.903
EXT IG 1	.607	.595	.540	.902	
EXT IG 2	.718	.745	.716	.889	

EXT IG 3	.680	.717	.679	.892	
EXT IG 4	.679	.715	.713	.889	
EXT IG 5	.661	.679	.688	.891	
EXT IG 6	.729	.735	.680	.891	
EXT IG 7	.666	.700	.702	.890	
EXT IG 8	.729	.770	.754	.886	
EXT IG 9	.653	.659	.612	.897	
Firm Performance					.886
PERF 1	.506	.543	.556	.878	
PERF 2	.599	.622	.629	.874	
PERF 3	.655	.679	.640	.873	
PERF 4	.534	.600	.642	.874	
PERF 5	.535	.645	.631	.875	
PERF 6	.578	.692	.671	.872	
PERF 7	.651	.740	.713	.869	
PERF 8	.586	.669	.573	.877	
PERF 9	.719	.733	.615	.875	
PERF 10	.523	.658	.658	.872	
PERF 11	.661	.704	.665	.872	

The principal analysis and confirmatory factor analyses were conducted on the variables to ascertain their reliability and validity and precisely unidimensional characteristics for all the measurement scales/variables (Stank et al., 2001, p.14). Statistically, all principal component and factor scores that meet or exceed .60 are normally considered as viable for further analysis. In Table 4.7 above, all the variables except few of them meet or exceed these criteria of validity. Moreover, internal consistency of the variables was tested using the Cronbach Alpha (Cronbach, 1951, p.297; Jayram and Tan, 2010, p.266). Statistically, Cronbach Alpha values exceeding 0.60 are considered highly reliable for analysis (Jayram and Tan, 2010, p.266). In Table 4.2 above, the Cronbach Alpha values for all the factors including the values if Alpha is deleted are outstanding as they are between the range of .80 and .90. The detailed

Cronbach Alpha test scores of each of the variables depicting the KMO and other tests relating to the Cronbach Alpha test are presented at the part III of the appendix.

The testing of the reliability, validity and the internal consistency of the measurement scale were excellent. The variables including the latent and the observed variables were valid, reliable and highly consistent. Obviously, the measurement scales are high and valid which depicts a clear indication of the use of valid, reliable and consistent measurement scales for the variables. This clearly paves way for the hypothesis of the research to be tested.

4.2.3. Model fit indices

Table 4.8. *Model Fit Indices (Amos)*

χ^2	DF	P VALUE	GFI	CFI	RMR	RMSEA	NNFI	PCLOSE	IFI	TLI
897.997	317	.000	.777	.846	.097	.0052	.783	.000	.848	.816

As indicated earlier on, structural equation modelling presents the opportunity for every model to be tested to mainly assess its fitness level with the model. In other words, determining the fit of the model is a main determinant of the accuracy of the model and helps prepare the model for regression analysis. Initially, the indices were weak until the variables that indicated weak correlations were covaried with the variables with higher correlations. Also, the measurement scales with relatively weaker correlations were deleted to ascertain the correct indices of the variables and the model. In determining the fitness of a model, the chi-square ($\chi^{2)}$ is normally used. However, due to the sensitivity of the chi-square to data increment, other factors, that is, Good Of Fit (GIF) (Joreskog and Sorbom, 1984, p.25), Comparative Fit Index (CFI) (Bryne, 1994, p.15), Root Mean Square Residual (RMR) (Stieger, 1990, p.173), Root Mean Square Error of Approximation (RMSEA) (Stieger and Lind, 1980), NNFI (Non-normed Fit Index), TLI (Tucker Lewis Index) (Tucker and Lewis, 1973, p.1), PCLOSE (PValue) (Browne and Cudeck, 1993, p.136). Given the size of the data, the chi-square was significant (χ^2=897.99, df=317 and p=.000). RMSEA which is so essential to be reported alongside the chi-square should be less than or equal to 0.06, other writers also consider RMSEA

value of 0.05 or less as perfect for model fit. (Arbuckle, 2005, p.406). In Table, 4.8 above, RMSEA value of 0.053 indicates good fit for the model. Statistically, a good GFI, CFI, NNFI, IFI, TLI should be between 0 and 1. Hu and Bentler (1998, p.429) recommend that CFI and TFI values of 0.95 or higher is considered to indicate. Even though, the values above are less than .90, they equally indicate good fit for the model. The model generated from AMOS for the research is presented in Appendix VI.

4.2.4. Results of the hypothesis testing

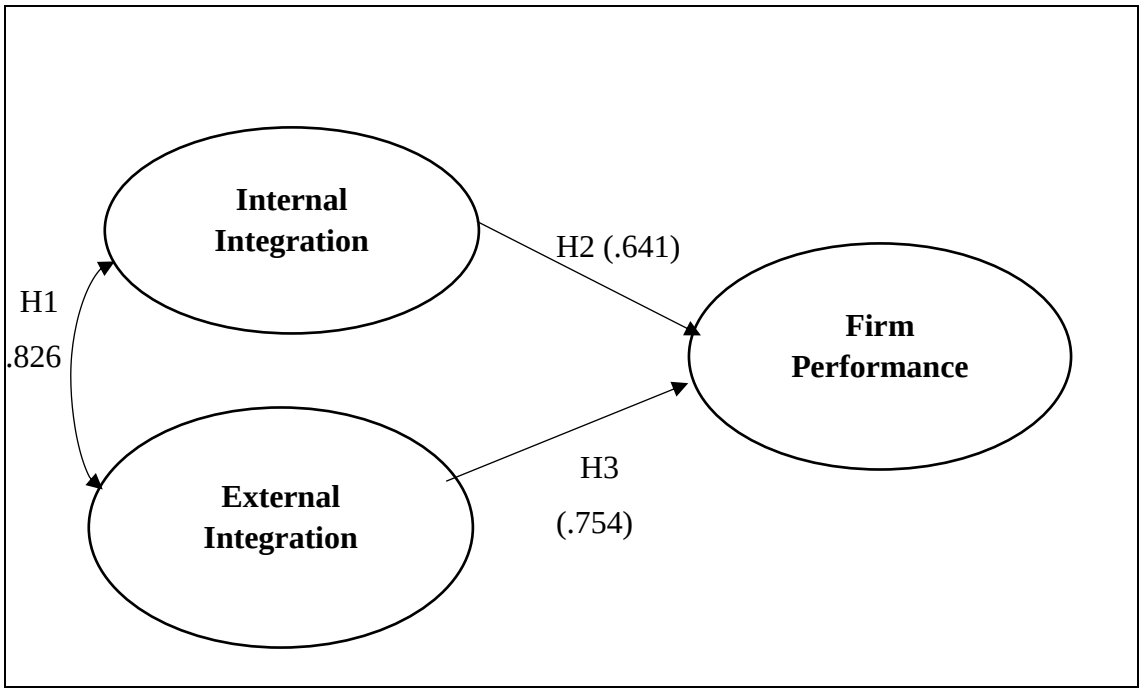

Figure 4.1. *Results of the Hypothesis Testing*

4.2.4.1. *Tabular representation of the regression analysis*

Table 4.2. *Regression Summary*

Hypothesis	Correlation Estimate	Significant Value
H_1	.826	.000
H_2	.641	.000
H_3	.754	.000

Figure 4.1 and Table 4.9 represent the regression analysis from Amos. The details of the regression analysis would be presented at Appendix IV. The figures in the table represent the regression weights and their corresponding significant values. With the correlation coefficients and the significant values in place, the regression analysis can now be vividly discussed.

The presumption that internal integration has a positive relationship with external integration implies that, the effective collaboration of the internal affairs of the food retailers has a positive relationship with their external partnership with their partners. Eventually, the correlation coefficient is 0.826 which clearly represents a higher correlation and the significant value of .000 indicates internal integration is highly and significantly related to external integration of food retailers and such relationship is positive. Hypothesis 1 is highly supported.

This research posited that internal integration of food retailers has a positive relationship with firm performance; both financial and operational performance. Meaning, the effective collaboration of internal activities of firms has a strong influence on the outcome of the firms' financial and operational activities. This was confirmed as the research found that effective inter and intra departmental communication, sharing of rewards and risk and other internal activities improve delivery, quality, return on assets, cost effectiveness, market share and other performance indicators of the firms. With the correlation coefficient of .641, internal integration is strongly and significantly related to firm performance and the relationship is positive. Meaning, hypothesis 2 is also supported.

Lastly, the presumption that external integration has a relationship with firm performance was supported. Correlation coefficient of .754 represents a stronger relationship. Firms' collaboration with external partners, thus, suppliers and customers strongly influences its' performance and hence a strong and highly significant relationship between external integration and firm performance. Therefore, hypothesis 3 is massively supported. The standardized factor scores (regression weights) of each of the variables together with their constructs are presented at the part IV of the appendix. Moreover, the detailed correlations coefficient and squared multiple correlations of the variables are clearly illustrated at the part V of the appendix.

5. RESULTS, ARGUMENTS AND SUGGESTIONS

5.1. Results

This study was aimed at contributing to the debate on the real impact of supply chain integration on firms' performance by exploiting the supply chain integration activities of retailers in Turkey. The demographic information from the research indicated that retailers in Turkey practice supply chain integration and that majority of the firms have supply chain managers. However, the Turkish retail industry is dominated by mini markets with small number of employees. The main findings are clearly explained below.

All the hypotheses in this study were strongly supported. The relationship between internal and external integration is the strongest as the correlation coefficient was very high. Firstly, it was hypothesized that internal integration has a positive impact on external integration. The research found that the internal integration of retailers is strongly related to the external integration of food retailers in Turkey. This implies that food retailers maintain an integrated database and access method to facilitate information sharing, effectively shares operational information between departments, have adequate ability to share both standardized and customized information internally and provide feedback to employees on business performance. Moreover, food retailers make use of compensation, incentive and reward systems to encourage internal integration, firms extensively utilize cross-functional work teams for managing day-to-day operations, clearly define specific roles and responsibilities jointly with their partners and firms have clearly defined legal framework to guide the systematic and sequential involvement in supply chain collaboration or integration. These internal practices enlisted above can stimulate firms' willingness to maintain strategic and highly confidential information with their selected suppliers and customers and develop performance measures that extend across their supply chain relationship. Furthermore, internal integration of the firms enables firms to develop supply chain arrangements with suppliers and customers that operate under principles of shared reward and risks. Similarly, firms share technical resources with key suppliers to facilitate operations, actively pursue and share a common set of expectations with supply chain partners and are willing to enter a long-term agreement with suppliers. Essentially, it was found that the internal integration of the food retailing firms triggered their decision to relate and share strategic and vital information

with their suppliers and customers. Clearly, this implies that firms should improve and continue to achieve cohesion internally since they could positively impact their ability to establish continuous extensive collaboration with supply chain partners which enable firms to develop operational flexibility and help them benchmark best practices/processes and communicate the emerging results with suppliers and customers. The strong and positive relationship between internal integration and external integration suggest that firms should develop some more collaborative systems internally as they would have a massive positive effect on their relationship with suppliers and customers.

Secondly, the research discovered a strong and positive relationship between internal integration and firm performance. This suggests that firms' internal collaboration really influences return on assets (ROA), enables firms to achieve a low cost of production, improves delivery speed and dependability, makes firm to be highly responsive to key customers, helps firms to provide desired quantities on a consistent basis and improves their ability to accommodate delivery times for specific customers. Equally, the effective collaboration of firms internally improves the ability to notify customers in advance of delivery, improves the profitability of firms through their return on investment, enables a complete satisfaction and enables firms to possess an enormous portion of total sales in relation to the market it operates within (market share). In this research, firm performance was categorized into two; operational and business performance. The operational performance represents the non-financial performance metrics, namely; delivery speed, delivery dependability, responsiveness to key customers, order fill capacity, delivery time flexibility, advanced delivery notification and customer satisfaction captured above. Apparently, the business performance metrics include return on assets, low cost, return on investment and market share. The relationship between internal integration and firm performance which is simply business and operational performance indicated a strong relationship meaning, effective collaboration within firms can improve the financial and non-financial performance of the firms. The strong correlation implies that firms should continue improving their internal collaboration activities and strive to achieve high and resilient business and operational performance measures. Impliedly, a positive relationship between internal integration and firm performance means firms should be keen on collaborating effectively internally as it would have a strong positive impact on both operational and financial performance of the firms.

The third hypothesis posited that external integration has a positive influence on firm performance and this research confirmed this hypothesis by finding a positive and significant relationship between external integration and firm performance. Firms' willingness to share strategic information with selected suppliers and customers, firms' exchange of technical resources and results, firms' pursuance of principles of shared reward and risk with suppliers and customers and firms' willingness to enter long-term agreement with suppliers have a significant and strong relationship with both operational and business performance of firms. From a different point of view, firms' internal integration triggers external integration with their external partners, thus, suppliers and customers and this collaboration influences positively the business and operational performance of firms. This wholly implies that food retailers and therefore firms in general should pursue and enforce integration activities in their supply chain relationships and activities since effective and efficient supply chain collaboration would impact a positively on the business and operational performance of firms. Similarly, firms would increase operational flexibility, return on assets, reduce cost, improve delivery speed and dependability, high responsibility to customers, improve the ability to provide desirable quantities of goods and service offered for sale, accommodate delivery times and improve the ability to notify customers in advance of delivery when the products arrive. Furthermore, effective and efficient internal and external integration would exert a positive influence on the return on investment, customer satisfaction and market share.

The section above presented the relationship between the variables of the study and their various implications. The research found and disclosed the relationship between all the individual variables. It was found that internal integration influences external integration which in turn influences the performance of food retail firms in Turkey. Meaning, internal and external integration all influence the business and operational performance of food retail firms. Interestingly, all the relationship proved significant, signifying that, internal integration is significantly related external integration and both are significantly related to firm performance.

5.2. Arguments

The impact of supply chain integration and firm performance has received many concerns over the years. Some of the researchers discovered a negative relationship

between integration and firm performance while others found a positive relationship between the two variables. In as much as this research found significant and a positive relationship between supply chain integration and firm performance, a considerable number of researchers on the contrary, found a negative relationship between the two. Interestingly, others also found external integration to be triggering internal integration contrary to the findings of this research whilst others also found a negative relationship between internal or external integration and firm performance.

This current study confirms the theory or suggestions proposed by the Stevens who suggested that firms should concentrate on internal integration and extend it to their customers and suppliers (Stevens, 1989, p.3). Furthermore, the study confirms the findings of Stank, Crum and Arango. The research was equally conducted in a food industry where a positive relationship was found to exist between internal and external integration and firm performance (Stank et al., 1999, p.21). Even though, different variables were adopted to measure integration and firm performance, a positive relationship between the variables akin to this current research was established. This current study is also in line with the findings of Scannell, Vickery and Droge. Similar variables were adopted when conducting this research and a positive relationship between integration and firm performance was found. However, that study focused only on suppliers (Scannell, Vickery and Droge, 2000, p.23). Prajogo and Olhager (2012, p.514) discovered a positive relationship between supply chain integration and firm performance which also conforms to the findings of this research.

On the other hand, a contemporary research on the impact of integration on logistic performance conducted by Stank, Keller and Daugherty investigated the real impact of both internal and external integration on logistical service performance (operational performance) (Stank, Keller and Daugherty, 2001, p.1). Contrary to the findings of this research, the research found that external integration rather influences internal integration however, the research further found a positive relationship between internal integration with firm performance. The point of difference stems from the fact that, this current research is based solely retailers while the previous study of Stank, Keller and Daugherty was based on multiple industries. Furthermore, this research also found a negative relationship between external integration and firm performance. It is apparent that; internal integration begins internally and it is extended to customers and suppliers to achieve high performance levels. Similarly, Germain and Iyer found a negative

relationship between supply chain integration and financial performance but a positive relationship between integration and operational performance (Germain and Iyer, 2006, p.29). Contrary to their findings, this current study found a positive relationship between supply chain integration and firm's operational and business performance of food retailers. Gimenez and Ventura criticized Stank, Keller and Daugherty's findings above and confirmed that internal and external integration have a positive and a strong relationship with firm performance both operational and business.

Moreover, like this current research, Flynn, Huo and Zhao investigated the impact of supply chain integration on business and operational performance, however, the research applied both contingency and configuration approach in the manufacturing sector in China. The research found a positive relationship between supply chain integration and firms' operational and business performance strongly confirming the findings of this current study (Flynn, Huo and Zhao, 2010, p.58). This current research also confirms the findings of several previous research such as (Droge, Jayaram and Vickery, 2004, p.557; Rosenweig, Roth and Dean Jr., 2003, p.437; Stank, Daugherty and Autry, 1999, p.75; Narasimhan and Kim, 2002, p.303; Dyer, Cho and Chu, 1998, p.57; Groves and Valsamakis, 1998, p.51; Jayaram and Tan, 2010, p.262; Afshan, 2013, p.323; Marquez, Bianchi and Gupta, 2004, p.348; Vaart and Donk, 2008, p.42; Vickery et al., 2003, p.523; Lee et al., 2007, p.444; Schoenrr and Swink, 2011, p.99; Fabbe-Costes and Jahre, 2008, p.131; Wang et al., 2003, p.41; Vargas et al., 2008, p.809).

In conclusion, this current study has been successful in achieving its stated goals and aims. The main aim was to identify if food retailers in Turkey involved supply chain integration practices in their business activities and whether supply chain integration has a positive effect on performance. The research found a positive relationship between supply chain integration and firms' operational and business performance confirming most of the results of the previous study. This research has also achieved its other aim of contributing to the literature of contradicting and countering other research which had findings contrary to that of the current study. Therefore, the study has successfully contributed to the literature on the impact of supply chain integration and firm performance. Additionally, this research can serve as one of the findings on which arguments could be made regarding the real impact of supply chain integration on firm's operational and business performance. Also, it can help cement the conclusion of the actual impact of supply chain integration and firm performance in the food retailing

industry and the other retail industry in the world. Generally, this current research should be a contributing factor to the debate on the impact of internal and external integration on firms' operational and business performance.

5.3. Suggestions

This research magnificently revealed the real impact of both internal and external integration on firm performance of food retailing sector which was lacking in literature. A positive relationship was established between integration and firm performance. Furthermore, internal integration was found to be the main influence of external integration. That is, if firms can manage their collaboration internally, eventually extending such relationship to suppliers and customers would be relatively easier. However, the gaps identified in the research presents opportunity for future researchers. Future research should expand the number of respondents and replicate the principles applied in this research. Future research should also use make use of other appropriate sampling techniques and focus the research on other equally big cities in Turkey and other cities or countries enormous retailers. This research concentrated on only food retailers without concentrating on other partners in the supply chain such as wholesalers. Future research should concentrate more on other partners such as Third Party logistics, manufacturers' suppliers and suppliers of retailers. This further re-affirms the suggestion made by Gimenez and Ventura (2008, p.15).

Also since external partners such as the suppliers and customers help improve the performance of firms, information is needed to be collected from these partners to assess their viewpoint on the satisfaction of services provided by firms and benefits they derive from integrating with firms. This re-affirms the recommendations made by Gimenez & Ventura (2005, p.15) and Stank et al. (2001, p.21). Further research is also needed to assess the drivers of supply chain integration since earlier researches have not been able to pinpoint the actual causes or drivers of integration. This gap was also identified by Flynn et al. (2010, p.67). Supply chain integration needs to be tested, clarified and researched further (Fabbe-Costes and Jahre, 2008, p.146). Due to this, several research into other areas of business and other partners is needed to solidify the real impact of supply chain integration and performance. Future research should be able to adopt more financial performance metrics and research into the real impact of supply chain

integration on financial performance. This re-affirms the suggestion made by Afshan (2010, p.329). Other sectors or industries should be researched on to assess the real impact of supply chain integration and firm performance (Gimenez and Ventura, 2008, p.16).

This research discovered that internal integration influences external integration and both have a positive relationship with firm performance. Further research is needed to ascertain how the processes through which managers or more specifically firms can achieve the internal collaboration and the processes through which such relationships are extended to customers and suppliers. Future researchers should perform this research in other countries to examine the effect cultural differences would exert on supply chain integration and firm performance. Lastly, firm performance metrics should comprehensively contain all the performance metrics including cost, financial, service and other metrics that could help measure extensively the performance of a firms.

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APPENDIX

1. Basic descriptive statistics

The table below summarizes the basic descriptive statistics namely; the mean, standard deviation and the total number of respondents

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
Internal Integration 1	3.61	1.434	208
Internal Integration 2	3.64	1.455	208
Internal Integration 3	3.92	1.173	208
Internal Integration 4	3.59	1.286	208
Internal Integration 5	3.59	1.327	208
Internal Integration 6	3.61	1.273	208
Internal Integration 7	3.77	1.330	208
Internal Integration 8	3.84	1.300	208
External Integration 1	3.82	1.261	208
External Integration 2	3.76	1.121	208
External Integration 3	3.75	1.164	208
External Integration 4	3.77	1.173	208

External Integration 5	3.76	1.224	208
External Integration 6	3.70	1.277	208
External Integration 7	3.90	1.291	208
External Integration 8	4.00	1.210	208
External Integration 9	3.69	1.356	208
Performance 1	3.79	1.139	208
Performance 2	3.73	1.173	208
Performance 3	3.94	1.068	208
Performance 4	4.13	.972	208
Performance 5	4.17	.916	208
Performance 6	3.97	1.083	208
Performance 7	3.99	1.052	208
Performance 8	4.02	.995	208
Performance 9	3.77	1.180	208
Performance 10	4.19	1.095	208
Performance 11	4.00	1.116	208

II. Principal Component Scores

The tables below illustrate the principal component scores obtained via direct oblimin. Statistically, KMO (Kaiser-Meyer-Olkin) 0f between .70 and 1 is considered high and valid for analysis. KMO of .890 is considered relatively good. The four components extracted depicts only four components can be adequately explain the total variables. The subsequent tables shows the component matrix, component correlation matrix, structure matrix and the communalities extractions.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.890
Bartlett's Test of Sphericity	Approx. Chi-Square	3940.597
	df	378
	Sig.	.000

Component Matrix

	Component			
	1	2	3	4
Internal Integration 1	.636	-.313	.402	.153
Internal Integration 2	.563	-.407	.437	.205
Internal Integration 3	.713	-.290	.275	-.041
Internal Integration 4	.604	-.387	.198	-.321
Internal Integration 5	.650	-.349	.035	-.298
Internal Integration 6	.660	-.311	.067	-.232
Internal Integration 7	.744	-.326	.004	-.130
Internal Integration 8	.759	-.317	.042	-.082
External Integration 1	.607	-.182	.054	.410
External Integration 2	.718	.035	-.255	.286
External Integration 3	.680	-.276	-.158	.328

External Integration 4	.679	.019	-.417	.045
External Integration 5	.661	.077	-.446	-.206
External Integration 6	.729	-.128	-.285	-.256
External Integration 7	.666	-.264	-.347	.117
External Integration 8	.729	-.056	-.351	.228
External Integration 9	.653	-.075	-.099	.096
Performance 1	.506	.306	.548	.008
Performance 2	.599	.313	.324	-.050
Performance 3	.655	.270	.138	.212
Performance 4	.534	.477	.205	.095
Performance 5	.535	.468	.143	.229
Performance 6	.578	.511	-.133	-.099
Performance 7	.651	.423	-.076	-.052
Performance 8	.586	.342	-.157	.015
Performance 9	.719	.097	.109	-.189
Performance 10	.523	.552	.035	-.196
Performance 11	.661	.299	.078	-.214

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

Component Correlation Matrix

Component	1	2	3	4
1	1.000	.353	.087	.521
2	.353	1.000	-.006	.410
3	.087	-.006	1.000	-.041
4	.521	.410	-.041	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Structure Matrix

	Component			
	1	**2**	**3**	**4**
Internal Integration 1	.655	.349	.512	.475
Internal Integration 2	.624	.240	.591	.438
Internal Integration 3	.759	.400	.308	.502
Internal Integration 4	.804	.250	.129	.343
Internal Integration 5	.792	.275	-.002	.446
Internal Integration 6	.765	.312	.046	.463
Internal Integration 7	.793	.349	.052	.600
Internal Integration 8	.789	.371	.105	.616
External Integration 1	.430	.333	.316	.670
External Integration 2	.423	.497	-.057	.792
External Integration 3	.530	.288	.130	.792
External Integration 4	.463	.432	-.305	.726

External Integration 5	.509	.457	-.471	.609
External Integration 6	.696	.409	-.304	.614
External Integration 7	.563	.253	-.134	.763
External Integration 8	.480	.429	-.139	.829
External Integration 9	.511	.415	.006	.619
Performance 1	.348	.680	.385	.154
Performance 2	.408	.711	.172	.290
Performance 3	.352	.680	.162	.522
Performance 4	.213	.740	.099	.316
Performance 5	.160	.718	.116	.398
Performance 6	.255	.732	-.284	.396
Performance 7	.344	.740	-.187	.467
Performance 8	.292	.622	-.200	.486
Performance 9	.620	.624	-.010	.448
Performance 10	.251	.754	-.207	.241
Performance 11	.488	.704	-.105	.369

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Communalities

	Initial	Extraction
Internal Integration 1	1.000	.688
Internal Integration 2	1.000	.715

Internal Integration 3	1.000	.670
Internal Integration 4	1.000	.657
Internal Integration 5	1.000	.634
Internal Integration 6	1.000	.591
Internal Integration 7	1.000	.676
Internal Integration 8	1.000	.685
External Integration 1	1.000	.573
External Integration 2	1.000	.663
External Integration 3	1.000	.671
External Integration 4	1.000	.637
External Integration 5	1.000	.685
External Integration 6	1.000	.694
External Integration 7	1.000	.647
External Integration 8	1.000	.710
External Integration 9	1.000	.451
Performance 1	1.000	.650
Performance 2	1.000	.564
Performance 3	1.000	.566

Performance 4	1.000	.564
Performance 5	1.000	.577
Performance 6	1.000	.622
Performance 7	1.000	.611
Performance 8	1.000	.486
Performance 9	1.000	.575
Performance 10	1.000	.619
Performance 11	1.000	.578

Extraction Method: Principal Component Analysis.

III. Cronbach Alpha for the Variables

Cronbach Alpha measures the reliability of the variables. Statistically, a Cronbach Alpha value of between of above .90 denotes the variables are highly reliable variable. The components of Corrected item-total correlation above .70 depicts highly reliable variables.

Internal Integration

Reliability Statistics

Cronbach's Alpha	N of Items
.908	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Internal Integration 1	25.97	51.849	.693	.897
Internal Integration 2	25.93	52.324	.654	.901
Internal Integration 3	25.65	54.103	.738	.894

Internal Integration 4	25.98	53.575	.690	.897
Internal Integration 5	25.98	53.468	.669	.899
Internal Integration 6	25.97	53.975	.674	.898
Internal Integration 7	25.80	51.862	.761	.891
Internal Integration 8	25.73	52.130	.766	.890

External Integration

Reliability Statistics

Cronbach's Alpha	N of Items
.903	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
External Integration 1	30.33	57.303	.540	.902
External Integration 2	30.38	55.948	.716	.889
External Integration 3	30.39	56.017	.679	.892
External Integration 4	30.37	55.385	.713	.889
External Integration 5	30.38	55.204	.688	.891

External Integration 6	30.44	54.721	.680	.891
External Integration 7	30.25	54.196	.702	.890
External Integration 8	30.15	54.292	.754	.886
External Integration 9	30.46	55.051	.612	.897

Firm Performance

Reliability Statistics

Cronbach's Alpha	N of Items
.901	11

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Performance 1	39.91	59.007	.576	.896
Performance 2	39.97	57.680	.636	.893
Performance 3	39.76	58.645	.648	.892
Performance 4	39.57	59.782	.643	.892
Performance 5	39.53	60.560	.630	.893
Performance 6	39.74	58.166	.669	.891
Performance 7	39.72	57.982	.705	.889
Performance 8	39.68	60.509	.574	.896
Performance 9	39.93	57.758	.626	.893

Performance 10	39.51	58.299	.651	.892
Performance 11	39.70	57.775	.669	.891

IV. **FACTOR SCORES (REGRESSION WEIGHTS)**

The table below depicts the factor scores of the confirmatory factor analyses obtained from Amos. Literally, the factor scores show that if any of the variable goes up by 1 standard deviation, the variable is increased by the score represented in the table. A score of .60 and above is considered as statistically appropriate for analysis. Except for a few of the scores below .60, all the other scores were statistically eligible making the scales highly reliable for analysis.

Standardized Regression Weights: (Group number 1 - Default model)

Variables	Estimates
INTIG8 <--- Internal_Integration	.824
INTIG7 <--- Internal_Integration	.800
INTIG6 <--- Internal_Integration	.710
INTIG5 <--- Internal_Integration	.703
INTIG4 <--- Internal_Integration	.689
INTIG3 <--- Internal_Integration	.759
INTIG2 <--- Internal_Integration	.617
INTIG1 <--- Internal_Integration	.681
EXTIG9 <--- External_Integration	.659
EXTIG8 <--- External_Integration	.770
EXTIG7 <--- External_Integration	.700
EXTIG6 <--- External_Integration	.735
EXTIG5 <--- External_Integration	.679
EXTIG4 <--- External_Integration	.715
EXTIG3 <--- External_Integration	.717

EXTIG2 <--- External_Integration	.745
EXTIG1 <--- External_Integration	.595
PERF11 <--- Firm_Performance	.704
PERF10 <--- Firm_Performance	.658
PERF9 <--- Firm_Performance	.733
PERF8 <--- Firm_Performance	.669
PERF7 <--- Firm_Performance	.740
PERF6 <--- Firm_Performance	.692
PERF5 <--- Firm_Performance	.645
PERF4 <--- Firm_Performance	.600
PERF3 <--- Firm_Performance	.679
PERF2 <--- Firm_Performance	.622
PERF1 <--- Firm_Performance	.543

V. Correlation Coefficients and The Squared Multiple Correlations

The tables below represent the correlation coefficients of the regression analysis obtained from Amos. The correlation between the variables are so high and significant. Statistically, a correlation of more than .50 represents a higher relationship. All the coefficients of the correlation are more than .50 which literally signifies a higher relationship between the variables. The squared multiple correlations (R^2) depicts how the scales explain the variances of the various variables. For example, in PERF1, it is estimated that the predictors of PERF1 explain 34.1 percent of its variance. In other words, the error variance of PERF1 is approximately 65.9 percent of the variance of PERF1 itself.

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Internal <--> External	.775	.116	6.678	***	par_26
External <--> Performance	.489	.083	5.925	***	par_27
Internal <--> Performance	.516	.087	5.925	***	par_28

Correlations: (Group number 1 - Default model)

			Estimate
Internal	<-->	External	.785
External	<-->	Performance	.698
Internal	<-->	Performance	.587

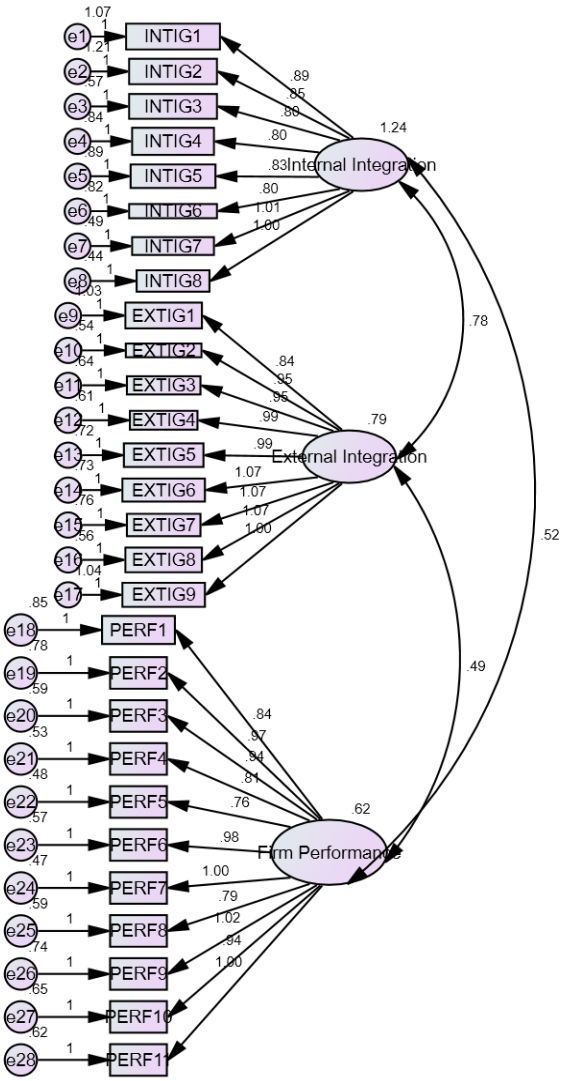
Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
PERF1	.341
PERF2	.432
PERF3	.485
PERF4	.439
PERF5	.429
PERF6	.513
PERF7	.570
PERF8	.398
PERF9	.470
PERF10	.457
PERF11	.503
EXTIG1	.351
EXTIG2	.568
EXTIG3	.526
EXTIG4	.558
EXTIG5	.518
EXTIG6	.550
EXTIG7	.541
EXTIG8	.613
EXTIG9	.430
INTIG1	.478

	Estimate
INTIG2	.427
INTIG3	.584
INTIG4	.488
INTIG5	.492
INTIG6	.492
INTIG7	.723
INTIG8	.737

VI. Path Diagram and Analysis from Amos

The diagram below is a path diagram highlighting the how each of the scales correlates with the variables, the squared multiple correlation is shown on top of the squared metrics of each variable and the correlation coefficients are shown on each of the connecting arrows of each of the variables. The oval shaped objects are the latent variables and squared shaped objects represent the observed variables. Furthermore, all the values in the diagram below are all unstandardized values while those values reported in the main work are standardized values.


Internal Integration
External Integration
Firm Performance
INTIG1
INTIG2
INTIG3
INTIG4
INTIG5
INTIG6
INTIG7
INTIG8
EXTIG1
EXTIG2
EXTIG3
EXTIG4
EXTIG5
EXTIG6
EXTIG7
EXTIG8
EXTIG9
PERF1
PERF2
PERF3
PERF4
PERF5
PERF6
PERF7
PERF8
PERF9
PERF10
PERF11
.78
.52
.49