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Effect of Absorptive Capacity on Strategic Flexibility and Supply Chain Agility: Implications for Performance in Fast-Moving Consumer Goods

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ABSTRACT

This paper develops a model to examine the relationships between absorptive capacity (ACAP), strategic flexibility (SF), supply chain agility (SCA), and firm performance (FP) based on the resource-based view (RBV) and the dynamic capabilities view (DCV). Using structured questionnaire, a sample of 186 randomly selected firms in fast-moving consumer goods (FMCG) industry from both Turkey and Iran as two developing countries is used to test the hypotheses. Variance-based structural equation modeling (SEM) was the primary data analysis method. The results show that absorptive capacity has direct and indirect effects on performance with the mediator variables of supply chain agility and strategic flexibility. Moreover, increased absorptive capacity leads to increased supply chain agility that in turn improves performance. The effect of absorptive capacity on strategic flexibility, and also, the overall proposed conceptual model, especially in the FMCG industry are the original features of the current study which was conducted in two developing countries. Efforts to promote absorptive capacity can improve both strategic flexibility and supply chain agility which are effective factors for enhancing performance in the fast-changing environment of FMCG industry.

Keywords: Strategic flexibility; supply chain agility; absorptive capacity; firm performance; fast-moving consumer goods

1. INTRODUCTION

Over recent years, in addition to increased competitive pressure, business environments are becoming increasingly identified with high turbulence levels and unpredictability (Braunscheidel & Suresh, 2009) and it is very difficult to gain a sustainable competitive advantage under these conditions (Martinez-Sanchez & Lahoz-Leo, 2018). This is due to continuous technological changes, decreased product life cycle and high levels of demand uncertainty (Swafford *et al.*, 2006). As a result, managers are forced to develop smart supply chain strategies that emphasize fast product delivery, increased supply chain agility and reduced response time (Lee, 2004). In fact, organizations have no choice but to adapt their internal rate of change with that of the external environment to survive and maintain their competitive advantage (Ben-Menahem *et al*., 2013[1]). Since the success of organizations in such a situation is not achieved alone and it depends on the structure of the network that the organization operates within, the supply chain plays a very important role in its success. Agility must be incorporated into the supply chain because such supply chains can quickly and effectively react to market changes. In several studies (Fayezi *et al*., 2017; Li *et al*., 2009; Mathiassen & Pries, 2006; Overby *et al*. 2006; Van Hoek *et al*., 2001), supply chain agility has been defined as the ability to sense and perceive environmental changes and quickly and properly react to them. Accordingly, it can be claimed that in competitive environments such as the Fast-Moving Consumer Goods (FMCG) industry, firms depend on a number of things like demand forecasting, monitoring the activity of competitors and suppliers and collecting information from them and using that highly important information. Regarding this matter, in their research, Teece *et al*., (1997) have pointed out that in a dynamic and turbulent environment, knowledge is a vital resource for value creation and developing and maintaining a competitive advantage. It is very important for managers and organizations to utilize external knowledge resources to properly respond to rapidly changing dynamic environments (Lane & Lubatkin, 1998; O'Connor, 2008[2]). Murthy *et al.* (2003) believed that the agility of any

organization depends on the level of external knowledge and information available to it as well as how they are utilized.

Absorptive capacity plays a major role in gaining, maintaining, and developing a competitive advantage. It is because it provides organizations with this capability and prepares them to deal with changing environmental conditions. Absorptive capacity, which is the ability of an organization to acquire, absorb and use external knowledge to achieve its commercial goals (Cohen & Levinthal, 1990; Zahra and George, 2002), enables it to stay updated technologically while adapting to market changes and innovations (Martinez-Sanchez & Lahoz-Leo, 2018) due to the redefinition and reestablishment of its knowledge-based assets. This allows the firm to sense environmental uncertainty, perceive market sentiment and take advantage of market opportunities which are very important for market share and profitability growth (Camisón & Forés, 2010; Cohen and Levinthal, 1990; Tsai *et al*., 2001; Vonderembse *et al*., 2006; Zahra and George, 2002). To be able to react to environmental changes, in addition to having sufficient information and knowledge about the environment, it is necessary to possess some flexibility. Many studies have proven that flexibility is a vital factor for the supply chain agility and overall performance of a firm (Barney, 1991; Sanchez, 1995; Li *et al*., 2008; Agarwal *et al.*, 2006; Gong, 2008[3]). Chan *et al*. (2017), believe that organizational flexibility which is divided into the two types of manufacturing flexibility and strategic flexibility, is one of the most important factors for the attainment of supply chain agility. Strategic flexibility refers to the ability to make strategic decisions to respond to changes inside and outside an organization (Aaker & Mascarenhas, 1984). It is divided into two types, resource flexibility and coordination flexibility (Sanchez, 1997). When strategic flexibility is constantly high, by decreasing the required time for resources it is possible to quickly offer new products and complete, create or reorganize internal and external resources. This decreases the cost, time and effort it takes to restructure resources and use them (Sanchez, 1997). This will, in turn, increase agility and improve performance.

Many studies have been performed about the effect of supply chain agility, absorptive capacity and strategic flexibility on firm performance in different industries (Sanchez & Leo, 2018; Chen *et al.* 2017; Chan *et al*. 2017, Liu *et al*. 2012). These studies show that with an improvement in any of the variables, (absorptive capacity, supply chain agility and strategic flexibility) we will see an improvement in performance. But in the FMCG, we can observe a lack of similar studies. Based on a review of the literature, it can be said that few studies have focused on the relationship between absorptive capacity and strategic flexibility, especially in the FMCG industry. Also, in the FMCG industry which is one of the most important industries across the world and involves a major portion of family budgets, limited research has been conducted on supply chain agility and strategic flexibility and their effect on firm performance. Furthermore, absorptive capacity as one of the main capabilities of any firm in this industry has seldom been examined. Although each of these three variables, i.e., absorptive capacity, strategic flexibility and supply chain agility is an important enabler for gaining and sustaining a competitive advantage, their relationships and their effect on performance in a specific model have not been studied. Consequently, in this research we aim to fill this gap in the literature by studying the effect of increased absorptive capacity and strategic flexibility on the supply chain agility and performance of firms in FMCG industry. We will do this particularly in the FMCG industries of Iran and Turkey that seems to have similar contextual characteristics. The research model is based in resource-based and dynamic capabilities views. After this introduction, the second section presents the theoretical background of the study. The third section identifies the conceptual model and the research hypotheses. The fourth section analyzes the research methodology. The main structural model results are presented and discussed in the fifth section. Finally, the last section provides the conclusions, implications and limitations of the study.

2. THEORETICAL BACKGROUND

2.1 Absorptive Capacity

Today's view towards absorptive capacity was formed by the primary studies of Cohen & Levinthal (1990). Absorptive capacity was rooted in macroeconomics and as Adler (1965) in his book titled "Absorptive capacity: the concept and its determinants" mentioned, it refers to the economic ability to utilize external resources and absorb information. In 1990, Cohen and Levinthal adapted this macroeconomic concept to organizational concept and defined absorptive capacity as firm's ability to value, assimilate, and apply knowledge received from external sources such as suppliers, customers, competitors, and alliance partners and utilize new external information, for commercial goals". In 2002, Zahra & George offered a new definition for absorptive capacity. They defined it as one of the dynamic capabilities of a firm at knowledge acquisition, assimilate, transformation and exploitation to gain and maintain a competitive advantage. In their view, absorptive capacity is divided into the two categories of potential absorptive capacity (acquisition and assimilate) and actual absorptive capacity (transformation and exploitation) (Johnson, 2005; Malhotra, Gosain *et al*., & El Sawy, 2005). In the following, in 2010, Lewin *et al*., divided absorptive capacity into an internal and an external part. The internal part refers to the absorption process (from the outside to the inside) and the external part refers to the management of the absorbed knowledge. Therefore, they defined absorptive capacity as an organizational mechanism that is associated with the identification, communication and absorption of external and internal knowledge. The elements of absorptive capacity are seen as a firm's existing database, the effectiveness of its environmental monitoring systems and the efficiency of its communication processes (Tu *et al*., 2006).

2.2 Supply Chain Agility

The concept of supply chain agility in the manufacturing sector was created in the early 1990s as a strategy for responding more effectively to changes in the competitive environment (Nagel & Dove, 1991). Agility is an extensive business capability that includes organizational structures, information systems, procurement and

transportation processes and particularly attitudes (Christopher & Towill, 2001). In 1995, Goldman *et al*., defined agility as an advantage used for delivering value to customers, easily dealing with environmental changes, evaluating human knowledge and skills and forming virtual partnerships. Hence, it can be said that supply chain agility is a method for supply chain management in turbulent environments (Naylor *et al*., 1999) and it requires a high level of coordination among all members of a supply chain. Agility is usually defined as the ability to sense environmental changes and reacting to them in a timely manner (Li *et al*., 2009; Mathiassen & Pries, 2006; Overby *et al.*, 2006; Van Hoek *et al.*, 2001). According to many researchers, supply chain agility is the fundamental factor for tolerating external and internal pressures and prospering in turbulent environments (Aslam *et al.*, 2018). In fact, a firm's supply chain agility level shows how coordinated the firm is with its target market (Swafford *et al*., 2008). In this research, based on a number of studies including Chan *et al.* (2017) and Braunscheidel & Suresh (2009), supply chain agility is considered to be one of the internal and external capabilities of any organization in association with its key suppliers and customers. It is used to respond to environmental changes and potential as well as actual disturbances in a timely manner (Chan *et al*., 2017).

2.3 Strategic Flexibility

Strategic flexibility is a firm's ability to set strategic decisions to respond to market changes including any change in demand or competition conditions (Aaker & Mascarenhas, 1984; Matthyssens *et al*., 2005; Price *et al*., 1998). Responding to customer needs and market demands is necessity for any industry especially the FMCG industry (Chan *et al*., 2016). In dynamic industries such as the FMCG industry, firms can gain a competitive advantage by developing their strategic flexibility. In dynamic markets with a high uncertainty level, selection of the best scheme and plan that lead to success is an unrealistic strategic goal. In 1995, Sanchez, based on the RBV, stated that strategic flexibility depends on a firm's scope of resources and how they are utilized. This is because resources play an important role in the business operations of the firm. In 1997, Sanchez divided strategic flexibility into the two areas of resource flexibility and coordination flexibility. He explained that in the past, it was basically defined as a set of resources available to a firm, whereas recently it refers to the options for the use of these resources. Therefore, resource flexibility is provided by the inherent characteristics of resources, while coordination flexibility shows a firm's ability in utilizing existing resources (Grewal & Tansuhaj, 2001). In fact, resource flexibility refers to the ability to possess flexible resources with multiple uses. Coordination flexibility refers to the ability to create a new combination of resources with the use of an internal coordination process (Wei *et al*., 2014). Strategic flexibility makes it possible to respond to changes in a market and business environment. This means investing in various resources and possessing a wide range of strategic options (Bowman & Hurry, 1993). Furthermore, strategic flexibility not only enables firms to dynamically manage their resources to adapt to environmental changes but also allows them to use all the capacities of their resources (Zhou & Wu, 2010; Wei *et al.*, 2014).

2.4 Firm Performance

Firm performance reveals how a firm will continue its operations efficiently. It is one of the major criteria for success measurement or the probability of a firm's survival (Chan *et al.*, 2016). For this reason, the concept of organizational performance has special importance as the goal of modern industrial activities (Richard *et al*., 2009). For instance, activities such as marketing, operations, human resource management and or adopted strategies, etc. are all judged based on their role and level of cooperation in a firm's performance.

The concept of firm performance is one of the concepts that depend on many other factors in business studies (Rumelt *et al*., 1994). Often, the final result of a business model is considered (Richard *et al*., 2009). Firm performance is a part of a broader concept called organizational efficiency and the two must be distinguished (Varadarajan & Ramanujam, 1987). But with the arrival of organizational theories, the concept of performance was also transferred to other secondary goals (Cameron & Whetten, 1983). That said, management studies and particularly studies relating to strategic management have focused on performance from a more empirical and limited perspective and place more emphasis on accounting, financial issues, market share, etc. (Richard *et al.*, 2009). However, in this research, firm performance in addition to firm financial performance and product performance in a market were evaluated using a number of criteria. These criteria include customer satisfaction, cost efficiency and operational efficiency.

3. HYPOTHESES DEVELOPMENT

In this section, based on the RBV and DCV, 10 hypotheses are presented to define the relationships between the research variables. They are also used to determine the direct and indirect effects between them and their mediating role. Researchers have recently considered absorptive capacity as one of the most vital dynamic organizational capabilities associated with knowledge creation. They believe it can also be used for knowledge exploitation in competitive environments and helps gain a competitive advantage (Vlačić *et al*., 2018; Pavlou & El Sawy, 2006; Malhotra *et al*., 2005; Zahra & George, 2002). According to the RBV, absorptive capacity is a vital factor for better performance in organizations (liu *et al.*, 2013). A higher absorptive capacity enables firms to have a better ability to relate new knowledge and information to business goals (Tsai, 2001). Consequently, based on the subject literature, a firm with a higher absorptive capacity will be able to manage the external knowledge absorbed from customers, suppliers, competitors and or other business partners. It will also be able to employ that knowledge to identify and exploit existing opportunities in a market. For instance, a firm with higher absorptive capacity can effectively acquire knowledge and information relating to customer preference, technological innovations, emerging markets, etc. This helps the firm sense environmental uncertainty, perceive market sentiment and exploit market opportunities better and more effectively. These are all

important for increasing market share and profitability (Liu *et al*., 2013; Camisón & Forés, 2010; Cohen and Levinthal, 1990; Tu *et al*., 2006; Zahra & George, 2002). Hence, according to past research and the RBV and the dominating conditions in the FMCG industry mentioned earlier, the following hypothesis is proposed:

***H₁**: Absorptive capacity has a positive and significant effect on firm performance*.

Technological and competitive turbulence makes strategic flexibly an important capability for new and existing businesses (Katila *et al*., 2012). Responding to customer needs and market demands is essential for all industries including the FMCG (Chan *et al.*, 2017). In dynamic markets with a high uncertainty level, selection of the best scheme and plan that lead to success is an unrealistic strategic goal. It can be said that firms can gain a competitive advantage in dynamic environments by developing their strategic flexibility (Sanchez, 1993). With increased uncertainty and turbulence in business environments, strategic flexibility is an essential factor for organizations. It is used to change and reset organizational resources, processes and strategies to deal with changes in a business environment (Zhou & Wu, 2010; Sambamurthy *et al*., 2003; Chen *et al.*, 2014). In such environments, the chance of survival and position of organizations depend on their ability to adapt to changing conditions (Nadkarni & Herrmann, 2010). Strategic flexibility not only enables firms to dynamically manage their resources to adapt to environmental changes, but also allows them to use all the capacities of their resources (Zhou & Wu, 2010; Wei *et al*., 2014). One way for improving firm performance is to find new streams of income through initiatives like offering new products or entering new markets. Strategic flexibility enables firms to reduce time to market of new products or applying required changes and modifications for certain market characteristics with less cost and time. All of these lead to the improvement of firm performance. Therefore, by referring to the subject literature the following hypothesis can be proposed.

***H₂**: Strategic flexibility has a positive and significant effect on firm performance*.

Responding to customer needs and market demands is essential for all industries (Chan *et al*., 2016). To deal with challenges posed by turbulent and competitive environments, companies must employ all available options. These options are utilized to develop the capabilities of a firm including value delivery, risk and disturbance management, nonstop and fast service provision to customers (Swafford *et al*., 2006). Since relying on one thing will not make organizations succeed under present conditions, therefore, a supply chain plays a very important role in their success. Therefore, it becomes evident how important it is to incorporate agility into the supply chain. This is because such supply chains can quickly and effectively react to market changes. As it was mentioned earlier, supply chain agility has been defined as the ability to sense and perceive environmental changes and quickly and properly react to them. Supply chain agility is one of the internal and external capabilities of an organization in association with its key suppliers and customers. It is used to respond to market changes and potential as well as actual disturbances (Braunscheidel & Suresh, 2009).

Based on the measurement model of Zahra and George (2002), some of the firm performance measurement criteria are customer satisfaction from a firm, a firm's market share, operational efficiency and cost efficiency. Supply chain agility can improve firm performance by enhancing a firm's rate of response to main customers. It can also help the firm adapt to market demands, adjust order specifications according to market demands and decrease product delivery time (Braunscheidel & Suresh, 2009; Gligor *et al*., 2013). Accordingly, the following hypothesis is presented.

***H₃**: Supply chain agility has a positive and significant effect on firm performance*.

Absorptive capacity allows a firm to keep itself updated with new technologies and adapt itself to market changes and innovations. A firm with a high absorptive capacity is inclined to change due to the redefinition and reestablishment of its knowledge-based assets so it tries to improve its performance by restructuring its operational capabilities (Pavlou & El Sawy, 2006; Zahra and George, 2002). Based on the definitions presented by many research papers for strategic flexibility, it is considered to be the ability to make the required changes (Wright and Snell, 1998; Zhou & Wu, 2010). Specifically, it can be said that strategic flexibility makes it a possibility to create and execute strategic options when dealing with changes or makes it possible to lead changes (Sanchez, 1997). Moreover, based on what has already been stated, Liu *et al*. (2013) and many other researchers mentioned that an organization with a high absorptive capacity can identify market sentiment, competition rules and sense environmental uncertainty. They can also use them to take advantage of market opportunities. Consequently, it can be claimed that by providing a system to monitor a business environment and collect and create awareness of potential and actual changes, a firm can prepare itself to tackle changing environmental conditions. For instance, a firm with a high absorptive capacity can collect information about the trend of the market taste and or any changes in customer demands. This enables the firm to manufacture new and or modified products compatible with market conditions in the shortest amount of time possible and become the market leader. Accordingly, we proposed the following hypothesis.

***H₄**: Absorptive capacity has a positive and significant effect on strategic flexibility.*

In his book titled "Supply Chain Management: Strategy, Planning, and Operation", Meindl mentioned that a supply chain is an extension of product and information flow. Furthermore, in their study Sambamurthy *et al*., (2003) discovered that firm knowledge and accessibility to new external knowledge are some of the determinants of supply chain agility. For example, possessing information about customers and suppliers is vital for having an agile supply chain. This information can help orders be more compatible with customer demands. It can also help improve coordination with supply chain members which will, in turn, lead to decreased product delivery time. Regarding this subject, according to the definition provided

by Cohen and Levinthal (1990), the main components of absorptive capacity include the following. The mechanisms of knowledge search, communication network, communication atmosphere and prior relevant knowledge. If these mechanisms are more efficient, it enables a firm to acquire and distribute information in the organization and the entire supply chain. It makes the firm sense its environmental changes. Moreover, the distribution of this knowledge among partners will lead to the creation of new information and knowledge. This will, in turn, lead to the identification of the trend of market changes and the identification of market needs. It will also result in higher coordination with suppliers and awareness of their performance, capacity and problems to quickly react to them. It also increases the amount of value transferred to customers and other business partners (Tu *et al.*, 2006). Therefore, we proposed the following hypothesis:

H*$_5$*: *Absorptive capacity has a positive and significant effect on supply chain agility.*

Based on existing definitions for supply chain agility and strategic flexibility, the following explanations are given. Supply chain agility refers to the speed at which, changes are sensed and reacted to (Li *et al*., 2006; Overby *et al*., 2006; Van Hoek *et al*., 2001; Chan *et al.*, 2017; Braunscheidel & Suresh, 2009). Strategic flexibility refers to the possession of available tools for these changes including flexible resources, different strategic options, process flexibility, etc. (Sanchez, 1997; Brozovic, 2016; Grewal & Tansuhaj, 2001; Wei *et al*., 2016; Bowman & Hurry, 1993). Supply chain agility refers to the speed of a firm in responding to its output criteria including the following items. Decreasing lead time from the stage of the placement of an order to warehouse transfer, increasing new product introduction, improving customer service level, etc. (Chan *et al*., 2016). Moreover, when resource flexibility is constantly high, by decreasing the time spent searching for the required resources, a firm can quickly offer new products and enjoy the advantage of market leadership. In addition to that, firms can employ coordination flexibility to complete, create and or reorganize their internal and external resources. This decreases the cost, time and efforts it takes to restructure resources and use them. Strategic flexibility not only enables firms to dynamically manage their resources to adapt to environmental changes, but it also enables them to access all their resource capacity (Zhou & Wu, 2010; Wei *et al*., 2014). So, we can say that any improvement in strategic flexibility will lead to enhanced supply chain agility. By possessing diverse resources and strategy elements (resource utilization method), firms can decrease search time and reset their resources to enhance agility throughout their supply chain. Accordingly, we offered the following hypothesis.

H*$_6$*: *Strategic flexibility has a positive and significant effect on supply chain agility.*

In hypothesis five and six we observed that based on available definitions, we can assume a positive relationship between strategic flexibility and supply chain agility and also between absorptive capacity and supply chain agility. Strategic flexibility is actually interpreted as making a strategic decision to respond to one's own business environment (Aaker & Mascarenhas, 1984). In addition to that, it helps prepare capabilities to react to changing environmental conditions. This means investing in various resources and possessing different strategy elements when necessary. The purpose of the enhancement of absorptive capacity is to gather information from the external environment of a firm and use it to achieve the firm's business goals. The firm can employ this information to prepare itself to tackle these changes. Based on the subject literature, supply chain agility has been defined as the ability to sense and quickly react to changes. Strategic flexibility with decreased search time for required resources and resource utilization methods will increase agility. In this research, we hypothesize that by being aware of environmental changes and competition rules, a firm will take action to provide resources and make decisions about it. The firm will also increase its flexibility which will, in turn, enhance its supply chain agility.

Hypothesis A*: Strategic flexibility acts as a mediator variable between absorptive capacity and supply chain agility.*

Chan *et al.* (2017) believed that strategic flexibility inevitably affects the acquirement of a competitive advantage in turbulent environments. In fact, strategic flexibility is the ability of a firm to allocate the necessary resources for a set of new actions in a quick manner. This means that the firm will identify a suitable time for making changes in its resources and their utilization methods and quickly react to market conditions (Katsuhiko & Hitt, 2004). To identify changes, a firm needs access to external information and knowledge. This is where absorptive capacity comes in. It provides the required knowledge and information about technological innovations, competitor performance, customer needs, etc. for strategic flexibility improvement and results in improved performance. Consequently, we proposed the following hypothesis:

Hypothesis B*: Strategic flexibility acts as a mediator variable between absorptive capacity and firm performance.*

Generally, supply chain agility comprises the ability to sense and the ability to act. These two abilities are defined as the ability to sense and perceive environmental changes and reacting properly to them, respectively (Overby, 2006). An agile firm is specialized at identifying changes in its business environment and is aware of how these changes can affect its operations. Most importantly, an agile firm can make the necessary progress and reconfigure itself to adapt to a new business environment in a timely manner (Chan *et al.*, 2016). By taking advantage of synergies from strategic flexibility among all sides in a supply chain, supply chain agility can enable firms that are members of its supply chain to effectively react to a turbulent market. The nature of supply chain agility (sensing and reacting) combined with the development of strategic flexibility for the purpose of taking strategic and operational measures enable a firm to achieve its goals and improve its performance. Accordingly, based on the hypothesis offered by Chan *et al.* (2017) stating that supply chain agility mediates the relationship between strategic flexibility and performance, the following hypothesis is offered:

Hypothesis C*: Supply chain agility acts as a mediator between strategic flexibility and performance.*

According to the RBV, absorptive capacity is described as one of the main resources for gaining a competitive advantage over competitors (Martinez-Sanchez & Lahoz-Leo, 2018). Based on the subject literature, it plays an important role in supply chain management. Based on the DCV and operational capabilities, any increase in dynamic capabilities leads to the improvement of operational capabilities. Firms with a higher absorptive capacity with all their newly acquired, absorbed and utilized knowledge show a better performance. But the question remains whether performance can improve with the existence of appropriate supply chain agility? As it was mentioned earlier, today's firms face a completely competitive and turbulent environment in terms of technological changes and demand uncertainty. Therefore, firms are required to coordinate with these changes and must be continuously reconstructed. Absorptive capacity enables a firm to adapt itself to the needs of its customers and sense environmental changes faster and perceive interactions between members of its supply chain. In their research paper, Martinez-Sanchez & Lahoz-Leo (2018) mentioned that absorptive capacity is a capability that enables a supply chain to adapt to changing environmental conditions and ultimately leads to improved performance. Specifically, they investigated and proved the mediating role of supply chain agility between absorptive capacity and performance. Hence, we hypothesize that any increase in absorptive capacity leads to the improvement of supply chain agility and that any enhancement in supply chain agility will enhance firm performance. Also, the effect of absorptive capacity on performance is increased with the presence of supply chain agility.

Hypothesis D*: Supply chain agility acts as a mediator variable between absorptive capacity and performance.*

Figure 1 shows the schematic diagram of the conceptual research model employed in this study.

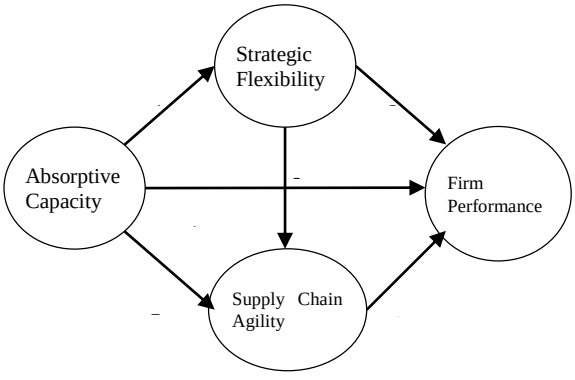

Figure 1. Conceptual model

4. RESEARCH METHODOLOGY

4.1 Sample and data collection

Due to explanatory nature of the research, a quantitative approach was adopted to test the conceptual model of the relationships between variables. Data were collected using a structured questionnaire which sent to the top and middle-level managers of the firms in FMCG industry of Iran and Turkey. The FMCG comprises the pharmaceutical, cosmetics and food industries. Some questionnaires were distributed in person by visiting company sites. Electronic questionnaires were distributed via direct email to the companies as well. To have a distributed sample, we chose to send questionnaire to firms in different sectors within FMCG industry and when the response rate was low in one sector, additional questionnaires were sent to other firms in that sector. In similar studies with structural equation modelling, sample size of 150 to 400 is preferable (Hair *et al.*, 2011). In Iran, about 180 firms were visited directly by the researchers and 90 questionnaires were collected from them. About 130 questionnaires were sent online via email to additional firms in Iran and 36 ones were returned. In Turkey, about 400 questionnaires were distributed through email and 116 of them were returned. Incomplete and unusable ones were discarded, and 204 questionnaires were usable which were collected. 108 From Iranian and 96 from Turkey). For data analysis, structural equation modeling (SEM) through partial least squares regression (PLS regression) was employed which is a variance-based method. SPSS 24 and SmartPLS 3 were used for data analysis. To analyze the data in this research, descriptive and inferential statistics were used. Data analysis was carried out at the 3 levels of univariate, bivariate and multivariate analyses.

The univariate analysis includes descriptive tests and the one sample t-test which are performed using SPSS. Using the t-test, it is possible to determine the accuracy or inaccuracy of a certain hypothesis at a certain level of error. The bivariate analysis comprises Spearman's rank correlation coefficient test. It was employed to determine the type of relationship (direct or inverse) and the level of relationship between two quantitative variables using SPSS. In the third step, to perform multivariate analysis SEM and SmartPLS were used. In this stage, the research model is analyzed utilizing the two components of research measurement model and structural research model. The purpose of evaluating the measurement model is to investigate the relationship between observed (questionnaire questions) and latent variables. The model includes factor loading analysis, Cronbach's alpha, etc. To evaluate the structural model, the direct and indirect effects of variables are investigated.

4.2 Measurement

A five-point Likert scale ranging from 1 (completely disagree)" to 5 (I completely agree) was used to measure constructs. The questionnaire consists of two main parts: part 1 is about general information of the firm. Part 2 consists of items that measure each research construct. Appendix 1 displays items for each construct. Questions 1 to 7 are related to absorptive capacity which were adopted from the studies of Zahra and George (2002) and Johnson *et al.*, (2005) to evaluate and measure the dimensions of absorptive capacity. Strategic flexibility is divided into resource flexibility and coordination flexibility (Sanchez, 1997; Grewal & Tansuhaj, 2001). To measure strategic flexibility, we developed 8 items taken from the studies of Shimizu and Hitt (2004) and Chan *et al.* (2017) and Chiang

et al., (2012). For the supply chain agility, 9 items were used to measure it and they were adopted from Braunscheidel & Suresh (2009), Gligor & Holcomb Stank (2013). Finally, for the firm performance, 7 items were adopted, by referring to the studies of Chan *et al.* (2017), Rai *et al.* (2006) and Vickery *et al.* (1997), to measure it from the two perspectives of competitive performance and financial performance.

5. DATA ANALYSIS

Data analysis was done in two main phases, analyzing measurement model and analyzing structural model. The hypotheses were tested using partial least squares structural equation modeling (PLS-SEM) with SmartPLS (Ringle *et al.*, 2005). SmartPLS was used to test and assess the measurement model and the structural model in this research. By referring to the study of Mikalef & Pateli, (2017), the PLS-SEM method is suitable for this research because it makes it possible to simultaneously estimate the causal relationship between one or more independent and or dependent variables. SPSS was employed to investigate data normality, the perception of the population about the variables and the correlation coefficient between the variables. The data is normally distributed in the acceptable range of +2 and -2 (Field, 2013). **Table 1** shows the results. Furthermore, to measure the correlation between the latent variables, Spearman's rank correlation coefficient test was employed. By looking at **table 2**, it can be seen that the variables have a positive and significant correlation coefficient.

5.1 Measurement Model

A measurement model refers to implicit or explicit models that relate latent variables to their relevant indexes (Bollen, 1989). Measurement model evaluation includes the reliability of each determinant (the square of standardized outer loadings), reliability of internal consistency (composite reliability-CR), convergent validity (average variance extracted-AVE), and discriminant validity (the Fornell-Larcker criterion and cross-loadings) (Hair *et al.*, 2011; Henseler, 2009). Cross-loadings are presented in appendix 1. Based on the opinion of Hair *et al.* (2011), inside formative models, factor loadings must be greater than or equal to 0.7. However, if AVE and CR are higher than the acceptable limit, 0.4 to 0.7 can also be accepted. In this research, except for 4 indexes the other indexes had a factor loading greater than 0.7. 3 of them were in the range of 0.6 to 0.7. Only the factor loading of question 5 was less than 0.6. In all cases, AVE was greater than its minimum acceptable limit. Accordingly, it is possible to accept the 4 indexes which were less than 0.7. The value of CR in all cases was greater than the minimum acceptable limit. Hence, the reliability of the measurement model's determinants is evaluated as being appropriate. Moreover, in this model all factor loadings (outer weight) are evaluated to be significant at the confidence level of 99%. The results of the significance test are given in appendix 2. The next step is the measurement of the reliability of the calculation of Cronbach's alpha and composite reliability at the index and construct levels. In this study, Cronbach's alpha coefficient and composite reliability values were calculated to be greater than the acceptable limit (0.7) (Nunnally, 1978). Convergent validity was analyzed under the condition that AVE be greater than the minimum acceptable limit (0.5) and CR be greater than AVE (Fornell-Larcker, 1981). The lowest value of AVE was 0.531 which was greater than the minimum acceptable limit. The lowest CR value was 0.887. In all cases, CR was greater than AVE.

Two methods were employed to measure discriminant validity in this study. In the first method the Fornell-Larcker criterion has been used that shows that the AVE of any latent construct must be greater than the square of the correlation coefficient with any other construct in the model. In the second method, a cross-loading test has been used. In this method, the value of the factor loading of every index on the allocated construct must be greater than its cross values (cross-loadings) with other constructs (Farrell, 2010; Hair *et al.*, 2011). In this study, based on appendix1, the AVE of each latent construct is greater than the value of its correlation with other constructs.

Table 1. Construct validity and reliability

	Cronbach's Alpha	Rho_A	Composite Reliability	AVE
AC	0.849	0.851	0.887	0.531
SF	0.875	0.886	0.902	0.537
SCA	0.898	0.900	0.917	0.550
FP	0.888	0.889	0.912	0.598

In appendix1 it is shown that the factor loading of every index in its relevant construct is greater than its value with the other constructs of the model. These results indicate that all the items are suitable indexes for the latent variables of this research. Moreover, the VIF of all the indexes is less than the maximum acceptable limit (Hair *et al.*, 2011). In this research, the cross-validated-communality index (CV-COM) has been used to assess the quality of the measurement model. This index evaluates the model's ability to predict observable variables from their corresponding latent variables. The measurement quality values for the following variables were obtained as follows. Absorptive capacity = 0.355, strategic flexibility = 0.392, supply chain agility = 0.415, performance = 0.378. Since these values are positive, the quality of the measurement model was assessed as being positive.

Table 2. Fornel-Larcker criteria

	AC	SF	SCA	FP
AC	**0.728**			
SF	0.611	**0.732**		
SCA	0.668	0.667	**0.742**	
FP	0.701	0.702	0.729	**0.773**

5.2 Analysis of Structural Model

In the previous section, the measurement model was assessed. The validity and reliability of the measurement instruments were also confirmed. Now, in this section, we will assess the structural model of the research. A structural model is used to review the relationships between latent variables. The primary criteria for the assessment of the structural model include the following. Measurement of the R^2 value (variance of internal variables), path coefficients and their degree of significance, and predictive relevance or

the Stone-Geisser Criterion (Q^2). In **figure 2**, a summary of the structural model, the R^2 coefficient, and standardized path coefficients are displayed. The significance of the estimates was evaluated using the t-test and by performing a bootstrap analysis in SmartPLS with 5000 resampling and the significance level of 0.01. You can see its summary in **table 3**. Based on the data in **table 3**, all 6 main research hypotheses are confirmed. Absorptive capacity has a positive and significant effect on strategic flexibility (β = 0.611, t value = 11.364, p-value = 0.000), supply chain agility (β = 0.416, t value = 7.747, p-value = 0.000), and firm performance (β = 0.296, t value = 5.329, p-value = 0.000). Moreover, strategic flexibility has a positive and significant effect on supply chain agility (β = 0.412, t value = 8.232, p-value = 0.000) and firm performance (β = 0.300, t value = 5.755, p-value = 0.000). Ultimately, supply chain agility has a positive and significant effect on firm performance (β = 0.331, t value = 5.958, p-value = 0.000).

Table 3. Path coefficients and significant levels

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
AC -> SF	0.611	0.613	0.054	11.364	**0.000**
AC -> SCA	0.416	0.415	0.054	7.747	**0.000**
AC -> FP	0.296	0.292	0.056	5.329	**0.000**
SF -> SCA	0.412	0.411	0.050	8.232	**0.000**
SF -> FP	0.300	0.303	0.052	5.755	**0.000**
SCA -> FP	0.331	0.333	0.055	5.958	**0.000**

In **table 4** the indirect effects of variables on each other are presented. According to the results from this table, Strategic flexibility as a mediator has a positive and significant effect on the relationship between absorptive capacity and supply chain agility (β = 0.252, t value = 6.253, p-value = 0.000) and firm performance (β = 0.184, t value = 5.060, p-value = 0.000). Furthermore, supply chain agility as a mediator has a positive and significant effect on the relationship between absorptive capacity and firm performance (β = 0.138, t value = 4.408, p-value = 0.000) and strategic flexibility and firm performance (β = 0.136, t value = 4.962, p-value = 0.000). In **table 5**, a summary of the total effects and their significance can be seen.

Table 4. Specific indirect effect and significant levels

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
AC -> SF -> SCA	0.252	0.253	0.040	6.253	**0.000**
AC -> SF-> FP	0.184	0.186	0.036	5.060	**0.000**
AC -> SCA -> FP	0.138	0.139	0.031	4.408	**0.000**
SF -> SCA -> FP	0.136	0.137	0.027	4.962	**0.000**
AC -> SF -> SCA -> FP	0.083	0.084	0.018	4.529	**0.000**

The structural model of the research shows 37.4 percent of variance for strategic flexibility (0.374 = R^2), 55.3 percent for supply chain agility (0.553 = R^2), and 66 percent for firm performance (0.660 = R^2). In addition to the measurement of the R^2 value, by reviewing the Q^2 criterion the predictive capability of the model must be assessed (Geisser 1974; Stone, 1974). This criterion actually states that the model must be capable of properly predicting each of the indexes of the latent internal constructs (Hair, 2011). Positive values of this criterion indicate the suitable predictive capability of the structural model whereas negative values reveal its lack of predictive capability (Mikalef and Pateli, 2017). The blindfolding results in SmartPLS show that the Q^2 values for strategic flexibility, supply chain agility and firm performance are 0.189, 0.289 and 0.378, respectively.

Considering the above values, it can be said that the structural model of the research has a satisfactory predictive capability (Hensler *et al.*, 2009). To better understand the differences between the two statistical populations utilized in this research, the data relating to Iran and Turkey was individually reviewed and the results are briefly shown in appendix3. According to the information in these tables, it can be concluded that in both countries the collected data is normal and all 6 main hypotheses are confirmed. Both countries have nearly same culture, related history, and same climate condition, so because of that, answers to questionnaire are close to each other

Table 5. Inner VIF

	AC	SF	SCA	FP
AC		**1.000**	**1.597**	**1.984**
SF			**1.597**	**1.978**
SCA				**2.237**
FP				

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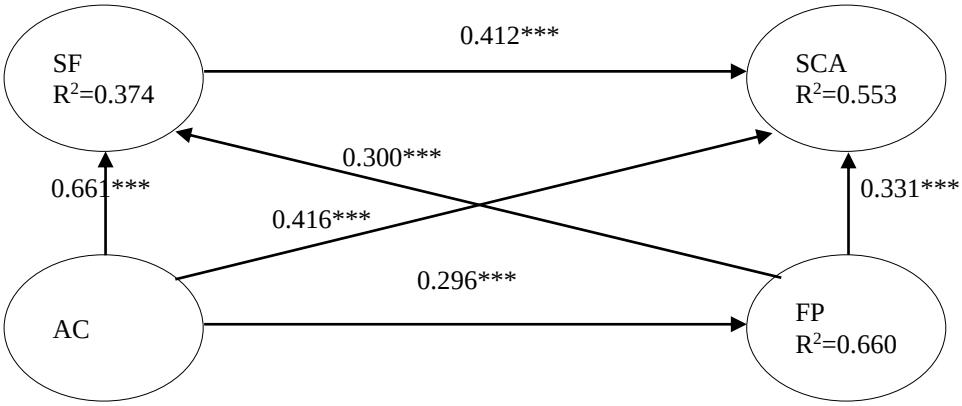

Figure 2. Path Coefficients

6. CONCLUSIONS

The results from this research show that absorptive capacity has direct and indirect effects on performance with the mediator variables of supply chain agility and strategic flexibility. Previous studies including Zahra and George (2001), Kale *et al.*, (2019), Chan *et al.* (2017), Vlačić et al. (2019), and Liu *et al.* (2013) are also in alignment with the results of this research. They prove that increased absorptive capacity in different industries will improve firm performance. In this research, we particularly focused on the FMCG industry which has seldom been reviewed in studies. Absorptive capacity combined with improved organizational capabilities and organizational adaptability to business environment will lead to the improvement of strategic flexibility. Cheng *et al.* (2015) believed that information technology has a positive effect on strategic flexibility and increases it. Based on past research, it can be claimed that information technology is one of the vital elements of absorptive capacity and enhances it (Mao *et al.*, 2017). Moreover, given the findings of this study, increased absorptive capacity will lead to increased supply chain agility (Martinez-Sanchez & Lahoz-Leo, 2018; Liu et al. 2012; DeGroote and Marx, 2013), which will in turn, improve performance. Furthermore, the results of the study by Chan *et al*. (2017) are in alignment with this research and revealed that manufacturing flexibility and strategic flexibility will improve supply chain agility and firm performance. Therefore, we can say that with improved absorptive capacity, strategic flexibility, and supply chain agility as dynamic capabilities, it is possible to improve operational capabilities including performance.

Based on the RBV, dynamic capabilities constitute an organization's ability to purposefully adapt its resource base with environmental changes. It also emphasizes that to respond timely and appropriately to changes, an organization requires a combination of other capabilities. Moreover, operational capabilities are defined as the ability to set essential processes, resources and technology based on the overall vision of a firm (Tay and See, 2022). They also constitute a firm's ability to implement this process effectively and efficiently. One of the indexes of operational capabilities is the measurement of firm performance (Teece, *et al*. 2002). According to this theory, we can explain how the absorption of knowledge from environment, use of it and investment in different resources and having strategic elements will improve a firm's agility and performance. This will, in turn, lead to the acquisition and maintenance of competitive advantage. Briefly, we can say that today's business environments have become completely competitive which increases uncertainty about conditions. Uncertainties in demand and competition rules have forced firms to find solutions to deal with these problems. Firms active in the FMCG area have a small profit margin and high sales volume. Moreover, due to the nature of this business, they are directly and indirectly pressured by many competitors. Furthermore, due to the low price of products and the mental occupation of buyers when purchasing the products, there is a possibility that they will move towards other brands and or alternative products (Ramish et at., 2022). In such environments, a firm should increase its absorptive capacity and knowledge and evaluate its business environment properly and monitor the activities of customers, suppliers and competitors. Next, using this environmental awareness, it should react properly and timely to environmental changes. In order to react to changes and gain and maintain a competitive advantage, firms are required to possess a high degree of agility and flexibility. The better these abilities are in a firm, the more likely it is to survive and or even succeed.

6.1 Implications for Theory and Research

Theoretically, this study contributes to the literature in the fields of supply chain management and strategic management. To better understand how absorptive capacity affects firm performance, this research employed an integrated and multidimensional structure of dynamic capabilities that positively affect performance. Based on the RBV, this paper explains how dynamic capabilities in competitive and dynamic environments affect the performance and dynamic capabilities of a firm. In fact, this paper investigates how having and utilizing environmental awareness to increase agility level particularly in supply chain and also increase flexibility particularly strategic flexibility to face changing environmental conditions can improve firm performance and increase a firm's chance for survival and success. In development of the research model, a combination of the research models of Chan *et al.* (2017) and Liu *et al.* (2013) and also relevant literature were deployed. By conducting a survey study on manufacturing

industries active in the area of FMCG, it is tried to prove and confirm the model and the relationships between absorptive capacity, strategic flexibility, supply chain agility and firm performance. The results show the empirical support of the topic of the indirect effects of dynamic capabilities on overall firm performance. Therefore, it can be said that it is possible to enhance performance by activating rapid adaptation capabilities combined with market resetting and operational capabilities. This paper used the methods of SEM and PLS-SEM with SPSS and SmartPLS. PLS-SEM is suitable for explaining the causal paths between variables and shows how and to what degree do variables affect each other and firm performance. Moreover, SPSS was employed to test the normality of the population data.

6.2 Practical Implications

In practice, based on the findings of this research, managers and particularly the managers of the FMCG industry manufacturing firms are recommended to do the following in preparing to deal with changing environmental conditions. Since the effects of absorptive capacity on strategic flexibility, supply chain agility and firm performance were confirmed, managers should take initiatives to promote absorptive capacity of their firms. The environment needs to be monitored to identify and acquire related and useful knowledge. This information can include demands, customer interest, the performance of suppliers and competitors and market trends. In searching for the knowledge, not only formal channels can be used, but also there are many informal procedures that are as useful as formal ones in providing necessary knowledge and information. These identified knowledge and information then should be integrated with current knowledge repository of the firm and disseminated across all the organizational levels and different functions so that employees can use them to deal with environmental changes, gain a competitive advantage and maintain it and improve their performance. The results also show that strategic flexibility has both direct and indirect effects on firm performance. It also promotes supply chain agility of the firm which in turn leads to higher levels of firm performance. To increase strategic flexibility, identifying better suppliers and building effective relations with them are crucial. Firm should select suppliers that are flexible enough in embedding changes in their products without incurring huge amounts of cost in an acceptable time. Also, the time to introduce new products or services or changes in current products should not be long. Initiatives like simultaneous development, matrix organizational structures and skunk workers (Slack *et al*., 2018) can reduce the required time to introduce new products and services. Another proposition is trying to use flexible equipment and training personnel to be flexible in working with different machinery and having expanded set of skills. Finally, managers and decision makers should devise alternative and appropriate ways to respond to the changes in the environment. This improves firm's flexibility in dealing with changing environment.

Supply chain agility also has been shown that have positive impact on firm performance. Supply chain agility requires timely and effective communication among all members of a supply chain. To promote supply chain agility, firm should try to identify and get appropriate information from customers and suppliers. It can help to identify changes in the markets and have a more accurate forecast of the demand. Integrating with suppliers and cooperating with them in developing new products and services is another way to increase supply chain agility. It can also be improved through boosting absorptive capacity of the firm as described previously. Absorptive capacity provides this platform through the creation of communication networks among members of a supply chain. This enhances their ability to predict the market trend, sense environmental changes and react to them which will improve supply chain agility and sometimes even the agility of an entire organization. Moreover, it increases environmental awareness that will help a firm make better decisions for its future and determine its resources and strategies.

6.3 Limitations

This research deals with some limitations that future studies must try to eliminate. First, given that this study relies on data which was collected from manufacturing units' managers, maybe by using respondents from different levels of each organization, more accurate information could be acquired. This will increase research validity and reliability. The next point is that according to research background, one of the factors strengthening absorptive capacity is information technology infrastructure and information technology support. We could have measured the effect of information technology on absorptive capacity, supply chain agility and performance. We could also use the variables of organizational learning, manufacturing flexibility, supply chain integrity in this study. Third, regarding the weight and similar value of each of the dynamic capabilities used in this research in the formation of operational capabilities, some mechanisms may be more important than others. Hence, in future studies, they must be evaluated based on their importance and used to analyze the results. Furthermore, given the costs of the development of dynamic capabilities, future studies can investigate the balance between costs and their effectiveness compared to problem-solving by individuals (managers and or employees). Finally, since the data was collected from Turkey and Iran, we could investigate it based on its nature.

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APPENDIX 1: Cross-Loadings

	ABSORPTIVE CAPACITY	STRATEGIC FLEXIBILITY	SUPPLY CHAIN AGILITY	FIRM PERFORMANCE
Q.1	**0.757**	0.339	0.382	0.479
Q.2	**0.801**	0.456	0.480	0.504
Q.3	**0.762**	0.473	0.472	0.482
Q.4	**0.782**	0.434	0.562	0.545
Q.5	**0.587**	0.504	0.469	0.422
Q.6	**0.615**	0.439	0.470	0.521
Q.7	**0.766**	0.445	0.530	0.587
Q.8	0.410	**0.720**	0.415	0.469
Q.9	0.371	**0.746**	0.471	0.483
Q.10	0.451	**0.612**	0.388	0.438
Q.11	0.333	**0.656**	0.442	0.406
Q.12	0.446	**0.802**	0.529	0.605
Q.13	0.141	**0.706**	0.411	0.484
Q.14	0.527	**0.797**	0.593	0.565
Q.15	0.578	**0.796**	0.600	0.613
Q.16	0.487	0.448	**0.701**	0.403
Q.17	0.462	0.467	**0.752**	0.536
Q.18	0.436	0.533	**0.710**	0.557
Q.19	0.478	0.483	**0.741**	0.554
Q.20	0.486	0.511	**0.782**	0.553
Q.21	0.585	0.538	**0.771**	0.642
Q.22	0.526	0.484	**0.757**	0.561
Q.23	0.545	0.499	**0.726**	0.528
Q.24	0.440	0.478	**0.730**	0.496
Q.25	0.442	0.502	0.582	**0.747**
Q.26	0.628	0.540	0.588	**0.775**
Q.27	0.576	0.586	0.548	**0.795**
Q.28	0.548	0.522	0.531	**0.746**
Q.29	0.515	0.581	0.614	**0.791**
Q.30	0.505	0.536	0.505	**0.765**
Q.31	0.566	0.530	0.572	**0.792**

APPENDIX 2: Outer Weight

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Q.1 <- ABC	0.166	0.166	0.014	12.275	**0.000**
Q.10 <- SF	0.151	0.150	0.013	11.326	**0.000**
Q.11 <- SF	0.140	0.140	0.010	13.574	**0.000**
Q.12 <- SF	0.188	0.188	0.011	16.842	**0.000**
Q.13 <- SF	0.155	0.153	0.014	11.108	**0.000**
Q.14 <- SF	0.199	0.201	0.013	14.881	**0.000**
Q.15 <- SF	0.212	0.213	0.015	13.681	**0.000**
Q.16 <- SCA	0.127	0.127	0.013	9.862	**0.000**
Q.17 <- SCA	0.145	0.145	0.011	13.328	**0.000**
Q.18 <- SCA	0.151	0.152	0.012	12.852	**0.000**
Q.19 <- SCA	0.150	0.149	0.011	13.123	**0.000**
Q.2 <- ABC	0.198	0.198	0.015	13.544	**0.000**
Q.20 <- SCA	0.153	0.153	0.009	16.534	**0.000**
Q.21 <- SCA	0.175	0.175	0.013	13.141	**0.000**
Q.22 <- SCA	0.155	0.154	0.010	15.146	**0.000**
Q.23 <- SCA	0.153	0.153	0.012	12.623	**0.000**
Q.24 <- SCA	0.139	0.139	0.011	13.126	**0.000**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Q.25 <- FP	0.172	0.172	0.012	14.461	**0.000**
Q.26 <- FP	0.197	0.197	0.010	19.079	**0.000**
Q.27 <- FP	0.191	0.191	0.012	15.486	**0.000**
Q.28 <- FP	0.179	0.179	0.012	14.731	**0.000**
Q.29 <- FP	0.192	0.192	0.010	19.083	**0.000**
Q.3 <- ABC	0.196	0.196	0.016	12.496	**0.000**
Q.30 <- FP	0.173	0.173	0.014	12.244	**0.000**
Q.31 <- FP	0.187	0.188	0.011	17.797	**0.000**
Q.4 <- ABC	0.213	0.213	0.017	12.350	**0.000**
Q.5 <- ABC	0.191	0.189	0.019	9.879	**0.000**
Q.6 <- ABC	0.197	0.199	0.023	8.468	**0.000**
Q.7 <- ABC	0.216	0.216	0.015	14.238	**0.000**
Q.8 <- SF	0.153	0.153	0.014	10.765	**0.000**
Q.9 <- SF	0.158	0.159	0.012	13.538	**0.000**

APPENDIX 3

Iran construct validity and reliability

	Cronbach's Alpha	rho_A	CR	(AVE)
AC	**0.872**	**0.880**	**0.902**	**0.572**
FP	**0.886**	**0.888**	**0.911**	**0.595**
SCA	**0.905**	**0.906**	**0.923**	**0.570**
SF	**0.876**	**0.886**	**0.902**	**0.537**

Turkey construct validity and reliability

	Cronbach's Alpha	rho_A	CR	(AVE)
AC	**0.830**	**0.837**	**0.875**	**0.540**
FP	**0.889**	**0.891**	**0.913**	**0.600**
SCA	**0.887**	**0.894**	**0.909**	**0.526**
SF	**0.875**	**0.885**	**0.902**	**0.536**

Fornell-Larcker criterion (Iran)

	ABC	FP	SCA	SF
AC	0.756			
FP	0.736	0.771		
SCA	0.716	0.757	0.755	
SF	0.657	0.716	0.701	0.733

Fornell-Larcker criterion (Turkey)

	ABC	FP	SCA	SF
AC	0.735			
FP	0.643	0.775		
SCA	0.579	0.697	0.725	
SF	0.509	0.684	0.625	0.732

Path coefficient (Iran)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
AC -> FP	0.312	0.315	0.084	3.724	**0.000**
AC -> SCA	0.450	0.449	0.079	5.679	**0.000**
AC -> SF	0.657	0.659	0.070	9.346	**0.000**
SCA -> FP	0.344	0.344	0.085	4.026	**0.000**
SF -> FP	0.270	0.264	0.081	3.327	**0.001**
SF -> SCA	0.405	0.404	0.074	5.446	**0.000**

Path coefficient (Turkey)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
AC -> FP	0.285	0.282	0.075	3.796	**0.000**
AC -> SCA	0.352	0.352	0.073	4.848	**0.000**
AC -> SF	0.509	0.520	0.087	5.846	**0.000**
SCA -> FP	0.320	0.331	0.081	3.935	**0.000**
SF -> FP	0.339	0.326	0.086	3.956	**0.000**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
SF -> SCA	0.445	0.447	0.070	6.332	**0.000**

Specific indirect effect (Iran)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
AC -> SCA -> FP	0.155	0.155	0.051	3.043	**0.002**
SF -> SCA -> FP	0.139	0.138	0.041	3.356	**0.001**
AC -> SF -> SCA -> FP	0.091	0.091	0.029	3.104	**0.002**
AC -> SF -> FP	0.177	0.174	0.057	3.110	**0.002**
AC -> SF -> SCA	0.266	0.267	0.059	4.528	**0.000**

Specific indirect effect (Turkey)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
AC -> SCA -> FP	0.113	0.116	0.037	3.063	**0.002**
SF -> SCA -> FP	0.142	0.148	0.043	3.283	**0.001**
AC -> SF -> SCA -> FP	0.073	0.077	0.028	2.594	**0.010**
AC -> SF -> FP	0.173	0.170	0.052	3.308	**0.001**
AC -> SF -> SCA	0.227	0.235	0.061	3.698	**0.000**

CV-Red (Iran)

	SSO	SSE	Q^2 (=1-SSE/SSO)
AC	749.000	749.000	
FP	749.000	473.808	0.367
SCA	963.000	662.803	0.312
SF	856.000	679.509	0.206

CV-Red (Turkey)

	SSO	SSE	Q^2 (=1-SSE/SSO)
AC	582.000	582.000	
FP	679.000	443.294	0.347
SCA	873.000	675.539	0.226
SF	776.000	686.421	0.115

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