

# The effect of supply chain capabilities on performance of food companies.

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## Abstract

Given the changing realities of the business environment, supply chain issues have become one of the top priorities of CEOs in different firms. Growing attention to supply chain networks also highlights the importance of using efficient supply chain management practices. The belief that supply chain management can lead to continuous improvement of corporate performance has led CEOs to focus on upgrading the supply chain management process. The main objective of this research is to evaluate the impact of supply chain capabilities on operational and financial performance of food companies. The study population consists of 76 companies operating in the food industry in Ardabil as one of the metropolises of Iran. Given the limited number of population, no sampling method was used and all companies went under scrutiny. A standard questionnaire was used as the data collection tool which was given to the managers of the companies. In order to test research hypotheses, structural equation modeling and PLS software were used. The results of hypotheses testing suggested the significant positive impact of supply chain capabilities on operational and financial performance of food companies. Additionally, the positive impact of operational performance on financial performance of the companies was confirmed. Finally, it was found that operational performance has a mediating role in the relationship between supply chain capabilities and financial performance of the companies.

**Keywords:** Supply chain capabilities, Financial performance, Operational performance, Food companies, JEL classification

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## Introduction

Nowadays, given the increased competition among organizations and in order to consider organizational change, every organization seeks to have an effective performance and this has been considered by organizational researchers. In other words, in a complex, dynamic, and highly changeable environment, firms need to design and implement strategies that can help them improve their performance. Because in such a competitive environment, firms are able to survive, not backing competitors and adapting themselves to the changing and dynamic conditions of the competitive market. For this reason, one of the most important goals of all firms is continuous improvement of performance [1]. Financial performance is one of the important concerns of shareholders and managers of economic entities. Company's financial performance, as the achievement of organizational goals or active performance, is considered to be effective and constructive [2]. This performance is a description of the work levels or objectives which leads to satisfactory and optimal results or outputs in a given time period [3]. Financial goals are often associated with and measured by a company's profitability [4].

Many factors may influence financial performance of companies and each company tries to improve its business processes through selecting a set of effective ways [5]. According to Day et al. [6], two factors of supply chain

management capabilities and operational performance have the greatest impact on financial performance of companies. Sezen and Yildiz [7] argue that financial performance and profit do not ensure the long-term survival of an organization. Operational performance is defined as the final results of the organization's processes and activities and is considered to be the common assessment for organizational efficiency and organizational effectiveness [8,9]. This variable can be measured through dimensions such as priority to improve quality of services, emphasis on quality control and total quality management, importance of reduction of errors in service delivery, completion of service delivery process and finally reduction of service time [10].

Another factor which directly affects financial and operational performance of companies is supply chain management capabilities. Superior performance depends on the ability of a manufacturing firm to integrate completely with its partners throughout the supply chain [6]. Supply chain management capabilities refer to the process of interaction and collaboration between suppliers, manufacturers and customers to achieve common goals. In order to increase competitiveness, companies need to increase product quality and have lower prices than their competitors. This means that companies not only need to improve their internal processes, but also to integrate their supply activities in order to meet the needs of customers. Accordingly, appropriate capabilities of supply chain management will lead to a significant improvement in

product quality, delivery quality, reduction of cycle time, and reduction of costs. In this way, supply chain management has three main competencies:

1. Information management: Proper circulation and transmission of information will make processes more efficient, effective and easy to manage. In the supply chain, coordination is very important in activities. Coordinated and appropriate information management among partners will have an increasing impact on decision making and speed, accuracy, quality and other aspects.
2. Logistics management: This competency will cover all physical activities from raw material to final product including transportation, warehousing, production scheduling, and etc.
3. Relationship management: This competency is one of the most important supply chain issues and has a significant impact on all fields in the supply chain and its performance. In the development of each integrated supply chain, the development of trust between partners and the reliability plan for them are critical and important elements for success [11-13].

Studying the evolution of management shows that firms first have focused on supply chain management in order to cope with severe environmental changes and improve organizational performance, then to gain more market share and gain competitive advantage. Current firms need to coordinate precisely to supply raw materials and deliver on time to the customer in order to reduce costs and ultimately obtain customers satisfaction. With regards to this situation, supply chain management can be considered as an effective and useful solution in this regard. Currently, a great deal of value creation occurs in the supply chain, and management of the processes in this chain, technology transfer, knowledge development and the management of their human resources plays a crucial role in improving organizational performance. One might say that the biggest problem for manufacturing and service firms after managing customer relationships is the proper management of the supply chain and the provision of production and service requirements. The belief that supply chain management can make firms more responsive and thus more profitable for customers has led CEOs to emphasize the upgrade of the supply chain process. In this way, the general belief in all firms, including food firms, has become widespread, how supply chain management is the key element in gaining competitive advantage in the future. Firms are not more competing with each other, but this is the supply chain that will win or defeat them on the market.

Accordingly, this study intends to investigate the impact of supply chain capabilities on operational and financial performance of food companies in Ardabil as one of the metropolises of Iran. In recent years, food industry has become one of the leading industries in this city and has had a special place in its development and growth. Therefore this industry,

compared to other industries of the country, has a better competitive position [14]. However, according to managers and experts, the most important problems of companies operating in the food industry in Ardabil can be included the lack of variety, small food basket, defragmentation of regional target markets, and the use of cost leadership strategy by the food industry's competitors which are directly problematic for the financial performance of these companies. On the other hand, recent economic problems, sanctions, and the increased cost of raw materials production have increased the price of the companies' products which in turn has led to the shrink of household food basket. Finally, competing products with a price and quality lower than the products of these companies in food industry and customers' unawareness of the main reasons of the low price, are other problems of food companies in this city. Therefore, because of these factors, performance of the companies operating in the food industry of Ardabil is not in a good condition [13]. On the other hand, food producing companies, according to their objectives and missions, have always been involved with the supply chain and believe that its right and logical fulfillment will be effective in their success and failure [15]. The other problem with the food firms is that similar culture of countries like Iraq, Syria, Afghanistan and etc. have been caused them to be the target market for the products of these firms. But because of the wars in these countries, exports of food products have become difficult. For this reason, the food firms in Iran have to find other markets for their own products in other countries, including Turkey. Therefore, all of these factors have caused the supply chain management practices and, consequently, the performance of food companies in the Ardabil city not to be in a good manner.

In this research, the effect of various supply chain management operations has been investigated on the performance of firms in the food industry. Hence, the main purpose of this study is to provide a clearer view of the role of different supply chain management capabilities to improve performance and provide a conceptual framework for explaining this relationship. In fact, it can be said that the main question of this research is that how can the various capabilities of supply chain management affect the performance of food firms in Iran?

The results of this study make it possible, in the recent era, that firms which face the challenges of competitive markets, including globalization, severe competition, diversification of customer wants, short product life cycle, etc., to find ways to improve their performance. In addition, this research leads to the optimal management of the supply chain as an important principle for the top managers. Moreover, in addition to focusing on the firms' internal activities, the CEOs pay special attention to the right interactions with the suppliers and customers and try to manage their supply chain in an effective and efficient way. Finally, identifying the mechanism of the effect of supply chain capabilities on performance helps managers to focus on value added value and thus improve their performance.

To this end, the second part focuses on the literature review. The third part is devoted to the conceptual model and hypotheses development. In the fourth section, the research methodology is examined. The findings are presented in the fifth part. Finally, in the sixth section, conclusions and recommendations together with limitations are presented.

## Literature Review

Currently, a large part of the creation of value and wealth occurs in the supply chain, and management of the supply chain processes, technology transfer, knowledge development and human resource management plays a crucial role in improving organizational performance. Accordingly, in this section, first, the concept of supply chain management is defined and then, by explaining supply chain competencies, we will discuss about the organizational performance.

### *Supply chain management*

Supply chain management is an interdisciplinary topic created from other topics such as marketing, operations management, purchase, management information system and etc. Supply chain management is a set of methods used for the efficient integration of suppliers, manufacturers, warehouses and retailers so that a correct number of goods can be produced and distributed at the best place and time in order to minimize system costs and fulfill the needs of services [16]. The aim of supply chain management is to exchange information related to market requirements, develop new products, reduce the number of suppliers for manufacturers, and activate and release management resources in order to develop long-term relationships shaped initially based on the members' trust [15].

### *Supply chain management capabilities*

TAs mentioned, supply chain management is a key and strategic factor in achievement of organizational goals and ultimately improving performance. Accordingly, supply chain management should be considered as one of the critical areas of organization management, which, like other areas, requires monitoring, evaluation, complication, improvement and ultimately leading to excellence, and for promoting organizational performance, continuous improvement and efficient management is crucial. In this regard, the study of supply chain competencies is of particular importance. In this section, three of the most important of these competencies are explained [17]:

- 1. Logistic management in supply chain:** Logistic means carrying out activities in order to ensure the supply of right product, in the right amount, and in the right time, place and condition to the right customer at an affordable cost. In the framework of the logistic, the integration of processes, tasks, organizations, methods (rules) and systems seems to be essential and, hence, management partnership is important [17]. This involves all physical activities from the procurement of raw materials to the final product including the activities of transportation,

warehousing, timing of production, etc. [16]. Supply chain management harmonizes all these activities in such a way that customers can have access to some high-quality products and reliable services with minimum cost [18].

- 2. The role of information and information systems in supply chain management:** Right flow and correct transfer of information make the processes more effective and efficient and their management becomes easier. Coordination of activities is very important in supply chain. Coordinated and appropriate management of information between partners has an increasing impact on decision-makings as well as speed, accuracy, quality and other aspects. Supply chain management, through improvements in supply chain relationships, focuses on the integration of supply chain activities and the related information flows in order to achieve a reliable and sustainable competitive advantage [16].
- 3. The role of relationship management in supply chain management:** This part is one of the most important topics of supply chain and has a broad impact on all aspects of supply chain and its performance level. In the development of any integrated supply chain, the development of trust and confidence among partners and the creation of reliability for them are critical elements of success [16]. Using an accurate and complete system of information flow at the appropriate time and place and having coordinated and organized relationships with other members of the supply chain are the requirements of a fluent flow of materials with an appropriate and considerable discipline. Thus, it is important and necessary to establish a determined and defined relationship with other members of the supply chain [18].

### *Organizational performance*

Organizational performance refers to how to do mission and organizational activities and the results of them as well [19]. There is no generally accepted method for measuring the performance of companies; however, financial and accounting results are the ultimate goal of many companies [20]. Previous experimental studies show that multi-dimensional structural performance should be measured by several measurement criteria [5]. Based on the conducted researches, the evaluation of organizational performance is divided into two dimensions: operational performance and financial performance [21].

- 1. Financial performance:** A company's financial performance is defined as the achievement of organizational goals or as active, constructive, and effective performance [22]. Financial performance refers to the company's achievement to shareholders' financial goals in order to increase their wealth. These goals include indicators and criteria such as profit/

earnings, return on assets, return on investment, etc. which are considered as a part of organization's performance [3,23,24]. Financial performance is one of the important concerns of shareholders and managers of economic entities and, using new methods, managers try to manage their organization and provide an outstanding performance [25].

- 2. Operational performance:** This aspect of performance reflects the effectiveness of the company in using its resources to achieve organizational goals [23]. Operational performance is a measure which evaluates the achievement of organizational goals. The assessment of the efficiency and performance of companies, unlike the initial impression, is complicated and to do it, usually various measures are used [26]. What encourages suppliers to put their resources in a specific activity is the optimal performance of the company which increases the value and, consequently, shareholders' wealth. Accordingly, the company's operational performance is defined as the measure of value creation [26].

## **Conceptual Model and Hypotheses**

Mahboubi [27] conducted a research to investigate knowledge management capabilities, functions of supply chain management, and performance. The population of the study consisted of senior executives of manufacturing firms in Rasht industrial city. For data analysis, Pearson correlation coefficient and regression were used. The findings showed that there is a significant relationship between knowledge management capabilities and functions of supply chain management with performance. Dalvi et al. [28] evaluated the impact of marketing strategies alignment on supply chain and organization's performance. The population of the study consisted of all managers of Entekhab Industrial Group in 2012 [29] that, using simple random sampling method, 159 subjects were selected as the sample. For data collection, a questionnaire was used. For data analysis, SPSS and AMOS were used. The results showed that alignment of marketing strategies and supply chain has a significant positive relationship with supply chain performance. Moreover, there was a significant positive relationship between supply chain performance and organizational performance. Didonet et al. [9] examined the role of supply chain integration in market orientation and the performance of small and medium companies. The data of 327 small and medium companies were analyzed using factor analysis. The results indicated that there is a direct relationship between market orientation and supply chain management. It was found also that market orientation directly and positively influences supply chain integration and customer satisfaction. Yu et al. [30] evaluated the impact of supply chain integration on customer satisfaction and financial performance. According to the results, internal integration had a significant impact on the dimensions of external and customer integration, and

supplier integration had a significant positive relationship with financial performance. The results also showed that customer satisfaction has a significant positive relationship with financial performance and has a full mediating role in the relationship between customer integration and financial performance. Hassan et al. [31] investigated the impact of internal supply chain management on financial performance through the mediating role of customer satisfaction among life insurance companies in Pakistan. Data were collected through distributing 600 questionnaires among customers and experienced administrative employees in various branches of life insurance companies. The findings showed that there is a significant relationship between employee satisfaction and customer satisfaction. Moreover, customer satisfaction plays a mediating role in the relationship between employee satisfaction and financial performance. Hosseini and Sheikhi [14] explained the strategic role of supply chain management operations in the improvement of corporate performance. Given the results of exploratory factor analysis, supply chain management operations have been grouped based on the three factors: logistic operations, manufacturing operations, and distribution operations. Also, the impact of these factors on the performance of companies was analyzed using structural equation modeling approach and partial least squares (PLS). The results indicated that logistic operations did not affect the performance of companies. The findings also showed that manufacturing and distribution operations have a direct and positive impact on the performance of companies and improve the performance of these companies. Mozafari et al. [32] evaluated the effect of strategic sourcing, e-procurement and supply chain integration on the reduction of supply chain risk and performance. This study also investigated the role of business environment, corporate culture and other features of business in supply chain procedures and reducing its risk as well as the effect of supply chain risk reduction on the performance. The research population consisted of manufacturing and service companies of Tehran province and the sample consisted of purchasing, sales, and financial managers as well as all members of supply chain. Using sample size formula, the sample size was estimated as 262 subjects but, finally, the information of 272 subjects was collected through questionnaire. Conceptual model of the research was examined using structural equation modeling of partial least squares. The results of this research supported the significant and direct impact of business environment on strategic sourcing, e-business technologies, supply chain integration, organizational culture, and the reduction of supply chain risk. Gursoy and Chi (2009) empirically examined the impact of internal supply chain management on the financial performance of companies. The data of this research were collected from the employees, customers, and managers of three-star and four-star hotels. Structural equation model with two-stage approach was used for the empirical testing of proposed hypotheses and the relationship between structures. The findings suggested that whereas customer satisfaction has a significant positive impact on financial performance,

employee satisfaction has no significant and direct effect on financial performance. Instead, there was an indirect relationship between employee satisfaction and financial performance and customer satisfaction played a mediating role in this relationship.

According to the research background, four hypotheses of the research, regarding the causal relationship between variables, will be as follows:

- H1:** Supply chain capabilities have impact on operational performance of the companies.
- H2:** Supply chain capabilities have impact on financial performance of the companies.
- H3:** Operational performance has impact on financial performance of the companies.
- H4:** Operational performance plays a mediating role in the relationship between supply chain capabilities and financial performance of the companies. The research conceptual model is shown in Figure 1.

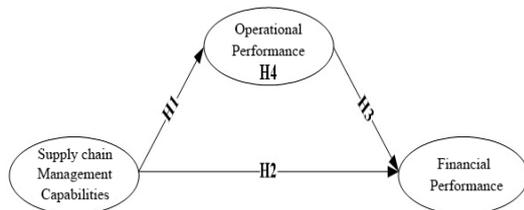


Figure 1. Conceptual model (Day et al. 2015).

**Methodology**

Since the aim of this research is to evaluate the relationship between supply chain capabilities and operational and financial performance, it can be said that the research is an applied one. On the other hand, since this research studies the characteristics and traits of people in the society and examines the current situation of the society in terms of some attitudes and variables, it is a descriptive-survey research. Furthermore, in terms of methodology, the current research is correlative and is based specifically on structural equation modeling.

**Population and sampling**

The study population included all food industry companies in the industrial estates of Ardabil. Given the limited number of these companies, no sampling method was used and all companies were evaluated. The total number of these companies is 76; the questionnaires were distributed among the top managers of the companies and, finally, 70 questionnaires were completed and returned to the researcher. The results obtained from the demographic characteristics of the sample members are shown in Table 1.

As shown in Table 1, in most companies the number of employees is between 51 and 100 people and the lowest percentage of the population belongs to the companies whose number of employees is more than 200. Likewise,

most companies have between 10 and 15 years of experience and the lowest percentage of the population belongs to the companies with less than 5 years of experience.

Table 1. Demographic characteristics of the companies.

| Demographic characteristics | Categories        | Frequency | %    |
|-----------------------------|-------------------|-----------|------|
| The number of employees     | Less than 50      | 9         | 12.9 |
|                             | 51-100            | 24        | 34.3 |
|                             | 101-151           | 20        | 28.6 |
|                             | 151-200           | 11        | 15.7 |
|                             | More than 200     | 6         | 8.6  |
| The company's experience    | Less than 5 years | 8         | 11.4 |
|                             | 5-10 years        | 15        | 21.4 |
|                             | 10-15 years       | 21        | 30   |
|                             | 15-20 years       | 17        | 24.3 |
|                             | More than 20      | 9         | 12.9 |

**Variables measurement**

In this research, for data collection, the standard questionnaire of Day [6] is used which has been used in many other studies. The questions of the questionnaire are designed in such a way that the respondents mark the options based on five-point Likert scale: strongly agree, agree, neutral, disagree and strongly disagree. Questions related to the variables of conceptual model are presented in Table 2.

Table 2. Information of questionnaire (Day et al. 2015).

| The research model variables         | No. of questions |
|--------------------------------------|------------------|
| Supply chain management capabilities | 16               |
| Financial performance                | 6                |
| Operational performance              | 5                |

In order to assess the validity of the questionnaire, content and construct validity were used. Content validity is usually determined by the experts of the intended subject and depends on the judgment of referees [33]. Accordingly, the opinions and viewpoints of professors and experts have been used in this research and their revisions to the questionnaire have been applied in several stages. Construct validity also shows that the construct or feature measured by the questionnaire to what extend has theoretical basis [33]. To test convergent validity, confirmatory factor analysis can be used. Convergent validity there will be if factor loadings related to the questions of the questionnaire are higher than 0.5 [13]. Table 3 shows the results of confirmatory factor analysis of the questionnaire based on PLS software.

Accordingly, as the results of the Table 3 show, the factor loadings of all questions of the questionnaire are greater than 0.4 and t-value is also greater than 1.96. Therefore, it is concluded that all questions are in a good condition and have the required ability to measure the research variables of supply chain management, operational performance, and financial performance.

Finally, the most widely used method for the evaluation of reliability is Cronbach's alpha coefficient. This method is used to calculate the internal consistency of the questions [33]. The obtained results are shown in Table 4. As shown in Table 4, Cronbach's alpha coefficient is greater than 0.7

Table 3. The results of confirmatory factor analysis.

| Variable                  | Description                                                                                                                                       | Factor loadings | Critical coefficient (t-test) |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------|
| Supply chain capabilities | According to the strategy formulation sessions in the organization, the accountability of employees to supply chain management is done correctly. | 0.722           | 10.598                        |
|                           | Supply chain management effectively reduces the cost of supplier and provider.                                                                    | 0.761           | 12.491                        |
|                           | In the field of supply chain, managers have the skills and expertise necessary for the prioritization of the important decisions.                 | 0.731           | 12.405                        |
|                           | Services and products needed by the organization are formed to match supply chain and supply chain management strategies of the organization.     | 0.822           | 30.171                        |
|                           | There is a good understanding in the organization of the total costs associated with supply chain management.                                     | 0.762           | 13.484                        |
|                           | The organization strengthens its processes through coordination with supply chain management policies and, thereby, reduces its costs.            | 0.727           | 12.964                        |
|                           | The organization is committed to solve the problems created for suppliers.                                                                        | 0.764           | 18.186                        |
|                           | The organization seeks to strengthen the relationship with suppliers and establish a long-term relationship with them.                            | 0.575           | 2.564                         |
|                           | The organization's strategic plan is based on cooperation with suppliers.                                                                         | 0.591           | 6.443                         |
|                           | Consulting suppliers, the organization is going to reduce its wastes.                                                                             | 0.602           | 6.443                         |
|                           | The organization's supply chain managers consult with suppliers to develop new products and services.                                             | 0.551           | 5.890                         |
|                           | Suppliers of the organization convey their opinions to supply chain managers confidently.                                                         | 0.353           | 2.379                         |
|                           | Using quantitative methods, the organization measures suppliers' performance.                                                                     | 0.825           | 20.315                        |
|                           | Using qualitative methods, the organization measures suppliers' performance.                                                                      | 0.849           | 20.399                        |
| Operational performance   | Using established criteria, the organization evaluates the performance of internal supply chain and its effectiveness.                            | 0.777           | 22.363                        |
|                           | The responsibility of the organization's suppliers is continually evaluated and the evaluation results are used in the development of objectives. | 0.630           | 7.854                         |
|                           | In satisfying its customer, the organization is better than its competitors.                                                                      | 0.469           | 3.147                         |
|                           | The development of quality in the organization is better than its key competitors.                                                                | 0.806           | 11.420                        |
|                           | The organization's cost management is better than its key competitors.                                                                            | 0.565           | 2.633                         |
| Financial performance     | Accountability in the organization is better than its key competitors.                                                                            | 0.676           | 6.086                         |
|                           | Productivity in the organization is better than its key competitors.                                                                              | 0.762           | 10.824                        |
|                           | The organization's return on investment is better than its key competitors.                                                                       | 0.656           | 9.743                         |
|                           | The organization's return on assets is better than its key competitors.                                                                           | 0.706           | 11.503                        |
|                           | The organization's return on sales is better than its key competitors.                                                                            | 0.758           | 12.323                        |
|                           | The organization's average profitability is better than its key competitors.                                                                      | 0.581           | 5.335                         |
|                           | Profit growth in the organization is better than its key competitors.                                                                             | 0.612           | 7.664                         |
|                           | Sales growth in the organization is better than its key competitors.                                                                              | 0.747           | 2.298                         |

Table 4. Cronbach's alpha coefficient of variables.

| Cronbach's alpha coefficient | The model variables                  |
|------------------------------|--------------------------------------|
| 0.995                        | Supply chain management capabilities |
| 0.785                        | Financial performance                |
| 0.745                        | Operational performance              |

for all variables and, thus, it can be said that the research questionnaire has a good reliability.

### Data analysis methods

To test the research hypotheses, structural equation modeling is used. In order to check causal relationship between variables, many integrated efforts have been made in recent decades. One of the new methods in this area is structural equation modeling or multivariate analysis with latent variables. This method is referred to as causal model and covariance structure analysis. Through this method, the acceptability of theoretical models in a particular population can be tested using correlational, experimental, and non-experimental data. The investigated hypothesis in a structural equation model is a specific causal structure among a set of invisible constructs [33]. Using structural equation

modeling method has many advantages the most important of which include the estimation of multiple relationships, the measurability of latent variables (invisible concepts), the calculation of measurement error, the ability to evaluate the effect of linearity, and testing the fake and unreal relations of the model structures using the structural part [33]. Finally, in the process of statistical analysis, PLS specialized software is used.

### Results

In order to test the model of the research, structural equation modeling method is used. The results obtained from the test of first to third hypothesis based on regression coefficients are shown in Table 5. Based on the results of the Table 5, standardized path coefficient between the variables of supply chain capabilities and operational performance is

obtained 0.692, reflecting the positive impact of supply chain capabilities on operational performance of the companies. The value of t-test is equal to 14.717 and significance level is  $<0.05$ , implying that this relationship is significant at the level of 95%. Thus, the first hypothesis is confirmed, that is, increasing supply chain capabilities will improve operational performance of the companies in food industry. Standardized path coefficient between the variables of supply chain capabilities and financial performance is obtained 0.292, reflecting the positive impact of supply chain capabilities on financial performance of the companies. The value of t-test is equal to 2.478 and significance level is  $<0.01$ , implying that this relationship is significant at the level of 99%. Therefore, the second hypothesis is confirmed, that is, the increase of supply chain capabilities will improve financial performance of the companies in food industry.

**Table 5.** Results of hypothesis test.

| Hypothesis | Independent variable      | Dependent variable      | Standardized coefficient ( $\beta$ ) | T-student | Significant |
|------------|---------------------------|-------------------------|--------------------------------------|-----------|-------------|
| H1         | Supply chain capabilities | Operational performance | 0.692                                | 14.717    | $<0.05$     |
| H2         | Supply chain capabilities | Financial performance   | 0.292                                | 2.478     | $<0.01$     |
| H3         | Operational performance   | Financial performance   | 0.518                                | 4.544     | $<0.01$     |

Finally, standardized path coefficient between the variables of operational performance and financial performance is obtained 0.518, reflecting the positive impact of operational performance on financial performance of the companies. The value of t-test is equal to 4.544 and significance level is  $<0.01$ , implying that this relationship is significant at the level of 99%. Therefore, the third hypothesis is also confirmed, that is, the improvement of operational performance will improve financial performance of the companies in food industry.

Moreover, according to the fourth hypothesis, operational performance plays a mediating role in the relationship between supply chain capabilities and financial performance of the companies. In order to test this hypothesis, first, path coefficients of the impact of supply chain capabilities on operational performance and the impact of operational performance on financial performance should be considered based on structural equation modeling outputs in standard estimation mode. The results obtained from the test of this hypothesis are shown in Table 6.

**Table 6.** Results of hypothesis test.

| Path coefficient of the impact of supply chain capabilities on operational performance | Path coefficient of the impact of operational performance on financial performance | Indirect impact of supply chain capabilities on financial performance |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 0.692                                                                                  | 0.518                                                                              | 0.358                                                                 |

Based on the results of this table, the indirect effect of supply chain capabilities on financial performance is equal to 0.358 that is greater than the direct effect of supply chain capabilities on financial performance (0.292); therefore, it can be said that the fourth hypothesis is confirmed and operational performance plays a mediating role in the relationship between supply chain capabilities and financial performance.

In order to ensure the obtained results, fit indices of the research model should be examined so that the obtained results can be generalized/extended to all companies. Based on the standard estimation results of the research model, coefficient of determination values for the variables of operational performance and financial performance are equal to 0.479 and 0.562 respectively. Three values of 0.19, 0.33, and 0.67 are considered by researchers as a basis for the low, medium and high levels of coefficient of determination respectively.

Another fit index considered in assessing the validity of the model is effect size or Cohen's  $f^2$ . Effect size reflects the impact of independent latent variable on the dependent variable.  $f^2$  value ranged from 0.02 to 0.15 reflects the weak impact of the independent variable on the dependent variable; while the values ranged from 0.15 to 0.35 and greater than 0.35 respectively reflect the medium and strong impact of the independent variable on the dependent variable. Considering coefficient of determination of 0.479 and 0.562, the effect size for operational performance and financial performance is equal to 0.919 and 1.2 respectively, suggesting that independent variables well have been able to predict the changes in the variance of the dependent variable and, generally, the research model has a good fit.

## Conclusion, Recommendations and Limitations

Taking into account the changing realities of business in relation to globalization, the issue of the supply chain has been promoted to the list of priorities of senior executives [34]. In Iran, many companies, especially in the food industry, have recognized the importance of the role of supply chain management in the success of their business [14]. Accordingly, this research also tried to evaluate the impact of supply chain capabilities on operational and financial performance of the companies in the food industry. According to the results obtained from the test of the research model, it was concluded that supply chain capabilities have a significant and positive impact on operational and financial performance of the companies in the food industry. This result is in line with the findings of Day et al. [6], Yu et al. [30], Neupane et al. [35,36], Hassan et al. [11], Chi and Gursoy [26], Mahboubi [27], Dalvi et al. [28], and Hosseini and Sheikhi [14]. Likewise, operational performance had a positive impact on financial performance of the food companies. This result is also in line with the findings of Day et al. [6]. Finally, it was observed that operational performance has a mediating role in the relationship between supply chain capabilities and financial performance of the food companies. This result is also in line with the findings of Day et al. [6]. The results of this study make it possible, in the recent era, that firms which face the challenges of competitive markets, including globalization, severe competition, diversification of customer wants, short product life cycle, etc., to find ways to improve their performance. In addition, this research leads to the optimal management of the supply chain as an important principle for the top managers. Moreover, In addition to focusing on the

firms' internal activities, the CEOs pay special attention to the right interactions with the suppliers and customers and try to manage their supply chain in an effective and efficient way. Finally, identifying the mechanism of the effect of supply chain capabilities on performance helps managers to focus on value added value and thus improve their performance.

One requirement for the organizations which focus on supply chain strategies to gain competitive advantages through offering products or services, is the use of appropriate information systems to provide information about the type of product, customer demand, etc. Thus, for planning at the strategic level of information systems, while supporting and strengthening the long-term operational goals, the organization has to support supply chain goals. In this regard, using a comprehensive system, in addition to the integration of production requirements and inventory as well as the organization of the suppliers' information, a company can achieve its required items as soon as possible and with minimal time and cost and give them to the production or assembly line. Therefore, managers have to observe any change in the social, political and economic conditions and assess the impact of these changes on the intended organization or industry and respond to them through adopting reasonable measures. In addition, suppliers and manufacturers of food industry should provide each other with their sensitive and secret information and do not stress any particular regulation or restriction in communicating each other. Moreover, they can provide each other with useful and helpful information and inform others of the changes and events which may affect them. On the other hand, the companies are recommended to have a close collaboration with each other to design products and processes and forecast and plan production and quality related methods. It is recommended that senior executives of food industry in Ardabil have a collective work regarding their supply chain and strive for integrating and coordinating marketing strategies to have more focus on supply chain performance. They also have to attempt to develop a marketing strategy in their supply chain. Moreover, senior executives, through consulting with suppliers, have to try to reduce costs; because, on average, 70% of the value of the final product of the factories is the purchase cost of raw materials and services received from outside. This proportion in high-tech firms even amount to over 80%. Obviously, the increased cost of raw materials has direct impact on the final cost and pricing of products and is important in final cost items. Accordingly, by taking joint decisions, managers can reduce the cost of raw materials and, thereby, strengthen the company's financial performance. It is recommended also that quality assurance teams randomly monitor the quality performance of services to customers; then, all these can be reflected in formal and informal meetings of the organization as statistical reports; also, these reports can be installed in production halls as a form of summary charts to provide the employees with the required awareness about this issue. Finally, it is recommended that senior executives emphasize long-term contact and interaction with suppliers; hence, they can consider some monthly meetings with suppliers in their organizational calendar and, through expert working groups,

strive to diagnose different problems and issues and put urgent measures on their agenda to solve these problems. On the other hand, it is recommended that market research teams, through coordination with the quality assurance teams, consider all criteria intended by customers in production reports to improve the organization's financial performance.

It is recommended that future researchers bring under scrutiny those companies which in terms of operational and financial performance are among well-known and on-stream companies. Doing this, the researchers can investigate the effect of supply chain management capabilities on organizational performance more precisely. Alternatively, the variable of organization size can be used as the control variable in future researches. In addition, future researchers can add the dimensions of supply chain operations reference model-design, sourcing, manufacturing, delivery, and return-to their own research model.

The main limitation of this research is related to the collection of data through questionnaire. This means that some managers did not show the necessary cooperation in responding the questions of the questionnaire accurately. Moreover, the research model is tested only in the companies of food industry and researchers should be cautious in generalizing these results to other companies operating in sectors other than food industry. It is worth noting also that all companies in the food industry, regardless of the desirability of their financial and operational performance, have been investigated in this research. Finally, another restriction is related to the variable of firm size that despite affecting organizational performance was not included in this research.

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