
Studying the effect of integrated supply chain on the financial performance of Bandar Imam Petrochemical Company

Hassan Feisalymehr¹, Mahmoud Nematian^{2*}, Abbas Talebbeydokhti³

¹Department of management, Omidiyeh Branch, Islamic Azad University, Omidiyeh, Iran

^{2*}Department of management, Omidiyeh Branch, Islamic Azad University, Omidiyeh, Iran

³Department of management, Gachsaran Branch, Islamic Azad University, Gachsaran, Iran

Received: 10th Jan 2017, Accepted: 24th Jan 2017, Published: 15th March 2017

Abstract

The aim of this study is to study the effect of integrated supply chain on the financial performance of Bandar Imam Petrochemical Company). The study is applied in terms of purpose, and regarding its nature, it is descriptive-survey of field type. Data was obtained using the supply chain and financial performance questionnaires with the overall reliability of 0.90. The study population consisted of managers and employees of Bandar Imam Petrochemical Company (BIPC). The sample consists of 201 people from among managers and employees who were selected randomly. The main research question is whether the integrated supply chain has a positive effect on the financial performance of BIPC. Descriptive and inferential statistics with SPSS and Lisrel software were used to analyze the collected data. Descriptive statistics and analysis of variance were used to study demographic characteristics of the population. Due to the simultaneous study of several variables and the relationships between them, structural equation modeling is used. According to the results, all hypotheses were confirmed at 95% level of confidence. In addition, the results showed that the study model fits with data collected from the target population. The values of the indices of goodness of fit in the final model show the suitability of the model. Thus, data analysis showed that the integrated supply chain has a significant positive effect on the financial performance of BIPC. It was suggested that integration at the operation level be created between suppliers, customers, and internal affairs of the company. Moreover, it is suggested that financial performance be considered as a value and get credibility and importance to reduce costs and balance the state of payment, it should be trained practically to the employees, and financial performance software be trained to the employees as well.

Key Words: integrated supply chain, financial performance, Bandar Imam Petrochemical Company

Introduction

Today, companies inevitably need to design and adopt strategies that would help them to improve

their performance. The supply chain is considered as one of the strategies in the growing trend of companies and organizations. Today, organizations adjust to organizational changes, so that they could respond to changes in the product, market, and the needs of customers and provide opportunities to be recognized among competitors as the top organization (Raad, 2011).

Among the characteristics of the present century is the astonishing development of information and communication technology and using it to increase the speed and quality of service (Eshraghnia et al., 2013). Over the past decade, with increasing global competition, companies face rapid changes in technology, increasing dynamic markets, reduction of product life cycles, and increasing market segmentation in the global environment. In such a complex and dynamic environment, analyzing, and comparing the observed performance with past trends, competitors, or industry average provides good feedback for decision-making and for future activities (Mehraban et al., 2011). For this reason, one of the most important goals of the firms over time has been continuous improvement of financial performance. Today, providing the best performance has become the most fundamental concerns of managers of manufacturing companies, so they try to achieve superior performance by using different techniques (Shakeri Dehghan, 2013).

Companies inevitably need to design and adopt strategies that would help them to improve financial performance (Azimi and Safari, 2013). Even scholars like Klayver and Pierce believe that the ultimate goal of these stabilizing strategies is long-term superior performance of the firms (Teimuri et al., 2011). In other words, corporate managers will see the results of their decisions in terms of selecting strategy in the mirror of performance measures. According to Cooper, superior performance depends on the ability of a manufacturing company in the comprehensive integration with its partners throughout the supply chain. A supply chain is a network of organizations with upstream and downstream communications in different processes including all activities related to material flows (and financial flows and information related to it) from the procurement of raw material to the final product delivery to the consumer. It creates value through te

final product release and service to customers (Rinhart et al., 2013).

All activities required within a supply chain should be designed and implemented in accordance with the needs of end customers. Two main elements in supply chain management are synchronization of the product and information flows (Eshtedler and Colgire, 2011). Thus, the methods of implementation of supply chain focus on the movement of goods within the chain, and information systems focus on the flow of information and their goals are to reduce costs, enhance quality, improve performance, have timely delivery, have flexibility in the face of environmental changes, and have innovation in the provision of goods and services (Richheld, 2013). Managers of most successful companies confirm that efficient supply chain management is a key to create and establish a competitive advantage in providing products and services and this is not possible without the deployment and effective use of information technology (Jafarzadeh, 2011). Financial resources are the lifeblood of organizational life, because organizations perform all their financial activities ranging from income and payment of fees for the implementation of their various programs in the framework of financial rules (Faezi, 2014). Therefore, financial resources reflect all the programs and activities and play an important role in the development of the national economy. Since targeted allocation to financial activities of any organization could provide the possibility of operational monitoring and expectation to access to the results of costs along making resource allocation transparent, using this method will be an effective step in increasing the efficiency and effectiveness of funding.

Review of literature

Based on the definition, financial performance is a program with an annual budget that shows the relationship between the amount of funds allocated to each program and the results obtained from that program. This means that with any costs used in any program, a definite set of goals should be met. Financial strategy of the organization is concerned with its goals and mission that provides a process to convert measurable data into meaningful information regarding the results of the program. Today, we see in their transactions with other financial institutions and public and private companies, including their customers, many companies including BIPC are in communication with their customers and use financial system. However, by studying the issues and problems in this company, one can examine some difficulties. The most important problems about financial performance and supply chain in this company are as follows:

- The complexity of identifying operational integration processes with regard to the financial performance of BIPC
- The complexity of the company's processes to improve the internal integrity of the company regarding the financial performance of BIPC
- Lack of knowledge about integrating suppliers and financial performance of BIPC
- Problems of identifying and explaining integrating customer about the financial performance of BIPC

Thus, according to the above mentioned, the main research question is as follows. Does integrated supply chain have a significant positive effect on the financial performance of BIPC? In this study, BIPC is considered as the research location. Examples of the direct benefits of integrated supply chain for the organization are as follows:

- * Increase in business value, brand, * more access to new financial resources, * improving the performance of the company and market position, * establishing long-term relationships based on commitment and trust with suppliers and customers, * having enthusiastic, committed, and safe staff
- Considering the advantages of integrated supply chain and financial performance and defects and imperfections in the company, the need to study as a management strategy is felt.

Hypotheses:

Main hypothesis 1: integrated supply chain has a significant positive effect on financial performance of BIPS.

Sub-hypotheses:

Sub-hypothesis 1: internal integration of the company has a significant positive effect on the financial performance of BIPC.

Sub-hypothesis 2: integration of the suppliers has a significant positive effect on the financial performance of BIPC.

Sub-hypothesis 3: integrating customers has a significant positive effect on the financial performance of BIPC.

Research methodology:

This study is applied in terms of purpose, and in terms of methodology, it is among survey research. The research location is BIPC. The questionnaire is used to collect data and measure variables. The ultimate questionnaires are distributed among the employees of the company in person. Population is managers and experts in BIPC that is over 5000 people. In this study, random sampling is used to sample some managers and experts.

Total number of samples are determined according to the following formula.

$$n = \frac{z_{\alpha/2}^2 \cdot S_x^2}{e^2} = \frac{(96^2) \cdot (0.3615)^2}{0.05^2} = 201$$

n = number of samples

$Z_{\alpha/2}$ = corresponding level to the standard normal distribution with $\alpha=0.05$

S_x = Standard deviation of dependent variable (based on samples of 30)

e^2 = Sampling error

In this study, descriptive statistics is used to test the hypotheses, and inferential statistics is used to analyze the data. SPSS and lisrel software has also been used. In this method, as the goal is to evaluate the impact of variables, so path analysis and structural equations model are used at 95% level of confidence. The independent variable is the integrated supply chain of the company. The dependent variable is the company's financial performance.

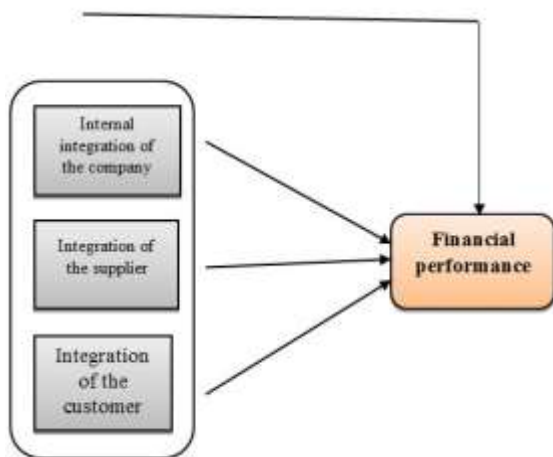


Figure 1: Conceptual Model (Chang et al, 2015 and Zahoo et al., 2015)

The constructive validity of the research is evaluated through confirmatory factor analysis and using LISREL software.

Table 1: Alpha reliability coefficient for the questionnaires

Questionnaire	Cronbach Alpha
Integrated supply chain questionnaire	0.89
Financial performance questionnaire	0.91
The whole questionnaires	0.90

According to the above table, total reliability of the questionnaires was obtained 0.90, which is quite favorable for this study.

Inferential statistics

The test results are shown in Table 2. As the sig obtained for all variables is greater than 0.05, thus data distribution of all variables is normal.

Table 2: Sig and Kolmogorov - Smirnov of the indices

Sig	Variable
0.063	Integrated supply chain
0.059	Financial performance

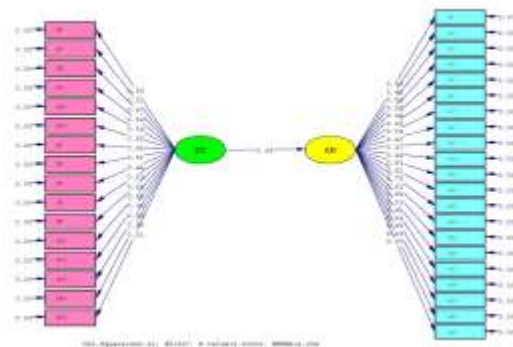
According to the above, it can be seen that integrated supply chain and financial performance exist in a great level (because the amount of t-Value is less than 0.05 and the average is more than 3) in BIPC.

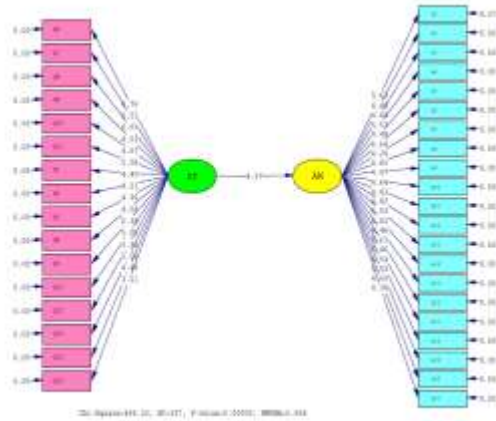
Table 3: The results of one sample t test for independent and dependent variables

t-Value	SD	Mean	T test	Variable
0.000	0.67410	3.5320	12.529	Integrated supply chain
0.000	0.86533	3.3020	5.518	Financial performance

Data analysis

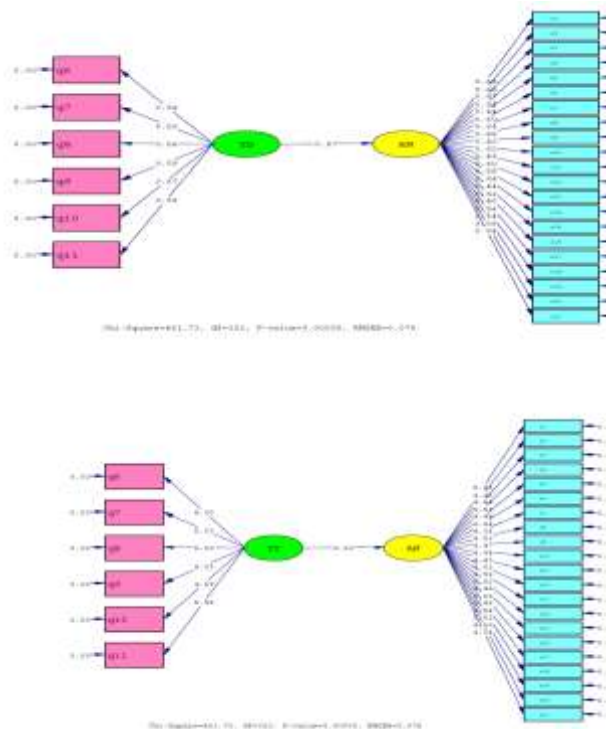
The main hypothesis of this study: integrated supply chain has a significant positive effect on the financial performance of BIPC.





According to structural equation obtained, the path coefficient between integrated supply chain and financial performance is 0.68, and according to t test, $4.57 > 1.96$ at the significance level of 0.05, and the null hypothesis is rejected, so researcher's claim has been backed with reliability 0.95. At a 5% error rate, it can be argued that integrated supply chain has a significant positive effect on the financial performance of BIPC.

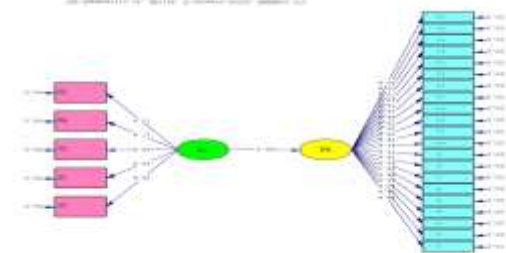
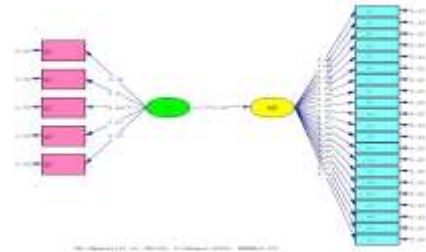
First sub-hypothesis: internal integration of the company has a significant positive effect on the financial performance of BIPC.



According to structural equation obtained, the path coefficient between internal integration of the company and financial performance is 0.57, according to t test, $6.53 > 1.96$ at the significance level of 0.05, and the null hypothesis is rejected, so researcher's claim has been backed with reliability 0.95. At a 5% error rate, it can be argued that internal

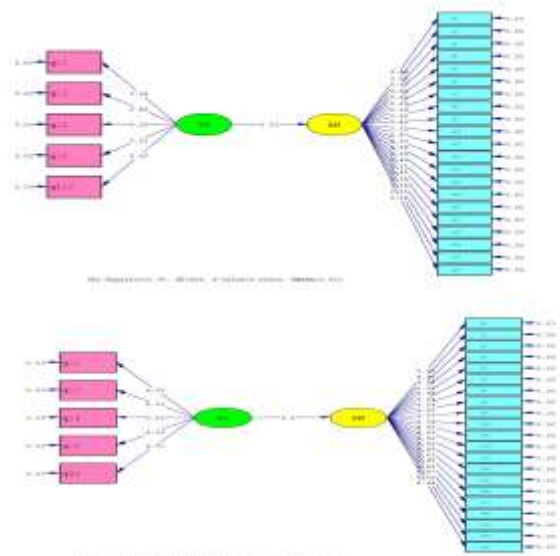
integration of the company has a significant positive effect on the financial performance of BIPC

The second sub-hypothesis: integration of the suppliers has a significant positive effect on the financial performance of BIPC.



According to structural equation obtained, the path coefficient between meritocracy and environmental performance of the staff is 0.43, according to t test, $3.46 > 1.96$ at the significance level of 0.05, and the null hypothesis is rejected, so researcher's claim has been backed with reliability 0.95. At a 5% error rate, it can be argued that integrating of the supplier has a significant positive effect on the financial performance of BIPC.

The third sub-hypothesis: integrating customers has a significant positive effect on the financial performance of BIPC.



According to structural equation obtained, the path coefficient between integrating customer and financial performance is 0.53, according to t test,

4.57>1.96 at the significance level of 0.05, and null hypothesis is rejected, so researcher's claim has been backed with reliability 0.95. At a 5% error rate, it can be argued that integrating the customer has a significant positive effect on financial performance of BIPC.

Conclusion

The main hypothesis:

Integrated supply chain has a significant positive effect on financial performance of BIPC. The path coefficient between integrated supply chain and financial performance is 0.68. According to t test, 4.57>1.96 at the significance level of 0.05, and null hypothesis is rejected, so researcher's claim has been backed with reliability 0.95. At a 5% error rate, it can be argued that integrated supply chain has a significant positive effect on financial performance of BIPC. To justify this, it can be stated that there is integration between suppliers, customers, and internal affairs of BIPC. Thus, financial performance is seen as a value and has importance and credit that will reduce costs and balance the payments status.

First sub-hypothesis:

Internal integration has a significant positive impact on financial performance of BIPC. Path coefficient between internal integration and financial performance is 0.57. According to test t 6.53>1.96 the null hypothesis is rejected at a significance level of 0.05. As a result, researcher's claim has been backed at 0.95 level of confidence, and at a 5% error rate, it can be argued that internal integration has a significant positive effect on financial performance of BIPC. In justification, it can be assumed that there is integration of data in internal affairs in at BIPC, so the real-time of integration between the company's internal operations is created. In such case, supply search real-time, production and demand among employees and suppliers find preference, and the company uses operational teams to advance the processes. In this case, operational teams get into action, and cooperation with strategic planning is created to develop new products.

The second sub-hypothesis: integration of the suppliers has a significant positive effect on financial performance of BIPC. The path coefficient between meritocracy and environmental performance of the staff is 0.43, and according to t test, 3.46>1.96 at the significance level of 0.05, so the null hypothesis is rejected, so researcher's claim has been backed with reliability 0.95. At a 5% error rate, it can be argued that integrating of the supplier has a significant positive effect on financial performance of BIPC. In justification, it can be assumed that the exchange of information with major resources is done through information networks in BIPC. Deployment of fast order system is done with the help of suppliers of the company and the delivery of some components from parts

produced during the production schedule with the supplier is done in real time. Thus, company monitors the activities of the company and this causes the level of strategic cooperation with suppliers to go up in the company.

The third sub-hypothesis:

Customer integration has a significant positive effect on financial performance of BIPC. The path coefficient between integrating customer and financial performance is 0.53, according to t test, 4.57>1.96 at the significance level of 0.05, and null hypothesis is rejected, so researcher's claim has been backed with reliability 0.95. At a 5% error rate, it can be argued that integrating the customer has a significant positive effect on financial performance of BIPC. In justification, it may be assumed that the level of exchange of information is carried out through networks of information with the customer, and there is the deployment of fast order system for corporate clients and the level of strategic partnership with clients in BIPC. Thus, production planning and product delivery in the company are done according to customer demand at present. Moreover, employees use financial performance as a means of promoting value not a way to eliminate costs. In this case, financial performance is an approach to save costs and the roles and duties of officials in the financial plans of the organization are clear and defined, and cash flows of the company are extracted from the financial system and used for planning and financing.

Suggestions

Due to the confirmation of this hypothesis, it is suggested that integration be created between suppliers, customers, and internal enterprise affairs at the operational level. Moreover, it is suggested that financial performance be considered as a value and get importance and prestige to reduce costs and to balance the state of payment, and financial performance and financial performance software be trained to the employees in an applied way.

Due to the confirmation of this hypothesis, it is suggested that 1. The data integrity of data in the internal affairs of the company should be created.

2. Integration real-time between the company's internal operations should be minimized.

3. Supply, production, and demand search real-time among employees and suppliers should be given preference.

Given the confirmation of this hypothesis, it is suggested that the level of information exchange with major resources should be done through information networks in the company. Moreover, it is suggested that deployment of rapid order system should be established with the help of suppliers of the company and delivery of parts produced during the production plan be carried out by the supplier in real time. The company should design appropriate financial database and give it to personnel.

Due to the confirmation of this hypothesis, it is suggested that the level of exchange of information be done through information network with the customer.

References

- Abufazeli, E. Bagheri, M.H (2006) Electronic logistics, do's and don'ts, the second national conference on logistics and supply chain, Eshraghnia Jahromy, A.H. Farzami, B (2005), "Studying the effect of productivity and inventory levels in the supply chain", Proceedings of the First International Conference on Logistics and Supply Chain, Vol. II, pp. 472-463.
- Teimuri, E. Shafieian Bejestani, J. Kalb Khani, K (2011) simultaneous selection and development of suppliers
- Saedi Kia, A.A. Mozaffarifard, J. Riazi Arsi, M.T (2010), "supply chain management" approach, Issue 61, pp. 24-10.
- Shakeri Dehghan, N (2011), Electronic supply chain, supply chain management seminar, Tehran
- Azizi, Kh. Examining the relationship between e-commerce and financial performance of public administration, in 2011, a Master's thesis. School of Management, Public Administration Department, Azad University of Mahabad
- Autry, C. W., Rose, W. J., & Bell, J. E. (2014). Reconsidering the supply chain integration-performance relationship: In search of theoretical consistency and clarity. *Journal of Business Logistics*, 35(3), 275e276.
- Barney, J. B. (2014). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99e120.
- Barney, J. B. (2012). Purchasing, supply chain management and sustained competitive advantage: the relevance of resource-based theory. *Journal of Supply Chain Management*, 48(2), 3e6.
- Chen, H., Daugherty, P. J., & Roath, A. S. (2013). Defining and operationalizing supply chain process integration. *Journal of Business Logistics*, 30(1), 63e84.
- Chen, Z., & Dubinsky, A. J. (2013). A conceptual model of perceived customer value in e-commerce: a preliminary investigation. *Psychology & Marketing*, 20(4), 323e347.
- Chen, H., Ellinger, A. E., & Tian, J. Y. (2011). Manufacturer-supplier guanxi: an examination of contingent environmental factors. *Industrial Marketing Management*, 40(4), 550e560.
- Chen, I. J., Paulraj, A., & Lado, A. A. (2014). Strategic purchasing, supply management, and firm performance. *Journal of Operations Management*, 22(5), 505e523.
- Christopher, M. (2014). Logistics and competitive strategy. *European Management Journal*, 11(2), 259e261.
- Christopher, M., & Gattorna, J. (2015). Supply chain cost management and valuebased pricing. *Industrial Marketing Management*, 34(2), 115e121.
- Cooper, H., & Hedges, L. V. (2015). Potentials and limitations. In H. Cooper, L. V. Hedges, & J. C. Valentine (Eds.), *The handbook of research synthesis and meta-analysis* (2nd ed., pp. 561e572). New York, NY: Russell Sage Foundation
- Crosby, L. A., Evans, K. R., & Cowles, D. (2013). Relationship quality in services selling: an interpersonal influence perspective. *Journal of Marketing*, 54(3), 68e81.
- Mentzer, J. T., Flint, D. J., & Hult, G. T. M. (2012). Logistics service quality as a segment-customized process. *Journal of Marketing*, 65(4), 82e104.
- Morgan, N. A. (2012). Marketing and business performance. *Journal of the Academy of Marketing Science*, 40(1), 102e119.
- Morgan, R. M., & Hunt, S. D. (2014). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20e38