

## JIT in the Jordanian Industrial Companies

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**Abstract** *This study aimed at recognizing the application of JIT in the Jordanian public industrial companies. The study adopted the descriptive-analytical approach. To accomplish the study objectives the researcher designed a questionnaire and distributed to a sample of 55 out of 76 industrial companies that represent the population. All distributed forms were retrieved and analyzed by SPSS. The study found that Jordanian public industrial companies don't apply JIT production system, besides that there were some obstacles that hinder the applying of JIT production system in these companies represented by lack of experience and lack of awareness by the top management. The study recommended making more efforts to increase the awareness of companies' top management of JIT importance as well as secure the experiences, training courses and the costs necessary to apply such system.*

**Key words** JIT, Jordanian public industrial companies, Amman stock Exchange

DOI: 10.6007/IJARAFMS/v6-i3/2150

URL: <http://dx.doi.org/10.6007/IJARAFMS/v6-i3/2150>

### 1. Introduction

There were some reasons that led to developing the approaches of managerial accounting such as the competition and technological advancements to meet the needs of management for information necessary to take proper decisions. Many approaches of managerial accounting emerged such as JIT production system. These approaches help the management to achieve objectives and decrease costs which in turn achieve competitive advantage for management when taking decisions in business organizations. JIT production system contributed to the decrease of costs and enhancement of performance besides expanding the production. The conceptual and applied framework of JIT was completed in the late years to a large extent. It was applied by many companies around the world for its benefits (Jareerah, 2013).

This study was conducted to recognize the extant of applying the JIT production system by the Jordanian industrial companies. The conduction of such study in Jordanian's environment has an impact on determining the perception of these companies of the importance of JIT application, besides persuading their top managements to adopt it due to its benefits for financial performance.

#### 1.1. Problem of the Study

The management applies several systems of managerial accounting to help achieving the objectives of organization and meeting its needs for information that can be used within the conditions of competition, globalization and technological advancements to help management. The traditional managerial accounting systems have no longer been able to provide decision takers with suitable and accurate information. These systems are characterized by inability to reduce the costs and continuous improvement of products besides having no proper criteria to measure the performance. The modern managerial accounting systems were developed to accomplish the goals and help management in the daily tasks.

#### 1.2. Questions of the Study

1. What is the extent of applying JIT by Jordanian industrial companies?
2. What are the obstacles against such application?

### **1.3. Objectives of the Study**

1. Recognize the extent of using JIT by Jordanian industrial companies.
2. Determine the obstacles that hinder such usage.

### **1.4. Importance of the Study**

The importance of this study stems from the importance of the topic, where JIT is a new concept in the managerial accounting. As a result of the competition and technological advancements the companies was compelled to be able for manufacturing products that are characterized by low costs and high quality. Such importance drives the researcher to study the applying of JIT in the Jordanian Industrial companies which can help the management to achieve the organizational objectives.

### **1.5. Hypotheses of the Study**

*H<sub>01</sub>: Jordanian Industrial companies apply the JIT*

*H<sub>02</sub>: There are no obstacles that hinder the applying of JIT in these companies*

## **2. Literature review**

Alyacoub (2009) study aimed at recognizing the impact of applying JIT on maximization of the profits of industrial companies in Jordan through the reduction of production costs, improvement of products quality and reduction of waste percentage besides achieving the competitive superiority as well as reduction of production time. To achieve the objectives of the study the researcher designed a questionnaire of 58 items which was reviewed and judged by experts, where its stability for Cronbach Alpha coefficient was 903. The study recommended the development of technological methods and expansion its use according to the requirements of JIT application in Jordan's industrial companies.

Almatarnih *et al.* (2007) study aimed at recognizing the impact of applying JIT production system on the operational performance of Jordanian industrial companies. It also aimed at determining the impact of applying JIT on reduction of products costs as well as recognizing the restrictions. The study found that applying JIT led to reducing direct costs, improvement of products quality and increase of competitiveness of these companies.

Alkasasbih (2011) study aimed at investigating the obstacles that hinder applying of JIT in the Jordan's pharmaceutical companies. The study concluded that there were some obstacles such as the inability of suppliers to provide material in the time, quality and cost required. The study recommended that top managements should be aware of the experience of international successful companies in order to allocate the resources required by JIT application.

Ingh, Garg (2012) study aimed at determining the principles, goals and advantages of JIT application by Indian companies. The study concluded that JIT contributed to the improvement of companies' competitiveness. The study recommended conducting more studies on JIT.

Abu Ata (2004) study found that applying JIT achieves many objectives such as developing and improving the quality of products, minimization of waste and damage. Such system, if applied appropriately, would strengthen the competitive capacities of the companies in the market through reduction of waste and damage as well as improving the quality and efficiency of production performance.

Salaheldin (2005) study aimed at recognizing the JIT systems in Egyptian industrial companies. The study was conducted on 200 industrial companies. The results indicated that applying JIT in the food industrial companies was more efficient than other companies besides that there were some obstacles against such system application. The study recommended the development of human recourses in a way that contributes to the success of applying JIT.

## **3. Methodology of research**

This study was based on descriptive-analytical approach to determine the extent of applying JIT system in the Jordan's industrial companies.

### 3.1. Population and Sample

The study population consisted of all Jordanian public industrial companies listed in Amman Stock Exchange in 2013. There were 76 companies, where the researcher chose these companies for study since they represent 31% of ASE ([www.ase.com/jo](http://www.ase.com/jo)), besides that they constitute a suitable environment for applying JIT. The study sample consisted of 55 companies, where the questionnaire was distributed to the finance managers and accountants in these companies. All forms of questionnaire were retrieved and were valid for analysis.

### 3.2. Sources of Data Collection

The researcher exploited two sources for data collection:

- Primary Source: where the questionnaire was designed primarily for data collection.
- Secondary Sources: which included books, journals and periodicities, besides literature review and internet sites?

### 3.3. Confidence and Stability of Instrument

To assure the validity of instrument it was reviewed and judged by academic and professional experts where the opinions were taken into account by the researcher.

To assume the validity of the instrument for collecting data necessary for this study the researcher tested its confidence through Cronbach-Alpha coefficient, which is a suitable measure for creditability, so all items obtained values larger than 60% that is required for acceptance. Such result reflects the stability of instrument and represents an acceptable percentage of consistency and analysis.

## 4. Tests of Hypotheses

### Characteristics of the Sample

The tables below show the frequencies and percentage of the sample upon qualification, experience, major, job position and professional certificates. These responses were analyzed by researcher.

#### Qualification:

Table 1 shows the distribution of respondents according to the qualification. It shows that 78.2% of the sample members obtained Bachelor degree which indicates that most respondents have the education necessary for their jobs. The table also shows that 12.7% of the sample obtained Master's degree, while 5.5% of respondents obtained Diploma and 3.6% obtained Doctorate. These percentages indicate that respondents have the proper capacity to apply JIT through their response.

Table 1. Distribution of the Sample According to the Qualification

Variable	Type	Frequency	%
Educational Qualification	Diploma	3	5.5
	Bachelor	43	78.2
	Masters	7	12.7
	Ph.D.	2	3.6
	Total	55	100%

#### Experience:

Table 2 shows that 29.1% of respondents have experience between 11-15 years, while those who have experience more than 16 years represented 29.1% of the sample too. The percentage of respondents who have experience between 5-10 years was 25.4% while those with experience less than 5 years obtained 16.4% of the sample. These percentages reflect the high and good experience in the work which indicates their performance.

Table 2. Experience of Sample Members

Variable	Range	Frequency	Percentage %
Experience	Less than 5 years	9	16.4
	5-10 years	14	25.4
	11-15 years	16	29.1
	16 and more	16	29.1
	Total	55	100%

**Major of Specialization:**

Table 3 shows that 79.5% of the sample was specialized in accounting, followed by 11.4% in banking and finance, then 9.1% in business administration. These figures show that the sample members were qualified in specific requirements which gave them the capability to answer the questions.

Table 3. Specialization of Sample Members

Variable	Specialization	Frequency	Percentage %
Major	Accounting	44	79.5
	Business Administration	5	9.1
	Banking & Finance	6	11.4
	Total	55	100 %

**Position:**

Table 4 shows that 38.2% of respondents were finance managers, followed by 32.7% as accountants, while 29.1% were section chiefs.

Table 4. Position of Respondents

Variable	Job	Frequency	Percentage %
Position	Finance Manager	21	38.2
	Accountant	18	32.7
	Section Chief	16	29.1
	Total	55	100 %

**Professional Certificates:**

Table 5 shows that 87.3% of the sample holds no professional certificates, while 1.8% of respondents hold CMA and 10.9% hold JCPA. This indicates the necessity for obtaining professional certificates by respondents especially the finance managers.

Table 5. Professional Certificates of Sample Members

Variable	Type	Frequency	Percentage %
Professional Certificates	No Certificate	48	87.3
	CMA	1	1.8
	JCPA	6	10.9
	Total	55	100 %

**Arithmetic Means and Standard Deviations of the Questions on JIT Variable**

Table 6 indicates the degree of applying JIT in Jordanian public shareholding industrial companies through responses of sample members. The table shows arithmetic means and standard deviations for applying JIT production system in the Jordanian industrial companies. Arithmetic mean was 3.6 for items 1-8, compared to mean 3 for all items. This result indicates the medium importance of the mean while standard deviation was 0.86.

Table 6. Arithmetic Means and Standard Deviations for the Level of Applying the JIT in Jordanian Industrial Companies

Item Serial No.	Item Content	Arithmetic Mean	Standard Deviation
1	The company applies JIT	2.47	0.89
2	The management provides training programs to secure applying and success of JIT	2.36	0.92
3	Management depends on technology in using JIT	2.82	0.86
4	The management provides material and human potentials to secure the application and success of JIT	2.70	0.88
5	The company provides clear plans for each production process	2.40	0.85
6	Applying JIT contributes to reduction of inventory costs	3.02	0.83
7	Applying JIT helps improving production process	3.07	0.87
8	Applying JIT contributes to supplying customers with desired products	3.1	0.81
	Average Mean	2.74	0.86

The variable of applying JIT was described through the sample responses on questions 12-22 depending on the mean of 55 responses. Therefore it was 2.74 which was less than the mean of instrument which was between 3 and 4 while standard deviation was 0.86.

The highest score was 3.1 for item 8 while the lowest score was 2.36 for item 2. Item 8 which obtained the highest mean states that "applying JIT contributes to supplying desired products for customers". Item 2 states that "JIT is based on ideal ground that is difficult to apply". Therefore we accept the null hypothesis which states that "Jordan public industrial companies don't apply JIT".

Table 7. Arithmetic Means and Standard Deviations of the Questions Related to the Obstacles of JIT Application

Item Serial No.	Item Content	Arithmetic Mean	Standard Deviation
1	No proper experience available for applying JIT	3.47	0.82
2	Top management neither aware nor satisfied of JIT application	3.06	0.86
3	Management isn't aware of the importance of JIT application	3.40	0.85
4	JIT is based on ideal basis difficult to apply	3.24	0.86
5	Lack of qualified staff able to handle the JIT process	3.30	0.88
6	Staff don't understand the JIT philosophy	3.20	0.88
7	Unavailable required resources necessary for success of JIT application	3.51	0.82
	Average Mean	3.30	0.80

Table 7 shows that average arithmetic mean and standard deviation for the obstacles were 3.3 and 0.84 respectively. Therefore we reject the null hypothesis and accept the alternative one that states "there are obstacles that hinder the application of JIT in Jordan industrial company".

## 5. Results

### 5.1. Applying JIT

Results indicated that Jordanian industrial companies don't apply JIT in its production processes. The applying of JIT contributes to supplying desired products that customers need, besides it when applying JIT the company should create plans for each production process and must depend on technology. The company that is willing to apply JIT should provide the human and material potentials to secure applying JIT which contributes to reduction of costs of inventory and hence influences positively the ROA.

### 5.2. Obstacles that hinder applying JIT

The results indicated some obstacles like:

1. Unavailable proper experience for applying JIT.
2. Managements aren't aware of the importance related to applying JIT.
3. Unavailable training progress to enable the staff to apply JIT.

#### **6. Recommendations**

The companies in Jordan should apply JIT through analyzing and testing it to insure that it is suitable for local environment, by following these instructions:

1. Management should provide training programs to insure the right application of JIT by the staff.
2. Focus on creating a JIT system that can be modified to fit the local environment.
3. Recruit the qualified staff able to handle JIT elements.

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