

# THE IMPACT OF ADOPTING ACTIVITY BASED COSTING (ABC) ON DECREASING COST AND MAXIMIZING PROFITABILITY IN INDUSTRIAL COMPANIES LISTED IN AMMAN STOCK EXCHANGE

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## ABSTRACT

*The current study aims at demonstrating the role of the Activity-Based Costing system (ABC) in cost reduction and profitability maximizing in the industrial companies listed on the Amman Stock Exchange. It also attempts to identify the availability of infrastructure and the potential to adopt and implement the activity-based costing system in these companies. A questionnaire was designed and distributed to the survey sample of 59 respondents who worked in industrial companies as company managers, financial managers, accountants and internal auditors. After using the statistical analysis program SPSS, the study concluded that adopting and implementing the activity-based costing system in the industrial companies play a good role in reducing costs and maximizing profitability. The results also reveal that some Jordanian industrial companies have the infrastructure to adopt and implement the system to a medium degree while other companies lack any of these components. The study recommended the importance of applying the activity-based costing system to the allocation of manufacturing overhead costs and the importance of supporting the company's management to implement this system.*

**Keywords:** Activity Based Costing (ABC), Decreasing Cost, Maximizing Profitability, Manufacturing Overhead Costs, Industrial Companies Listed in Amman Stock Exchange.

## INTRODUCTION

The industrial sector in Jordan has witnessed a tangible and quick development during the past years, and has increased the capacity of the Jordanian industrial companies competitiveness in world markets, prompting the companies to search for the modern and sophisticated methods to assist them in achieving efficiency and productivity, through the reduction of costs, and to provide the management with all the necessary accurate information to make sound decisions related to maximize profits without affecting the quality of the product. Since the traditional cost systems suffer from a lack of ability to calculate the cost of the product in light of the variety of products and items; it draws the attention of industrial enterprises to adopt and apply activity Based Costing System, which is considered as an important development in cost accounting according to the possibilities available to them. This is in order to assist in the loading products its share of manufacturing overhead cost in the most accurate possible level; in order to increase the accuracy of the calculated unit cost produced (Al Rajabi, 2012).

## Objectives of the Study

The present study aims at achieving the following objectives:

1. Stating the role of Activity Based Costing system in reducing costs in the shareholding industrial companies listed on the Amman financial market.
2. Stating the role of Activity Based Costing system in maximizing profitability in shareholding industrial companies listed on the Amman financial market.
3. Studying the availability of the necessary infrastructure and capabilities to adopt and apply the Activity Based Costing system in shareholding industrial companies listed on the Amman financial market.

## Importance of the Study

The current study draws its importance from the fact it deals with an important topic in industrial companies, which is the use of modern system in the allocation of manufacturing overhead costs in industrial in companies i.e., Activity Based Costing System. In light of the enormous technical development witnessed in the industrial sector in the world in general and in Jordan in particular; those costs have increased significantly and with that it has increased the need for the use of scientifically based costs minutes (Bu Nassar, 2017). This system is also working on assembling the allocation of manufacturing overhead costs and the share of industrial goods produced in the highest level of accuracy which helps providing the management with accurate information to help them make rational decisions especially with regard to pricing decisions and the exclusion of activities that do not add value to the product.

## Problem of the Study

Jordanian industrial companies suffer from several challenges, the most important of which, the strong competition on the local or international level in view of the economic openness witnessed by Jordan, which allows multiple kinds of products to enter the Jordanian market easily. Hence, this study is conducted to determine the extent of the importance of the use of industrial companies of Activity Based Costing systems, in the hope of strengthening their competitiveness and achieving the shortest possible profit without compromising quality.

## Hypotheses

The hypotheses of the study are as follows:

**Hypothesis 1:** *There is no statistically significant relation between adopting Activity Based Costing system by the public shareholding companies listed on the Amman financial Market system and reducing costs in those companies.*

**Hypothesis 2:** *There is no statistically significant relation between adopting Activity Based Costing system by the public shareholding companies listed on the Amman financial Market system and maximizing profitability in those companies.*

**Hypothesis 3:** *The infrastructure requirements and capabilities needed to adopt and apply the system of in Activity Based Costing are not available in the public shareholding companies listed on the Amman financial Market.*

## Theoretical Framework

### Activity Based Costing system (ABC)

Activity based costing system is known as the system which works on assembling the manufacturing overhead costs for each activity of established cost pool and then distributed by Cost Drivers on products (Horgern, 2005: 131). ABC was also defined by (Abd Allateef, 2004: 218) as the system of allocating resources to activities that have benefited them. They later are allocated in accordance to the utilization rate of these activities. Therefore, the system of activity based costing is a method that consists of two stages: the distribution of manufacturing overhead, where costs are gathered in cost pools and then be allocated to final products according to the cost drivers.

### Advantages and disadvantages of activity costing system

The activity based costing system is appreciated for its effective monitoring in compared to other conventional systems. It should be also taken into account the early control of activities which reduces the unfavorable deviations. It also focuses on activities that add value to the product and excludes the activities that do not add any value. It likewise helps to reduce costs by reducing the time and effort needed to carry out the activity and exclude unnecessary and high-cost activities and rather opt for the low-cost activities. The activity-based costing system provides a set of non-financial performance measurements including time and quality, helps in the preparation of budgets, and effectively influences the pricing decisions through the cost of diversity calculated in a more precise manner because there are some costs that might not be related to the size but are highly complex.

The disadvantages of activity-based costing system is focusing on long-term decisions rather than short-term decisions, while companies may need short-term planning and immediate decisions related to planning and censorship. Moreover, this system does not contribute to clarifying the relationship between activities and consumer satisfaction (Dergham, 2007).

### Profitability Indicators

Profitability indicators are a class of financial metrics that are used to assess a business's ability to generate earnings relative to its associated expenses. For most of these ratios, having a higher value relative to a competitor's ratio or relative to the same ratio from a previous period indicates that the company is doing well. The main profitability ratios are:

1. Contribution margin ratio: Subtracts all variable expenses in the income statement from sales, and then divides the result by sales.
2. Gross profit ratio. Subtracts all costs related to the cost of goods sold in the income statement from sales, and then divides the result by sales.
3. Net profit ratio. Subtracts all expenses in the income statement from sales, and then divides the result by sales. <https://www.accountingtools.com/articles/profitability-ratios.html>
4. Return on Assets: The term return in the ROA ratio customarily refers to net profit or net income, the amount of earnings from sales after all costs, expenses and taxes.
5. Return on Equity: ROE is a ratio that concerns a company's equity holders the most, since it measures their ability of earning return on their equity investments. <https://www.investopedia.com/terms/p/profitabilityratios.asp>

## LITERATURE REVIEW

In his study entitled “*The Impact of Activity Based Costing in Enhancing Profitability of Jordanian Foods Manufacturing Companies, (Al-Bader, 2017)* attempted to demonstrate the impact of the applying cost-based system (ABC) in confectionery companies. The study found that the most cost-effective systems to enhance profitability were the activity-based costing system”. Salameh’s (2016) study “*The Effect of Integration between Activities Based Costs System and Activities Based Management System to Increase Profitability*” investigated the impact of the ABC and ABM in maximizing profitability in catering companies. The study demonstrated that the employees of the catering companies are clearly aware of the importance of modern strategic management accounting systems, especially the ABC and ABM systems, and that there is a relationship between the cost system by activities and maximizing profitability. Yousef and Odeh (2014) conducted a study under the title “*The Importance of the System of Activity Based Costing (ABC) in the Decision Making*”. Their study concluded that the application of ABC helps gather the manufacturing overhead costs of the enterprise at cost points to be distributed later on goods and services. Bin Moussa’s (2013) study “*The Impact of Activity Based Costing on Decreasing Cost and Enhancing the Performance*” aimed at identifying the role of the activity based system in cost management, its applicability in hospitals in Algeria, and the extent and availability of the required data due to the shortcomings of traditional systems. The study concluded that the use of the system leads to a more accurate calculation of the cost of the treatment service. Hodayb’s (2009) study “*The ABC System in the Industrial Companies in Jordan, and its Relationship to Financial Performance. Implementing and Proposed Measurement Model*” aimed at identifying the extent to which the cost accounting system based on activities in Jordan was used by the industrial companies in Jordan and indicating the relationship between the application of this system and the improvement of performance of these companies. The study found out that there is an acceptable level of use and applying of the activity based costing system by industrial companies. Abu Moghli (2008) attempted to identify the effect of the application of Activity Based Costing system (ABC) on maximizing profitability in private hospitals in Oman. The study concluded that due to the development of the health services sector and its importance, both from humanitarian and economic wise, it is necessary for these hospitals to maintain the competitive element in order to provide health care services at appropriate prices. It also pointed out that ABC contributes to reducing the cost of health services in a way that maximizes profitability.

## RESEARCH METHODOLOGY

### Data Collection and Resources

Data collection sources were both primary and secondary. The secondary resources of the study data constituted some books and periodicals related to the subject matter of the study. The primary sources, on the other hand, represent the questionnaire tool that was designed according to the Likert scale, from 1-5.

### Population and Sample of the Study

The sample of the study was a random sample of 59 respondents from the general managers, financial managers, accountants and internal auditors of the company from different

companies listed in Amman Industrial market. Sixty-five questionnaires were distributed, 51 of which were returned and have been analyzed.

### Statistical Analysis of Data

The following statistical methods were used in data analysis and hypothesis testing according to the SPSS program:

1. Reliability Analysis: The Alpha-Cronbach test was used to measure the internal stability of the resolution paragraphs and the internal consistency between respondents' answers. The coefficient of stability ( $\alpha$ )=74.2% which is excellent compared to the acceptable rate of 60%.
2. The normal distribution test (Kolmogrov-Smirnov): After conducting the necessary statistical analysis, the data were distributed naturally. The mean Z for all hypotheses was greater than the significance level of 5% as shown in the following Table 1.

<b>Hypothesis</b>	<b>H1</b>	<b>H2</b>	<b>H3</b>
Kolmogorov-Smirnov Z	1.024	1.643	1.879

### Hypotheses Testing

The hypotheses of the present study were tested as follows:

1. One Sample T-Test at a significant level of 5%, according to the rule of decision which provides for acceptance of the hypothesis if the calculated T is less than the value of the table, and reject it if it is greater.
2. Descriptive Analysis: which includes the frequencies and the mean and the standard deviation to accept or reject the hypothesis paragraphs.

Results of hypotheses testing were as following

**Hypothesis 1:** *There is no statistically significant relationship between the adoptions of activity based costing system by public shareholding companies listed on the Amman Stock Exchange and the reduction of costs in those companies. The results of the statistical analysis are as follows Table 2.*

<b>Calculated T</b>	<b>T Table</b>	<b>SIG T</b>	<b>Result</b>	<b>Mean</b>	<b>Std. Deviation</b>
10.382	1.986	0.000	Rejected	3.671	0.497

Since the calculated T is greater than the T tabular, this means there is a statistically significant relationship between the adoptions of the activity based costing system by the public shareholding companies listed on the Amman Stock Exchange and the reduction of costs in those companies. The mean and the standard deviation of each hypothesis are presented in the Table 3 below.

<b>No</b>	<b>Paragraph</b>	<b>Mean</b>	<b>SD</b>
2	The use of activity based system eliminates activities that do not add value to the product and reduce their cost.	3.271	1.127

No	Paragraph	Mean	SD
3	The presence of several cost drivers in the activity-based costing system results in a more accurate measurement of the product and reduces cost.	3.390	0.851
4	The application of the activity-based costing system of activities reduces the time and effort required to undertake productive activities and thus reduce costs.	3.763	0.751
5	The activity-based costing system helps to control early activities, reducing unwanted deviations or reducing costs.	3.780	0.948
6	The role of activity-based costing system of activities in reducing costs.	3.671	0.497

*Hypothesis 2: There is no statistically significant relationship between the adoptions of public shareholding companies listed on the Amman Stock Exchange for the activity based costing system of activities to maximize profitability in those companies. The results of the analysis are as follows Table 4.*

Calculated T	T Table	SIG T	Result	Mean	Std. Deviation
7.896	1.986	0.000	Rejected	3.542	0.528

Since the calculated T is greater than the T tabular, there is a statistically significant relationship between the adoption by the public shareholding companies listed on the Amman Stock Exchange of the activity-based costing system and maximizing profitability in those companies. The following Table 5 shows the arithmetic mean and standard deviation of each paragraph in the hypothesis.

No	Paragraph	Mean	SD
1	Implementing the activity- based costing system in industrial companies improves the company's competitive position and maximizes profits.	3.322	0.539
2	The use of activity- based costing system in industrial companies increases the accuracy and efficiency of product pricing, thus maximizing profitability.	3.661	1.010
3	The application of the activity- based costing system helps industrial companies to produce more efficiently, thereby maximizing profitability.	3.542	0.703
4	The application of the activity-based costing system improves the operational process, regardless of resources and costs, which increases profitability.	3.644	0.866
5	Implementing the activity- based costing system improves employee performance and maximizes profitability.	3.339	0.822
6	The role of the activity- based costing system in maximizing profitability.	3.542	0.528

*Hypothesis 3: There are no prerequisites for the infrastructure and capabilities required to adopt and apply the activity based costing system in the public joint stock companies listed on the Amman Stock Exchange. The following Table 6 shows the results of the analysis of this hypothesis.*

Calculated T	T Table	SIG T	Result	Mean	Std. Deviation
3.707	1.986	0.000	Rejected	3.229	0.474

Since the calculated T is greater than the T tabular. This means that the infrastructure and potential requirements for the adoption and application of the activity-based costing system in the public shareholding companies listed on the Amman Stock Exchange are available. The

following Table 7 shows the arithmetic mean and the standard deviation of each paragraph of the third hypothesis.

No	Paragraph	Mean	SD
1	The company has a system that deals with the advance planning of the activity-based cost system and relates to all activities of the company.	3.034	0.890
2	There is a specific team or committee concerned with the system of costs based on activities in the company and its follow-up.	3.203	0.581
3	The senior management of the industrial company encourages and supports the analysis, design and construction of the activity based costing system of activities.	3.339	0.734
4	Cost drivers related to the company's activities are identified during the manufacturing stages.	3.356	0.689
5	The management of the Industrial Company should arrange for the training of staff from accountants and others on the activity based system of activities.	3.068	0.763
6	The extent to which infrastructure and the potential to adopt and apply the activity-based system the public joint stock companies listed on the Amman Stock Exchange are available.	3.229	0.474

## RESULTS AND DISCUSSION

After conducting statistical analysis of the questionnaire using SPSS, the results were obtained that the adoption of cost-accounting system based on activities in industrial companies contributes to reducing costs by focusing companies on value-added activities and excluding activities that have no added value. It also reduces the costs because its system assists in reducing time and effort using different cost drivers for each activity. Although it helps increase profitability through the system. It likewise leads to achieve a competitive position of the company applying it. The application leads to improve the performance of staff and efficiency of production and the efficiency of decision-making related to pricing, which consequently leads to profits maximizing. Finally, the infrastructure and capacity requirements for the adoption and implementation of the activity based costing system in the public shareholding companies listed on the Amman Stock Exchange are available to a medium extent. However, as some companies managed to adopt the ABC system, other companies suffer the shortage of the prerequisites needed for the application of this system. The most important of these requirements may be the approval of the administration, its support to the system, the presence of a committee concerned with planning the system, specifying the cost engines for the activities and the training of the employees about its use.

## RECOMMENDATIONS

Based on the findings of the study, the researcher recommends the following:

1. All industrial companies listed on the Amman Stock Exchange should adopt the activity-based costing system for allocating manufacturing overhead costs, given the advantages that the company can achieve from using it, especially with regard to cost reduction and maximizing profits.
2. The management of the industrial companies that do not adopt and implement activity-based costing system shall provide the appropriate climate and the necessary means to implement it, such as the proper restructuring of the company and the training of a specialized team concerned with planning and determining the activities and cost drivers to allocate manufacturing overhead.
3. Conducting future studies by researchers and corporate departments on the importance of adopting and applying activity-based costing system in various economic fields.

4. The accounting departments in Jordanian universities should focus on teaching the standards of activity-based costing system, especially the practical aspect that enables the student to allocate costs to the product more accurately.

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