


THE IMPACT OF QUALITY COSTS AS A MEDIATOR IN THE RELATIONSHIP
BETWEEN MANAGEMENT ACCOUNTING SYSTEMS AND FINANCIAL PERFORMANCE:
THE CASE OF JORDAN

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ARTICLE INFO	ABSTRACT
<p>Article history:</p>	<p>Objective: The current analysis aims to assess the mediating effect of cost quality on the relationship between management accounting systems and the financial performance of industrial enterprises listed on the Amman Stock Exchange.</p>
<p>Received 31 January 2023</p>	
<p>Accepted 10 April 2023</p>	<p>Theoretical framework: Three questionnaires are used for this purpose, their validity and reliability are checked; the first part deals with the cost of quality and consists of 15 paragraphs. The second part deals with the management accounting system and consists of 30 parts distributed in three dimensions (just in time, value chain, target cost).</p>
<p>Keywords:</p>	<p>Design/methodology/approach: The third section is related to financial performance and consists of 10 paragraphs. It works on a random sample of 311 people.</p>
<p>Quality Costs; Strategic Cost; Management Tools; Financial Performance; Industrial Companies; Amman Stock Exchange.</p>	<p>Results: The results show a statistically significant mediating role of quality cost on the relationship between the management accounting system and its three dimensions (just-in-time manufacturing, value chain, and target cost) and the financial performance of industrial companies listed on the Amman Stock Exchange.</p>
	<p>Originality: This study expands the use of data science techniques, big data, and artificial intelligence, as these are necessary and effective tools for improving the quality of financial performance and make a significant contribution to the fundamental objective.</p> <p>Doi: https://doi.org/10.26668/businessreview/2023.v8i4.1462</p>

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O IMPACTO DOS CUSTOS DA QUALIDADE COMO MEDIADOR NA RELAÇÃO ENTRE SISTEMAS DE CONTABILIDADE GERENCIAL E DESEMPENHO FINANCEIRO: O CASO DA JORDAN

RESUMO

Objetivo: A presente análise visa avaliar o efeito mediador da qualidade do custo na relação entre os sistemas de contabilidade gerencial e o desempenho financeiro das empresas industriais listadas na Bolsa de Valores de Amã.

Enquadramento teórico: São utilizados três questionários para o efeito, verificando-se a sua validade e fiabilidade; a primeira parte trata do custo da qualidade e é composta por 15 parágrafos. A segunda parte trata do sistema de contabilidade gerencial e é composta por 30 partes distribuídas em três dimensões (just in time, cadeia de valor, custo-alvo).

Desenho/metodologia/abordagem: A terceira seção está relacionada ao desempenho financeiro e é composta por 10 parágrafos. Ele funciona em uma amostra aleatória de 311 pessoas.

Resultados: Os resultados mostram um papel mediador estatisticamente significativo do custo da qualidade na relação entre o sistema de contabilidade gerencial e suas três dimensões (fabricação just-in-time, cadeia de valor e custo-alvo) e o desempenho financeiro de empresas industriais listadas na Bolsa de Valores de Amã.

Originalidade: Este estudo amplia o uso de técnicas de ciência de dados, big data e inteligência artificial, pois são ferramentas necessárias e eficazes para melhorar a qualidade do desempenho financeiro e contribuem significativamente para o objetivo fundamental.

Palavras-chave: Custos da Qualidade, Custo Estratégico, Ferramentas de Gestão, Desempenho Financeiro, Empresas Industriais, Bolsa de Valores de Amã.

EL IMPACTO DE LOS COSTOS DE CALIDAD COMO MEDIADOR EN LA RELACIÓN ENTRE SISTEMAS DE CONTABILIDAD GERENCIAL Y DESEMPEÑO FINANCIERO: EL CASO DE JORDANIA

RESUMEN

Objetivo: El análisis actual tiene como objetivo evaluar el efecto mediador de la calidad del costo en la relación entre los sistemas de contabilidad gerencial y el desempeño financiero de las empresas industriales que cotizan en la Bolsa de Valores de Amman.

Marco teórico: Para ello se utilizan tres cuestionarios, se comprueba su validez y fiabilidad; la primera parte trata del costo de la calidad y consta de 15 párrafos. La segunda parte trata sobre el sistema de contabilidad gerencial y consta de 30 partes distribuidas en tres dimensiones (justo a tiempo, cadena de valor, costo objetivo).

Diseño/metodología/enfoque: La tercera sección está relacionada con el desempeño financiero y consta de 10 párrafos. Se trabaja sobre una muestra aleatoria de 311 personas.

Resultados: Los resultados muestran un papel mediador estadísticamente significativo del costo de la calidad en la relación entre el sistema de contabilidad gerencial y sus tres dimensiones (fabricación justo a tiempo, cadena de valor y costo objetivo) y el desempeño financiero de las empresas industriales listadas en la Bolsa de Amán.

Originalidad: Este estudio amplía el uso de técnicas de ciencia de datos, big data e inteligencia artificial, ya que son herramientas necesarias y efectivas para mejorar la calidad del desempeño financiero y contribuyen significativamente al objetivo fundamental.

Palabras clave: Costos de Calidad, Costo Estratégico, Herramientas de Gestión, Desempeño Financiero, Empresas Industriales, Bolsa de Valores de Amman.

INTRODUCTION

The current era is regarded to be the era of information and rapid technology. It has lately experienced great growth in the amount of data and information that requires interpretation, treatment, measurement, and analysis. A rise in the use of management accounting systems is appeared as follows (value chain, target cost, timely manufacturing, and quality costs as a mediator factor). Since traditional management accounting methods are no

longer adequate for determining the chances of a company's success and survival, it is considered a high-level method. In 2014, it referred to the process by which value adds to companies' raw materials. The overall objective of this chain is to provide the customer with a product or service at the lowest possible cost.

The quality costs system has emerged, which is one of the effective systems for detecting problems resulting from the modern manufacturing environment. The failure to detect the problems may lead to the failure of industrial companies. Consequently, industrial companies are prompt to respond to competition challenges and work to adapt to them with greater flexibility and efficiency. Financial performance is a reason, and its preservation is an indicator and a requirement to maintain its continuity. Financial performance data are useful for planning, controlling, and making sound decisions, especially since money is the company's lifeblood. Companies seek to enhance their financial performance by identifying negative aberrations and trying to fix them.. The significance of performance as an indicator of the financial center's strengths and shortcomings is clear. A company's financial position is one of the most essential indications for identifying and avoiding weaknesses, maintaining its strengths, working to grow them. In addition, they are not the parties who will benefit from the actions they make based on these data and information.

RESEARCH PROBLEM

Industrial companies use traditional management accounting systems that have not kept pace with modern systems, techniques and methodologies, directly impacting product cost and quality. Local products risk losing competitiveness and can no longer competes with imported products, causing them to withdraw from local and global markets. Management loses the ability to recognize the relationship between market costs and competitive prices. Therefore, it is necessary to carefully study and study the use of the administrative accounting system and its reflection on the financial performance of industrial enterprises in the context of quality costs, which is also the source of revenue for the treasury. You back it with any income tax receipts and other expenses. The industry and its success in each country is the backbone of its development, growth and prosperity.

RESEARCH HYPOTHESIS

1. There is no significant impact of Quality costs on the relationship between “each dimension and Firm’s financial performance?”

2. There is no significant impact of Quality costs on the relationship between value-added chain and Firm's financial performance?
3. There is no significant of quality costs as a mediator factor on the relationship between target costs and the financial performance of industrial companies listed on the Amman Stock Exchange?

PREVIOUS STUDIES

Al-Khalidi (2015) aims to categorize the influence of management accounting systems with their variables, is cited here as one of the most influential works pertaining to the topic of the research (cost-based activities, target cost, balanced scorecard, timely manufacturing, and management based on activities in the decision-making process in Kuwaiti industrial companies). The most significant result is the statistically significant effect of management accounting systems with their variables (cost based on activities, "target cost" and balanced scorecard, timely manufacturing, and management based on activities) on the decision-making process in Kuwaiti industrial firms. The most essential of the study's recommendations is that Kuwaiti industrial enterprises must adopt management accounting systems, including paying attention to their many domains, in order to interact with and adapt to social and economic elements. Numan (2017) attempts to identify the management accounting systems in terms of idea and type, as well as the Arabization of the financial performance of companies. The problem of the research revolves around the influence of management accounting systems on financial performance metrics. Indicators for the study sample company during the period (2012-2016), there is also a considerable decline in the actual production levels compared to the annual projected capacities, with real faulty ratios exceeding the allowable percentages at the stages of production.

Bani Younis and Abu Hussein (2018) identify the influence of the outputs of the timely manufacturing process on the competitive strategies of industrial public shareholding companies in Jordan. The most important result is the presence of a statistically significant effect at the level of statistical significance of the outputs of the appropriate manufacturing method (reducing costs of production, improving product quality, reducing waste rates, attaining competitive advantage, and reducing the time factor) over competitive strategies (cost leadership strategies, differentiation strategies, and concentration strategy) in industrial public shareholding companies in Jordan. The most significant of the study's many recommendations

is to increase the departments' and leaders' understanding of the notion of the manufacturing method's outputs, its efficiency, and the quality of the items produced.

Al-Bayani (2019) indicates to identify the impact of the target cost technique on pricing decisions for educational services at private universities in Iraq. The study's most significant findings are the effect of using target cost principles to estimate the costs of educational services in Iraq and the effect of applying target cost methods to pricing educational services at private universities in Iraq. The study also makes a number of recommendations, the most important of which is that Iraqi private universities that do not use the target cost method should adopt modern cost methods due to the benefits of those methods in analyzing market factors and students' preferences regarding the quality and timing of obtaining educational services.

The purpose of Al-Kazanani's study (2019) is to identify the impact of using management accounting systems in industrial companies to achieve a competitive advantage in those companies and what impact these methods have on giving the product a competitive advantage so that it satisfies the consumer and customers, as well as achieving acceptable profits for the company. The researcher uses Industrial companies in the Kurdistan region of Iraq as a model for study. The study yields numerous findings; the most significant is the degree of impact on the study sample of management accounting systems in industrial organizations has a moderate impact on overall performance and on its five subareas. The study also reveals a statistically significant impact of Management and current accounting on competitive advantage, with an overall significance level of less than <0.05 . The most essential of the study's recommendations is for enterprises in the Kurdistan region of Iraq to focus on management accounting procedures and cultivate accounting knowledge in the field of management accounting.

The Objective of Atma's study (2020) is to determine the impact of costs of quality (prevention costs, evaluation costs, internal failure costs, and external failure costs) on the financial performance of Jordanian service companies. They are detected in Jordanian transport companies listed on Amman Stock Exchange. The study concludes a number of significant conclusions, such as there is an impact of costs of quality on the financial performance of Jordanian transport companies listed on the Amman Stock Exchange as assessed by Tobin's Q index and the rate of return on assets, the impact of the dimensions of costs of quality costs on financial performance metrics is favorable or negative is inconsistent. The study recommends several recommendations, including due to its negative impact on financial performance, Jordanian transport company administrations must pay close attention to decreasing the

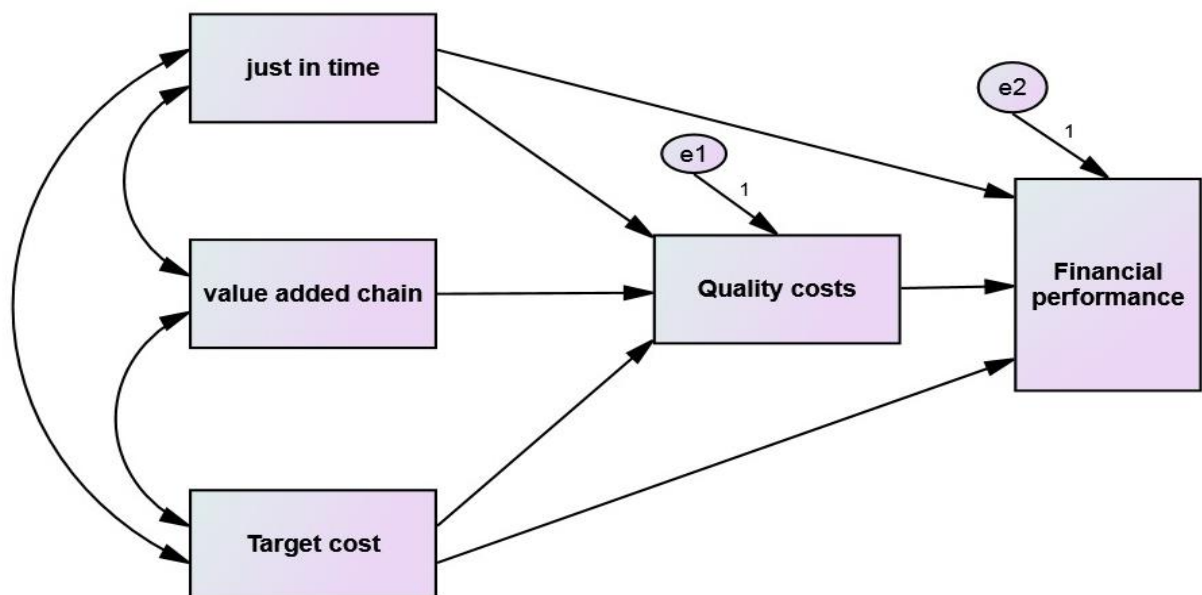
expenses of internal failure and the associated costs. This is accomplished by focusing more on measures, preventative, and assessment expenses, lowering internal and external failure costs.

RESEARCH METHODOLOGY

The study population consists of Jordanian industrial companies listed on Amman Stock Exchange, and the study sample consists of (34) companies until the end of the year (2021), where (311) questionnaires are distributed to financial managers and accountants working for these companies. The industrial sector is selected due to its significant role in the Jordanian economy, where it contributes directly and indirectly to about 40% of gross domestic product (GDP), and the industrial sector contributes to covering part of the trade balance deficit through its exports, which constitute about 85% of the total national exports (Chamber website Jordan Industry 2021).

Figure 1 illustrates the study model.

The following figure illustrates the study model



RESULTS AND DISCUSSION

To answer the research question: What is the impact of costs of quality as a mediator factor on the relationship between the dimensions of management accounting systems (timely production, value-added chain, and target cost) and the financial performance of industrial enterprises listed on Amman Stock Exchange?

The approach of Baron & Kenny's Steps is applied three times to each dimension of management accounting systems separately, as demonstrated below:

a) To determine the impact of quality costs as a mediator factor on the relationship between production in time and the financial performance of industrial companies listed on the Amman Stock Exchange. Baron & Kenny's Steps approach (Baron & Kenny, 1986; Imai, Keele & Yamamoto, 2010) is used. First, simple linear regression analysis is applied to reveal the Direct Effect between the independent variable (production in time: IV) and the dependent variable (financial performance: DV) (see Figure 1-b) determined by path (A) and table (1) shows that.

Table (1) presents the results of a simple linear regression analysis of the association between timely production and financial performance, path coefficients (A)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	2.141	0.238	8.988	0.000
timely production	0.394	0.060	6.564	0.000

*Dependent Variable: fFinancial Performance

It is observed from Table (2) that timely production has a value ($t = 6.564$) with a statistical significance (0.000), which is less than the level of statistical significance ($\alpha = 0.05$); This indicates that there is a statistically significant effect of timely production on financial performance, as the value of the regression coefficient between them (Direct Effect) is (0.394), with a standard error of (0.05). (0.060). In the second phase, simple linear regression analysis was used to evaluate the link between the independent variable (production in time: IV) and the median variable (quality costs: MV) (see Figure 1-b), as defined by the path (B), as shown in Table (2).

Table 2 presents the results of a simple linear regression study of the correlation between on-time production and quality costs, path coefficients (B)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	1.684	0.235	10.812	0.000
timely production	0.267	0.037	7.378	0.000

*Dependent Variable: Costs of Qulaity

It is observed from Table (2) that timely production has a value ($t = 7.378$) with statistical significance (0.000), which is less than the level of statistical significance ($= 0.05$); This indicates a statistically significant effect of timely production on quality costs, where the regression coefficient between them was ($a = 0.267$), with a standard error of ($sa = 0.037$). In the third step, multiple linear regression analysis was used to determine the relationship between the independent variable (production in time: IV) and the median variable (costs of quality: MV) on the one hand, and the dependent variable (financial performance: DV) on the other hand (see Figure 1-b). This is illustrated in Table (3).

Table (3) presents Results of multiple linear regression analysis of the relationship between timely production and quality costs on the one hand and financial performance on the other, path (C)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	1.345	0.188	3.611	0.000
timely production	0.387	0.061	5.674	0.000
costs of quality	0.411	0.063	7.622	0.000

*Dependent Variable: Financial Performance

A) It is observed from Table (3) that production in time has a value of ($t = 4.454$) with a statistical significance (0.000), which is less than the level of statistical significance ($= 0.05$); This indicates that timely production has a statistically significant effect on financial performance, and that costs of quality have a value ($t = 6.517$) with a statistical significance (0.000), which is less than the level of statistical significance ($= 0.05$); This indicates that quality costs have a statistically significant effect on financial performance

B) Consequently, it is evident from previous research that there is a partial mediating effect of costs of quality on the relationship between timely production and financial performance, where the value of the size of the indirect effect between them was ($a * b = (0.343) * (0.411) = 0.141$), and to determine the significance of this effect, we calculated ($a * b = (0.343) * (0.411) = 0.141$).

C) The statistic for this indirect effect; Sobel's test was performed using the equation, where the calculated (z) value was (6.245), which is greater than the tabular value of ($Z = 0.05 = 1.96$) at the level of statistical significance (0.05); This indicates that the partial median effect of the variable of costs of quality on the relationship between timely production and financial performance is statistically significant.

D) In the first step, Baron & Kenny's Steps method (Baron & Kenny, 1986; Imai, Keele, & Yamamoto, 2010) was utilized to determine the impact of quality costs as a mediating variable on the value-added chain relationship with the financial performance of industrial companies listed on the Amman Stock Exchange. The Direct Effect between the independent variable (value-added chain: IV) and the dependent variable (financial performance: DV) (see Figure 1-b) as defined by path (A) was determined using simple linear regression analysis, as shown in Table (4).

Table (4) presents Results of simple linear regression analysis of the relationship between the value-added chain and financial performance, path (A)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	3.842	0.196	12.965	0.000
value-added Chain	0.445	0.037	4.694	0.000

*Dependent Variable: Financial Performance

Table (4) reveals that the value-added chain has a value ($t = 3.930$) with a statistical significance (0.000) that is less than the level of statistical significance ($= 0.05$); This indicates a statistically significant impact of the value-added chain on financial performance, as the value of the regression coefficient between them was (Direct Effect) (0.446), with a standard error of 0.05. (0.037). In the second phase, simple linear regression analysis was used to assess the link between the independent variable (value-added chain: IV) and the median variable (costs of quality: MV) (see Figure 1-b), as indicated in Table (5).

Table (5) presents the results of a simple linear regression analysis of the association between value-added chain and quality costs, path coefficients (B)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	2.808	0.241	11.653	0.000
value-added chain	0.279	0.062	4.510	0.000

*Dependent Variable: costs of quality

Table (5) reveals that the value-added chain has a value ($t = 5.371$) with a statistical significance (0.000) that is less than the level of statistical significance ($= 0.05$); which indicates a statistically significant effect of the value-added chain on quality costs, where the regression coefficient between them was ($a = 0.279$) with a standard error of ($sa = 0.062$). In the third phase, multiple linear regression analysis was used to determine the link between the independent variable (value-added chain: IV), the mediating variable (costs of quality: MV),

and the dependent variable (financial performance: DV) (see Figure 1-b). Table (6) demonstrates this

Table (6): Results of multiple linear regression analysis of the relationship between the value-added chain and costs of quality on the one hand, and financial performance on the other, path (C)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	1.494	0.281	5.310	0.000
value-added chain	0.132	0.061	3.614	0.031
costs of quality	0.567	0.042	8.001	0.000

*Dependent Variable: financial performance

It is observed in Table (6) that the value-added chain has a value ($t = 3.614$) with a statistical significance (0.031) that is less than the level of statistical significance ($= 0.05$); This indicates that the value-added chain has a statistically significant impact on the financial performance, and that the quality costs have a value ($t=8.001$) with a statistical significance (0.000) that is less than the level of statistical significance ($=0.05$); This indicates that the quality costs. Consequently, it is evident from the previous findings that there is a partial mediation of quality costs on the relationship between the value-added chain and financial performance, where the value of the size of the indirect effect between them was ($a * b = (0.279) * (0.574) = 0.160$), and to reveal the statistical significance of this finding, it is necessary to calculate the p-value. For this Indirect Effect; Sobel's test was used, and the calculated (z) value was (3.836), which is greater than the tabular value ($Z = 0.05 = 1.96$), at the level of statistical significance (0.05); This indicates that the partial median effect of the variable of quality costs on the relationship between the value-added chain and financial performance is statistically significant.

E) Baron & Kenny's Steps approach (Baron & Kenny, 1986; Imai, Keele, & Yamamoto, 2010) was utilized to determine the effect of quality costs as an intermediate variable on the link between goal cost and financial performance for industrial companies listed on the Amman Stock Exchange. Apply simple linear regression analysis to calculate the Direct Effect (see Figure 1-b) between the independent variable (target cost: IV) and the dependent variable (financial performance: DV) as indicated by the path (A), as shown in Table (7).

Table (7) shows results of simple linear regression analysis of the relationship between target cost and financial performance, path (A)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	2.622	0.245	10.714	0.000
target cost¹	0.272	0.062	6.541	0.000

*Dependent Variable: financial performance

It is observed from Table (7) that the target cost has a value ($t = 6.541$) with statistical significance (0.000), which is less than the level of statistical significance ($= 0.05$); This indicates that the target cost has a statistically significant impact on the financial performance, as the regression coefficient between them was (Direct Effect) (0.272), with a standard error of 0.05. (0.062). In the second phase, simple linear regression analysis was used to evaluate the link between the independent variable (goal cost: IV) and the median variable (costs of quality: MV) (see Figure 1-b), as defined by the path (B), as shown in Table (8).

Table (8) shows results of simple linear regression analysis of the relationship between target cost and quality costs, path

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	3.684	0.128	10.284	0.000
target cost	0.419	0.039	4.608	0.000

*Dependent Variable: costs of quality

Table (8) reveals that the target cost has a value ($t = 4.608$) with a statistical significance (0.000) that is less than the level of statistical significance ($= 0.05$); indicating a statistically significant effect of the target cost on quality costs, where the regression coefficient between them was ($a = 0.419$) with a standard error of ($sa = 0.039$). Table (9) illustrates the application of multiple linear regression analysis to determine the relationship between the independent variable (target cost: IV) and the mediating variable (quality costs: MV) on the one hand, and the dependent variable (financial performance: DV) on the other (see Figure 1-b).

Table (9) presents the results of a multiple linear regression analysis of the link between goal cost and quality costs on the one hand, and financial performance on the other, path coefficients (C)

Regression coefficient*	Estimate	Standard Error	t	Sig.
Constant	1.429	0.277	5.155	0.000
target cost	0.155	0.042	2.630	0.009
costs of quality	0.574	0.058	7.279	0.000

*Dependent Variable: financial performance

It is observed from Table (9) that the target cost has a value ($t = 2.630$) with statistical significance (0.009) that is less than the level of statistical significance ($= 0.05$); This indicates

that the target cost has a statistically significant impact on the financial performance, and that the quality costs have a value ($t = 7.279$) with statistical significance (0.000) that is less than the level of statistical significance ($= 0.05$); This indicates that $t = 7.279$ does not have a statistically. The size of the indirect effect between them was ($a * b = (0.419) * (0.574) = 0.241$), and to reveal the statistical significance of this Indirect Effect; Sobel's test is employed, where the calculated z-value was (3.896), which is greater than the tabular value of ($Z = 0.05 = 1.96$).

RESEARCH RESULTS AND RECOMMENDATIONS.

- 1- The production in time has a value ($t = 6.564$) with a statistical significance (0.000) that is less than the level of statistical significance ($= 0.05$); This indicates that timely production has a statistically significant effect on financial performance, as the value of the regression coefficient between them is (Direct Effect) (0.394), with a standard error of 0.05. (0.060). In the second phase, simple linear regression analysis was used to assess the relationship between the independent variable (time of production: IV) and the median variable (quality costs: MV) (see Figure 1-b) (B),
- 2- There is a statistically significant relationship between the value-added chain and the financial performance, with a regression coefficient of (Direct Effect) (0.446) and a standard error of (0.11). (0.037). Figure 1-b depicts the application of simple linear regression analysis to identify the link between the independent variable (value-added chain: IV) and the median variable (quality costs: MV) (B).
- 3- There is a statistically significant relationship between the goal cost and the financial performance, as the regression coefficient between the two variables is (Direct Effect) (0.272), with a standard error of (0.05). (0.062). Path analysis was used to determine the link between the independent variable (target cost: IV) and the median variable (quality costs: MV) (see Figure 1-b) (B).

After reviewing the study's data, the researcher suggests the following:

- 1- The company's management must take stringent measures to reduce the expenses of damage, loss, and waste. Applying the value chain to your operations and procedures requires time and effort.
- 2- Seeking to enhance the ability of corporate departments to capitalize on market opportunities through the implementation of research initiatives that examine markets and customer needs.

- 3- Work on training accountants and factory managers in the use of processes in a timely manner. Modern management accounting, which enhances a company's ability to identify value-added operations and exclude those that do not contribute to value creation.
- 4- The departments of industrial companies develop and modernize the production processes of the company in accordance with Recent developments in the field of industry, and increase the effectiveness of the application of management accounting methods, such as the value chain and target cost, in a manner that positively impacts its financial performance and its ability to achieve the competitive advantage.
- 5- Jordanian industrial companies analyze the costs of their products prior to beginning production in order to calculate a price that is suitable for their clients. They then use competitive bidding and comparison to acquire the necessary manufacturing supplies, including raw materials. It accomplishes the desired cost and improves the effectiveness of the company's pricing policies.

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