

The Extent of Using Lean Accounting Tools and their Impact on the Achievement of a Competitive Advantage in the Jordanian Commercial Banks

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Abstract: This study aimed to explore the extent of using lean accounting tools and their impact on the achievement of a competitive advantage in the Jordanian commercial banks. To meet the goals of this study, the researcher designed a questionnaire. The questionnaire forms were passed to Jordanian commercial banks that were listed on Amman stock exchange before the period 31/12/2020. Those banks are thirteen banks. A purposive sample was chosen. It consists from 78 administrators working in Jordanian commercial banks. The researcher found that the extent of using lean accounting tools in those banks is high. It was found that the extent of exerting effort by those banks to achieve a competitive advantage is high. It was found that using lean accounting tools jointly has an impact on achieving a competitive advantage in those banks. In the light of the study's results, the researcher offered several recommendations. They recommend providing more attention to the extent of using lean accounting tools by the management of those banks. That should be done to benefit from the merits of implementing them and seek achieving a competitive advantage.

Key-Words: Lean accounting tools, competitive advantage, Jordanian commercial banks

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1 Introduction

1.1 Preface

Several challenges have been facing the business environment. They emerged due to the technological revolution and the scientific developments. Such developments led to increasing the severity of the competition between the business organizations on the local and global levels. They led to the emergence of new concepts related to business organizations. Such concepts include: lean accounting, rationalized thinking, and lean production. Lean production requires having a production philosophy that is comprehensive. This philosophy must aim at eliminating defects and making improvements in an ongoing manner through using several tools and methods. Those tools and methods aim at eliminating the wastage in resources. They aim at utilizing resources efficiently and focus on the quality in all stages and operations. They aim at meeting the demands and expectations of customers [54]. The concept (lean) is used today in all areas, including industrial, service-related areas and etc.. Business organizations started providing

attention to the lean-related concepts. In the light of such attention, changes to accounting have been made. The conventional accounting systems don't fit with the lean philosophy. This philosophy is connected to the reduction of production costs. Such reduction is made through reducing the wastage of resources and providing accurate information to all the parties who benefit from accounting data. It's made through several tools [29]. Lean accounting is connected to rationalization. It's a method for calculating costs, enforcing control and measuring things. It reflects rational thinking. It enables one to make decisions through using various tools. Those tools offer supportive, clear, reliable and correct information that leads to increasing time and money [25].

Those changes and challenges forced business organizations in general and banking organizations in particular to develop the provided services. They forced those organizations to offer a variety of services in order to improve competitiveness. In the light of those changes and challenges, achieving a competitive advantage became a strategic goal sought by banks. The most important factors

affecting the achievement of a competitive advantage include: making ongoing improvements to the quality of the provided services in order to provide customers with value. They include improving the operational activities and reducing the extent of wasting resources in organizations. Thus, banks today seek using tools and methods that enable them to deliver a variety of banking services of high quality. They seek offering a variety of banking services of high quality in order to raise the satisfaction of services, and raise their market share. They seek offering such services to show creativity, and innovation, and reduce the costs in a manner that is distinguished from the manner adopted by the competing local, regional and global banks. The conventional cost accounting, and administrative accounting systems became ineffective in meeting the demands of banks in the light of exerting effort to raise the quality of services and reduce costs. Banks today seek using lean accounting methods and tools. Those methods and tools have proven their effectiveness in the industrial sector in terms of providing the needed information. Such information enables organisations to utilize resources optimally and keep up with the latest developments in the markets. It prepares organisations to speed up operations, reduce the wastage in the resources in operations and reduce the number of the committed mistakes. It enables organisations to meet the demands of customers and markets. It prepares organizations to reduce costs [2]. Thus, this study aimed to explore the extent of using lean accounting tools and their impact on the achievement of a competitive advantage in the Jordanian commercial banks.

1.2 Statement of the Problem

The technological developments and environmental changes forced Jordanian commercial banks to provide attention to the improvement of their competitiveness. The Jordanian banking sector is considered the sector that affects the national economy the most. The management of those banks must adopt strategies and use methods for utilizing technical, human and financial resources optimally. Such utilization enables those banks to improve competitiveness and offer advanced and distinguished services of high quality with incurring the least costs. It enables those banks to achieve the targeted profitability. Thus, the attention provided to the management of service cost through regulating

the use of resources and utilizing them optimally. It's provided through eliminating the activities and operations that don't add value. Thus, more attention must be provided to showing excellence in the delivery of services. More attention must be provided to finding modern accounting tools and methods that allow organization to manage their service costs efficiently. Such tools and methods include the modern cost and administrative accounting tools and methods. Those tools and methods have been developing much in order to fit with the changes and developments that occurred to the work environment [61]. Companies -including industrial companies – seek providing attention today to lean production. Lean accounting emerged to meet the demands of the business environment. It involves using lean accounting methods. Those methods aim at reducing the wastage in resources and providing the best information needed for making the right decision on the right time [35]. It's been proven that lean accounting tools are effective in carrying out the control operations, making decisions, and reducing and rationalizing costs. That has been proven in organizations in general and industrial organizations in particular. In the industrial and banking sectors, more attention is provided to the use of lean accounting tools. Banks have been providing attention to lean accounting tools to get more information about the way of improving the decision making process, reducing costs, save time, getting rid of the unnecessary operations and focusing on customer value [33] They have been providing attention to lean accounting tools to ensure their survival, and achieve a competitive advantage. The problem of this study is represented in exploring the extent of using lean accounting tools and their impact on the achievement of a competitive advantage in the Jordanian commercial banks. This study offered answers to the questions below:

- 1- What is the extent of using the lean accounting tools in the Jordanian commercial banks?
- 2- What is the extent of availability of the competitive advantage dimensions in the Jordanian commercial banks?
- 3- Does the use of the lean accounting tools (i.e. target cost, ongoing improving, value stream maps, and employee satisfaction) have an impact on the achievement of a competitive advantage (quality, cost, and creativity) in the Jordanian commercial banks?

- 4- What is the competitive advantage dimension that is affected the most by the extent of using the lean accounting tools in the Jordanian commercial banks?

1.3 The study's Significance

This study is significant because it offers theoretical framework. This framework includes information about lean accounting tools (i.e. target cost, ongoing improving, value stream maps, and employee satisfaction). Those tools are considered modern administrative accounting tools. This framework includes information about the achievement of a competitive advantage (quality, cost, and creativity). This study is significant because it offers information about the lean accounting tools in the banking sector. The latter sector plays a major role in developing economy, and showing innovation and excellence in the delivery of service. As far as the researcher knows, this study is the first study that targets the use of lean accounting in the banking sector in Jordan. It's significant because it offers recommendations to the banking sector. Those recommendations are related to the way of benefiting from the lean accounting tools in achieving a competitive advantage in the banking sector in the light of having a competitive environment. They enable the banking sector to utilize resources optimally, reduce costs, delivery banking services of high quality and achieve a competitive advantage. This study is significant because it explored the impact of using lean accounting tools on achieving a competitive advantage. This topic is a modern concept. This study offers scientific contributions in the accounting field. It offers data that assists researcher in doing future studies.

2 The study's Objectives

This study aimed to explore the extent of using lean accounting tools and their impact on the achievement of a competitive advantage in the Jordanian commercial banks. It aimed to:

1. Identify the extent of using the lean accounting tools in the Jordanian commercial banks.
2. Identify the extent of availability of the competitive advantage dimensions in the Jordanian commercial banks.
3. Identify whether the use of the lean accounting tools (i.e. target cost, ongoing improving, value stream maps, and employee satisfaction) has an

impact on the achievement of a competitive advantage (quality, cost, and creativity) in the Jordanian commercial banks

4. Identify the competitive advantage dimension that is affected the most by the extent of using the lean accounting tools in the Jordanian commercial banks.

3 Literatures

3.1 Lean Accounting

3.1.1 The Concept of Lean Accounting

Lean accounting is a modern concept. It emerged due to the lean manufacturing system. This system is a production system designed by Toyota Company. It aims to reduce the wastage in resources and maximize the value provided to consumers [45]. The early definitions of this concept were provided during the year 2005 in a conference about lean accounting. This conference aims to improve the accounting methods and tools. Lean accounting tools aim to offer an alternative system to conventional administrative and cost accounting tools. There are various definitions offered by researchers for the concept (lean accounting) due to having various views about it. For instance, [26] defined lean accounting as the optimal use of all the resources in the organization and reduce the wastage in resources in order to reduce costs. [9] defines lean accounting as an accounting system that supports lean manufacturing through which one can measure earning and costs in a manner that fits with the accounting standards. Such measurements represent the financial and non-financial performance of the company. [35] defines lean accounting as the change that must be made to the systems of accounting, control and measurement in order to improve the lean manufacturing system. [24] define lean accounting as a modern administrative method that is based on the lean principles and fundamentals. Such accounting provides much attention to financial information in order to support lean production. It enables organizations to reduce the wastage in resources .

Based on the aforementioned information, lean accounting is a comprehensive system that involve several tools and operations. It enables the organization to use resources optimally and eliminate the wastage in resources. It can meet such goals

through eliminating the operations that do not add value. It can meet such goals through making ongoing improvements for production and operations. That shall lead to having excellence in the quality of production and reducing costs. It shall lead to providing financial and non-financial information. It shall enable one to have access to an effective control system. It aims at providing clear information in a daily, weekly and monthly manner about operations and value stream. It aims at maximizing the earnings and making ongoing improvements. It aims at providing internal and external clients with value. It focusses on financial and non-financial performance, like: quality, time and efficiency [38]. It aims at reducing costs through getting rid of the activities that don't add value and improving the quality of services. It aims at providing an effective control system and financial and non-financial performance measurements [43]. It aims at making ongoing improvements on the long term through using financial and non-financial performance measurements. It aims at providing clear, accurate and comprehensible information at the right time in order to enable employees to make effective decisions. Such decisions are related to price and profits. They aim at increasing value. Lean accounting aims at increasing the financial savings through eliminating the unnecessary activities and reduce costs, and eliminate the wastage of resources [35].

3.2 Lean Accounting Tools

Lean Accounting has Several Tools that are Mentioned Below:

3.2.1 Target Cost

Target cost is a pricing tool and a system for making profitability plans and managing costs. It was used for the first time in Japan in 1960. Based on practical experiments in Japan, it's effective. Thus, industrial companies use this tool as a distinguished method in managing costs and profits. Then, service companies and public agencies started using this tool [21]. It can be used to reduce the cost of products throughout the design stage till the distribution stage. It can be used to meet the job demands and make ongoing improvements to the product. It enables organizations to meet their goals in the light of the competition [63]. [56] adds that target cost is a modern approach to manage the cost of products and reduce the production costs. Target cost enables

organizations to achieve the targeted profit. It meets such goals through providing attention to market-related studies in order to reach information about the customer demands and expectations, and competitors' prices. It enables organizations to meet the desires of customers through producing products and delivering services in a manner that fits with the customers' desires with incurring less costs and assigning competitive prices. Such prices shall enable the organization to acquire the targeted market value and achieve a competitive advantage. Thus, it aims at managing the costs of products (i.e. reducing such costs) and increasing the quality of products through showing attention to market-related studies. It aims at achieving a competitive advantage [64]. [47] adds that target cost is a strategic cost management tool that enables organizations to meet the requirements of the competitive environments. Target cost aims at meeting such requirements through developing products based on the customers' desires, and expectations. It aims at meeting such requirements through achieving alignment between reducing costs and raising quality. It aims at meeting such requirements through using a method for encouraging employees at facilities to offer suggestions and thoughts that aim at fostering development and promoting creativity. It is one of the competitive advantage dimensions. It aims at managing prices and costs. The procedures of target cost involve determine price based on the market-related study. Then, the target profit is deducted from this price to reach the targeted cost. The product is produced based on the targeted cost [39].

3.2.2 Ongoing Improvement (Kaisan)

It is a series of operations and procedures that aim at improving activities and operations in companies in an ongoing manner [49]. It refers to the process of exerting effort in an ongoing manner to improve performance and raise quality in order to maximize the value provided to consumers, reduce costs, meet the demands of consumers and satisfy consumers [53]. It involves a series of activities and procedures in the aim of making ongoing improvements to production operations and activities. It aims at raising performance efficiency and effectiveness [22]. Through ongoing improvement, organizations can improve their ability to deliver products and services that are more competitive and meet the customers' demands and expectations [32]. Ongoing improvement involves using several strategies in the

activities and operations that aim making ongoing improvement to services and products (Juran Trilogy, kaizen strategy, and Benchmarking strategy) [34].

3.2.3 Value Stream Maps

Value stream maps refer to a visual summary that reflects the financial situation for the flow of resources and information. It enables organizations to set a distinguished future visualization with showing a better performance for the flow of resources and information. It aims at meeting such goals through focusing on the operations that aim at reducing the wastage in resources throughout the production line. It aims at meeting such goals through getting rid of the defected stock and unnecessary operations that don't add value. It aims at meeting such goals through reducing the waiting time in order to improve operations. It aims at identifying the flow of activities and information through a graph that involves using various symbols. Such symbols have meanings related to stock, examination, delay and waiting [51]. It's considered one of the most effective lean accounting tools. Such tools involve planning, improvement and implementation [62]. It enables organizations to get a complete visualization about the flow of operations, understand operations, and identify the reasons behind wastage in resources. It enables organizations to identify the number of activities that don't add a value. It enables organizations to identify the number of improvement opportunities and reduce the waiting time. It serves as a mean for communication, planning and managing change [18].

3.2.4 Employee Satisfaction

Lean accounting focus on raising employee satisfaction and investing in employees. It aims at improving their psychological wellbeing and performance [9]. It is an indicator for measuring performance. There is a positive correlation between production and employee satisfaction. The higher the employee satisfaction is, the higher the production is [6]. Employee satisfaction is a positive attitudes that one has towards his job. It's affected by several factors including social, environmental, economic, administrative and technical factors [5]. It's affected by environmental, psychological and philological factors. It reflects the employees' relationships with his managers and colleagues at work [32].

Employees are the most valuable resources in organization. They are the factor that affects the competitive advantage the most in organizations. Thus, organizations show much attention to human resources. They seek acquiring employees of distinguished competencies, developing such distinguished competencies and retain those employees [25]. [3] adds that an increasing attention has been provided to human capital. That's because human capital significantly affects the success of any organization and the improvement of competitiveness. Without utilizing human resources efficiently, the technical and financial resources shall be deemed worthless.

3.3 Competitive Advantage

Several researchers offered definition for the term (competitive advantage) due to perceiving it from various perspectives. [46] defines this term as a strategic element that enables organizations to seize opportunities to achieve profits in an ongoing manner. [60] defines this term as distinguished competencies that are possessed by an organization and distinguish it from other organizations. The competitive advantage can be acquired through making effective administrative decisions. [42] defines this term as a set of skills, technologies, resources and capabilities that organizations can invest in them in order to provide customers with distinguished benefits. Al-[14] add that any organization can achieve a competitive advantage through using a variety of methods. However, the most important methods amongst those method are the ones of lower costs (production with competitive cost and selling with competitive prices). They are the ones that enable the organization to show distinguished products (creativity in products) and promote good impression (through ads, trademark, and word of mouth). Achieving a competitive advantage is a goal sought by organizations through carrying out ongoing improvement and utilizing resources optimally. It's sought by organisations through utilizing resources in order to promote innovation to provide customers with greater value. It enables organizations to survive in the light of the global competitive environment. The global environment became competitive due to the rapid developments of ICTs and the increase in the results of studies [40] [51].

3.4 Competitive Advantage Dimensions

The competitive advantage dimension varies from one researcher and book to another. The targeted dimensions in this study are (cost, quality and creativity).

3.4.1 Cost

Low cost is considered the most significant competitive advantage dimension. It enables organizations to get a greater market value. Customers seek getting products with the least prices and having the sought features. Providing customers with such products requires having potentials by the organization in order to control production process, use modern technology and identify the aspects that affect cost [15], [58].

3.4.2 Quality

Business organizations today seek using strategies and method that improve their products. They seek that due to the increasing awareness of customers and having customers' expectations in terms of products and services. The purchasing decisions are connected to cost and quality [57]. [54] define quality as meeting the customers' expectations. [23] define quality as the ability of the organization to interact with the environment in order to turn the inputs into outputs that are valuable for consumers. Organizations can deliver products of high quality through providing product design of high quality. The product design must be having features that meet the customer expectations and desires. The organization management must follow up the production operations and the process of delivering services and products. It must do that to deliver the product or service in the manner determined in the plan with meeting the conditions set in the plan. It must do that to deliver products of high quality. It must provide much attention to the after-sale services, such as: maintenance and warranty. The after-sale services make customers feel trust and secure when dealing with the company. The management must provide much attention to reliability, reputation and responsiveness [8], [50]. Quality enables organizations to show efficiency in utilizing resources and improving the performance efficiency when doing operations. It enables organisations to meet the customer expectations and desires. It enables organisations to increase the market value and earnings. It enables the

organization to achieve a competitive advantage [17].

3.4.3 Creativity

Creativity refers to any effort or act that aims at improving the products, information or services of an organization in order to benefit one, society and the organization [17][25]. [41] adds that this term refers to an implementation for an idea that was developed inside the organization or an idea that was borrowed from someone outside the organization. This idea may be related to the product, system, mean, operation, service or policy. It's new for the organization. Creativity is deemed fundamental in the organization in order to improve its competitiveness and excel in the competition [27]. Organizations can show administrative creativity through re-designing the operations and organizational structure and providing new control systems that aims at improving the relationships and interaction between people. Such systems aim at enabling the organization to meet their goals [20]. Organizations can show technical creativity through innovating new products and services and developing existent products in order to meet the customer expectations. They can show such creativity through making changes to the organizational tools [44]. Creativity is connected to technological development. Such development allows the organization to come up with information, exchange information and ideas between the organization, customers and stakeholders. It enables the organization to solve problems and come up with new ideas. It enables the organization to show creativity, and excel in the competition [37].

The researcher believes that the relationship between lean accounting tools and competitive advantage is a strong, direct and clear relationship. Using lean accounting tools enables business organizations to:

1. Manage, reduce and rationalize the service cost starting from the stage of designing the service and determining the service price based on the market-related studies. The lean accounting tools enable the organization to eliminate the wastage in resources. That shall contribute to reducing the cost of the delivered services.
2. Make ongoing improvement to services. Using lean accounting tools enables business organizations to deliver a variety of services and utilize resources efficiently and effectively. It enables organizations to deliver a variety of

services that surpass the customer expectations with incurring less costs and showing higher quality.

3. Offers organizations the opportunities to gain knowledge about global practices, search for new and innovative methods in delivering services in a creative manner.

Thus, lean accounting enables organizations to deliver a variety of distinguished and advanced services of high quality with incurring lower cost and showing high quality. It enables organizations to raise their market share.

4 Previous Studies

Ahmad (2019) [6] aimed to explore the role of lean accounting tools in showing entrepreneurship in higher education institutions in Saudi Arabia from the perspective of faculty members in King Khalid University. Those tools are: ongoing improvement and employee satisfaction. It was found that there is a significant relationship between lean accounting tools and entrepreneurship through ongoing improvement and innovation.

Al-Akour (2018) [12] explored the impact of using lean accounting tools on achieving a competitive advantage. Such tools include: stream map value, performance measurement plan, target cost, ongoing improvement, and score box. The competitive advantage dimensions are quality, cost, flexibility, and excellence. It was found that using lean accounting tools has an impact on the achievement of a competitive advantage in the Jordanian public joint stock industrial companies. The performance measurement plan has the strongest impact on achieving a competitive advantage. Quality is the one that's affected the most by the lean accounting tools.

Mushen (2016) [55] explored the impact of using lean accounting tools on achieving a competitive advantage in the light of adopting a total quality-based approach. Such Tools include: target cost, stream map value, employee satisfaction, and ongoing improvement. The study targeted Palestine Bank. Target cost and stream map value are the ones that affect the achievement of a competitive advantage the most. Employee satisfaction and ongoing improvement are the ones that affect the achievement of a competitive advantage the least.

Abed Almajeed, and Yousif (2019) [2] explored the role of lean accounting in achieving a competitive

advantage in industrial organizations. The targeted tools are: (value chain, target cost, value stream, and activity cost). It was found that using lean accounting tools enables business institutions to reduce costs, raising earnings, and increase quality and customer satisfaction. Such use enables business institutions to respond to customers fast. It enables business institutions to achieve a competitive advantage through the value chain. Such chain provides organizations to acquire good resources, and carry out manufacturing operations. It enables organizations to reduce costs and improve their production ability in a manner that reduces cost, and meet the consumer desires. It enables organizations to find channels for distribution, promotion and delivering products on the right time with setting the right price. Value stream enables organization to determine the product cost and reduce it through setting an effective pricing policy. It enables the management to determine the target price after determining the target profit based on specific competition-related conditions. It enables the management to manage cost based on the activities and get rid of the activities that don't add a value. It enables the management to acquire important information about competitors. It reduces the costs and enables the management to meet the customer demands. It improves the ability of the organization to compete local and global organizations. It enables the organization to expand the market share and achieve a competitive advantage.

Alzbaidi and Albakri (2015) [30] explored the impact of using lean accounting tools on supporting governance to achieve a competitive advantage in the light of adopting. They carried out the study in an industrial company specialized in electrical industry. This company is affiliated with the Ministry of Industry and Minerals. It was found that lean accounting is an information system that is based on financial and non-financial information. THIs system is used in all the administrative levels in the economic unit. It was found that lean accounting enables the organization to respond fast to the changes that occur to the business environment. Such accounting enables the organization to respond fast to customer demands on the right time. Lean production -through using value stream -enables the organization to achieve a competitive advantage.

Aidan et al. (2020) [7] explored the the impact of using lean accounting on achieving a sustainable competitive advantage in Kufah Cement Factory.

They explored the impact of lean accounting on sustainable competitive advantage dimensions (i.e. cost, quality, innovation and reputation). It was found that the organization that has an effective administrative system and organizational climate has the ability to use the lean accounting system. It was found that having an effective financial and production system enables the organization to acquire the required resources with incurring the least possible cost. This system enables the organization to achieve a sustainable competitive advantage.

Ali (2016) [19] explored the impact of lean production on the competitiveness in the public pharmaceutical company in Samera'. The lean production dimensions are: (comprehensive productive maintenance, organizing work sites, quick change and cellular manufacturing) on competitiveness dimensions. The competitiveness dimensions are: cost, quality, flexibility and delivery. It was found that there is a positive relationship between lean production and competitiveness in the target company. It was found that lean production dimensions have a significant impact on cost, production and flexibility. However, such dimensions have a poor impact on delivery due to the scarcity of the training courses given to employees to improve their skills in delivery.

Ibn Kulaib (2020) [47] explored the relationship between using the target cost tool and achieving a competitive advantage in an industrial company in Hadramut. The targeted competitive advantage dimensions are: cost, quality and creativity. It was found that using the target cost tool contributes to increasing the probabilities of achieving a competitive advantage. It was found that using the target cost tool contributes to achieving a competitive advantage.

Alexandzani (2019) [16] explored the impact of using modern administrative accounting methods on achieving a competitive advantage through reducing cost in the industrial companies in Kurdistan. Such methods include: target cost, value engineering, activity-based cost, ongoing improvement, and balanced performance card. It was found that the modern administrative accounting methods have a major impact on achieving a competitive advantage through providing beneficial information. Such information enables the organization to reduce costs, reduce wastage and eliminate unnecessary resources and activities. It contributes to achieving a

competitive advantage, raising customer satisfaction and meeting customer demands.

Ishaq (2019) [48] explored the relationship between lean accounting and competitiveness in industrial companies. It was found that lean accounting in industrial companies has a significant impact on solving problem and improving quality. Offering attention to customer satisfaction contributes to utilizing resources optimally.

Arora et al. (2017) [31] shed a light on the meaning, goals and emergence of lean accounting. They shed a light on the merits of lean accounting. They identified the differences between lean and conventional accounting. The targeted lean accounting tools are: value series chain and value stream maps. It was found that lean accounting is a systematic system used for reducing the wastage in resources in the production process and reducing the waiting time. This system is used for reducing the time needed for delivery and storage and achieving ongoing improvement. It aims at raising customer value and making them satisfied.

Al-Musawi (2020) [10] explored the role of value chain analysis in rationalizing costs, raising market share and improving competitiveness in industrial companies. He targeted the companies manufacturing frames. It was found that value chain analysis allows the organization to identify the damaged and wasted resources and utilizing resources optimally. This analysis allows the organization to eliminate the un-necessary costs and the operations that don't add a value. It positively affects the pricing policy and enables organizations to achieve a competitive advantage in cost and reduce the prices. It enables organizations to increase their market share through having a better production with a lower cost. It enables organizations to offer products of higher quality with incurring lower cost and meeting the customer desires.

Al-Tunisi & Siam (2021) [29] explored the extent of using lean accounting tools and their impact on rationalizing and reducing costs in Jordanian public joint stock companies. They explored the obstacles hindering such use. The targeted tools are: activity-based cost, activity-based management, target cost, balanced performance card and production on the right time). Several results were reached. For instance, it was found that the extent of using lean accounting tools is moderate in the targeted companies. The targeted obstacles include: lack of knowledge among managers about the merits of such

tools. The use of such tools contributions to rationalizing and reducing costs in Jordanian public joint stock companies. Several recommendations were proposed. The researchers recommend exerting effort to overcome the obstacles hindering the use of lean accounting tools in Jordanian public joint stock companies. They recommend providing more attention to such use by the management of those companies.

Cabrita & Santos (2016) [36] shed a light on the lean accounting methods used in banks. They shed a light on challenges, benefits and factors affecting the use of such methods. They carried out the study in a Portuguese bank. They found that such methods aim at reducing the wastage in resources, and promoting team work spirit. The most important lean accounting tools are the value chain map and brainstorming. It was found that lean accounting tools affect the performance effectiveness when carrying out operations in banks. Such tools increase the value provided to consumers.

Allawi et al. (2019) [24] explored the alignment between lean accounting and green production technology through increasing production, reducing cost, and time, raising quality, fostering sustainability, promoting creativity, providing secure environment for employees, and reducing wastage in resources. The lean accounting tools include: value stream map. They targeted 500 industrial companies in Thailand. The sample was chosen from the managers of the accounting and production departments. It was found that lean accounting increase the green production and enables the organization to achieve a competitive advantage.

Comments on the aforementioned studies:
 This study aimed to explore the extent of using lean accounting tools and their impact on the achievement of a competitive advantage in the banking sector. This sector is a significant sector that plays a significant role in achieving economic development. It has been suffering from various environmental and

technological challenges. It has been suffering from severe competition. Most of the aforementioned studies shed a light on the use of lean accounting tools in the industrial sector. This study targets a sector that has different features.

5 The Study's Hypotheses and Study Model

5-1 The Study's Hypotheses

The study's hypotheses are drafted in the part below based on the study's problem and goals

Main Hypothesis

H0: There was no statistical impact at ($\alpha \leq 0.05$) significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on the achievement of a competitive advantage (quality, cost, and creativity) in the Jordanian commercial banks.

The sub-hypotheses:

H0.1: There was no statistical impact at ($\alpha \leq 0.05$) significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on quality in the Jordanian commercial banks.

H0.2: There was no statistical impact at ($\alpha \leq 0.05$) significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on cost in the Jordanian commercial banks.

H0.3: There was no statistical impact at ($\alpha \leq 0.05$) significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on creativity in the Jordanian commercial banks.

5.2 The Study's Model

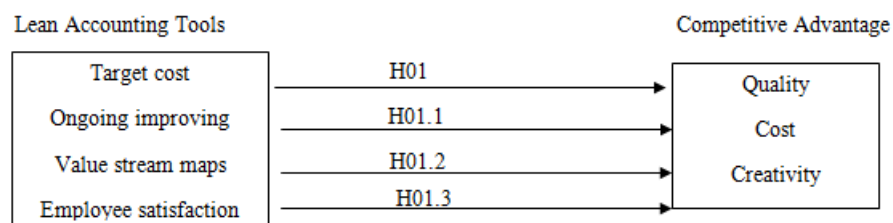


Fig. 1: The study's model

6 Methodology

The researcher adopted a descriptive analytical approach to identify the meaning of lean accounting and their tools. She adopted this approach to explore the impact of such tools on the achievement of a competitive advantage in Jordanian commercial banks. She reviewed several studies related to the topic. She adopted an inductive approach to get the required data from the primary sources. She used a questionnaire to obtain data from the sample about the variables. She used the relevant statistical methods.

6.1 Population and Sample

The population involves all the administrators working in Jordanian commercial banks that were listed on Amman stock exchange before the period 31/12/2020 (i.e. 13 banks). A purposive sample was chosen. It consists from 78 administrators working in Jordanian commercial banks. Thus, 78 questionnaire forms were passed online. All of the forms were retrieved. The response rate is 100%.

6.2 Statistical Methods

The statistical methods used for answering the questions are:

- Percentages and frequencies
- Cronbach alpha coefficient
- Means and standard deviations
- Stepwise multiple regression

6.3 Data Collection Methods

The following methods are used to collect data to meet the goals and test hypotheses:

Secondary sources: They include: books and studies published in peer-reviewed journals and periodicals. They include: PhD dissertation and MA theses that are related to the topic.

Primary source: It's represented in the questionnaire designed by the researcher based on the hypotheses, questions and results of previous studies. Those studies include: the ones carried out by [7] , [10], [12], [24] ,[47], [55].

6.4 Instrument

The researcher developed a questionnaire for exploring the impact of using lean accounting tools on achieving a competitive advantage in the Jordanian commercial banks. This questionnaire was designed by the researcher based on the studies carried out by [7] , [10],

[12], [24] ,[47], [55]. This questionnaire involves two parts, which are:

Part one: It aims to obtain demographic data about experience, academic qualification and job title

Second part: It involves 66 items. It aims to obtain data about the impact of using lean accounting tools on achieving a competitive advantage in the Jordanian commercial banks. The five point Likert scale was used. It targets the following area:

Area one: Lean accounting tools. The dimensions of such tools are:

Dimension one: It is represented in the target costs. There are 8 items related to this dimension.

Dimension two: It is represented in the ongoing improvement. There are 9 items related to this dimension.

Dimension three: It is represented in the value stream map. There are 11 items related to this dimension.

Dimension four: It is represented in the customer satisfaction. There are 11 items related to this dimension.

Second are: Competitive advantage. The dimensions of competitive advantage are:

Dimension one: It is represented in the quality. There are 8 items related to this dimension.

Dimension two: It is represented in the cost. There are 9 items related to this dimension.

Dimension three: It is represented in the creativity. There are 10 items related to this dimension.

6.5 Validity of the Instrument

The initial version of the questionnaire was passed to several faculty members in the accounting department in Jordanian universities. This version consists from 66 items. Those faculty members were asked to assess the questionnaire in terms of content, relevancy and clarity. They were asked to make suggestions. The items approved by 80% of the experts remained. In the light of the experts' comments, some items were redrafted to become clearer. The experts' views indicate that the content validity of the instrument is high.

6.6 Reliability of the Instrument

To check the reliability of the Instrument, the researcher calculated the correlation coefficient values to explore the correlation between each item of the items. That was done through calculating the Cronbach alpha coefficient values. Those values are shown in table (1):

Table 1. Reliability coefficient values (Cronbach alpha coefficient values)

Area	Cronbach alpha coefficient value
Target cost	0.818
Ongoing improvement	0.628
Value stream map	0.754
Employee satisfaction	0.841
Lean accounting (overall)	0.777
Quality	0.714
Cost	0.668
Creativity	0.713
Competitive advantage (overall)	0.784

Based on table (1), the Cronbach alpha coefficient values range between 0.628 - 0.841. The overall Cronbach alpha coefficient value of the lean

accounting tools is 0.777. The overall Cronbach alpha coefficient value of the competitive advantage is 0.784. The five point Likert scale was used for classifying the means. The rating categories of this scale are shown in table (2):

Table 2. The five point Likert scale was used for classifying the means:

Very high	High	Moderate	Low	Very low
5	4	3	2	1

Based on the aforementioned data, the following equation was used to set criteria for classifying means: Interval= maximum value –minimum value / the number of the required categories: $5-1/3=1.33$

Low: 1.00- 2.33
 Moderate: 2.34-3.67
 High: 3.68-5

7 Results

7.1 Demographic Results

Table 3. Distribution of the sample in accordance with the demographic data

Demographic variables	Frequency	Percentage
Job title		
Financial manager	13	16.7
Assistant of the Financial manager	14	17.9
Manager of a department/ division	18	23.1
Branch manager	9	11.5
Financial Controller	17	21.8
Head of the accounting department	7	9.0
Academic qualification		
Holder of a BA degree	14	17.9

Holder of an MA degree	47	60.3
Holder of a PhD degree	11	14.1
Other	6	7.7
Experience		
Less than 5 years	11	14.1
5 years –less than 10 years	48	61.5
10 years-less than 15 years	15	19.2
15 years and more	4	5.1

Based on the results in the table above, there are various job titles (i.e. financial manager, assistant of the financial manager, manager of a department/division, branch manager, financial controller and head of the accounting department). That means that there is a relationship between the job title from one hand and the extent of possessing knowledge about the cost accounting system and using lean accounting tools from another hand. The results indicate that 92.3% of the respondents hold BA degree. That indicates that those respondents hold high academic qualifications that enable them to answer the survey. That positively

affects the reliability of the results. 24.3% of respondents hold experience that's not less than 5 years in their field. Thus, the respondents have much experience that enables to respond to the items objectively.

7.2 Questionnaire Analysis

The first question: What is the extent of using the lean accounting tools in the Jordanian commercial banks? To answer this question, means and standard deviations were calculated. They are shown in table (4) below:

Table 4. The first question results.

No.	lean accounting tools	Mean	Std.	Rank	Level
4	employee satisfaction	4.34	0.29	1	High
1	target cost,	4.32	0.32	2	High
3	value stream maps,	4.29	0.31	3	High
2	ongoing improving	4.27	0.30	4	High
	Overall	4.30	0.27		High

Based on table (4), means of the extent of using the lean accounting tools range between 4.34-4.27. The overall mean is 4.30 which is high. That means that the extent of using the lean accounting tools is high. That indicates that those banks seek using the scientific developments to excel. The mean of employee satisfaction is 4.34 which is high and ranked first. The standard deviation of the latter area is 0.29. The mean of target cost is 4.32 which is high and ranked first. The standard deviation of the latter area is 0.32. The mean of value stream maps is 4.29 which is high and ranked first. The standard deviation of the latter area is 0.31. The mean of ongoing improving is 4.27 which is high and ranked first. The standard deviation of the latter area is 0.30. That indicates that commercial banks consider the human resources as a wealth. Thus, those banks seek utilizing resources human resources

optimally and providing human resources with skills and competencies. That enables human resources to develop and show creativity in the delivery of services. Through using lean accounting tools, banks can develop distinguished services based on the customer needs and desires. . Through using lean accounting tools, banks can eliminate the un-necessary operations and activities that don't add a value. That contributes to reducing costs and raising the performance efficiency and effectiveness in doing operations and delivering services. It shall positively affect the bank's ability to compete and survive.

The Second Question: What is the extent of availability of the competitive advantage dimensions in the Jordanian commercial banks? To answer this question, means and standard deviations were calculated. They are shown in table (5) below:

Table 5. The second question results

No	the competitive advantage dimensions	Mean	Std.	Rank	Level
1	Quality	4.28	0.35	1	High
2	Cost	4.22	0.28	2	High
3	Creativity	4.17	0.31	3	High
Overall		4.22	0.26	High	

Based on table (5), means of the extent of availability of the competitive advantage dimensions in the Jordanian commercial banks range between 4.28-4.17. The overall mean is 4.22 which is high. That means that the extent of availability of the competitive advantage dimensions in the Jordanian commercial bank is high. The mean of quality is 4.28 which is high and ranked first. The standard deviation of the latter area is 0.35. The mean of cost is 4.22 which is high and ranked first. The standard deviation of the latter area is 0.28. The mean of creativity is 4.17 which is high and ranked first. The standard deviation of the latter area is 0.26. That indicates that Jordanian commercial banks aim at achieving a competitive

advantage in the light of the severe competition. It indicates that those banks are keen on using modern methods to delivery services of high quality and provide customers with much attention. It indicates that those banks are keen on delivering a variety of services that meet all the needs of customers through using innovative methods and setting competitive prices. It indicates that those banks seek determining the cost of the delivered services when designing and planning series in order to reduce this cost. It seeks reducing this cost through cooperating with global banks. Those banks seek delivering distinguished services through using advanced and modern technologies that enable them to survive and compete.

7.3 Hypotheses Testing

Main Hypothesis

To test hypothesis, Multiple regression analysis was carried out , the results were as follows:

Table 6. The main hypothesis regression test results

Dimensions	Unstandardized Coefficients		Standardized Coefficients	T	Sig T	F	Sig F
	B	Std. Error	β				
Target cost	.213	.047	.262	4.498	.000*	97.258	0.000*
Ongoing improving	.405	.076	.467	5.308	.000*		
Value stream maps,	.146	.089	.175	1.632	.107		
Employee satisfaction	.139	.071	.154	1.971	.050*		
R = 0.918 R ² = 0.842							

*: This sign means that the value is statistically significant–at the statistical significance level of ($\alpha \leq 0.05$)/ Tabulated t value = (± 1.96) [1]

Based on table (6) and the t values, the lean accounting tools (i.e. target cost, ongoing improving, employee satisfaction and value stream maps) have an impact on the competitive advantage dimensions (quality, cost, and creativity) in the Jordanian commercial banks. The

calculated t values of target cost, ongoing improving, employee satisfaction and value stream maps respectively are 4.498, 5.308, 1.632 and 1.971. Those values are statistically significant–at the statistical significance level of ($\alpha \leq 0.05$).

It was found from Table (6) that there was no effect of (the value stream map) on achieving competitive advantage, as the calculated (t) value reached (1.632), which is a non-significant value at the level of significance (α 0.05). It was found that (84.2%) of the variance in achieving competitive advantage in Jordanian commercial banks was explained by (target cost, continuous improvement, and employee satisfaction).

The results of the above table indicate that the correlation coefficient ($R = 0.918$) indicates that the effect of the independent variables (agile accounting tools) combined on the dependent variable (achieving competitive advantage) is a positive significant effect with statistical significance, where the calculated F

value was (97,258) and at a level of significance ($\text{sig} = 0.000$), which is less than (0.05) and the coefficient of determination ($R^2 = 0.842$) indicates that 84% of the variance in achieving competitive advantage can be explained by the variance in the combined lean accounting tools.

Accordingly, **we reject the main null hypothesis and accept the alternative hypothesis** that says:

There was a statistical impact at ($\alpha \leq 0.05$) significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on the achievement of a competitive advantage (quality, cost, and creativity) in the Jordanian commercial banks.

Sub-hypotheses of the main hypothesis:

The first sub-hypothesis:

Table 7. The first sub- hypothesis regression test results

Dimensions	Unstandardized Coefficients		Standardized Coefficients	T	Sig T	F	Sig F
	B	Std. Error	β				
Target cost	.094	.077	.087	1.220	.226	58.163	0.000*
Ongoing improving	.294	.124	.256	2.371	.020*		
Value stream maps,	.339	.145	.307	2.336	.022*		
Employee satisfaction	.383	.115	.321	3.336	.001*		
R= 0.872		R ² =0.761					

* Statistically significant at the level ($0.05 \geq \alpha$) tabular value ($t = (\pm 1.96)$)

It is clear from Table (7), and by following up on (t-test) values that the sub-variables related to the agile accounting tools (continuous improvement, value stream map, employee satisfaction) have an impact on achieving quality in Jordanian commercial banks, where the calculated (t) values amounted to (2.371, 2.336, 3.336) respectively, which are significant values at the level of significance ($\alpha \leq 0.05$).

It was found from Table (7) that there was no effect of (target cost) on achieving quality, as the calculated (t) value amounted to (1.220), which is a non-significant value at the level of significance ($\alpha \geq 0.05$). It was noted that the lean accounting tools with their dimensions (continuous improvement, value stream map, employee satisfaction) have an impact on achieving quality in Jordanian commercial banks by (76.1%).

The results of the above table indicate that the correlation coefficient ($R = 0.872$) of the effect of the independent variables and the agile accounting tools

(target cost, continuous improvement, value stream map, employee satisfaction) combined on the dependent variable (quality) is a positive significant effect with statistical significance where the value of F was The computed is (58.163) with a significance level ($\text{sig} = 0.000$) which is less than (0.05) and the coefficient of determination ($R^2 = 0.761$) indicates that 76.1% of the variance in achieving quality as one of the dimensions of competitive advantage can be explained by the variance in the lean accounting tools (Target Costing, Continuous Improvement, Value Stream Map, Employee Satisfaction (together)

Accordingly, **we reject the main null hypothesis and accept the alternative hypothesis** that says:

There was a statistical impact at ($\alpha \leq 0.05$) significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on quality in the Jordanian commercial banks.

The second sub-hypothesis:

Table 8. The second sub- hypothesis regression test results:

Dimensions	Unstandardized Coefficients		Standardized Coefficients	T	Sig T	F	Sig F
	B	Std. Error	β				
Target cost	.453	.087	.523	5.203	.000*	20.619	0.000*
Ongoing improving	.072	.141	.077	.509	.612		
Value stream maps,	-.032-	.164	-.036-	-.195-	.846		
Employee satisfaction	.258	.130	.267	1.982	.050*		
R=0.728 R ² =0.530							

* Statistically significant at the level $(0.05 \geq \alpha)$ tabular value $(t) = (\pm 1.96)$ [1]

It is clear from Table (8), and by following up on (t-test) values that the sub-variables related to agile accounting tools (target cost, employee satisfaction) have an impact on cost realization in Jordanian commercial banks, where the calculated (t) values amounted to (5.203, 1.982). Respectively, they are significant values at the significance level $(\alpha \leq 0.05)$.

It was found from Table (8) that there was no effect of (continuous improvement, and the value stream map) on cost realization, as the calculated (t) value was (0.509, -0.195), which are non-significant values at the level of significance $(\alpha \leq 0.05)$. Agile accounting tools with their dimensions (continuous improvement, value stream map) have an impact on cost realization in Jordanian commercial banks by (53%).

The results of the above table indicate that the correlation coefficient $(R = 0.728)$ of the effect of the independent variables and the agile accounting

tools (target cost, continuous improvement, value stream map, employee satisfaction) combined on the dependent variable (cost) is a positive significant effect with statistical significance where the value of F was The calculated is (20,619) and with a significance level of $(\text{sig} = 0.000)$ which is less than (0.05) and the coefficient of determination $(0.530 = R^2)$ indicates that 53% of the variance in achieving cost as one of the dimensions of competitive advantage can be explained through the variance in the lean accounting tools (Target costing, continuous improvement, value stream map, employee satisfaction (combined).

Accordingly, we **reject the main null hypothesis and accept the alternative hypothesis** that says: There was a statistical impact at $(\alpha \leq 0.05)$ significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on cost in the Jordanian commercial banks

The third sub-hypothesis:

Table 9. The third sub- hypothesis regression test results:

Dimensions	Unstandardized Coefficients		Standardized Coefficient	T	Sig T	F	Sig F
	B	Std. Error	β				
Target cost	.092	.072	.096	1.263	211	0.078	0.000*
continuous improvement	.795	.117	.777	6.789	000		
value stream map	.151	.137	.154	1.105	273		

Staff satisfaction	-.162-	.108	-.152-	-1.498-	138		
R= 0.856	R ² =0.733						

* Statistically significant at the level $(0.05 \geq \alpha)$ tabular value $(t) = (\pm 1.96)$ [1]

It is clear from Table (9), and by following up on the values of the (t) test that the sub-variable related to (continuous improvement) has an impact on achieving creativity in Jordanian commercial banks, where the calculated value of (t) reached (6.789), which is a significant value at the level of significance $(\alpha \leq 0.05)$.

It was found from Table (9) that there was no effect of (target cost, value stream map, and employee satisfaction) on achieving creativity, as the calculated (t) values amounted to (1.263, 1.105, -1.498), which are non-significant values at the level of significance $(\alpha \leq 0.05)$. It was noted that the lean accounting tools with their dimension (continuous improvement) have an impact on achieving creativity in Jordanian commercial banks by (73.3%).

The results of the above table indicate that the correlation coefficient $(R = 0.856)$ on the effect of the independent variables and the agile accounting tools (target cost, continuous improvement, value stream map, employee satisfaction) combined on the dependent variable (creativity) is a positive significant effect with statistical significance where the value of F was The calculated is (50.078) and with a significance level $(sig = 0.000)$ which is less than (0.05), and the coefficient of determination $(R^2=0.733)$ indicates that 73.3% of the variance in achieving creativity as one of the dimensions of competitive advantage can be explained by the variance in the agile accounting tools (Target Costing, Continuous Improvement, Value Stream Map, Employee Satisfaction (together).

Accordingly, we **reject the main null hypothesis and accept the alternative hypothesis** that says:

There was a statistical impact at $(\alpha \leq 0.05)$ significant level of use lean accounting tools (target cost, ongoing improving, value stream maps, and employee satisfaction) on creativity in the Jordanian commercial banks.

The fourth question can be answered by relying on the values of the coefficient of determination R^2 when testing the sub-hypotheses, which showed that the lean accounting tools (employee satisfaction, target cost, value stream map, continuous improvement) collectively explained 76% of quality as one of the dimensions of competitive advantage and thus ranked first, while it showed that the lean accounting tools

(employee satisfaction, target cost, value stream map, continuous improvement) collectively explained 73.3% of the cost as one of the dimensions of competitive advantage, and that the lean accounting tools (employee satisfaction, target cost, value stream map, continuous improvement) collectively interpreted 53.3% of the cost as one of the dimensions of competitive advantage.

This indicates the importance of adopting and applying lean accounting tools in achieving competitive advantage in Jordanian banks, through which banks are able to provide a variety of banking services that meet the needs of customers by investing in the functional staff and attracting human resources capable of innovation and creativity while investing in technology and seeking to attract the best practices and global methods. An analysis of all activities and operations and the exclusion of operations that do not add value, which leads to a reduction in costs.

8 Conclusions

1. The results of the study showed that the attitudes of the study sample members towards approval of a high level of application of agile accounting tools in Jordanian commercial banks, where employee satisfaction came first, followed by the target cost, then the value stream map, and the last rank was continuous improvement.
2. The results of the study showed that the attitudes of the study sample members towards approval of the Jordanian commercial banks' pursuit of competitive advantage with a high relative importance, as quality as one of the dimensions of competitive advantage ranked first, followed by cost, and then creativity in the last rank.
3. The results of the main hypothesis test showed that there is a significant effect of applying the agile accounting tools (target cost, continuous improvement, value stream map, employee satisfaction) combined in achieving competitive advantage in Jordanian commercial banks.
4. The results of the main hypothesis test showed that there is a significant effect of applying the lean accounting tools (target cost, continuous improvement,

value stream map, employee satisfaction) combined in achieving quality as one of the dimensions of competitive advantage in Jordanian commercial banks, where each of (continuous improvement and map Value Stream and Employee Satisfaction) a significant effect on achieving quality and the absence of a significant effect of the target cost in achieving quality as one of the dimensions of competitive advantage in Jordanian commercial banks.

5. The results of the main hypothesis test showed that there is a significant effect of applying the lean accounting tools (target cost, continuous improvement, value stream map, employee satisfaction) combined in achieving cost as one of the dimensions of competitive advantage in Jordanian commercial banks, where both (target cost and satisfaction) Employees) a significant effect on achieving quality and the absence of a significant effect of (continuous improvement and value stream map) in achieving cost as one of the dimensions of competitive advantage in Jordanian commercial banks.

6. The results of the main hypothesis test showed that there is a significant effect of applying the lean accounting tools (target cost, continuous improvement, value stream map, and employee satisfaction) combined in achieving creativity as one of the dimensions of competitive advantage in Jordanian commercial banks, where each of (improvement had Continuous) has a significant effect on achieving quality and the absence of a significant effect on (target cost, employee satisfaction and value stream map) in achieving cost as one of the dimensions of competitive advantage in Jordanian commercial banks.

7. The results of the study showed that quality is the most important dimension of competitive advantage affected by the application of lean accounting tools in Jordanian commercial banks.

9 Recommendations

1. Increasing the interest of commercial banks on the degree of application of lean accounting tools to benefit from the advantages of their application.

2. Increasing the awareness of decision-makers in Jordanian commercial banks about the advantages and benefits of applying lean accounting tools because of the advantages they can offer to banks that enable them to provide distinguished banking services at the lowest possible cost and with high quality.

3. The necessity for commercial banks to pay attention to attracting human cadres with expertise and competencies to apply agile accounting tools and to

benefit from their expertise to apply agile accounting in commercial banks in Jordan in an efficient and effective manner.

4. The necessity of increasing the focus and interest of commercial banks in Jordan on developing costing systems and working on establishing special units concerned with that.

5. Rehabilitation of human cadres at banks in Jordan by holding specialized training courses on the application of lean accounting tools in banks and directing them towards innovation and creativity in banking work and providing distinguished services at the lowest possible cost to reach a competitive advantage.

6. Expanding by conducting more studies on the importance of applying lean accounting tools and their impact on market value, profitability, or the financial performance of Jordanian commercial banks. As well as expanding by conducting more studies on the importance of applying lean accounting tools and their impact on the competitive advantage in the service sector other than the banking sector.

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