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The effect of the relationship between the Six Sigma method and financial performance A research extracted from a master's thesis (using the SIX SIGMA method and components of internal control according to the COSO framework and their impact on financial performance)

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Abstract : The study aimed to clarify the impact of the relationship between the SIX SIGMA methodology and the financial performance of the banks listed in the Iraq Stock Exchange by identifying the relationship between the SIX SIGMA methodology and the financial performance indicators (the rate of return on equity, the rate of return on total assets, and the total liabilities to assets). And that during the period from 2016 to 2021 and in order to achieve the objectives of the study, the researchers used the descriptive analytical approach by designing a survey form and distributing it to the research sample, which included (7) banks out of the study population amounting to (46) banks, as well as the researchers used many statistical methods Others such as (standard deviation, arithmetic means, T test, F test, and multiple linear regression model for data analysis and validation of the study hypotheses. The study concluded a set of results, the most important of which are: The increase in the value of the variable SIXSIGMA by one unit leads to an increase in the value of the variable rate of return on equity by an amount 0.83 and an increase in the value of the SIXSIGMA variable by one unit leads to an increase in the value of the variable rate of return on total assets by 0.78, as the study recommended the need to apply the SIX SIGMA approach in commercial banks in order to reduce defects and errors in order to reach perfection.

INTRODUCTION: The study adopted two main variables: the SIX SIGMA approach through its standards (support and commitment of senior management, feedback, processes and systems, performance measurement and incentive system, continuous improvement), and financial performance through its measurement indicators (rate of return on equity, rate of return on The total assets), and the problem was answered in the form of questions that were answered in the investigations of the subsequent study, as the study included four investigations. The first topic dealt with the methodology of the study, in which it presented a description of the problem of the study, its importance, defining its objectives, the method used in collecting and analyzing data, and describing the study community. As for the second topic, it dealt with the theoretical description of the SIX SIGMA approach in terms of its concept, origin, importance, benefits of application, principles and tools for its application, in addition to the concept of financial performance and its indicators. As for the third topic, it included the practical side by presenting the statistical analysis of the study variables using some descriptive statistical methods, and testing the study hypotheses by examining the influence relationships between the study variables. The fourth and last topic included the conclusions reached by the researchers through the results of the statistical analysis of the study and the recommendations recommended by the researchers**.**

The first topic

Research methodology and previous studies

First: research methodology

1. Study problem

Although most private banks adopt the Six Sigma method, which contributes to protecting their assets, achieving accuracy when reviewing accounting data, ensuring the extent of their reliability, raising the efficiency of their services, and encouraging their employees to adhere to the established administrative policies, however, there are some obstacles that cause the failure to achieve maximum efficiency when using These systems, and failure to keep up with the changes that occur in the internal control systems and thus failure to achieve the goals leading to the development of these systems that achieve the financial and economic efficiency of the organization.

Hence, we try to identify the problem of the study by determining whether the study sample banks apply the Six Sigma method, and whether there are elements and pillars on which a sound internal control system depends, and these elements are the basic rules that govern the work of financial performance in most financial institutions. Are the regulations that govern the work of financial performance applied effectively to achieve the goals, and are there qualified cadres working on applying the Six Sigma method, and does the Six Sigma method affect directly or indirectly the financial performance of the study sample banks, so this problem will be addressed to examine the

reasons Which deviates the actual performance from the planned goals by searching for the weaknesses of the internal control system in the study sample banks and finding optimal solutions for them. From this standpoint, the researchers see that the problem of the study is concentrated in the following question:
Is there an effect of the Six Sigma approach on financial performance?

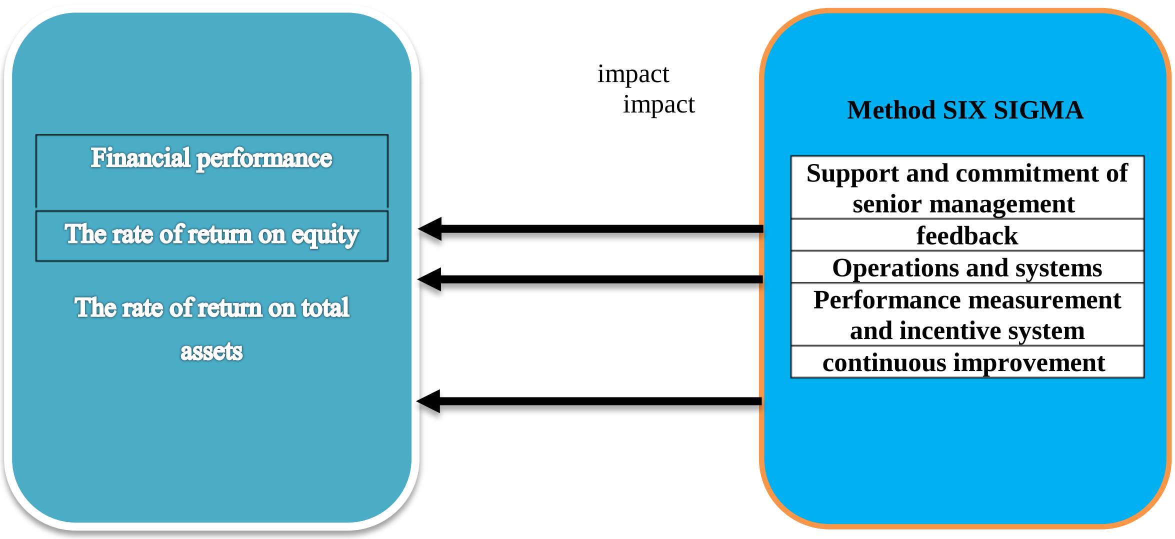
2. The importance of the study

The importance of the scientific study is the interest in the Six Sigma method and its important role in discovering and correcting deviations and following up on compliance with the policies set by the bank, as well as knowing that the internal control systems work side by side with the important accounting aspects, as the internal control systems are known to be weak and need to be Research to identify weaknesses and to find appropriate solutions to these weaknesses. The importance is also represented in the scarcity of studies and research related to the relationship between the Six Sigma method and financial performance.

3. Study objectives

The objectives of the study are summarized as follows:
1- Provide a conceptual presentation of the Six Sigma method.
2- Evaluation and classification of Iraqi banks, the study sample, and detection and diagnosis of weaknesses and strengths in their financial performance.
3- Evaluating the relationship and the two effects (Six Sigma) approach on financial performance.

4. The hypothetical outline of the study



Source: prepared by the two researchers

5. Study hypotheses:

The study is based on several hypotheses in order to test it to achieve its objectives:
First: The correlation and its significance between SIXSIGMA and the rate of return on equity and the rate of return on total assets, which branch out into the following sub-hypotheses:
H1: There is a significant correlation between SIXSIGMA and the rate of return on equity.
H2: There is a significant correlation between SIXSIGMA and the rate of return on total assets.
Second: Examining the effect of SIXSIGMA and its significance on the rate of return on equity and the rate of return on total assets
The researcher studied the joint effect of the SIXSIGMA and COSO variables on the dependent variables, the rate of return on equity and the rate of return on total assets, and the following hypotheses were formulated to achieve this goal:
H1: There is a statistically significant effect of the variable SIXSIGMA on the variable rate of return on equity.
H2: There is a statistically significant effect of the SIXSIGMA variable on the variable rate of return on total assets.

6. Research Methodology:

• **The deductive approach** \ The theoretical side of the research is reviewed by reviewing the relevant sources and literature such as books, letters, dissertations and periodicals published in various journals in order to reach conclusions that support the achievement of the research objectives.

• **Inductive method** \ The researcher used the inductive method when conducting the field study to test the hypotheses that were reached through the theoretical study to determine whether it is possible to accept or reject the research hypotheses.

7.Research tools:

1. Research Method: The study relied on preparing a survey list that was distributed to the selected sample.
2. Research tool \ The research tool was represented in the use of statistical models that serve the research sample with testing the hypotheses of the field study through various statistical tests.

8. Research limits:

The research limits are as follows:

Spatial limits: The study was limited to the banks listed in the Iraq Stock Exchange.

• Temporal limits: The time period of the study (2016) was chosen and the reasons behind it are located

That choosing that period is the researcher's desire to form a perception of the direction of banking work by applying the Six Sigma method in Iraqi banks and in abnormal circumstances the country went through and assessing the financial performance.

9. Research Variables:

The independent variable is the Six Sigma criteria, which are (support and commitment of senior management & training & processes & systems & performance measurement & incentive system & continuous improvement).

The dependent variable \ is financial performance. Profitability measures are represented as follows: (Rate of return on equity, rate of return on total assets)

Second: Previous Studies:

1- Al-Tarwanah, 2016

This study aimed to demonstrate the effect of using the Six Sigma approach with its combined dimensions (management commitment and support, feedback and measurement, continuous improvement, processes and systems, human resources) in improving the quality of health services with its combined dimensions (response, reliability, tangibility) and was the most important The conclusions reached by the study, there is a statistically significant effect at a significant level ($P \leq 0.050$) of the Six Sigma curriculum standards with their combined dimensions (management commitment and support, feedback and measurement, continuous improvement, processes and systems, human resources) in improving the quality of health services with their combined dimensions in Jordanian Ministry of Health" .

2- Al-Harbi and Al-Sudairi, 2018

This study aimed to identify the possibility of applying Six Sigma standards to improve the quality of internal auditing in commercial banks in the Kingdom of Saudi Arabia. The most important conclusions reached by this study were the availability of the requirements for the application of the Six Sigma curriculum, which is to set accurate criteria to objectively measure the level of performance, and to provide sufficient financial and material capabilities.

3. Chashmi NA* and Fadaee M, 2016

The study aimed to investigate the impact of financial performance and growth opportunities on the success or failure of companies listed on the Tehran Stock Exchange. The findings of the study were that there is a significant relationship between financial performance and institutional success or failure. In this study, the relationship between rate of return on equity (ROE) as a measure of financial performance and success or failure was not observed. Therefore, policy makers should note that rate of return on equity (ROE) are not appropriate criteria for determining the policy needed to succeed or fail.

4. GOWSALYA R S and Hasan, 2017

The study aimed to compare the current financial performance during the past five years and to study the current financial position of the company. The results of the study were to study the analysis of the financial performance of the company for a large number of different financial aspects for five years. Comparative analysis opens up the overall performance methodology. Helps the company, shareholders as well as creditors in making value decisions and scope with deviations.

5. Fatihudin, 2018

A study aimed at knowing the actual financial performance to understand the ideal criteria presented with the input data from the empirical reality of the company. This article attempts to examine what is meant by financial performance, financial reporting, fundamental analysis, technical analysis, and what if you want to learn finance. The findings of the study were that the financial performance is the financial achievement of the company, and it is important that the company's managers understand the ratio of liquidity, solvency, profitability and efficiency.

The second topic

Six-sigma approach and financial performance

(the theoretical side)

the introduction :

The (six-sigma) approach appeared with the aim of improving the continuous and advanced performance in banks and business establishments and reducing defects by relying on appropriate accounting and statistical methods to avoid the occurrence of error by highlighting the importance of the (six-sigma) approach, which is an extension of total quality management, and the six sigma method appears as a case Any advanced scientific concept, but the truth seems to be that the (six-sigma) approach is not just a new idea in the field of business defined in a single way, but rather it is a method that is characterized by flexibility and accuracy and aims to reach a better performance of business management in terms of quality and high accuracy. (six-sigma) is based on the best management practices in the twentieth century, and the (six-sigma) approach is not limited to reaping profits and preserving funds and efforts from waste and loss, but rather contributes directly to building and supporting lasting success.

First - the concept of six sigma approach

The six-sigma approach is one of the important scientific methods that aims to improve quality and reduce the number of defects in accounting and administrative work, as researchers see that it is a term used to describe the control and control process in an unconventional way, which leads to reducing deviations to the lowest possible extent. The six-sigma approach is the most important method for measuring performance and achieving accuracy in work without any significant errors. It is a statistical measure for accurate performance without errors (Abdul Jalil, 2016: 59).

The (six-sigma) approach is a system of quality and an important philosophy in reducing errors to the greatest possible extent. It can be viewed as a philosophy and methodology for work. It is the eighteenth letter in the Greek alphabet and its symbol (σ). Statisticians have used this symbol as an indication of the standard deviation and deviation Normative is a statistical method and indicator to describe the deviation, variance, dispersion, or inconsistency in a particular process with respect to the specified objectives. The six-sigma approach is a strategic process that enables organizations to continuously improve. For daily business activities so as to reduce waste and consumption of resources, "time, mental energies, material energies" (Adili, 2014: 30).

(Jacobs & Chase) stated that in order to achieve the desired benefit for customers, the Six Sigma approach integrates management and statistics in a coherent, flexible and accurate way in organizing generalities and constantly improving them. It also takes into account the changing mood of customer needs, market conditions and technological advancements. This method is considered one of the advanced management programs based on an advanced strategic dimension. Both shareholders and employees. The Greek letter Sigma, which represents the mean square root of the sum of the squares of the deviations of each resident from the arithmetic mean, is used to measure the dispersion in statistics, sigma and arithmetic. The time interval between the arithmetic mean and (1 sigma) is approximately (99966.99)%. Making no mistake does not exceed the boundaries of (Six-Sigma), which is defined as "a proven set of modern management methods, arbitration tools, and project control techniques that combine to form breakthrough improvements in problem-solving and business performance." (Six-Sigma) is a term referring to a generality that leads to more than 3.4 defects. (Jacobs & Chase, 2018: 304)

level six sigma

Proper service rate	Probability of errors (defects) per million chances	level six sigma
%31	690000	**1**
%69.2	308538	**2**
%93.32	66807	**3**
%99.9937	6210	**4**
%99.999947	233	**5**
99.9999998	3.4	**6**

Source: Khader, 2020: 13

Second: The historical origins of the six sigma approach

The first roots of the (six-sigma) approach go back to the year 1979, when Art Sednre, CEO, announced in a Motorola meeting that the real problem was the lack of quality development in the company, as six-sigma was able to save about $2.2 billion for the company over four years, and this is what Everyone paid to know the secret of Motorola's success, and in 1998 Jack Welch laid the foundation for the six sigma approach in General Electric Company, where he achieved a profit of $ 300 million, after which the (six-sigma) method became more visible and relied on by many leading companies. (Jalal and Hamoudi, 2019: 15)

History shows that Six-Sigma has allowed organizations to operate at significantly lower levels, allowing them to achieve significant financial savings. Understanding of Six-Sigma continues to evolve as companies increasingly embrace this methodology as a means of generating quality in production and operations. Additions have recently been developed as a way to further facilitate improved quality processes (Hasan & Chiu, 2016: 1782).

Third: - the importance of the six sigma approach

The meaning of the SIGMA symbol is the symbol of statistical sciences and means the standard deviation (measure of dispersion), which are the numbers and data that we rely on when studying and analyzing a specific problem. It is the eighth letter that belongs to the Greek language and was used to express the extent of deviation in the implementation of one of the processes from the standard of perfection in performance, and the standard deviation is an indicator to describe the dispersion or inconsistency in a particular process with respect to the desired goals of six-sigma, while interpreting six to one of the levels of the six approach Sigma is a method used to identify sources of errors and ways to eliminate them. It is a statistical management system that focuses on achieving customer satisfaction, reducing waste, raising the level of quality, and improving the financial and temporal performance of the organization. (Jalal and Hamoudi, 2019: 16)

The (six-sigma) approach is of great importance by many organizations that are interested in continuous development. The use of the (Six-sigma) approach brings many benefits as the organizational culture moves from work to the precautionary method in any of the equivalent errors to the error prevention mode. It also increases awareness and awareness of ways to solve problems and ways to use tools and technology, which leads to an increase in job satisfaction of employees, and thus their participation and improvement of work at the level of the entire organization. It reduces the number of steps or activities that do not add value to performance, which leads to an increase and development of productivity, efficiency and implementation, and thus achieving speed in the delivery of products and services (Khalil, 245: 2018).

We will show its importance through the following.

1- Achieving a lot of gains for organizations that seek to apply the six sigma approach.

2- Preserving the financial aspect by increasing profits and reducing waste of money

3- Paying attention to human resources in various aspects, such as increasing training and development for working individuals when applying the six sigma approach.

4- Clarifying the goals of each employee by creating a strong base for success based on increasing the rate of continuous improvement by following the six sigma approach. (Ibrahim, 392: 2019)

Fourth: Principles of six sigma method

The six-sigma approach includes the basic principles on the business side through advanced ideas and multiple means of style with other methods that banking institutions rely on.

The first principle: Focus on the customer

The first principle of the six-sigma approach is concerned with the real focus on the customer, as many researches and studies in the eighties showed that the main goal of working in institutions is to take care of the customer, and to provide all the requirements and expectations of the customer or more than he hoped to obtain through Collecting data in a typical one-time manner, and paying attention to measuring performance standards in the (six-sigma) approach, and the six-sigma approach helps to identify improvements and developments that occur in the organization. (Abdul Qader, 2019: 70)

The second principle: Management that is based on data and facts

The six-sigma approach is concerned with management that is based on data and facts, and this is what makes institutions look forward to taking advanced methods of work, and relying on knowledge management and developed information systems, so it should be noted that there are many institutions that still depend in their decisions on opinions and assumptions.

The (six-sigma) approach is concerned with clarifying the main criteria for measuring the performance of institutions, and then the data is analyzed to understand the main variables for completing the work and improving the results as much as possible. The (six-sigma) method helps support the main work solutions and decision-making based on facts. (halqan ,2014: 398).

Fifth: The stages of applying Six Sigma in improving banking performance

The first stage: Define: In order to focus on the customer and investigate the possibility of improvement in the equation of errors in it or reduce the period of delivery of transactions or otherwise, the first stage in this methodology requires identifying the basic generalities that directly affect improving customer satisfaction. At this stage, the requirements and needs of customers are determined by listening to, listening to the customer's voice, and distributing questionnaires. The form named (SIPOC) is an abbreviation for the following elements

1- Suppliers (Suppler):- Process suppliers who provide material, human, informational and method inputs are defined.

2- Input: It is the information and resources that the customer needs, such as raw materials and machines

3- Process: It is the process of converting inputs into outputs, and outputs are services or information resulting from operations. (Hussain, 2015: 30)

The first stage includes setting the following:

A- Project document

Six Sigma projects begin with a project charter, which includes a business case, business problem or opportunity statement, objective statement, scope of work, project plan, and selection of team members. Deliverables are essential to project success, allowing team members to clarify the path and how well they understand the project. If the organization is large enough to warrant forming a working group, a project document is a quick and easy tool, and twice as valuable. Time spent on this activity can be limited to the project charter on objectives, scope of work, and practical case as appropriate (Al-Ghussain, 2016: 197).

B- Project plan

If the organization is small, everyone can find a simplified pledge document or project plan that includes key details for completing individual projects.

1- The means of the customer's voice: The idea of analyzing the customer's voice is related to what the consumer wants. The manager should ask what the consumers want and need from the organization.

2- Group thinking (brainstorming): The goal of brainstorming or group thinking is to find a daunting task, but you must list new ideas or alternatives to activities and solutions, even though this is a serious exercise. Encourage all participants to come up with new ideas and think beyond the situation. Present .

3- Making an affinity chart: Making an affinity chart means collecting similar elements and encouraging creative thinking, where each participant can write his ideas, suggestions, and alternative options quietly on a sticky note. These sticky notes are then put together with the goal of grouping similar items together.

4- High-Level Process Map Diagram Model SIPOC (Suppliers, Inputs, Process, Outputs, Customers) A quick and easy way to identify suppliers, inputs, outputs, and consumers for each of the major processes. (Hussain, 2015: 30)

Second: Step Of measurement

1-Sampling: Sampling allows relatively few units to be measured, rather than every unit. Selecting, reviewing or calculating each unit in a process can be time consuming and unimportant to any organisation. There are many sampling strategies, which can be applied depending on a particular situation, but an effective sampling method that may work in most scenarios at the functional level is to select a unit, determine the average number of units in a given time frame, and then refer to a standard sampling schedule To specify the number of units. The units that must be selected, reviewed, or calculated to obtain the required level of confidence that the quality of the sample will reflect the population from which it was drawn. (Ruben & et al., 2017: 5-15

2- Comprehensive data collection forms and charts of accounts: Data collection forms are used as a driving force for work, and can also be used to collect and organize this data. The role of checklists to ensure that all the details of whatever are based on them. (Atir, 2017: 87)

3- Operational Definitions: To ensure that all parties understand the criteria or matrices chosen for tracking and analysis, it is important to have a clear, detailed and understandable description of what the data means. or continue these standards. (Atair, 2017: 87)

Third: - the stage of analysis step of analysis

1- Analysis of added and non-added value: added value is one of the most prominent modern indicators and the most widely used in terms of measuring value and giving a clear expression about its performance, as this indicator is based on the principle of relying on economic profit and not accounting profit, and the value of the institution changes with its change. Evaluating or deciding on a process, the manager should always keep in mind whether the step or action has added value to the customer or not. In a regulated environment, this must also be a calculated risk versus a value-added discussion. (Souad and Samiha, 2017: 403)

2- Process Detail Mapping or Illustration: Understand the process to draw detailed process maps. A practical way to do this as a team is to collectively think about each step of the process in detail, writing it down on little sheets of paper that you stick on the wall. Once these illustrations are made, the gaps can be explored and how to address them, with the aim of developing the process as it should be (Ruben & etal., 2017:5-15).

3.Process flow analysis: Once the process diagrams are drawn up, the process is evaluated, looking for inappropriate things, unnecessary steps or decisions. Evaluate steps that may lead to backlogs and delays in work.

4- Pareto Chart: Named after Vilfredo Pareto, it is a type of graphic representation that includes columns and a line graph, where individual values are represented in descending order by columns and the cumulative sum is represented by a line. The Pareto chart is just a visual way to classify the causes and errors and repeat them on a smaller scale to describe the data. The data is to see that 21% is the cause of 81% of the issues or problems. However, it is very useful. This scheme was applied for the first time in Japan in 1954, where work was done. It is used to separate the small problems that affect the big ones (Jalal, 2017: 71).

Requirements for the success of the six-sigma methodology in the banking sector:
In order for the leading banks to succeed in providing services in Six Sigma efforts, a number of conditions must be met, the most important of which are:-
1- Focusing on the customer: The main goal of using Six Sigma is to meet the customer's requirements and perform the service without delay and errors.
2- Supporting and approving the senior management, training the staff, and placing each of them in his role in applying the methodology
3- Engaging and persuading employees Six Sigma as a method of continuous improvement and remembering the commitment to do the right job the first time.
4- The existence of an effective measurement system, in addition to the existence of an information system capable of providing information at the right time for the appropriate methodology
5- Analyzing operations based on current and future customer needs depending on appropriate strategies to be developed to avoid differences in operations. (Nayeri & Rostami, 2016: 14)
Second: Financial performance

1. The concept of financial performance

The concept of financial performance is one of the fundamental topics in the business world and one of the concepts related to the performance of institutions, by focusing on a number of financial indicators. And the coach to achieve it (Al-Qaisi, 2017:465) The financial aspect is considered one of the important aspects in financial institutions, and this aspect is a reflection of the specific goals. Medium and long term in order to stabilize and increase the level of wealth. Likewise, it was defined (Al-Othman, 153: 2022) that it is the existing financial situation in the institution at a certain time and for one or more aspects of the institution during a certain period of time. And financial performance is defined as maximizing results through improving the profitability of the institution, as this is done by reducing adjustment and maximizing revenues continuously for the medium and long term in order to achieve accumulations in wealth and a process of stability in general, (Asia, 2015: 12).
(Al-Tarwaneh, 2015: 78) indicated that the financial performance is a process of linking the financial performance of the institution with the financial returns through an account statement according to the information on which the institution was relied upon and clarifying the returns accurately. Financial performance was defined as the optimal use of resources in the medium and long term in order to achieve wealth. It is also defined as a number of financial changes that occur in the financial structure of the institution for a previous period of time in the functions of the institution, relying on financial indicators to know the position of the institution in comparison with other institutions in the same direction of work, what is seen as the approach that reflects the data that mainly describes the financial results only institution and reflects the reputation of the institution.
The strong performance of an institution is represented by the profit accruing to it, and the correct financial performance helps the institution in facing its debts through the profits achieved. The organization can achieve high levels of performance, as the financial performance enables the organization to rely on internal sources of financing (Jaber and Saeed, 2021: 518).
The financial performance is defined as the extent of the institution's ability to measure the performance of employees to complete the banking fields and reduce the causes of delay in their skills. (Altanashat et al., 2019: 1)
Performance can be defined as the indicators that reflect the operational performance of the organization and in a numerical way express the quantitative performance of the organization.
Financial performance is a broad indicator of the health, strength and capabilities of an organization's overall financial information over time. It is a monetary measurement of the results of an organization's policies and operations. Financial performance is the cornerstone and goal of any banking activity. The financial performance of institutions is judged by their ability to earn profit. Return on assets is a real-world indicator of financial performance (Mamo., et al, 2021: 246).)

2. Dimensions of financial performance

Financial performance has many areas and uses that can be used in evaluation at various levels in establishments and businesses, and they can be summarized as follows:

- **Financial field:**

Financial performance is one of the important indicators for measuring the performance of all business organizations based on their business, as financial performance is one of the best tools for measuring the performance of a business. This field is related to the financial aspect of the institution and depends on the process of financial analysis, as it is based on analyzing the financial activities of the institution and comparing them with the activities that have been achieved in the past years, as well as the performance of the institutions operating in them. same sector. The field of financial performance is a narrow concept of performance because researchers rely on their performance measures.

Finance Many financial metrics and metrics such as profitability, liquidity, activity, leverage, debt management, stock valuation ratios, growth rates, and more. (Wanasa, 2016: 5)

• Financial and operational field:

This concept is a broad concept of performance as it combines financial and operational performance. When measuring this area, in addition to operational indicators such as market share and product quality, financial indicators are also used, as well as specific criteria designed to measure qualitative requirements such as marketing effectiveness, quality, etc. A measure related to the level of performance of an organization's operations. In other words, the domain includes indicators and measures of financial performance as well as operational performance. Thus, the field introduces a broader concept of performance, representing aspects of efficiency that are based on adopting rationality as a basis for better use of available resources and financial metrics. Across a wide range of organizational performance (Shneen et al., 2019: 122)

- **The field of organizational effectiveness:**

The content of this domain refers to the ability to emphasize work and achieve goals. Performance can be measured by understanding growth in net profit, profit margins, return on investment and satisfaction. Rather than the external environment in which it operates through the use of available resources and the facility's ability to survive, adapt and thrive, regardless of whether the objectives pursued by the facility have been achieved or not. An effective facility is one that achieves its goals. The use of this concept has spread among many researchers, experts and writers. It is used as a main indicator for evaluating the performance of the organization and measuring its effectiveness. (aldarb , 2017: 66)

3.financial performance metrics

Successful businesses are such a major component of developing countries that many economists regard them as an engine in determining economic, social and political development. To survive in a competitive business environment, every company must operate in performance conditions. The concept of performance is a controversial issue in finance largely because of its multidimensional meanings. Research on company performance derives from strategic organization theory and management performance measures either financial or operational. Choosing alternatives to approach performance, whether operational or financial, and thus evaluating the company's performance using financial indicators must be complemented by an evaluation based on non-financial indicators. (Issor, 2019: 94)

- **profitability metrics**

The ultimate goal of most financial statement analyzes is to assess a bank's financial condition. The financial position is decisively determined by the expected future profitability in relation to the risks involved, that is, the analysis of the financial statements measures the profitability and riskiness of the bank. Measuring current and past profitability provides information that can help predict future profitability. Profitability analysis involves analyzing various financial ratios based on the numbers in the financial statements. An important understanding at this point is that ratios are not measures to remember, but rather useful tools that can be created and used in a variety of ways to obtain relevant information. Also, learn how to define and calculate these ratios. Al-Reem points out that differences in the definition of kinship do not always lead to fundamental differences in lineage (Wahlen et al, 2015:241-242).

1. **Return on assets ratio (total assets)**

Return on assets measures the overall effectiveness of management in generating profits with its available assets. The higher the return on assets of the company, the better. The measure of profitability, return on assets, is a matter of disagreement among scholars in determining the numerator of the equation. The simplest way to determine return on assets is to take reported net income for a period and divide it by total assets according to (Gitman and Zutter, 2012:200). In contrast, some analysts take EBIT and divide by total assets as . This is a pure measure of a company's efficiency in generating returns from its assets, unaffected by managerial financing decisions. Objective financial performance measures By adjusting interest and taxes to evaluate management performance objectively, the return on assets is calculated as follows:

Return on assets is a commonly used metric to measure the profitability of a company's operations. Return on assets measures how profitable a company is in terms of its assets. It also indicates the overall financial health of a company. ROA is a good metric to use in evaluating a company's financial performance. In addition, it is the criterion that has been used by many other researchers when evaluating the impact of capital structure on a company's performance. (Al-Shawra, 26: 2019)

(Tax after net income) / (total assets) = assets on average return

The DuPont system is used to analyze and interpret a company's financial statements and evaluate its financial position. The income statement and balance sheet consolidates the paper into two summary measures of profitability, return on assets and return on equity. The system first combines net profit margin, which measures a company's profitability on sales, with total asset turnover (ATO), which indicates how efficiently the company used its assets to generate sales. In DuPont's formula, the yield of these two ratios yields return on assets:

2.return on equity (ROE)

Another ratio that gives an indication of a company's overall financial health is the ROE. It is a ratio that analysts use to evaluate a company's performance. ROE shows the income generated for the shareholders through equity, which is the financing provided by the shareholders. ROE measures the return earned on the shareholders' investment in the company. The simplest way to calculate return on equity is to take the reported net income for a period and divide that by equity according to this It measures the company's efficiency in achieving returns from equity, without being affected by management financing decisions. This study chose the objective that measures financial performance by adjusting interest and taxes to objectively evaluate management performance, where the return on shares is calculated as follows (Malm & Roslund, 2013:116) mentions that the rules of engagement can give an indication of whether the company's file is able to Finding profitable investment opportunities, which is of great importance for companies that want to remain competitive. More in-depth analysis of the rules of engagement as follows, DuPont's second step The system uses DuPont's modified formula. This formula relates a company's return on assets to its ROE. The latter is calculated by multiplying the return on assets by the financial leverage multiplier (FLM), which is the ratio of total assets to equity and substituting the appropriate formulas into the equation and simplifying the results into the formula given earlier will give the following: To convert return on assets into ROE impact the financial impact on the return of the owners. The measure of success consists of three components:

1- A profit margin that reflects the company's operational success
2- The turnover of assets reflects the investment success of the company
3- Financial leverage to reflect the company's financing activities

The relationship between Six Sigma and financial performance

Six Sigma performance is concerned with quality costs. The operation aims to reduce the cost of improving poor quality due to global competition factors, classical quality management approach, companies have not recorded enough success to capture in the long run. However, the emergence of the Six Sigma approach to a large extent has a tremendous positive impact in terms of quality and they have succeeded in achieving success in terms of business performance and higher quality of services, through cost reduction, defect reduction, customer retention, and service development. (Ertürk, 2016:446)

The third topic

Measuring and analyzing the relationship between Six Sigma and financial performance (practical side)

First: - About banks

1- ashur Bank:

Ashur International Bank was established in 2005, when it obtained the license of the Central Bank of Iraq on 9/22/2005, and it started doing business on 18/1/2006, with a capital of (25) billion Iraqi dinars. The period from 2007 to At the end of the year 2013, there was a positive development and performance, as the bank's efforts resulted in strengthening its position and placing it on the map of the leading Iraqi banks. By focusing the efforts of his administration and departments on implementing a set of projects and work programs that resulted in achieving many positive results that positively affected the economic performance in Iraq.

2- alsharq al'awsat Bank:

The Iraqi Middle East Investment Bank was established in 1993 after obtaining the certificate of incorporation from the Ministry of Commerce / Companies Registrar Department and the banking license from the Central Bank of Iraq. He started his banking business on 8/5/1994 with a capital of 400 million dinars. Now, the registered and paid-up capital of the bank is 250 billion, up 625 times from what it was at the time of incorporation, and these increases were made through the capitalization of annual profits, and the other part is paid by shareholders since the establishment of the bank. Our bank has won the first excellent rank (1C) among Iraqi private banks according to the global CAMEL system for four consecutive years (2007-2008-2009-2010). The bank also has a special unit to combat money laundering in accordance with Law No. 93 of 2004 and the instructions of the Central Bank of Iraq. .

Second: Descriptive statistics

1. Ashur International Bank for Investment

In order to know the general characteristics of the studied data, some general statistics were found, such as the lowest and highest values, the arithmetic mean, and the standard deviation for all the studied variables of the bank, as in the following table:

General statistics for variables

variable	Sample volume	lowest value	The most valuable	Arithmetic mean	standard deviation

Net profit	6	4782298000	14827792000	10253145500	4607430304
Property rights	6	252640000000	281395000000	268195666700	9494048297
total assets	6	374711000000	613526000000	455107166700	88547932780
total liabilities	6	110189000000	332131000000	186911166700	80457709430
The rate of return on equity	6	.01781723	.05835001	.0384703492	.01788460990
The rate of return on total assets	6	.01022996	.03934122	.0238983805	.01302402730

2. **alsharq al'awsat Bank:**

In order to know the general characteristics of the studied data, some general statistics were found, such as the lowest and highest values, the arithmetic mean, and the standard deviation for all the studied variables of the bank, as in the following table:

General statistics for variables

variable	Sample volume	lowest value	The most valuable	Arithmetic mean	standard deviation
Net profit	6	-2295243000	11750404000	1164878667.00	5291872651.000
Property rights	6	264891000000	272094000000	267970333300.00	2951397138.000
total assets	6	633833000000	800750000000	688256000000.00	69273184050.000
total liabilities	6	361740000000	533282000000	420285833300.00	68838979130.000
The rate of return on equity	6	-.00858139	.04318516	.0042241430	.01949374950
The rate of return on total assets	6	-.00323496	.01853864	.0019988878	.00823665686

Analytical statistics for the year 2016 of the Ashur International Bank for Investment

Research correlations between variables

Here, the correlations between the search variables and agencies will be examined:

The correlation and significance between SIXSIGMA and the rate of return on equity and the rate of return on total assets

The researcher has developed hypotheses for the purpose of testing the significance of the association between the following variables:

H1: There is a significant correlation between SIXSIGMA and the rate of return on equity.

H2: There is a significant correlation between SIXSIGMA and the rate of return on total assets.

Correlations between variables

Correlations			
		The rate of return on equity	The rate of return on total assets
SIXSIGMA	Pearson Correlation	.831*	.781*
	Sig. (2-tailed)	.021	.038
	N	7	7
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

The above table shows that the correlation between the two variables SIXSIGMA and the rate of return on equity is significant under the 5% level of significance because the value of sig. Less than 5%, as the correlation value of 0.831 indicates that there is a positive relationship between SIXSIGMA and the rate of return on equity. And the correlation between the two variables SIXSIGMA and the rate of return on total assets is significant under the 5% level of significance because the value of sig. Less than 5%, as the correlation value of 0.781 indicates that there is a positive relationship between SIXSIGMA and the rate of return on total assets.

Examining the effect and significance of SIXSIGMA on the rate of return on equity and the rate of return on total assets.

The researcher studied the joint effect of the SIXSIGMA variable on the dependent variables, the rate of return on equity and the rate of return on total assets, and the following hypotheses were formulated to achieve this goal:

H1: There is a statistically significant effect of the variable SIXSIGMA on the variable rate of return on equity.

H2: There is a statistically significant effect of the variable SIXSIGMA on the variable rate of return on total assets.

For the purpose of testing the above hypotheses, the following table was created, which includes a summary of the results required to indicate the acceptance or rejection of the hypotheses:

The effect of the SIXSIGMA variable on the dependent variables is the rate of return on equity and the rate of return on total assets

significance of the variable	morale sig. t-test	t-test value	The value of the effect parameter	F test significance	F test value	Corrected coefficient of determination	The coefficient of determination	the independent variable	dependent variable
The variable is not significant	.745	-.349	-.071	.016[b]	13.784	.810	.873	SIXSIGMA	The rate of return on equity
The variable is not significant	.454	-.828	-.113	.003[b]	32.627	.913	.942	SIXSIGMA	The rate of return on total assets

Through the results above, it is clear to us that the value of the coefficient of determination of the impact of the SIXSIGMA variable on the variable rate of return on equity was 0.87, and the value of the corrected coefficient of determination was 0.81. This value indicates that the regression model used by the researcher has explained 87% of the total differences, and the value of F test 13.784 with significant value sig. Equal to 0.016, which is less than the significance level of 5%, which indicates the significance of the model for the effect of the independent variable SIXSIGMA on the variable rate of return on equity. And there is no effect of the variable SIXSIGMA on the variable rate of return on equity.

It turns out that the value of the coefficient of determination of the impact of the SIXSIGMA variable on the variable rate of return on total assets was 0.942 and the value of the corrected coefficient of determination was 0.913. This value indicates that the regression model used by the researcher has explained 94% of the total differences, and the value of the F test was 32.627 with morale sig. Equal to 0.003, which is less than the significance level of 5%, which indicates the significance of the model for the effect of the variable SIXSIGMA on the variable rate of return on total assets.

And there is no effect of the SIXSIGMA variable on the variable rate of return on total assets.

Conclusions:

1- It was found that most of the private banks in Baghdad use the (Six Sigma) approach, but they are new to it and do not use it widely.

2- It was found that the (Six Sigma) method enhances customer satisfaction by improving the quality of the process outputs and using the organization's statistical tools that help reduce waste and deviations.

3- There is a positive relationship between SIXSIGMA and the rate of return on equity individually

4- There is a direct relationship between SIXSIGMA and the rate of return on total assets individually

Recommendations:

1- The study recommends the development of the banking system and diligent work in order to implement the (Six Sigma) approach, according to what is in effect in international banks.

2- Al-Darisi recommends educating bank employees to work on the (Six Sigma) approach to enhance customer satisfaction in the light of improving the quality of process outputs and helping to reduce waste and deviations.

3- The study recommends developing the banking business according to the Six Sigma approach to increase the bank's revenues.

4- Enhancing the Six Sigma methodology to increase the rate of return on equity and the rate of return on total assets individually.

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