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The effect of using charts in financial reports in commercial banks in Saudi Arabia

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Part: One

I. First part: introduction

Acknowledgment and abstract

I. Acknowledgment

In God's name, the Compassionate, the Compassionate. First, we want to thank God Almighty for assisting us, providing us with strength and power, and supporting and directing us to finish this critical job. We honor and pray for our prophet Muhammad (peace upon him), his family, and his associates. We would like to express our heartfelt gratitude to everyone who assisted us, including our parents, friends, and everyone who helped us in completing this project, especially Dr. **Walid Soliman** who supervised this project, for his exceptional work with us and his valuable guidance and unlimited support that we required throughout all stages of the project's completion.

II. Abstract

This thesis examines the impact of using charts in financial reports within the commercial banking sector in Saudi Arabia. The study focuses on the effectiveness of data visualization tools, such as graphs and charts, in enhancing the readability, comprehension, and decision-making process for stakeholders. Financial reports play a crucial role in informing stakeholders about a bank's financial performance and facilitating informed decision-making.

The research investigates how the inclusion of charts in financial reports influences stakeholders' perceptions, including investors, analysts, and managers, regarding the economic

performance of commercial banks. The study also explores the potential benefits and limitations of incorporating charts in financial reporting.

A mixed-methods approach, combining qualitative and quantitative research methods, is employed. The research involves surveys administered to stakeholders and interviews with key informants, including financial analysts, managers, and regulators. The total participants were 317 responses. The majority of responses agreed that there is a significant effect of using charts in financial reports in commercial banks in Saudi Arabia.

The findings of this study contribute to the existing knowledge on the use of charts in financial reports and provide insights into their implications for the banking industry in Saudi Arabia, offering recommendations for enhancing the presentation of financial data using charts.

Key words: charts, financial reports, data visualization, decision-making process, commercial banks in Saudi Arabia.

Introduction:

Financial reporting is essential to any business, particularly in the banking sector, where accuracy and transparency are crucial. There has been a growing trend toward using data visualization tools such as charts and graphs in financial reports in recent years. These tools are believed to enhance the readability and comprehension of financial information, making it easier for stakeholders to understand financial data and make informed decisions.

Financial reports play a crucial role in the decision-making process of commercial banks in Saudi Arabia. These reports provide valuable information about the bank's financial performance and help stakeholders make informed decisions. However, the effectiveness of financial statements depends on how well the information is presented. Using charts is one way to enhance the presentation of financial data and make it more accessible to stakeholders.

This thesis investigates the effect of using charts in financial reports in commercial banks in Saudi Arabia. The study will examine how diagrams in financial statements affect the perception of stakeholders, including investors, analysts, and managers, about the bank's economic performance. The research will also explore the potential benefits and limitations of using charts in financial reports.

Also, this paper aims to investigate the impact of using charts in financial reports in commercial banks in Saudi Arabia. The study will examine the effectiveness of charts in improving the quality of financial information, increasing transparency, and enhancing stakeholder engagement. The findings of this research will provide valuable insights into the use of data visualization tools in financial reporting and their implications for the banking industry in Saudi Arabia.

Financial charts and charts are visual tools that allow companies and banks to monitor various performance metrics in areas such as liquidity, budgets, expenses, cash flow, and others. By doing so, they can successfully manage risk to ensure healthy financing and steady growth.

Graphically visualizing big data sets is known as data visualization—the visualizations aid in understanding the link between the various components and identifying trends. Data visualization provides real-time insights and aids in decision-making.

In recent years, charts in financial reporting have become increasingly popular among businesses worldwide, including banks. Charts can simplify complex financial information and make it more understandable for stakeholders who may not be financial experts. By providing a visual representation of economic data, graphs can help to identify trends, highlight important information, and make it easier to compare data over time.

However, while charts can offer many benefits, there are also potential limitations. For example, if charts are not used appropriately, they can be transparent for stakeholders, leading to incorrect decisions. Therefore, it is vital to understand how using graphs in financial reports can affect stakeholders' perceptions and decision-making processes.

Saudi Arabia's banking sector has been increasing in recent years, with many commercial banks expanding their operations to meet the demands of the country's growing economy. As such, these banks must provide accurate and accessible financial information to their stakeholders, including investors, analysts, and regulators. This study will focus specifically on commercial banks in Saudi

Arabia, examining how charts in financial reports can impact stakeholders' perceptions of the bank's economic performance.

The study will use a mixed-methods approach, combining qualitative and quantitative research methods. The research will involve a survey of stakeholders to collect quantitative data and interviews with key informants to gather qualitative data. The survey will be administered to a sample of stakeholders randomly selected from commercial banks in Saudi Arabia. At the same time, the interviews will be conducted with key informants, including financial analysts, managers, and regulators.

The findings of this study will contribute to the existing body of knowledge on the use of charts in financial reports. They will provide insights into the benefits and limitations of using charts in the context of commercial banks in Saudi Arabia. The study will also offer recommendations for banks to enhance the presentation of financial data using charts.

Part: Two

II. Second part: the theoretical framework of the study

This study is grounded in the literature on financial reporting, information visualization, and decision-making. The theoretical framework provides a conceptual basis for the study and helps to guide the research design and analysis.

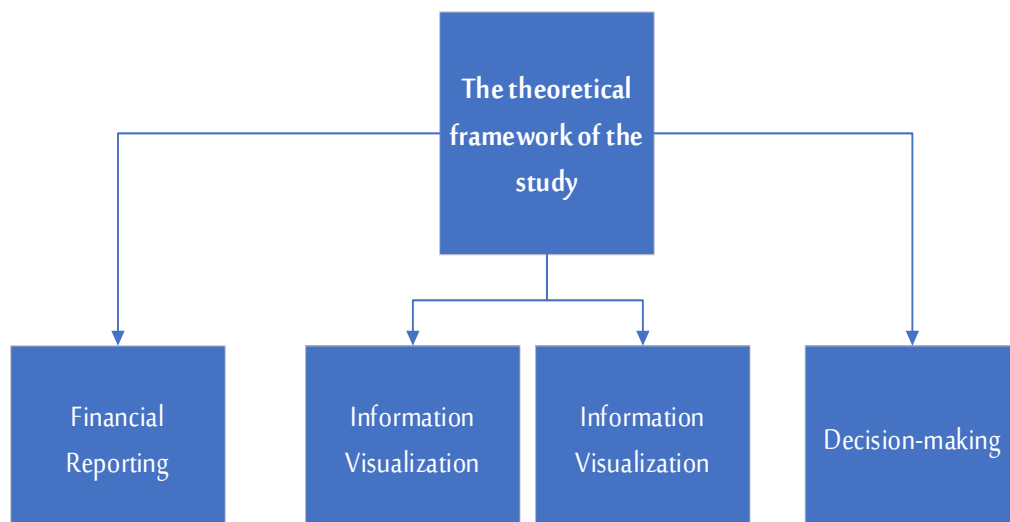


Figure II-1 the theoretical framework of the study

Financial Reporting:

Financial reporting is critical to corporate communication, providing stakeholders with information about the organization's economic performance. The purpose of financial reporting is to

provide relevant and reliable information to stakeholders to support their decision-making processes.

Financial reports typically include financial statements, which give an overview of the organization's financial performance, and accompanying notes that provide additional information about the financial statements.

Information Visualization:

Information visualization creates visual representations of data to facilitate understanding, analysis, and communication. Charts are a common form of information visualization used in financial reporting. Charts can simplify complex financial data, highlight important information, and make it easier to compare data over time. The use of charts in financial reporting has been shown to improve stakeholders' understanding of financial information and support their decision-making processes.

Decision-making:

Decision-making is the process of making choices among alternative courses of action. In financial reporting, stakeholders use financial information to support their decision-making processes. The quality of financial information is critical to the effectiveness of decision-making. Financial information that is presented in a clear, understandable, and accessible manner can support stakeholders' decision-making processes and lead to better decisions.

Using charts in financial reports can impact stakeholders' decision-making processes by enhancing the accessibility and understandability of financial information. However, the effectiveness of charts in financial reporting depends on several factors, including the type of chart used, the context in which it is used, and the characteristics of the stakeholders who use it. Therefore, it is vital to

understand how charts in financial reports can impact stakeholders' perceptions of financial information and their decision-making processes.

In this section we will discuss a few significant definitions related to this study, specifically defining four key parameters that will help us understand the study's theoretical framework.

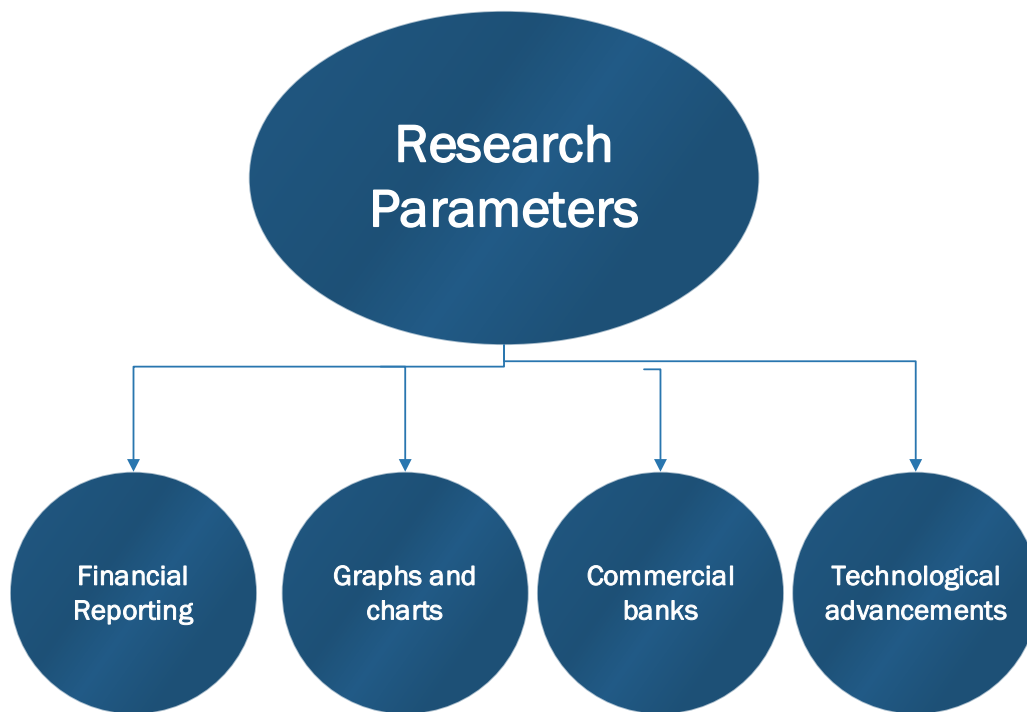


Figure II-2 Research parameters

1. **Financial reporting:** Financial reports are used by businesses to organize financial data and report on their current financial situation.

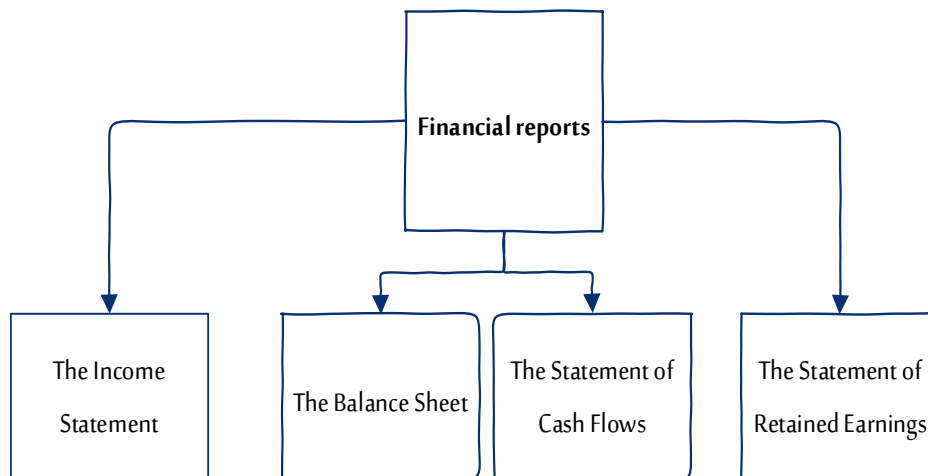


Figure II-3 Financial reports

- **The Income Statement:** The income statement summarizes a company's sales, costs, and earnings over a specified time period.
- **The Balance Sheet:** The balance sheet summarizes a company's assets, liabilities, and shareholders' equity as of a certain date.
- **The Statement of Cash Flows:** The statement of cash flows provides an aggregated perspective of a company's cash flows related with its operations, financing, and investment activities.
- **The Statement of Retained Earnings:** The statement of retained earnings is the last of the reports. It details all changes in a company's retained earnings throughout the course of the reporting period. It is typically left out of financial statement reporting packages.

2. Graphs and charts

Financial graphs and charts are visual tools that enable organizations to track numerous performance indicators such as liquidity, budgets, costs, cash flow, etc. They may successfully manage risks in this manner to ensure healthy finances and consistent growth.

However, when absorbing and acting on vital financial measurements and insights, well-designed finance graphs and charts provide the most excellent option. According to Illinois State University, when it comes to visual aids of this type, three rules apply: graphs and charts should represent unambiguous information, significant facts, and currently stated insights in the most efficient way feasible (Illinois State University, 2022).

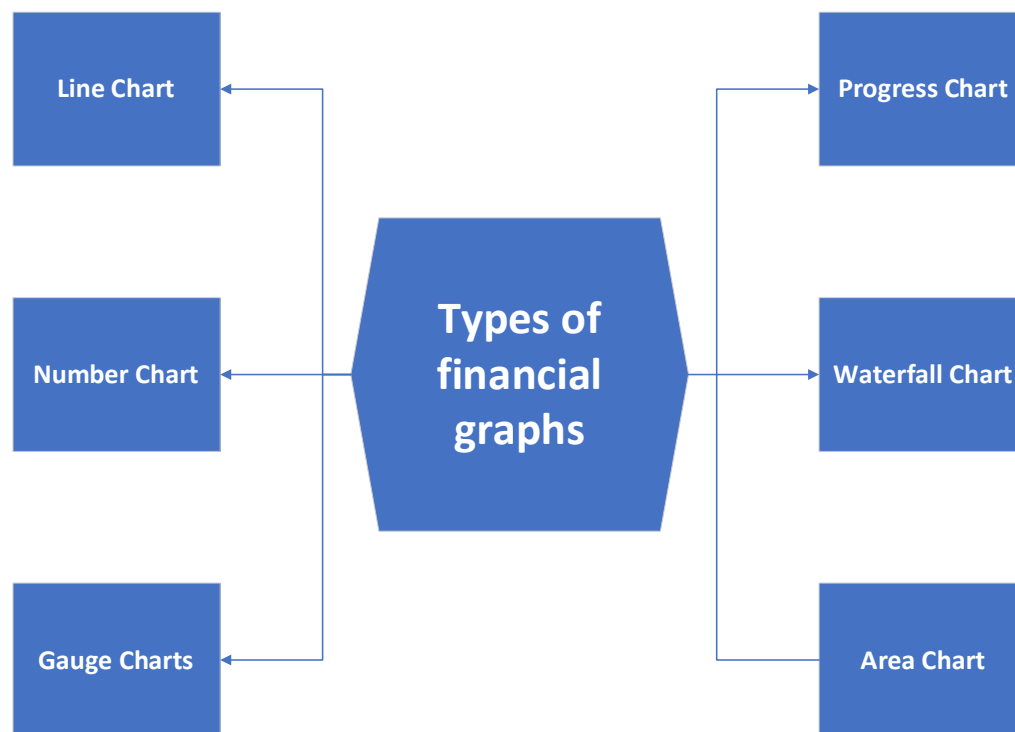


Figure II-4 Types of Financial Charts

- **Line charts:** This form of financial chart is perfect for displaying many series of closely linked data across time, allowing us to see patterns, accelerations, decelerations, or volatility. Line charts are commonly used to show trends over time. They are useful for displaying changes in financial data, such as revenue or profit, over a period of time. Line charts can also be used to compare the performance of multiple financial metrics over time.
- **Number charts:** A number chart is one of the most basic forms of business graphs since it is simply a ticker that shows how a single KPI is progressing in real time.
- **Gauge charts:** The gauge chart is a simple and uncomplicated sort of visualization that is frequently used to illustrate the performance of a single parameter in a quantitative context.
- **Progress charts:** A progress chart aims to keep track of how much of a certain objective we have completed and how much remains to be completed.
- **Waterfall charts:** This form of visualization aids in comprehending the cumulative influence of positive and negative numbers to arrive at a final result. For example, if a corporation wishes to show its annual profit, the waterfall would show all sources of revenue and then add or subtract all expenditures to get at the overall profit for the year.

- **Area charts:** The preceding kind of graph often combines a line chart with a bar chart to demonstrate how one or more numerical values change in response to a second variable. The shade between the lines and the baseline distinguishes the area chart from the other two.

Also, there are several types of charts, including:

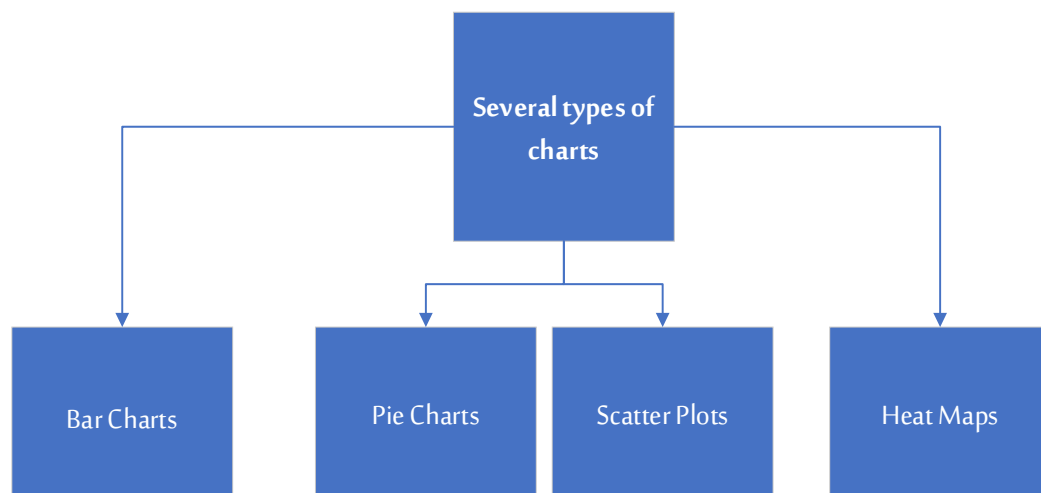


Figure II-5 Several types of charts

- **Bar Charts:** Bar charts are useful for displaying comparisons between different financial metrics, such as revenue or expenses. They can be used to compare actual values to budgeted or forecasted values, or to compare the performance of different departments or business units.
- **Pie Charts:** Pie charts are a useful way to display the relative proportions of different financial metrics, such as the composition of revenue or expenses. They can be used to highlight the contribution of different products or services to overall revenue or to show the distribution of expenses across different categories.
- **Scatter Plots:** Scatter plots are useful for displaying the relationship between two financial metrics, such as revenue and expenses. They can be used to identify patterns or trends in financial data and to identify outliers or anomalies.
- **Heat Maps:** Heat maps are useful for displaying large amounts of financial data in a visual and intuitive way. They can be used to identify trends or patterns in financial data, such as changes in revenue or expenses across different regions or business units.

These are just a few examples of effective chart types for financial reporting. The choice of chart type will depend on the specific financial data being presented and the audience for the report. It is important to choose a chart type that effectively communicates the information being presented and is easily understandable by the audience.

3. Commercial banks

A commercial bank is a form of financial organization that handles all operations relating to money deposits and withdrawals for the general public, as well as investment loans and other similar activities.

4. Technological advancements related to financial reporting in commercial banks

Emerging financial services technology have continually altered how stakeholders engage with data, what they expect from financial institutions, and how those organizations function.

Our study will explore the impact of data visualization tools such as charts and graphs on financial reporting in the banking industry of Saudi Arabia. The study will cover the following fields of study:

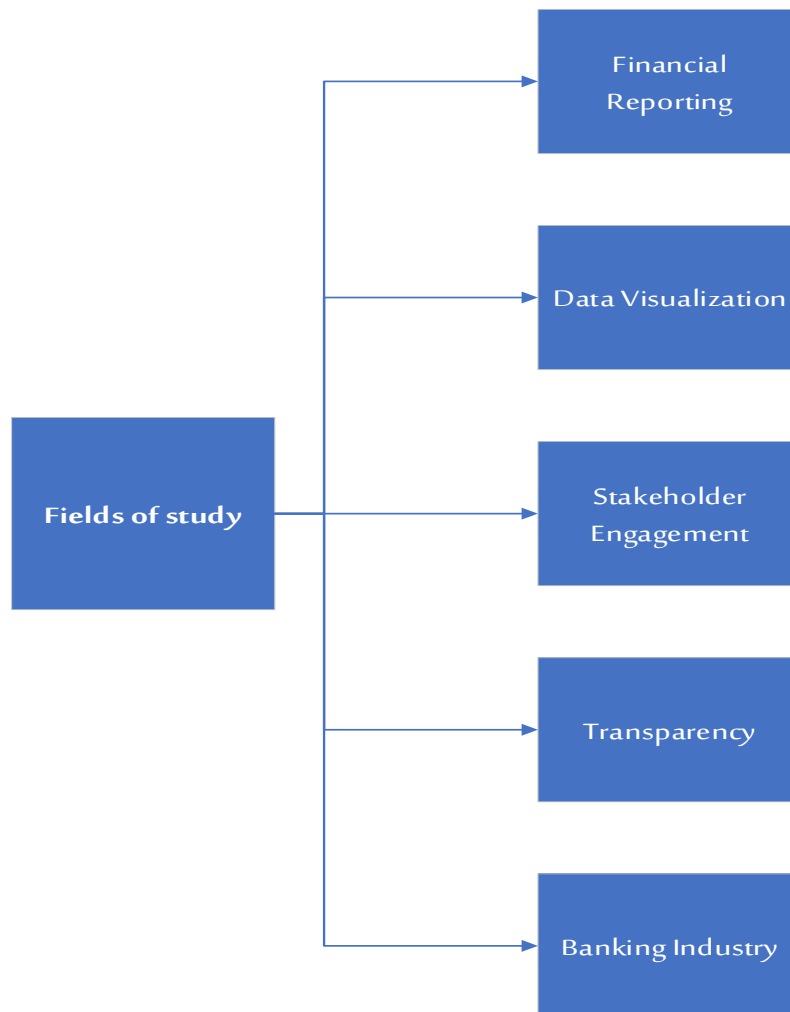


Figure II-6 Fields of study

1. **Financial Reporting:** The study will investigate how data visualization tools can enhance the quality of financial information presented in reports.

2. **Data Visualization:** The research will focus on the use of charts and graphs to represent financial data and how they can improve the readability and comprehension of financial reports.
3. **Stakeholder Engagement:** The study will analyze the impact of using charts in financial reports on stakeholder engagement, including shareholders, regulators, and customers.
4. **Transparency:** The research will examine how data visualization tools can increase transparency in financial reporting, making it easier for stakeholders to understand financial information.
5. **Banking Industry:** The study will focus on the banking industry in Saudi Arabia and explore the implications of using charts in financial reports for the industry.

Overall, this study will contribute to the fields of financial reporting, data visualization, stakeholder engagement, transparency, and the banking industry in Saudi Arabia.

Also, here are some benefits of using financial charts and graphs reports in commercial banks in Saudi Arabia.

- Financial charts and graphs are extremely useful in assisting banks in monitoring important financial data, illustrating patterns, and acting promptly. They rely on defining financial objectives and assessing performance.
- Employees in banks should be trained to use charts and graphs as much as possible, and remind them of their importance in understanding lists and reports, especially financial reports, as they work on
- Provide an overview of the business and how the different financial parts perform.

- Provide a clear picture of the bank's financial position.
- Provides stakeholders and potential investors with a good overview of the financial affairs of the Bank's operation.
- Provides bank departments with inputs to make informed decisions

In summary, the theoretical framework for this study is grounded in the literature on financial reporting, information visualization, and decision-making. The framework highlights the importance of financial reporting as a means of communicating financial information to stakeholders, the use of charts as a form of information visualization in financial reporting, and the role of financial information in supporting stakeholders' decision-making processes. The framework provides a conceptual basis for the study and helps to guide the research design and analysis.

Previous studies

The literature review indicates that the use of data visualization tools such as charts and graphs in financial reporting has gained significant attention in recent years. Studies have shown

that these tools can improve the quality of financial information presented in reports, enhance transparency, and increase stakeholder engagement. Several studies have investigated the use of charts in financial reporting and their impact on stakeholders' perceptions and decision-making processes.

Moreover, data visualization tools can increase transparency in financial reporting. A study by (Omid Faraji et al, 2020) Visual representations of financial data can enhance transparency in financial reporting and improve stakeholder engagement. Data visualization tools in financial reporting are becoming increasingly popular in the banking industry. Also, using charts in financial reports can improve stakeholder engagement, including shareholders, regulators, and customers. Using charts in financial statements can enhance the readability and comprehension of financial information, particularly for non-expert stakeholders.

The digital transformation in the banking sector and increasing reliance on new technologies and third-party service providers have increased the complexity and interconnectedness within the financial system. Cyber-attacks, in particular, have become a significant challenge for banks' operational resilience in recent years, as they have been tough to deal with due to the increasing complexity and rapidly changing nature of the related threats and because of their cross-border dimensions.

In recent years, the financial industry has seen significant developments, including new technologies, the arrival of FinTechs, and the shift from a physical branch-based business model to a greater emphasis on digital services. These developments have the potential to increase competition and democratize financial services (LUCAS A. MARIANI, 2023).

Banking institutions in nearly every nation play a significant role in shaping economic development and progress by efficiently transferring cash from borrowers to savers. A strong banking industry successfully flows capital and financial products to boost any nation's financial and economic system. As a result, the sound functioning of the banking sector has long been a major problem for scholars and policymakers tasked with guaranteeing the nation's strength and economic development (Sharma, 2013).

While (Laidroo, 2016) states that One-third of the graphs released by a bank violate at least one graph-construction standard, and there appears to be a favorable measurement-distortion bias. In accordance with predictions, there are indicators that managers' impression motivation rises during crisis periods—severe graph distortions are twice as common, and financial indicator graph distortions increase.

Graphs allow statistical data and correlations to be visually presented using words and figures. Charts are also used to make decisions considering the limited time available for producing yearly reports.

When utilized effectively, charts have the following benefits:

- Users' attention may be engaged, primarily when coloring is employed.
- Knowledge is increased when patterns and trends are highlighted.
- Language obstacles are addressed.

Because of the rising usage of graphs and dependence on graphs for decision-making, correct graph representation has become critical (Kathrada, 2021).

The literature review suggests that the use of data visualization tools such as charts and graphs can have a positive impact on financial reporting in the banking industry. However, more

research is needed to understand the specific implications of using these tools in the context of commercial banks in Saudi Arabia (VIRAL V. ACHARYA, 2016).

In a study by (Yousif et al, 2017), the authors examined the effect of using charts in the annual reports of Saudi Arabian companies on investors' decision-making processes. The study found that the use of charts improved investors' understanding of financial information and their confidence in their investment decisions. The authors concluded that the use of charts in financial reporting can enhance the effectiveness of corporate communication and support stakeholders' decision-making processes.

In another study, (Almaqtari et al, 2021) investigated the impact of data visualization techniques, including charts, on the decision-making processes of financial analysts. The study found that the use of charts in financial reports improved the analysts' understanding of financial information and their ability to identify trends and patterns in the data. The authors concluded that the use of data visualization techniques can enhance the quality of financial analysis and support better decision-making.

A study by (Beddewela et al, 2018) Examined the impact of charts in the financial reports of Chinese listed companies on investors' decision-making processes. The study found that charts improved investors' understanding of financial information and confidence in their investment decisions. The authors concluded that the use of graphs in financial reporting can enhance the effectiveness of corporate communication and support stakeholders' decision-making processes.

In a recent study by (Mohamad et al, 2017), The authors examined the impact of data visualization techniques, including charts, on the decision-making processes of financial analysts

and managers. The study found that using graphs in financial reports improved the stakeholders' ability to identify patterns and trends in economic data and make more informed decisions. The authors concluded that the use of data visualization techniques can enhance the quality of financial analysis and support better decision-making.

Overall, these studies suggest that the use of charts in financial reporting can enhance the effectiveness of corporate communication and support stakeholders' decision-making processes. The findings of these studies provide important insights into the potential benefits of using charts in financial reports and highlight the importance of effective data visualization techniques in financial reporting.

First chapter: Problem Of the study and its importance.

1- Problem Of the study

The study problem for this paper arises from the need to examine the impact of data visualization tools, such as charts and graphs, on financial reporting in the banking industry of Saudi Arabia. While the use of charts and graphs in financial reports has increased globally, more research

needs to be conducted to investigate their effectiveness in the context of commercial banks in Saudi Arabia.

Financial reports are critical for communicating financial information to stakeholders, including investors, regulators, and other interested parties. The use of charts in financial reporting has become increasingly popular in recent years, as charts can help to simplify complex financial data and make it more accessible and understandable for stakeholders. However, the effectiveness of charts in financial reporting depends on several factors, including the type of chart used, the context in which it is used, and the characteristics of the stakeholders who use it.

Despite the potential benefits of using charts in financial reporting, there needs to be more research on their impact on stakeholders' perceptions and decision-making processes, particularly in the context of commercial banks in Saudi Arabia. As the banking sector in Saudi Arabia continues to grow, it is crucial to understand how the use of charts in financial reporting can affect stakeholders' perceptions and decision-making processes in this context.

Therefore, the problem addressed by this study is the impact of using charts in financial reports on stakeholders' perceptions and decision-making processes in the context of commercial banks in Saudi Arabia. This study aims to fill the gap in the literature and provide a better understanding of the potential benefits and limitations of using charts in financial reporting in the context of commercial banks in Saudi Arabia. The findings of this study can inform the development of best practices for using charts in financial reporting in the banking sector in Saudi Arabia and other countries.

The banking industry in Saudi Arabia plays a critical role in the country's economy, and financial reporting is an essential aspect of the industry. However, financial reports can often be

complex and challenging to understand, particularly for non-expert stakeholders, leading to potential misinterpretation and decision-making errors. Therefore, there is a need to explore the potential benefits of using charts and graphs in financial reports to enhance the quality of financial information presented to stakeholders in the banking industry of Saudi Arabia.

Moreover, using data visualization tools in financial reporting can enhance transparency, which is becoming increasingly important in the banking industry. Transparency can improve stakeholder engagement, support better decision-making, and promote accountability, which are all critical for the sustainable growth of the banking industry in Saudi Arabia.

Therefore, the study problem for this research paper is to investigate the effectiveness of using charts and graphs in financial reports in commercial banks in Saudi Arabia to enhance the quality of financial information, increase transparency, and improve stakeholder engagement. The study aims to fill the research gap in this area and provide valuable insights into the potential benefits of using data visualization tools in financial reporting in the banking industry of Saudi Arabia.

In this study, we will take a deeper look into the effect of visualizing financial data in the form of graphs or charts, specifically for financial reporting in commercial banks in Saudi Arabia.

Every company's financial reporting would be flawless and easily understandable in a perfect world. Financial statements include crucial information about a company's health, and internal and external stakeholders must be able to perfectly view and comprehend the data to be confident in their integrity to make critical management and investment choices.

Unfortunately, erroneous reporting can result from inadvertent error or deliberate fraud in the worst-case scenario. Poor company and investment decisions, regulatory fines, and reputational loss

can all result from inaccurate and insufficiently displayed reporting. Understanding the origins, dangers, and methods for mitigating mistakes can assist businesses in avoiding financial reporting inaccuracies and the difficulties they can create.

2- Importance Of the study

The banking sector is a critical component of the Saudi Arabian economy, and commercial banks play a vital role in providing financial services to individuals and businesses. Financial reporting is an essential tool for communicating financial information to stakeholders, including investors, regulators, and other interested parties. The use of charts in financial reporting has become increasingly popular in recent years, as charts can help to simplify complex financial data and make it more accessible and understandable for stakeholders.

Despite the potential benefits of using charts in financial reporting, there is a lack of research on their impact on stakeholders' perceptions and decision-making processes, particularly in the context of commercial banks in Saudi Arabia. This study is significant because it aims to fill this gap in the literature and provide a better understanding of the potential benefits and limitations of using charts in financial reporting in the context of commercial banks in Saudi Arabia.

The findings of this study have practical implications for commercial banks in Saudi Arabia and other countries. The study can inform the development of best practices for using charts in financial reporting in the banking sector, leading to improved communication and decision-making processes. The study can also contribute to the broader literature on financial reporting and information

visualization, highlighting the potential benefits and limitations of using charts in financial reporting and their impact on stakeholders' perceptions and decision-making processes.

The importance of research on the subject of the effect of using charts in financial reports in commercial banks in Saudi Arabia can be the following points:

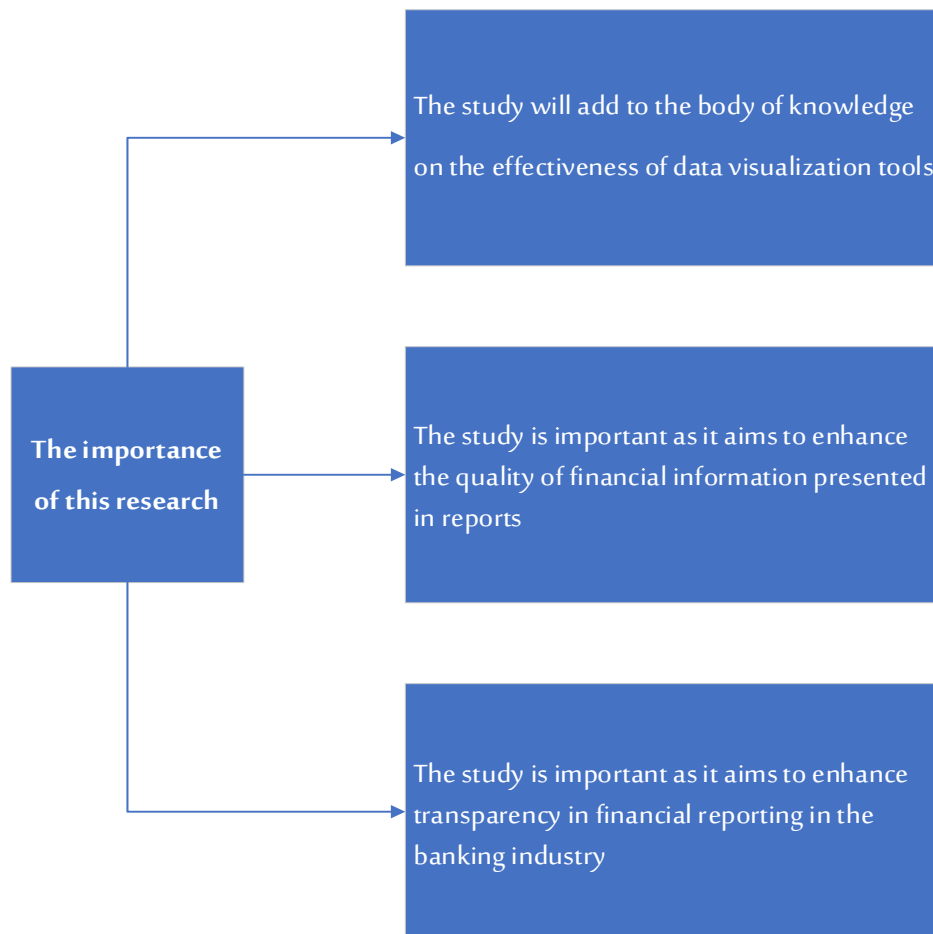


Figure II-7 The importance of this research

Firstly, the study will add to the body of knowledge on the effectiveness of data visualization tools such as charts and graphs in financial reporting, specifically in the context of the banking industry in Saudi Arabia. While there is some literature on this topic, there is a significant research gap regarding

commercial banks in Saudi Arabia. Therefore, this study will provide valuable insights into the potential benefits of using charts and graphs in financial reports in Saudi Arabia.

Secondly, the study is crucial as it aims to enhance the quality of financial information presented in reports to stakeholders in the banking industry. Using charts and graphs in financial statements can make complex financial information more accessible and understandable, leading to more informed decision-making by stakeholders. This can ultimately improve commercial banks' overall performance and sustainability in Saudi Arabia.

Thirdly, the study is crucial as it aims to enhance transparency in financial reporting in the banking industry. Transparency is becoming increasingly important, particularly after the global financial crisis, as it enhances stakeholder trust and promotes accountability. Banks can enhance transparency and improve stakeholder engagement by using data visualization tools such as charts and graphs in financial reports.

Finally, the study is essential as it has practical implications for commercial banks in Saudi Arabia. The study's findings inform banks' decision-making regarding the use of data visualization tools in financial reporting, potentially leading to improvements in the quality of financial information presented to stakeholders and enhancing transparency in the industry. Therefore, the proposed research is essential for both academic and practical reasons, and it has the potential to contribute to the banking industry in Saudi Arabia significantly.

Also, Data visualization is much more than PowerPoint presentations. It creates detailed graphs and charts to help employees make sense of large data sets in less time. There are many uses for data visualization in the banking industry (Chopra, 2022).

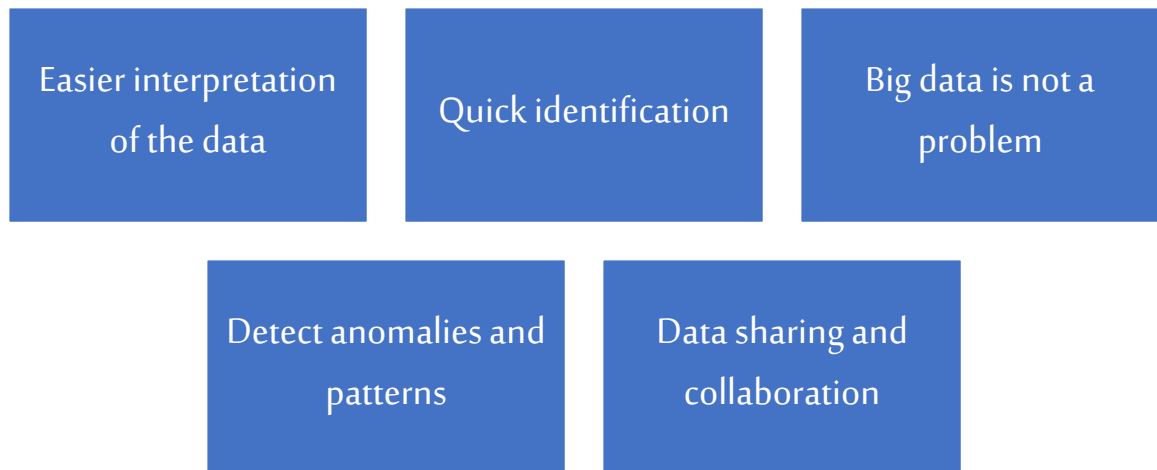


Figure II-8 Uses for data visualization in the banking industry

Overall, this study is critical because it can provide valuable insights into the impact of using charts in financial reports in commercial banks in Saudi Arabia and contribute to developing best practices for financial reporting in this context. The findings of this study can be used to improve communication and decision-making processes in the banking sector in Saudi Arabia and other countries.

i. Research objectives

1. To investigate the extent to which the use of charts and graphs in financial reports improves the readability and comprehension of financial information in the banking industry.

2. To examine the impact of using charts and graphs in financial reports on transparency in the banking industry.
3. To explore the potential benefits of using charts and graphs in financial reports on stakeholder engagement in the banking industry.
4. To identify the challenges and limitations associated with using charts and graphs in financial reports in the context of commercial banks in Saudi Arabia.
5. To provide recommendations for the effective use of charts and graphs in financial reports in commercial banks in Saudi Arabia.
6. Help better understand how charts benefits users of financial reports in commercial banks in Saudi Arabia.
7. Define how charts are used to visualize financial data.
8. Establish the difference between perception of textually represented data and charted data.
9. Identifying the impact charts and graphs has on financial reports in commercial banks in Saudi Arabia.

These research objectives aim to address the study problem of investigating the effectiveness of using charts and graphs in financial reports in commercial banks in Saudi Arabia. The objectives aim to provide a comprehensive understanding of the benefits and limitations of using data visualization tools in financial reporting and their potential impact on the quality of financial information, transparency, and stakeholder engagement in the banking industry. The study aims to provide valuable insights for commercial banks in Saudi Arabia on the effective use of charts and graphs in financial reports and recommendations for improving financial reporting practices in the industry.

Second chapter: First variable of the study

The first variable in this study is the use of charts in financial reports. This variable refers to the extent to which commercial banks in Saudi Arabia use charts in their financial reports. The use of charts can vary depending on the type of chart used, the frequency of use, and the context in which it is used.

Third chapter: Second variable and the correlation between variables

The second variable in this study is stakeholders' perceptions and decision-making processes. This variable refers to stakeholders' understanding of financial information and their ability to use this information to make informed decisions. The perceptions and decision-making processes of stakeholders can vary depending on their level of financial literacy, their experience in the banking industry, and their familiarity with the specific financial information presented.

Correlation between Variables:

This study examines the correlation between the use of charts in financial reports and stakeholders' perceptions and decision-making processes in the context of commercial banks in Saudi Arabia. Graphs in financial statements will positively impact stakeholders' perceptions and decision-making processes. Specifically, charts will likely enhance stakeholders' understanding of financial information and their ability to use it to make informed decisions.

It is important to note that the correlation between the use of charts in financial reports and stakeholders' perceptions and decision-making processes may be influenced by several factors, including the type of chart used, the context in which it is used, and the characteristics of the stakeholders who use it. Therefore, this study will use statistical analysis to examine the relationship between these variables and account for potential confounding variables.

Part: Three

III. Third part: Practical study and its methodological procedures

The methodological procedures are referred to in the scientific research plan as the researcher's systematic method to study a specific problem. Aspects related to the study; also represent a brief presentation of the contents of the study. It is known that the data of the group, which were deduced from the quantitative research, are in the form of a numerical value, unlike the nature of the data collected from the qualitative research. A quantitative approach will be used in the data analysis process (khaled2022 ,).

It is worth noting that scientific research methods mean the method followed by the researcher to obtain information related to a specific topic related to specialization, and that method differs entirely from one researcher to another according to the available material or intellectual ingredients, as well as about the quality of the research. In this research, the quantitative methodology will be applied as it represents the prevailing research framework in administrative sciences and the study of the effect of using charts in financial reporting in commercial banks. This methodology also refers to a set of strategies, techniques, and assumptions used to study the impact of charts and graphs on financial reporting by exploring modern methods and applications for managing forms of data visualization in a way that increases user knowledge (Rahman, 2021).

The quantitative research extracts a set of numerical data that seeks a deeper understanding of the purpose behind this research and seeks to clearly show the extracted results after presenting the

evidence and discussing the different opinions in order to reach the best results on the theoretical and applied levels (Hinton, 2019) .

Therefore, there is a close link between the quantitative methodology and the subject of the study in this research. The results can be depicted in the form of numbers. An accurate understanding of these numbers is important for predicting the impact of using graphical methods of displaying data in financial reports in commercial banks in Saudi Arabia. Therefore, the survey was designed to focus on identifying effects graphs and charts has on financial reporting in commercial banks in Saudi Arabia.

Fourth chapter: Methodological procedures.

Contrary to the nature of the data collected from qualitative research, the data collected and deduced from quantitative research are in the form of numerical values, and due to this difference, both researches differ from each other in a number of tools and methods used to collect data. In this research, the quantitative approach will be relied upon in data analysis, where quantitative research can be defined as a systematic study based on collecting quantifiable data through specialized tools such as opinion polls and questionnaires, or by processing data that has already been counted using computational techniques. Various programs such as Excel, SPSS and other programs that are used in data analysis (Ho, 2018).

a) Questionnaire method

Implementing the questionnaires will be highlighted as the method used to collect data in this research, as the questionnaires still play a pivotal role in collecting quantitative data to this day, as they help simplify and measure the answers and the data collected. The legitimacy and privacy of the

responses characterize them. Respondents, questionnaires are further classified into several classes as two main types of questionnaires can be used: sectional and longitudinal. A cross-sectional questionnaire assesses similar characteristics and differences between several data samples simultaneously. Longitudinal scanning involves looking at a single data cluster over different times. This requires administering questionnaires at several points in time describing change, stability, or trends over a specified period of time.

b) Using SPSS in data analysis

Statistical Package for the Social Sciences or SPSS is a program used for deep search and analysis of complex quantitative data. It is one of the most useful programs for organizations and businessmen as well as scientists and researchers in a huge collection of data and information for better analysis and evaluation, so it will be relied upon to analyze the data for this research.

It is possible to conclude that SPSS is a high-quality software package used for interactive or pooled statistical analysis, which is useful for analyzing and collecting data and information. Researchers can also organize data through SPSS data analysis software and perform functions within SPSS such as MANOVA testing in addition to regression analysis so that the relationship between the data its direction is clear, as it can be effectively identified.

Most major research agencies around the world use SPSS to analyze data so that they can get the most out of their research and investigative projects.

c) Advantages of data analysis with the help of SPSS software

SPSS data analysis appears in the small amount of effort that the researcher needs to use this program. The primary functions of SPSS are statistics programming, model programming, and text analysis for questionnaire programs. Through these functions, data analysis can be carried out in a systematic process. Through SPSS it will be possible to critically analyze the relationship and interdependence between variables within the framework of data sets and develop an in-depth critical assessment, which will contribute to improving the quality of this research.

Collecting information and data in scientific research

The process of collecting information and data in this scientific research on the effect of using charts in financial reports in commercial banks in Saudi Arabia is done by collecting reliable information from its various sources and analyzing it objectively by the researcher. And specific scientific methods to ensure their validity and make the necessary amendments to them, whether by addition or deletion, and this process aims to reach new laws and theories about the effect of using charts in financial reports in commercial banks in Saudi Arabia and predict various phenomena, and know their causes, and how to control them and discover new facts. Scientific research is the only way through which it is possible to build an understanding and awareness based on scientific evidence that aims to reach knowledge in the various aspects that revolve around the effect of using charts in financial reports in commercial banks in Saudi Arabia (khaled2022).

It is well known that a scientific researcher must collect accurate data as well as information when going to study a peculiarity or problem, the goal of which is to explain and analyze the nature of the event or difficulty of the effect of using charts in financial reports in commercial banks in Saudi

Arabia, that this investigation encourages. Because the tools employed in questionnaires, tests, observations, and interviews vary depending on the type and subject of scientific study, it is feasible to incorporate more than one instrument in the same research. The questionnaire method has been applied in this research. One of the most important objectives is to collect data and information that can be included in the statistical analysis processes. The definition of study procedures aids in regulating the components of the problem and serves as a continual touchstone for the researcher throughout all study processes. The features that the discussant notice offer a sense of the researcher's expertise and proficiency in his specialty.

In this research on the effect of using charts in financial reports in commercial banks in Saudi Arabia, reference can be made to the methodological procedures of the study. In other words, it is the perceptions related to the implementation of the research presented through a set of rules agreed upon by the research experts. And since the methods of scientific research mean the technique followed by the researcher to detail a specific issue connected to a specialism, and that approach varies greatly amongst researchers depending on the accessible material or intellectual factors, as well as the degree of scientific research, the questionnaires will be used as an effective tool in Measuring the wide-ranging collections of diverse data in this research on The effect of using charts in financial reports in commercial banks in Saudi Arabia

The reference here in this research about the effect of using charts in financial reports in commercial banks in Saudi Arabia indicates that one of the advantages of the questionnaire method is that it is a non-stressful and effective method in terms of time and cost compared to other research methods. Questionnaire methods are widely used in research that revolves around the effect of using

charts in financial reports in commercial banks in Saudi Arabia by using standardized questionnaires to systematically collect data about the target group through the scope of the research.

It is known that the data of the group, which were deduced from the quantitative research, are in the form of a numerical value, unlike the nature of the data collected from the qualitative research. The efficiency of global supply chains a quantitative approach will be used in the data analysis process (khaled2022 ,).

In this research on the effect of using charts in financial reports in commercial banks in Saudi Arabia, the definition of quantitative research can be formulated as the systematic study based on the data collection process that accepts quantitative measurement by relying on specific tools such as opinion polls, questionnaires, or data processing that has already been done. It was previously counted using multiple computational techniques such as SPSS or what is known as the Statistical Package for Social Sciences (Khaled2022 ,).

Since the questionnaire is one of the main tools used in scientific research, the scientific researcher, when conducting a study of a phenomenon or problem, collects the necessary information and data about that problem or phenomenon to clarify and examine the reason for the issue or sensations that the researcher reveals via his investigation. Tests, examinations, and interviews are among the methods utilized in that questionnaire, and the techniques employed vary according to the content of the scientific study material. Questionnaires play an influential role in collecting quantitative data as they contribute to simplifying and measuring the data and answers collected.

In this research on The effect of using charts in financial reports in commercial banks in Saudi Arabia, the quantitative approach will be relied upon in data analysis, where quantitative research can

be defined as a systematic study based on collecting quantifiable data through specific tools such as opinion polls, questionnaires, or by processing Data that has already been counted using various computational techniques such as SPSS (Rahman, 2020).

When conducting this research to explore the potential effect of using charts in financial reports in commercial banks in Saudi Arabia, the Statistical Package for Social Sciences or SPSS was used. It is a program used for deep research and analysis of complex data. It is helpful for sectors and business people as well as scientists to search in a vast set of data and information to analyze and evaluate better. Most major research organizations use SPSS to analyze drilling and textual data to maximize the effectiveness of their investigation and investigative projects. It is a statistical analysis software package for collaboration or pooled scientific calculations. IBM SPSS Statistics is the brand name for the current version of the software.

(Robert, 2017) found that the help of SPSS is useful for data analysts to take advantage of various data sets and conduct various statistical analyses such as ANOVA, T-test, or MANOVA, as well as regression analysis, to examine varied data and correlate the link between the independent and dependent variables, and then, using SPSS analysis, to SPSS will allow you to critically assess the interaction and relationship between elements within the context of data sets and build an in-depth critical analysis. Assessment, which will contribute to improving the quality of this research and the ease of analyzing the results collected from the questionnaire that was previously prepared according to the study questions.

(Hinton and Isabella, 2017) clarified that the positives of data processing with SPSS data analysis include that the researcher does not need to put in much effort to utilize this software, and the

effort spent on data analysis with SPSS is substantially less than any other research instrument, which is advantageous for researchers to perform an analysis. In-depth evaluation of SPSS's core functions includes statistical development, model scripting, and information extraction for questionnaires programmers, which are accomplished by properly embedding massive volumes of statistical data and information.

In this research, the questionnaire method will be used to collect the necessary data about the effect of using charts in financial reports in commercial banks in Saudi Arabia. So, the researcher asks these questions to a group of individuals and calls them the study sample. The main objective behind that is to collect data and information so that they can be studied to reach precise results related to the problem of the study. The questionnaire is one of the main tools used in scientific research, where the scientific researcher when studying a phenomenon or problem, collects the necessary information and data about that problem or phenomenon to clarify and analyze the nature of the problem or phenomenon that the researcher presents through the research he gives.

The tools used in that questionnaire, tests, observations, and interviews, and the tools used vary according to the nature of the scientific research material. Questionnaires play an influential role in collecting quantitative data, as they contribute to simplifying and measuring the collected data and answers. Survey research collects information from a sample of individuals through their answers to specific questions. This form of study provides a range of ways to attract people, collect data, and ask questions. It is known that the data collected through quantitative research methods are numerical values, unlike the nature of the data collected from qualitative research. Quantitative research can be defined as a systematic study based on the data collection process that accepts quantitative

measurement. Quantitative data analysis is a systematic process for collecting and evaluating measurable data and checking them out.

Fifth chapter: field results

In the beginning, we have to address the validity of the data by presenting the statistical description of the data we obtained from the questionnaire. In the statistical report, we will review the results of the analysis of the collected data as we will proceed to study the questionnaire responses. The data validity analysis aims to present the data distribution and knowledge of the selection ratio with the presentation of tables and illustrations

Descriptive statistics

In the statistical description process, we will analyze the entire questionnaire to find out the components of the answers and the respondents' attitudes toward answering the questions. Using Google Forms, 317 responses were obtained from people working in the commercial banks in Saudi Arabia to say their opinions about the effect of using charts in financial reports in commercial banks in Saudi Arabia. By relying on Google Form, the questionnaire was distributed to people working in commercial banks in the Kingdom of Saudi Arabia. 317 of the people working in banks answered the questionnaire and there was no missing data in the answer (since we counted 95% of the answered data), the result of the experiment will be generalizable to another percentage (where the results of the experiment can be generalized)

Descriptive Statistics				
	N	Range	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic
Aging	317	4	.929	.862
sex	317	2	.560	.314
Degree of education	317	5	1.631	2.659
Understanding complex information	317	5	1.586	2.517
informative	317	5	1.429	2.043
Better decision	317	5	1.376	1.893
Common chart	317	6	1.612	2.598
trusting	317	5	1.109	1.231
transparency	317	5	1.618	2.619
Saving time	317	5	1.434	2.057
Bank divisions	317	5	1.242	1.542
Improve understanding	317	5	1.570	2.466
Stakeholder engagement	317	5	1.305	1.704
Valid N (listwise)	317			

Table III-1 Descriptive Statistics

Aging question

From the results of the statistical description of the results of the questionnaire, in the first question, when asking the respondents of the experiment about their age, there was a percentage equivalent to 39.1% for the ages of 30-40, which indicates their rational judgment on the answers due to their experience and their somewhat old age.

Aging		
	N	%
1	2	0.6%
20-30	95	30.0%
30-40	124	39.1%
40-50	71	22.4%
50-60	25	7.9%

Table III-2 Aging question

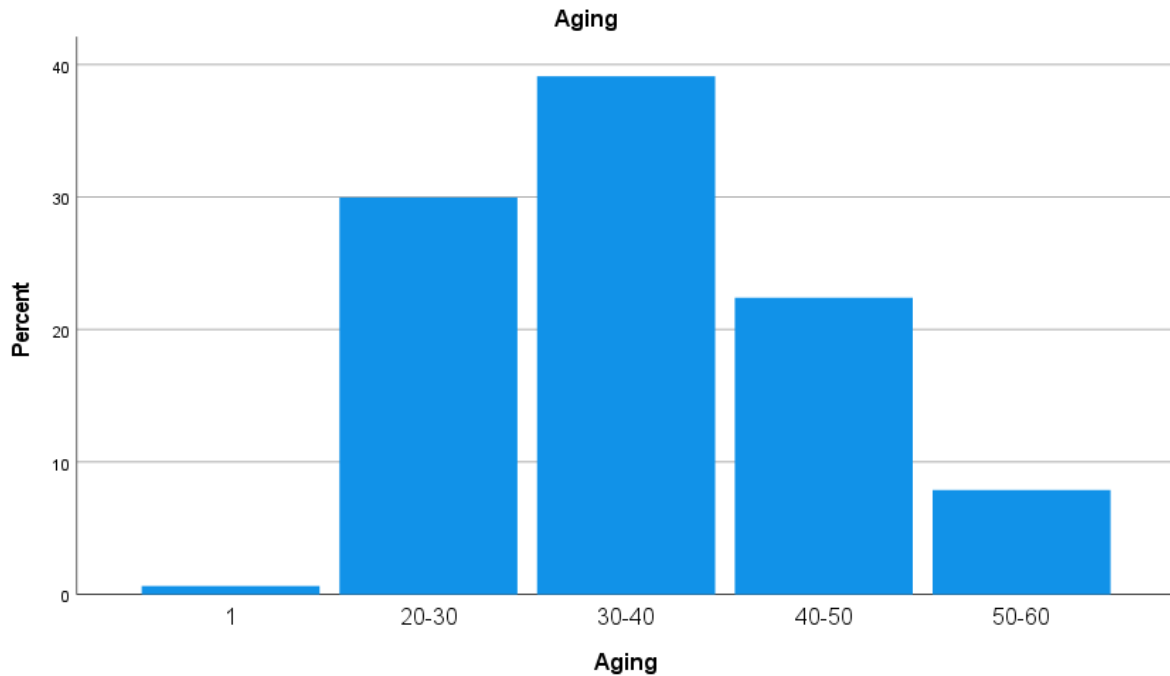


Figure III-1 Aging question

Gender question

Statistical description of the genders of the participants in the experiment (there was a loss percentage in the data equivalent to 3.2% = 10). They did not disclose their gender, but the proportion of males was greater, equal to 54.6%.

sex		
	N	%
1	10	3.2%
Female	134	42.3%
Male	173	54.6%

Table III-3 Gender question

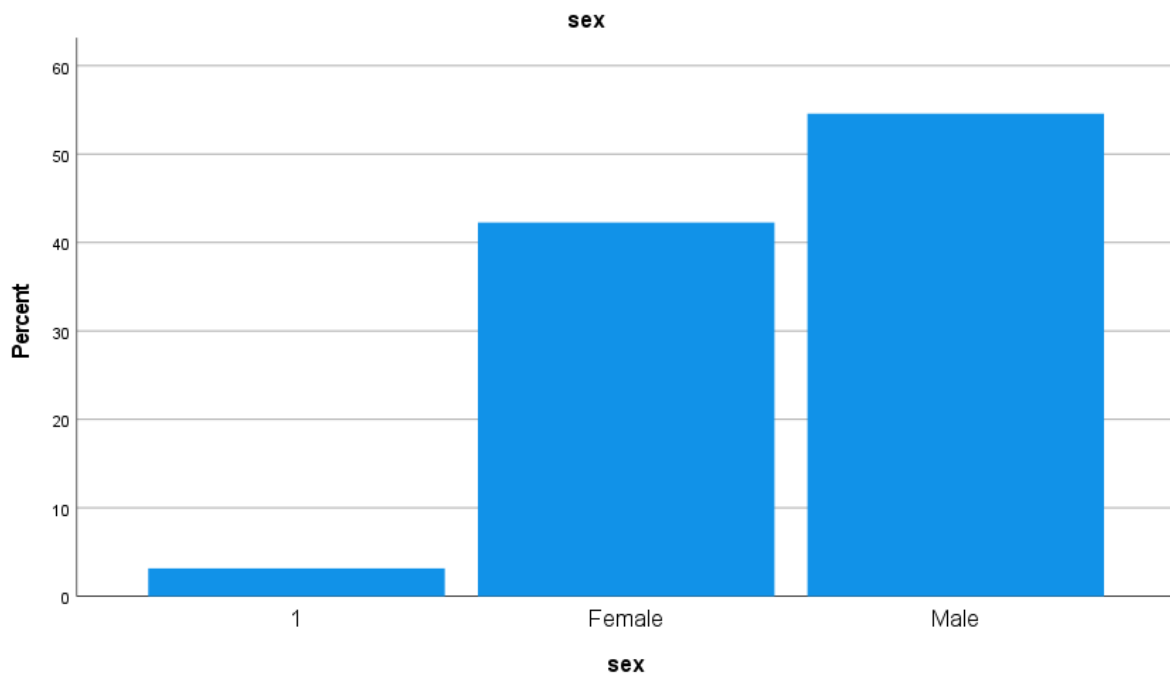


Figure III-2 Gender question

Degree of education question:

Statistical description the level of education of the participants in the experiment (there was a data loss of 0.9% = 3). They did not disclose their level of education, but those with a bachelor's degree had the largest percentage, equal to 53.0%.

Degree of education

	N	%
1	3	0.9%
Bachelor's degree	168	53.0%
Highschool Diploma	35	11.0%
Masters	36	11.4%
PhD	6	1.9%
Post Graduate degree	69	21.8%

Table III-4 Degree of education question

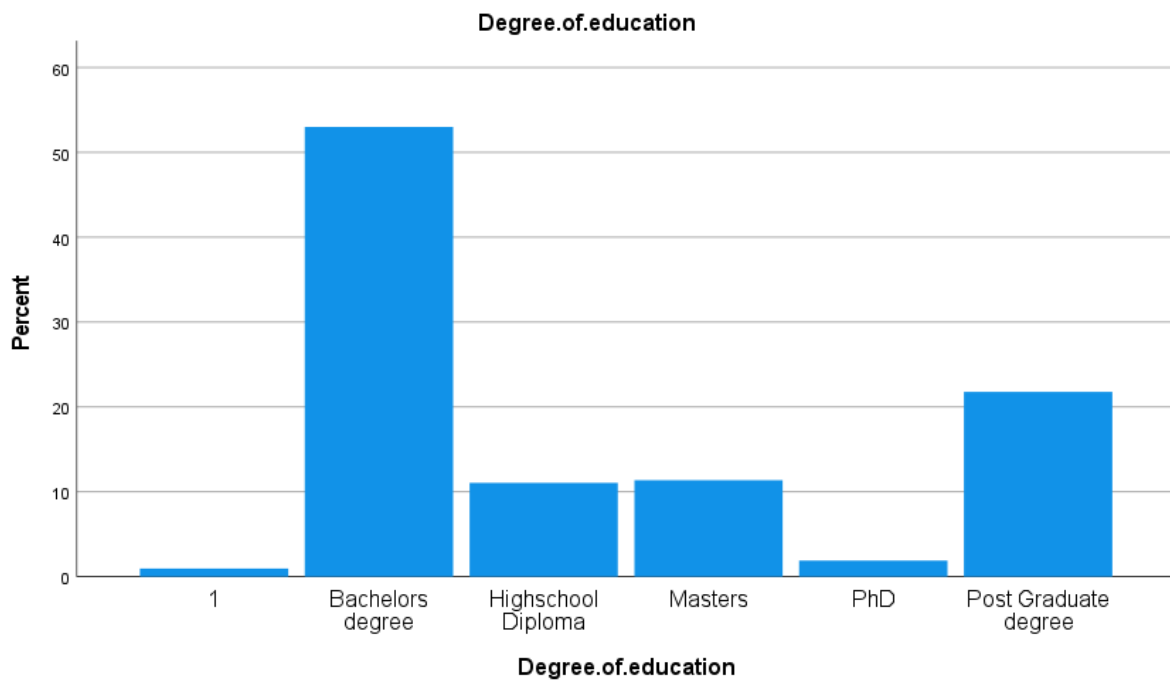


Figure III-3 Degree of education question

Do you agree that the use of charts and graphs in financial reports make it easier to understand complex financial information?

When looking at facilitating financial data through the use of analytical charts and graphs, there was a data loss rate of 1.3%, which does not affect the result of the answer. There was agreement on the importance of graphic graphics and their vital role in facilitating understanding of information by 44.8%.

Understanding complex information

	N	%
1	4	1.3%
Agree	142	44.8%
Disagree	36	11.4%
Neutral	42	13.2%
Strongly agree	37	11.7%
Strongly disagree	56	17.7%

Table III-5 financial reports make it easier to understand complex financial information

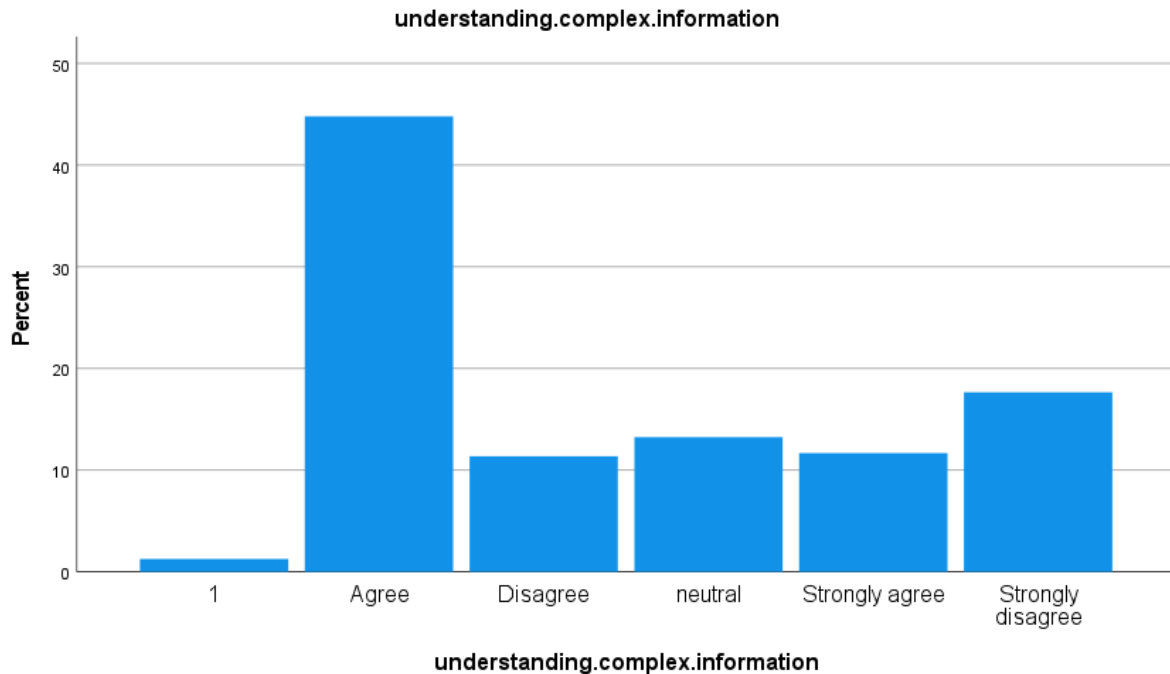


Figure III-4 financial reports make it easier to understand complex financial information

Do you find graphs and charts more informative than text?

When considering the importance of graphic graphics because they are more important than texts, there is a data loss rate of 0.9%, which cannot affect the results of the experiment. The approval rate was 24.3%, and the percentage of Strongly agree was 36.9%, which indicates the importance of graphics more than texts.

Informative		
	N	%
1	3	0.9%
Agree	77	24.3%

Disagree	42	13.2%
Neutral	40	12.6%
Strongly agree	117	36.9%
Strongly disagree	38	12.0%

Table III-6 graphs and charts more informative than text

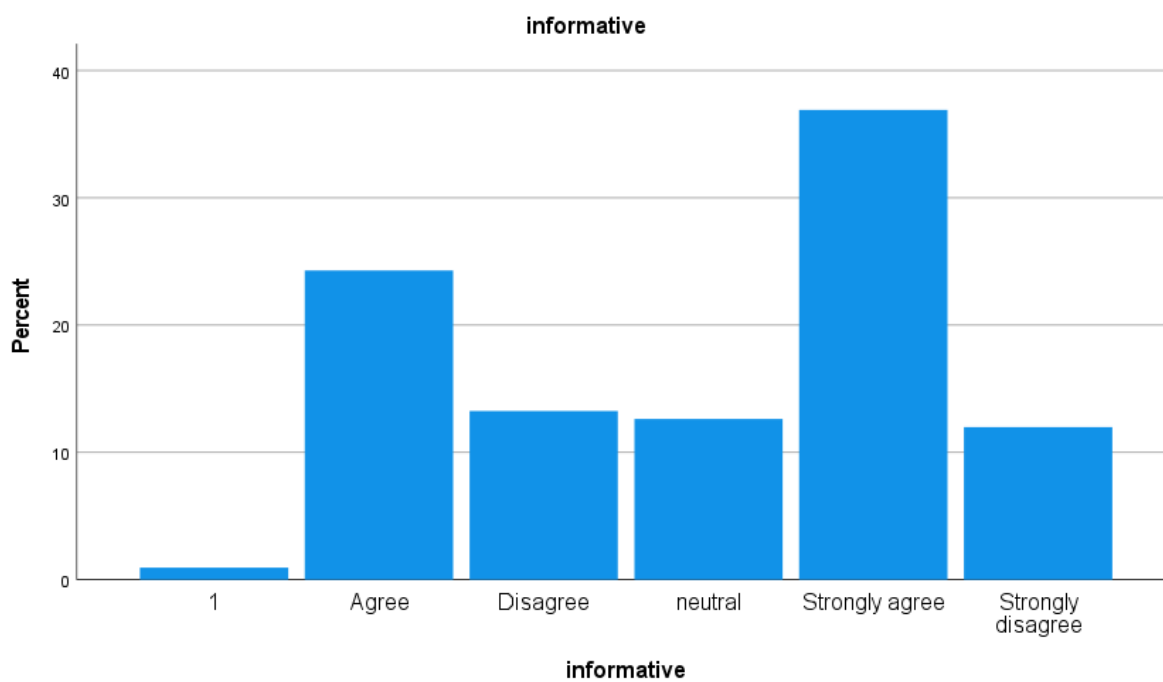


Figure III-5 financial reports make it easier to understand complex financial information

Does the existence of graphs and charts in financial reports enable you to take better decisions?

The charts can give the importance of the decision-making to the senior management, and accordingly, the approval rate is 30.0%, and there was a neutral rate of 30.6%, which indicates that there are people who do not deal with the charts and do not realize their importance in facilitating information and assistance in the decision-making process

Better decision		
	N	%
1	2	0.6%
Agree	95	30.0%
Disagree	56	17.7%
Neutral	97	30.6%
Strongly agree	21	6.6%
Strongly disagree	46	14.5%

Table III-7 financial reports enable to take better decisions

What is the most common type of charts you see in financial reports?

When searching for the most used charts in banks in financial analysis, they tended to use the progress chart by 30.0%, and to use the waterfall chart by 29.3%.

Common chart		
	N	%
1	3	0.9%
Area chart	19	6.0%
Gauge chart	39	12.3%
Line chart	20	6.3%
Number chart	48	15.1%
Progress chart	95	30.0%
Waterfall chart	93	29.3%

Table III-8 common type of charts in financial reports

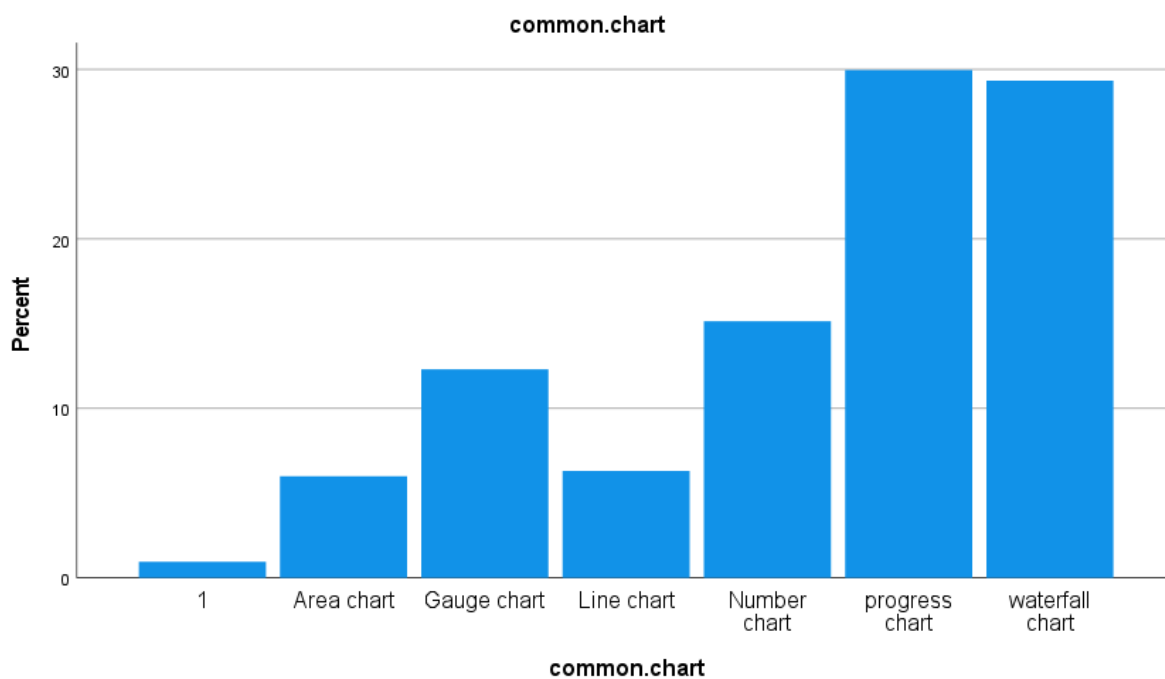


Figure III-6 common type of charts in financial reports

Do you trust the financial report more if it includes charts/graphs?

When moving to confidence in the financial report, if it included graphs, the neutrality rate was equal to 54.6%, which indicates that stakeholders aim at the importance of information regardless of the presence of financial graphs.

Trusting		
	N	%
1	4	1.3%
Agree	32	10.1%
Disagree	39	12.3%
neutral	173	54.6%
Strongly agree	30	9.5%
Strongly disagree	39	12.3%

Table III-9 trust the financial report more if it includes charts/graphs

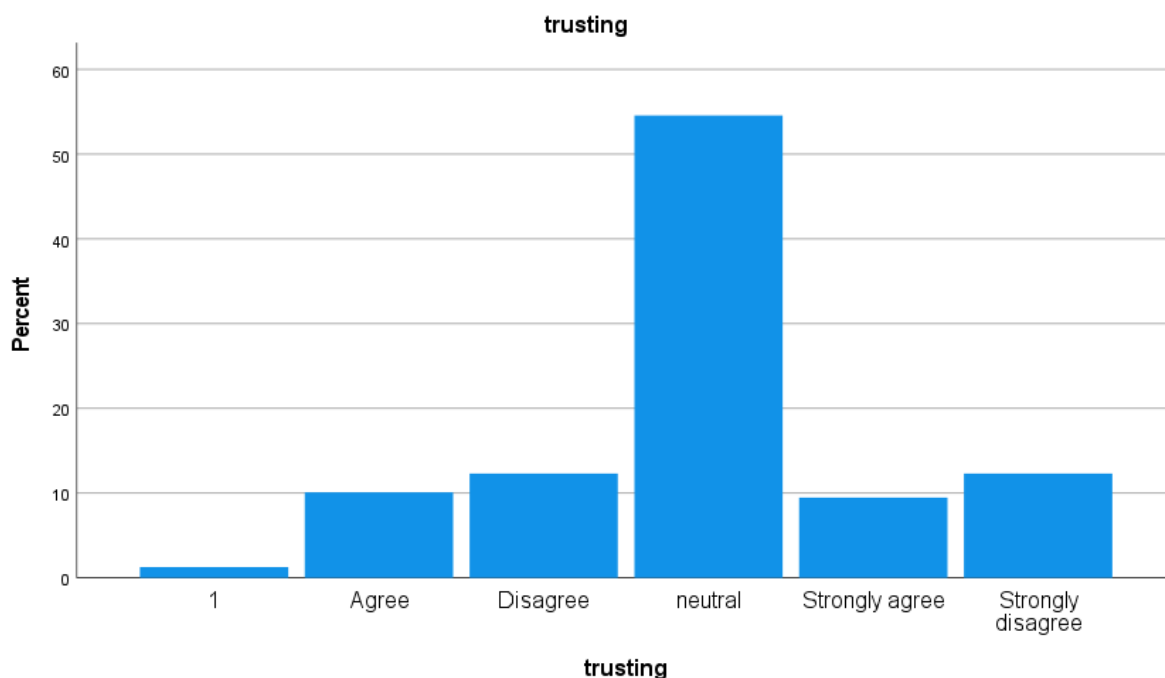


Figure III-7 trust the financial report more if it includes charts/graphs

Do you agree that the use of charts and graphs in financial reports enhances transparency in the banking industry?

Based on the importance of transparency when using financial reports, the approval rate was 40.4%, which indicates the importance of transparency in financial reports.

transparency		
	N	%
1	2	0.6%
Agree	128	40.4%
Disagree	36	11.4%

neutral	30	9.5%
Strongly agree	60	18.9%
Strongly disagree	61	19.2%

Table III-10 charts and graphs in financial reports enhance transparency

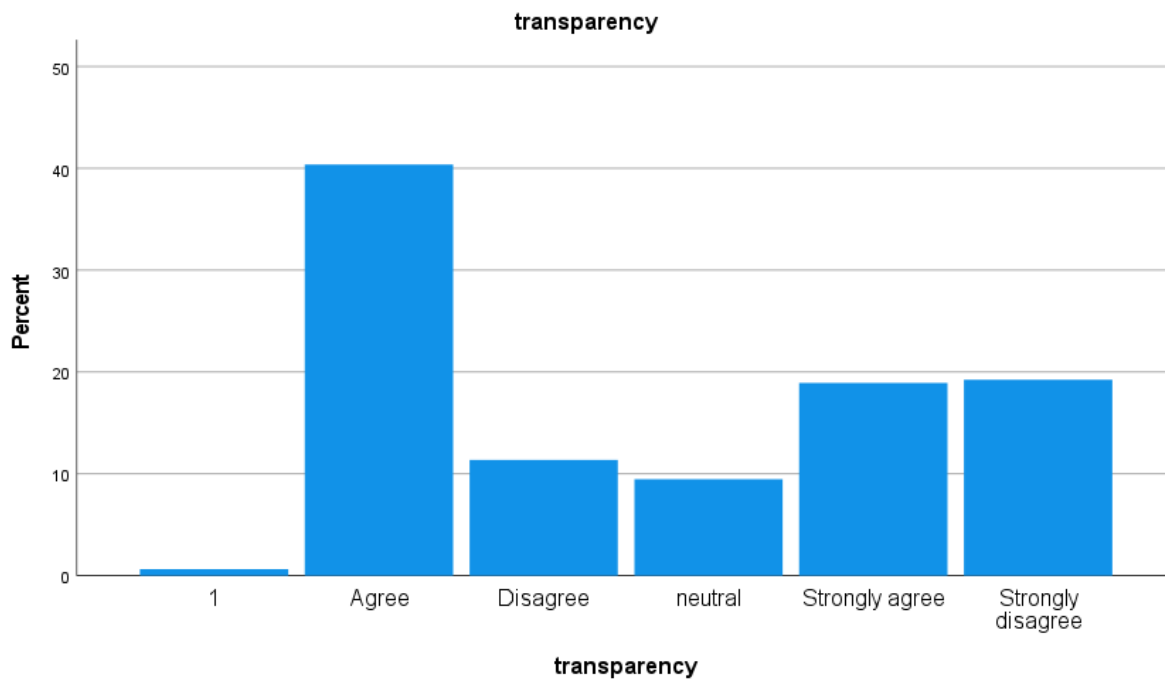


Figure III-8 charts and graphs in financial reports enhance transparency

Does charts and graphs save you time and effort while reading a report?

Graphs can facilitate and reduce wasted time, as the stakeholders can look at the graphs regardless of the texts. The approval rate was 22.7%, and the percentage of Strongly agree was 35.6%, which indicates the importance of charts in reducing wasted time.

Saving time		
	N	%
1	2	0.6%
Agree	72	22.7%
Disagree	51	16.1%
neutral	34	10.7%
Strongly agree	113	35.6%
Strongly disagree	45	14.2%

Table III-11 charts and graphs save time and effort

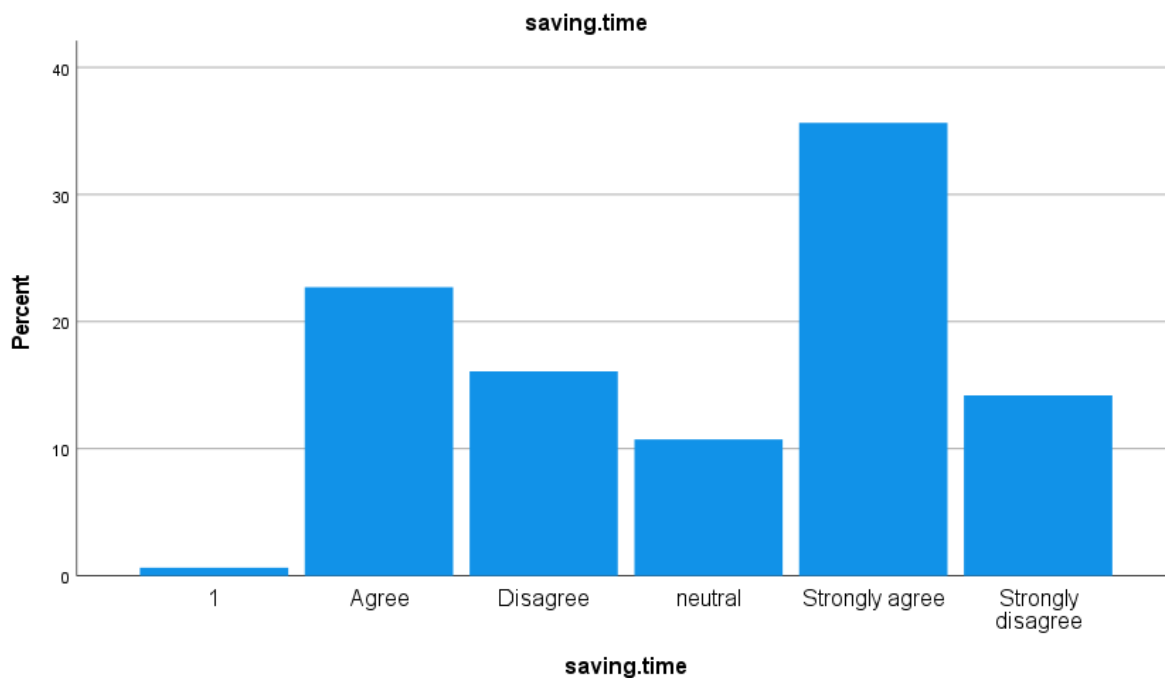


Figure III-9 charts and graphs save time and effort

What division in the bank you're working at?

The highest percentage of participants who work in the bank's departments is credit management, which represents 29.7%= 94 participants.

Bank divisions

	N	%
1	1	0.3%
Accounting	45	14.2%

Banking operations	74	23.3%
Credit management	94	29.7%
customer service	62	19.6%
Risk management	41	12.9%

Table III-12 division in the bank that participants working at

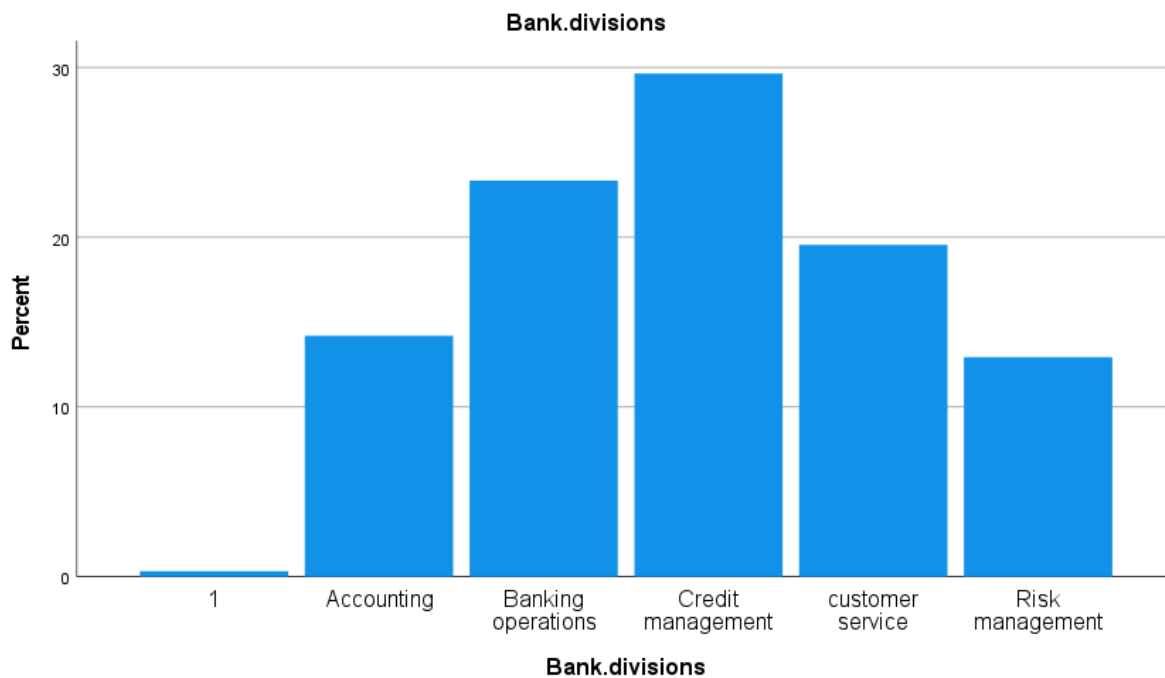


Figure III-10 division in the bank that participants working at

Do you agree that the use of charts and graphs in financial reports improves my understanding of financial information?

Participants showed that they agreed with a percentage of 40.7% and strongly agreed with a percentage of 18.6% to the use of charts and graphs to improve understanding of financial information, which indicates their importance in financial reports

Improve understanding		
	N	%
1	4	1.3%
Agree	129	40.7%
Disagree	47	14.8%
neutral	28	8.8%
Strongly agree	59	18.6%
Strongly disagree	50	15.8%

Table III-13 Using charts and graphs in financial reports improves understanding of financial information

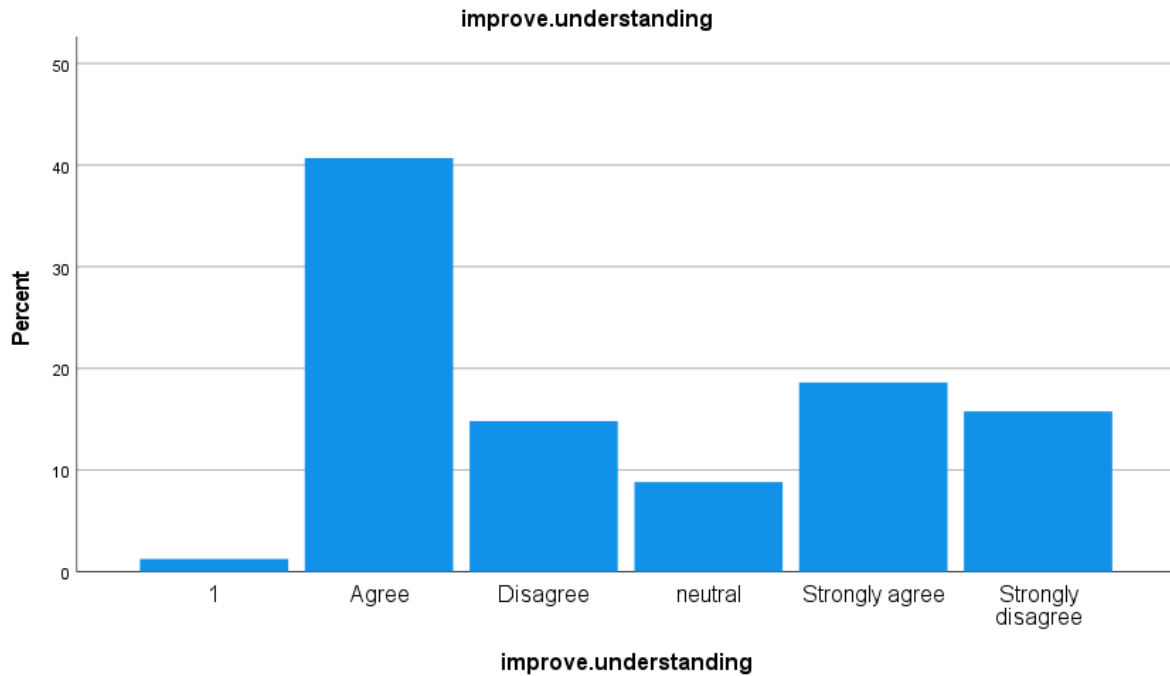


Figure III-11 Using charts and graphs in financial reports improves understanding of financial information

Do you agree that the use of charts and graphs in financial reports improves stakeholder engagement in the banking industry?

The participants in the questionnaire showed that they responded with Disagree by 31.9% and Neutral by 27.4% that the use of charts and graphs in financial reports improves stakeholder participation in the banking industries

Stakeholder engagement

N	%

1	1	0.3%
Agree	42	13.2%
Disagree	101	31.9%
Neutral	87	27.4%
Strongly agree	26	8.2%
Strongly disagree	60	18.9%

Table III-14 Using charts and graphs in financial reports improves stakeholder engagement

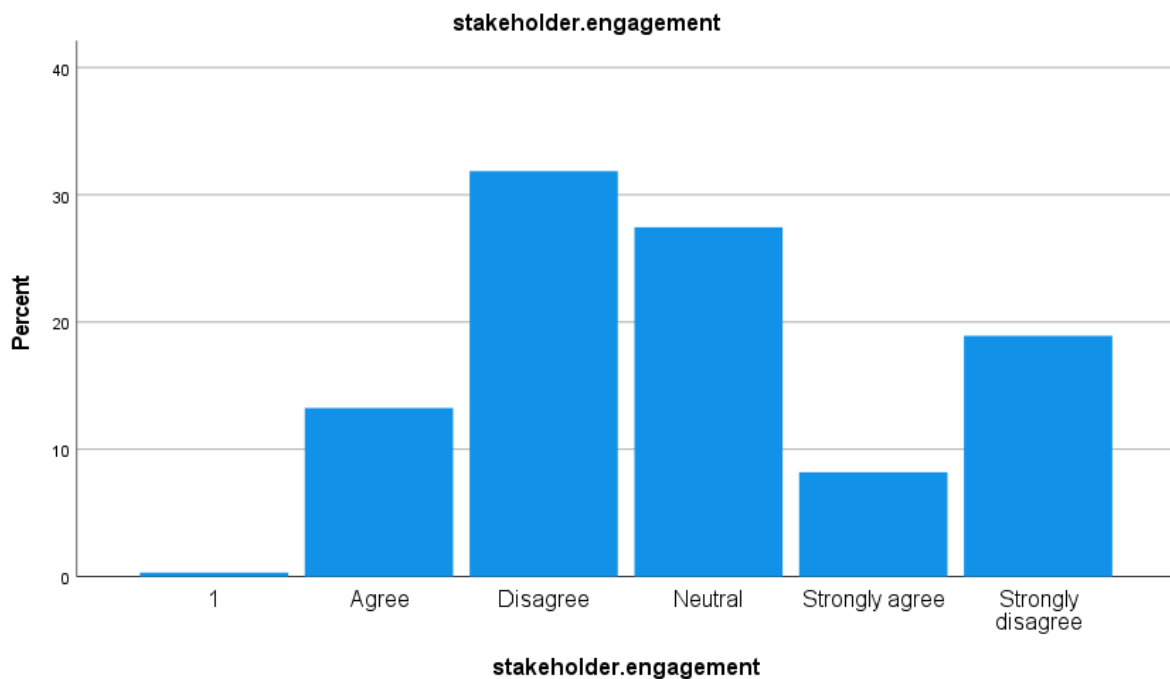


Figure III-12 Using charts and graphs in financial reports improves stakeholder engagement

Relation between variables

The importance of Chi-Square lies in the distribution of the categorical variable in one sample and the comparison with the distribution of the categorical variable in another sample. The world has always been curious about the application of Chi-Square testing in machine learning and how it makes a difference. The null hypothesis of our hypothetical study is that these variables are correlated with each other - they are independent variables.

When linking the relationship between the type of departments in the bank and the degree of education they obtain. The largest percentage of workers in the credit department are holders of a master's degree or post-graduation or holders of a bachelor's degree. This indicates that the data obtained in the questionnaire comes from the credit department, which is considered one of the most important departments in the bank, and this is evidence of the strength of the data that we obtained in this questionnaire and the results we will reach.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	122.778 ^a	25	<.001
Likelihood Ratio	30.496	25	.206

Linear-by-Linear Association	.006	1	.936
N of Valid Cases	317		
a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.			

Relation between education level and bank divisions

Table III-15 Relation between education level and bank divisions

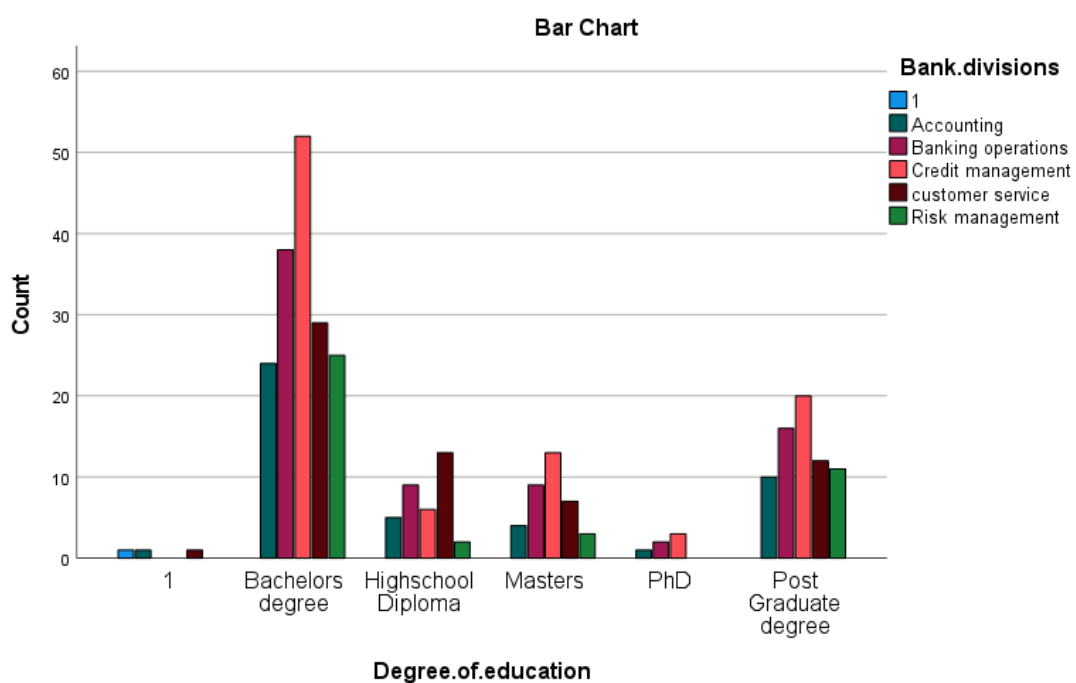


Figure III-13 Relation between education level and bank divisions

Relation between enhances transparency and bank division

When looking at Chi-Square Tests and its values, the Likelihood Ratio is considered high, which

expresses the correlation between variables with the degree of freedom remaining constant at 25.

Confidence can be enhanced for employees working in banks when they use charts and tables, as the credit department had great agreement on the importance of financial tables in increasing transparency and confidence among customers, as the credit department's dealings are closely linked to financial tables

Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	199.071 ^a	25	<.001
Likelihood Ratio	52.587	25	.001
N of Valid Cases	317		

a. 14 cells (38.9%) have expected count less than 5. The minimum expected count is .01.

Table III-16 Relation between enhances transparency and bank division

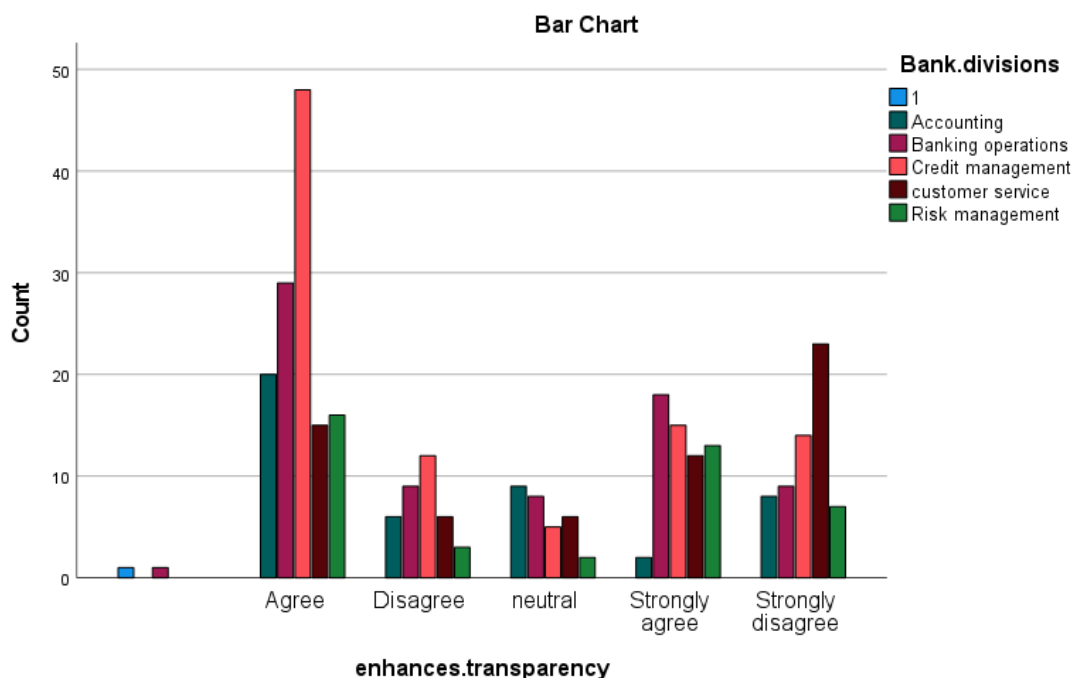


Figure III-14 Relation between enhances transparency and bank division

Relation between informative decision- making and saving time

When looking at the values of the Chi-Square Tests, the Pearson Chi-Square values are equal to 247.136, which indicates a significant correlation between how not to waste time and making the right decision, as for the Likelihood Ratio, which equals 229.063, which confirms the existence of a large correlation between the variables. There is strong agreement between the two variables to choose not to waste time and use it in making the right decision.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)

Pearson Chi-Square	247.1 36 ^a	25	<.001
Likelihood Ratio	229.0 63	25	<.001
Linear-by-Linear Association	5.323	1	.021
N of Valid Cases	317		
a. 14 cells (38.9%) have expected count less than 5. The minimum expected count is .02.			

Table III-17 Relation between informative decision- making and saving time

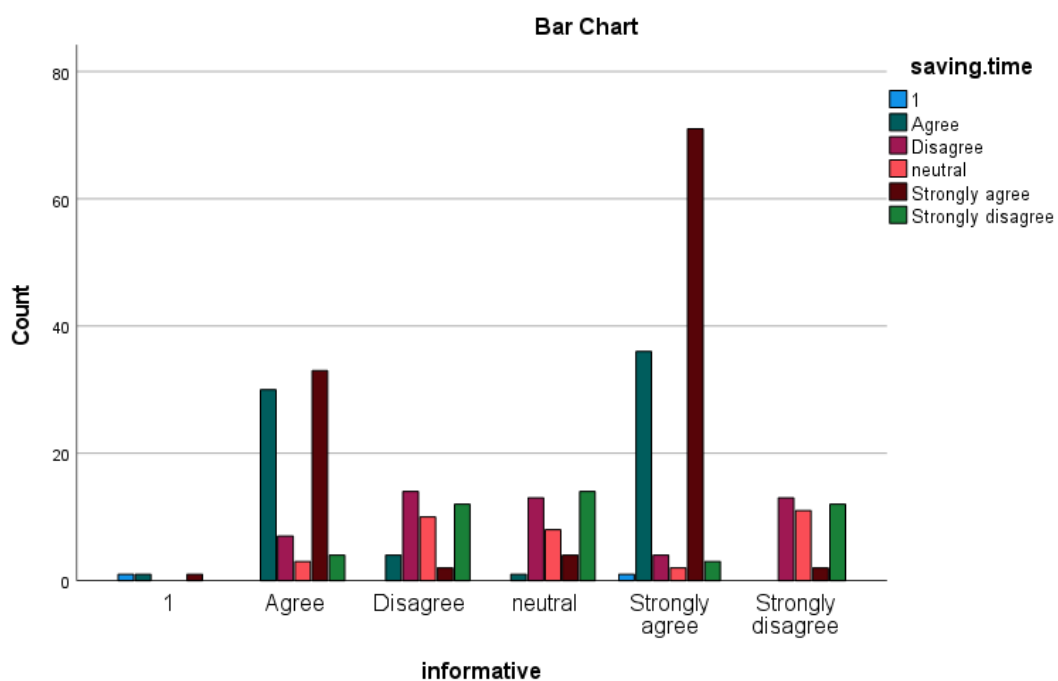


Figure III-15 Relation between informative decision- making and saving time

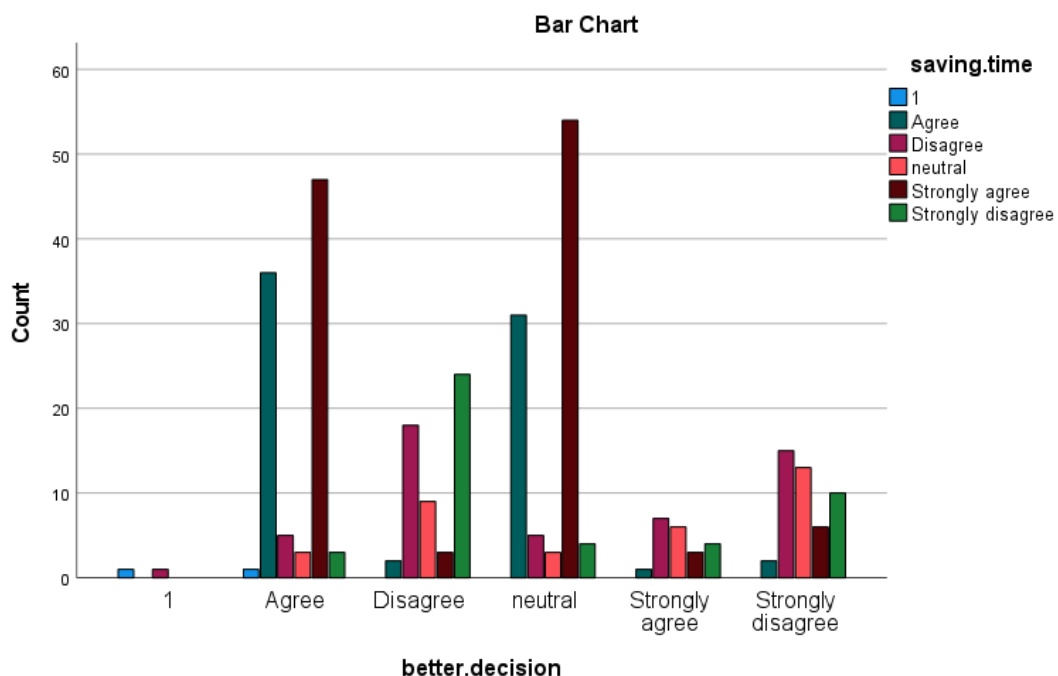


Figure III-16 Relation between informative decision-making and saving time

Relation between bank division & understanding complex information

When considering the relationship between the distribution of people in bank departments and the importance of understanding the complex relationships in the data through the use of graphs and tables, there was unanimous agreement from the credit department and the operational department in banks on the importance and presence of graphs and illustrations in order to clarify information complexity.

Case Processing Summary			
	Cases		
	Valid	Missing	Total

	N	Percent	N	Percent	N	Percent
Bank divisions & understanding complex information	317	100.0%	0	0.0%	317	100.0%
Bank divisions& stakeholder engagement	317	100.0%	0	0.0%	317	100.0%

Table III-18 Relation between bank division & understanding complex information

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	107.949 ^a	25	<.001
Likelihood Ratio	40.331	25	.027
Linear-by-Linear Association	.202	1	.653
N of Valid Cases	317		
a. 13 cells (36.1%) have expected count less than 5. The minimum expected count is .01.			

Table III-19 Relation between bank division & understanding complex information 2

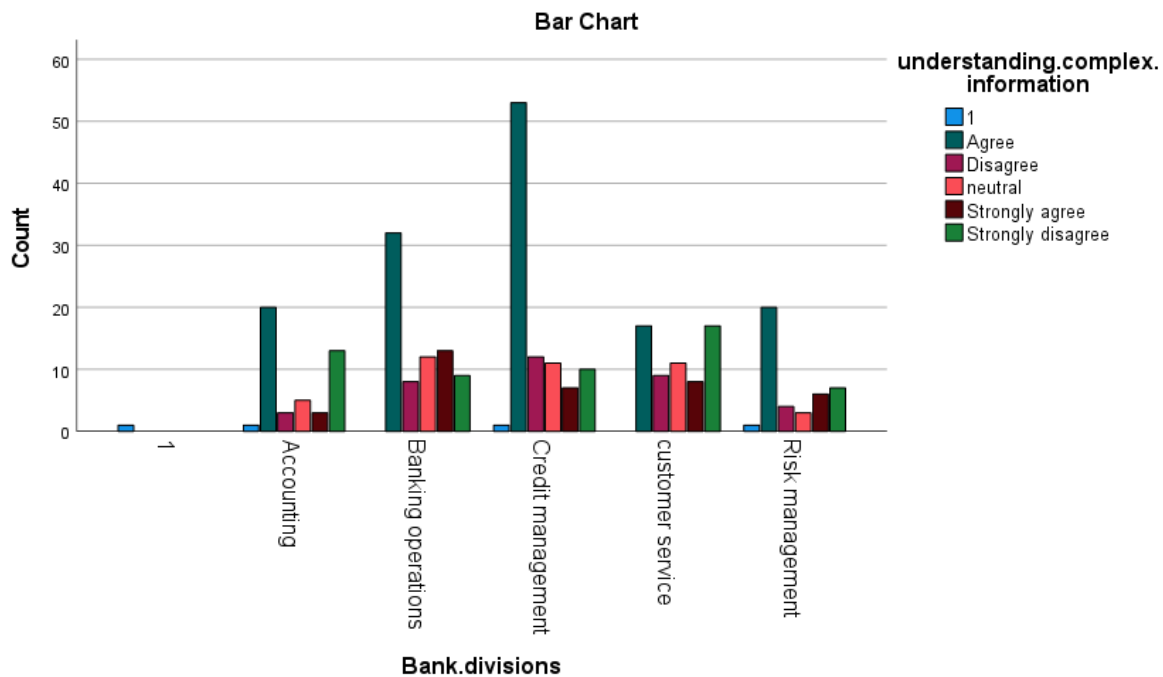


Figure III-17 Relation between bank division & understanding complex information

One-Way ANOVA

Moving on to the one-way ANOVA analysis, we have taken into account (Dependent Variable: saving time) and (Model: (Intercept), transparency, stakeholder engagement, better decision). The Regression between these relationships is equal to 67.29, which represents a significant value among the variables and expresses a significant correlation between the variables. The variance source, regression, residual and total. The total variance is divided into the variance that can be explained by the independent variables (regression) and the variance that is not explained by the independent variables (the residual,

sometimes called the error). Note that the sum of squares for the regression and residual add up to the total, reflecting the fact that the total is divided by the regression and residual variance.

The degrees of freedom associated with sources of variance can be represented. The total variance has N-1 degrees of freedom. In this case, there were N = 317 respondents in the experiment, and the value of the degree of freedom equaled 301, which indicates the existence of a large correlation between the research variables in proving the importance of charts to be used in financial analysis and also in bank departments because of their many uses.

ANOVA^{a,b}

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	67.290	15	4.486	2.317	.004
Residual	582.698	301	1.936		
Total	649.987	316			

a. Dependent Variable: saving time

b. Model: (Intercept), transparency, stakeholder engagement, better decision

Table III-20 One-Way ANOVA

Bayesian Estimates of Error Variance

When searching in Bayesian Estimates of Error Variance, the value of Mode is equal to 1.923, and based on the numerical distribution process on the options, there is a trend between (acceptance and neutrality), as for the average, which is equal to 1.949, which expresses the average of the choices,

there is a trend Positive on the importance of charts in financial analysis and use in banks. The two post-distribution plots show information about the parameters of interest given the observed data. The output also calculates the subsequent statistics for the variance of the regression error terms.

Bayesian Estimates of Error Variance^a

Parameter	Posterior			95% Credible Interval	
	Mode	Mean	Variance	Lower Bound	Upper Bound
Error variance	1.923	1.949	.026	1.660	2.287

a. Assume standard reference priors.

Table III-21 Bayesian Estimates of Error Variance

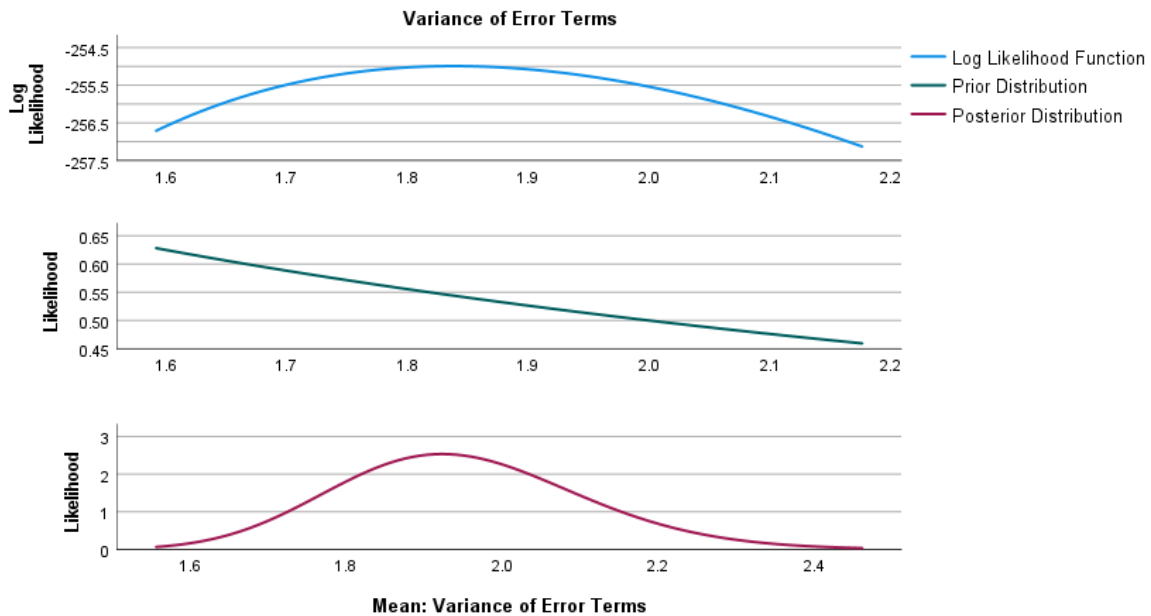


Figure III-18 Bayesian Estimates of Error Variance

By looking at the graph of the variance error of terms, we find that there is a Lower Bound with a value of 1.6, and an Upper Bound with a value of 2.2 appears in each of the three graphs. It appears that when the variance error of terms begins to decrease, the value is at 1.9, which is represented by both the Mode and the Mean.

Sixth chapter: Results and paper analysis

Reviewing and evaluating data takes time, and routinely trying to assess and interpret the data is complex. SPSS, on the other hand, can quickly manage enormous amounts of information and data to study further and critically elicit ultimate judgment. This program is vital for data analysis and surveying since it assists in analyzing the data set, transforming and producing it amongst multiple data parameters. The output can be provided through a line graph so that users can readily comprehend and interpret the findings.

The program's initial step is data transformation, in which the variable data conversion approach is suited for progressing in statistical analysis. The program can manage a vast volume of data and material methodically and enter several sorts of SPSS depending on the data type.

Humans respond to and process visual input more effectively than any other species. When it concerns absorbing and acting on critical financial data and insights, however, well-designed financial charts and charts provide the finest answers. Three conditions apply when it comes to visual assistance

of this type: Graphs and charts must effectively convey unambiguous knowledge, significant facts, and relevant insights. The questionnaire results revealed that there is a significant effect of using charts in financial reports in commercial banks in Saudi Arabia.

Analysis shows that financial reports that include at least one outline in business presentations help to understand those financial reports as they convey and understand a large amount of information quickly and help viewers remember the data presented. They enable businessmen to make informed decisions and take action. more quickly.

Emphasis is placed on charts and graphs in the various departments of banks. As companies and banks rely more on data and monitor more data, graphs and charts are becoming an increasingly valuable tool. These charts and graphs will help executives quickly get the pulse of their business, while department heads may use infographics to examine the effectiveness of a new strategy or campaign and its impact on their team.

Charts are especially useful when you have to quickly express a correlation between two or more pieces of data that you want your audience to remember. They have a large number of applications, as modern companies rely on data to set their plans and goals.

A chart, by visually displaying the relationship(s) between sets of data, can help bring knowledge to light in a more understandable manner than reading blocks of text. This is far superior to displaying lists or tables of data, which compel readers to evaluate the material and discern trends. Because technology has made creating charts easier and, in many cases, automatic, corporate executives have come to depend on them when making choices.

Recommendation:

Based on what we have achieved in analyzing data within the different departments of banks, it is very important to show the financial reports that include part of the charts and graphs, as the analyzes showed greatly the importance of the presence of charts and graphs for easy understanding and analysis of financial reports for both stakeholders and managers

Therefore, bank departments must take great care in showing these charts and graphs, and they must show them correctly, clearly and simplified, so that it is easier for the user of financial reports to understand these charts and graphs.

As a result, most corporate presentations should contain at least one infographic and plans. As mentioned earlier, infographics can quickly convey a huge amount of detail and help viewers remember the material presented. It will help managers as well as stakeholders make better choices and act faster.

Charts and graphs may help banking organizations arrange their financial reporting. They can also be used to provide investors and stakeholders with information on a bank's financial health.

Part: Four

IV. Fourth part: Study Appendices

Arabic and foreign study references.

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Study appendices

Study questions

This study raises many questions in using charts to report financial data in commercial banks in Saudi Arabia and these questions will be presented in a main question followed by sub-questions of interest in the same context.

1) The main research question is:

- What are the possible effects of using graphs and charts in financial reporting in commercial banks in Saudi Arabia?

2) Sub-questions for this research are:

- What are the most common types of charts in financial reports in commercial banks in Saudi Arabia?
- Do the charts help management and stakeholders make better decisions?

- What are the advantages of using charts in financial reports in commercial banks in Saudi Arabia?

Survey questions of this study

- **General questions**

1. Age
2. Sex
3. Degree

- **Main questions**

1. Do you agree that the use of charts and graphs in financial reports make it easier to understand complex financial information?
2. Do you find graphs and charts more informative than text?
3. Does the existence of graphs and charts in financial reports enable you to take better decisions?
4. What is the most common type of charts you see in financial reports?
5. Do you trust the financial report more if it includes charts/graphs?
6. Do you agree that the use of charts and graphs in financial reports enhances transparency in the banking industry?
7. Does charts and graphs save you time and effort while reading a report?
8. What division in the bank you're working at?
9. Do you agree that the use of charts and graphs in financial reports improves my understanding of financial information?

10. Do you agree that the use of charts and graphs in financial reports improves stakeholder engagement in the banking industry?

By addressing these research questions, the study aims to provide a comprehensive understanding of the effect of using charts in financial reports in commercial banks in Saudi Arabia. The findings of this study will have important implications for banks in Saudi Arabia and other countries looking to enhance the presentation of financial data in their financial reports.

Summary of the study in Arabic

In the end, we note that awareness must be raised for the use of charts and graphs in the various departments of banks and to see the most important and simplest forms of analysis for use in the presentation, as these charts and graphs must be distinguished by simplicity and understanding, especially in financial reports, because they contain an important and large part of The complexity that needs to be shown in a simplified form that is understandable to both employees and managers, as well as stakeholders who pay great attention to these financial reports for making important future decisions.

The study aims to understand how data visualization tools impact stakeholders' perceptions and decision-making processes related to a bank's economic performance. The research recognizes the significance of accurate and transparent financial reporting in the banking sector and explores how charts can enhance the accessibility and comprehension of financial information. By employing both qualitative and quantitative research methods, including surveys and interviews, the

study gathers data from stakeholders and key informants to evaluate the effectiveness of charts in financial reports.

The findings of this research contribute to the existing body of knowledge on financial reporting practices, highlighting the benefits and limitations of incorporating charts and offering recommendations to improve the presentation of financial data in commercial banks. Ultimately, the study aims to enhance stakeholders' understanding and engagement with financial information, supporting informed decision-making processes in the banking industry of Saudi Arabia.

Summary of the study in English

في النهاية نلاحظ زيادة الوعي لاستخدام المخططات والرسوم البيانية في مختلف أقسام البنوك والاطلاع على أهم وأبسط أشكال التحليل لاستخدامها في العرض التقديمي، حيث يجب تمييز هذه المخططات والرسوم البيانية من خلال البساطة والفهم، خاصة في التقارير المالية، لأنها تحتوي على جزء مهم وكبير من التعقيد الذي يحتاج إلى إظهاره بشكل مبسط ومفهوم لكل من الموظفين والمديرين، وكذلك أصحاب المصلحة الذين يولون اهتمامًا كبيرًا لهذه التقارير المالية لاتخاذ قرارات مستقبلية مهمة.

تهدف الدراسة إلى فهم كيفية تأثير أدوات تصور البيانات على تصورات أصحاب المصلحة وعمليات صنع القرار المتعلقة بالأداء الاقتصادي للبنك. يدرك البحث أهمية التقارير المالية الدقيقة والشفافة في القطاع المصرفي ويستكشف كيف يمكن للرسوم البيانية أن تعزز إمكانية الوصول إلى المعلومات المالية وفهمها. من خلال استخدام أساليب البحث النوعية والكمية، بما في ذلك الاستطلاعات، تجمع الدراسة البيانات من أصحاب المصلحة الرئيسيين لتقييم فعالية المخططات في التقارير المالية. تساهم نتائج هذا البحث في مجموعة المعرفة الحالية حول ممارسات إعداد التقارير المالية، وتبسيط الضوء على فوائد وقيود دمج المخططات وتقديم توصيات لتحسين عرض البيانات المالية في البنوك التجارية. في نهاية المطاف، تهدف الدراسة إلى تعزيز فهم أصحاب المصلحة والمشاركة في المعلومات المالية، ودعم عمليات صنع القرار المستنيرة في الصناعة المصرفية في المملكة العربية السعودية.



أثر استخدام الرسوم البيانية في التقارير المالية في البنوك التجارية بالمملكة العربية
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