

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

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1. Introduction

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

The technique of 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.

2. Study problem

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, little research has been conducted to investigate their effectiveness in the context of commercial banks in Saudi Arabia.

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 difficult 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, the use of 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 proposal 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 further, 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.

In a perfect world, every company's financial reporting would be flawless and easily understandable. 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 veracity in order to make critical management and investment choices.

Unfortunately, erroneous reporting can result from inadvertent error or, in the worst-case scenario, premeditated fraud. 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 that they can create.

3. The importance and objectives of the research

i. Research importance

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:

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 when it comes to 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 the context of Saudi Arabia.

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

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

Finally, the study is important as it has practical implications for commercial banks in Saudi Arabia. The study's findings can 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 important for both academic and practical reasons, and it has the potential to make a significant contribution to the banking industry in Saudi Arabia.

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).

- **Easier interpretation of the data**
- **Quick identification**
- **Big data is not a problem**
- **Detect anomalies and patterns**
- **Data sharing and collaboration**

ii. 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.

4. Research assumption

In this study discussing the effect of using charts in financial reports in commercial banks in Saudi Arabia. We hold multiple assumptions regarding the topic:

- The use of charts in financial reporting in banks makes the visualization of financial data much more accessible and comprehensible.
- Charts and graphs positively affect the user experience of viewing financial reports.

- Technological advancements in data analysis and data visualization especially in statistical graphs and charts made reporting matters less complicated.
- Charts show trends, patterns, connections, similarities, or contrasts that are difficult to understand or describe in text.
- Graphically displaying data could potentially save space and time because a single chart can communicate a lot of information.

5. 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?

6. Literature review

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.

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

The digital transformation taking place in the banking sector and increasing reliance on new technologies and third-party service providers has increased the complexity and interconnectedness within the financial system. Cyber-attacks in particular have become a major challenge to banks' operational resilience in recent years, as they have been particularly difficult to

deal with due to the increasing complexity and rapidly changing nature of the related threats and because of their cross-border dimensions (bankingsupervision, 2022).

In recent years, the financial industry has seen significant developments, including the advent of new technologies, the arrival of FinTech's, 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. Considering the limited time available for producing yearly reports, graphs are also used to make decisions. When utilized effectively, graphs have the following benefits: users' attention may be engaged, especially when coloring is employed, knowledge is increased when patterns and

trends are highlighted, and 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).

Overall, 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).

7. Theoretical framework

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.

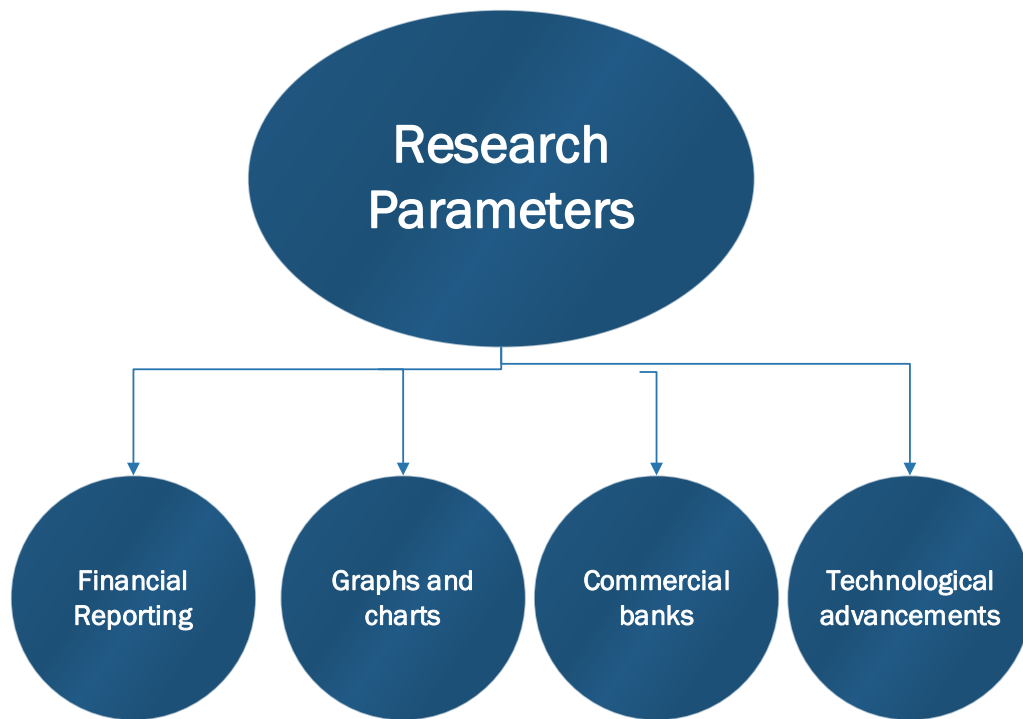


Figure 1: Research parameters

1. **Financial reporting:** Financial reports are used by businesses to organize financial data and report on their current financial situation.
 - **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 indicators of performance such as liquidity, budgets, costs, cash flow, and so on. They may successfully manage risks in this manner to assure healthy finances and consistent growth.

However, when it comes to absorbing and acting on key financial measurements and insights, well-designed finance graphs and charts provide the greatest 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).

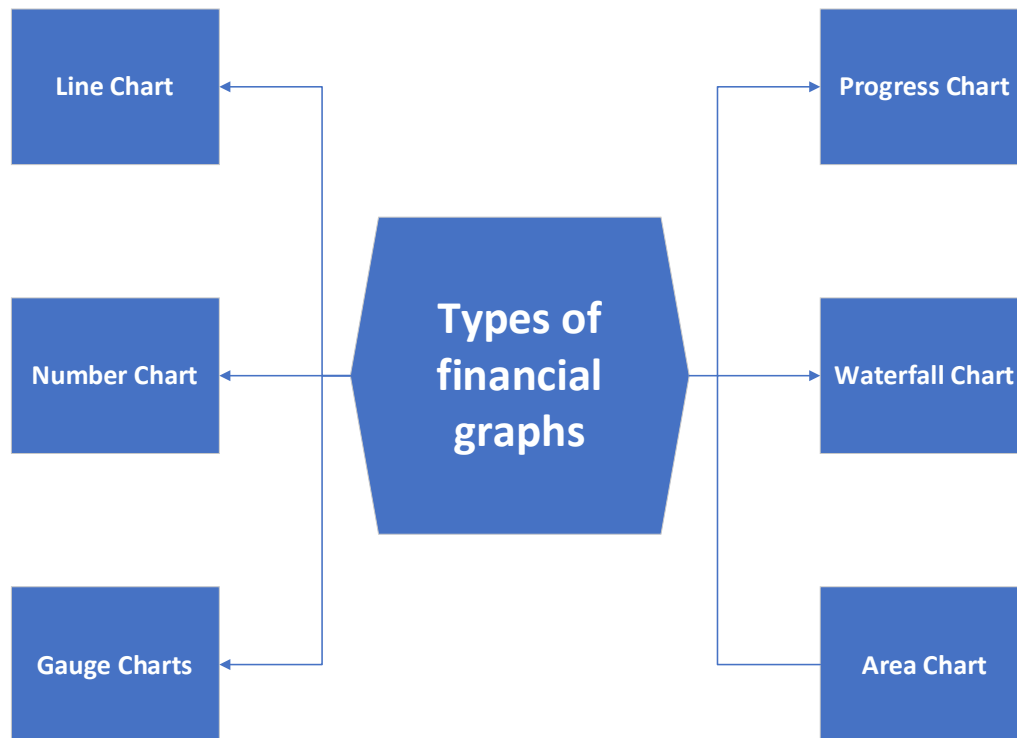


Figure 2: Types of Financial Charts

- **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.
- **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.

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.

8. Research methodology

It is worth noting that scientific research methods mean the method followed by the researcher in order to obtain information related to a specific topic related to a specialization, and that method differs entirely from one researcher to another according to the available material or intellectual ingredients, as well as with regard to 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 effects 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, 2020).

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.

9. Study tools

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

The method of implementing the questionnaires will be highlighted as the method that will be 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, and they are characterized by legitimacy and privacy to the answers Respondents, questionnaires are further classified into several classes as two main types of questionnaires can be used: sectional questionnaires and longitudinal questionnaires. A cross-sectional questionnaire provides an assessment of similar characteristics and differences between several samples of data, done

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.

10. Fields of study

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:

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.

11. Search limitations

When conducting research on the effect of using charts in financial reports in commercial banks in Saudi Arabia, there are some limitations that must be noted, as acknowledging these limitations constitutes an opportunity to make suggestions for other research in the future, so we did not seek to hide these limitations because this is an indication of the weak scientific value of the study.

1. Limitations related to scientific research methodology.

- a) The lack of many studies on the effect of using charts in financial reports in commercial banks in Saudi Arabia.
- a) Lack of reliable data that can be relied upon in data analysis.

2. limitations related to the researcher himself:

- a) The time available to achieve the objectives of the study is largely restricted by the deadline set by the supervising professor.
- b) Difficulty reaching all persons or organizations within the Saudi banking sector.

12. General perception of the research structure

This research will be tabulated on the effect of using charts in financial reports in commercial banks in Saudi Arabia by distributing the content of the research into main sections or parts consisting of sub-chapters, which contributes to presenting the content of the research in an arranged and sequential way through which it is easy to present the content of the research and present it to the reader in a clear manner, easy and harmonious thoughts.

1- Part one: introduction

1. Cover.
2. Acknowledgements.
3. List of Content.
4. Tables and charts.
5. Appendixes.

2- Part two: Theoretical Framework of the study

1. Problem of the study and its importance.
2. First variable of the study
3. Second variable and the correlation between variables

3- Part three: Practical study and its methodological procedures

1. Methodological procedures.

2. Field results.
3. Results and proposal analysis.

4- Part four: Appendixes

1. Arabic and English references.
2. Appendixes.
3. Arabic abstract.
4. English abstract.

13. List of primary references and sources

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