

The Effect of Using Charts in Financial Reports in Commercial Banks in Saudi Arabia

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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.

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

1. 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 (LUCAS A. MARIANI, 2023).

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 (Sharma, 2013).

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 (Omid Faraji et al, 2020).

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 (Illinois State University, 2022).

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 (Laidroo, 2016).

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 (Kathrada, 2021).

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 (VIRAL V. ACHARYA, 2016).

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 (Almaqtari et al, 2021).

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 (Yousif et al, 2017).

1.1. 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, more research needs to be conducted to investigate their effectiveness in the context of commercial banks in Saudi Arabia (Beddewela et al, 2018).

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 (Mohamad et al, 2017).

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.

1.2. Study 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.

1.3. Study importance

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.

1.4. Study contents

This study contains several chapters through which the researchers seek to clarify the effect of using charts in financial reports in commercial banks in Saudi Arabia.

- 1) Abstract
- 2) Introduction.
- 3) Study Problem.
- 4) Objectives of the study.
- 5) The importance of the study.
- 6) Study contents.
- 7) Conclusion.
- 8) Results.
- 9) Recommendations.
- 10) Sources and references.
- 11) appendices.

2. Research Methodology

2.1. Research Methodology

The quantitative methodology of this research was followed as the most widely used methodology in collecting and analyzing data in administrative sciences in order to reach the desired results. Quantitative research refers to the systematic investigation of social phenomena through statistical,

mathematical or computational methods. Quantitative research aims to develop and employ mathematical models, theories and/or hypotheses related to phenomena. The measurement process is the focus of quantitative research because it forms an effective link between experimental observation and the mathematical expression of quantitative relationships (Rahman S. , 2021).

2.2. Research community

It is all the individuals, things or persons who constitute the subject of the research problem. In this research, the research community will consist of those in charge and workers in banking sector the Kingdom of Saudi Arabia.

2.3. Research tool

Depending on the SPSS program as an effective tool in data analysis and with the help of the great capabilities of data analysis through what the SPSS program offers in that there is not much effort that the researcher needs to use this program)khaled(2022 ‘. In addition, the time required to analyze data with the help of SPSS is comparatively less than any other statistical tool, which makes it useful for researchers to conduct in-depth critical analysis by successfully including huge numbers of data and numerical information. SPSS is a very useful software system used by researchers, scientists, and others to process important data. in a simple way (Julie, 2015).

The SPSS program was used to analyze the data collected through a survey of (317) employees and stakeholders in financial reports in commercial banks in Saudi Arabia

3. Analysis of Research Data and Results

In this section, we will review the results of the analysis of the collected data as we will proceed to study the questionnaire responses.

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 he 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)

Table 03-1 Descriptive Statistics

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			

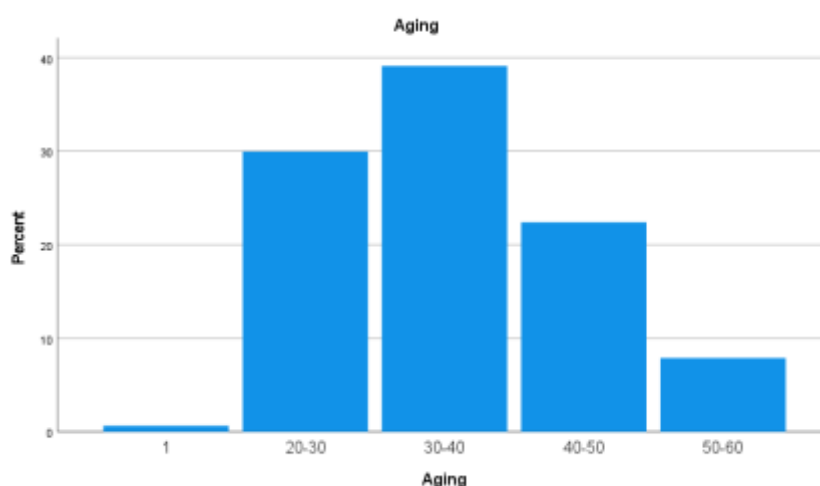
Aging question

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.

Table 03-2 Aging question

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%

Figure 03-1 Aging question



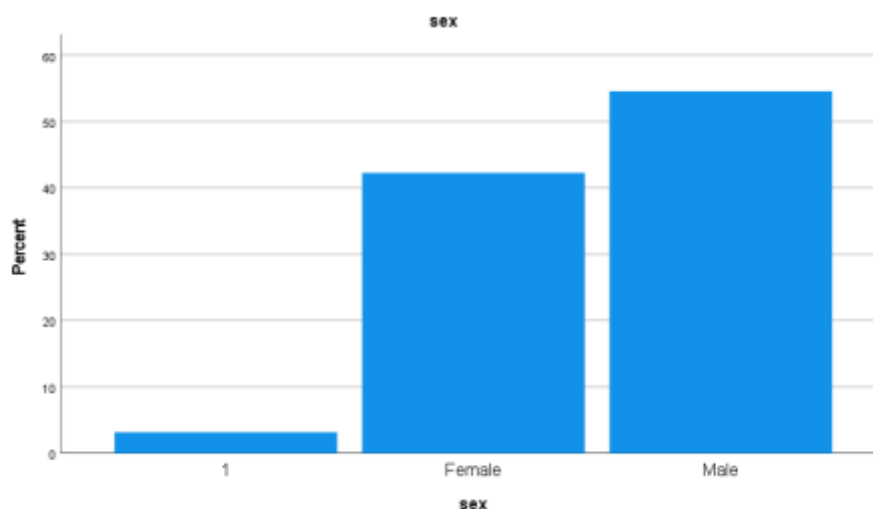
Gender question

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%.

Table 03-3 Gender question

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

Figure 03-2 Gender question



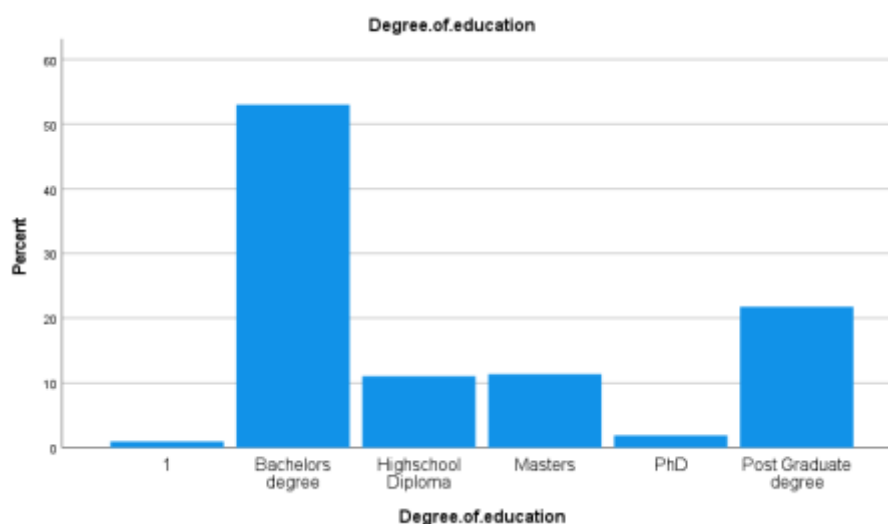
Degree of education question:

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%.

Table 03-4 Degree of education question

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

Figure 0-3 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?

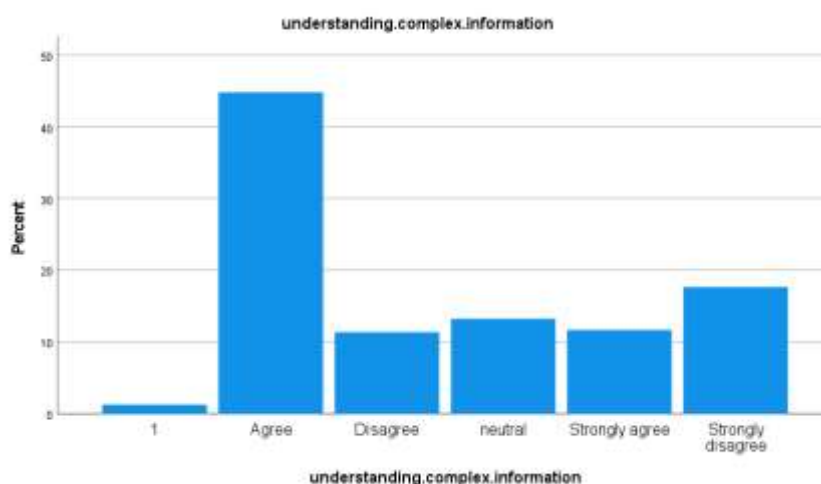
When looking at facilitating financial data using analytical charts and graphs, there was a data loss rate of 1.3%, which does not affect the result of the answer. There was agreement on the importance of graphic graphics and their vital role in facilitating understanding of information by 44.8%.

Table 03-5 financial reports make it easier to understand complex financial information.

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%

Figure 03-4 financial reports make it easier to understand complex financial information.



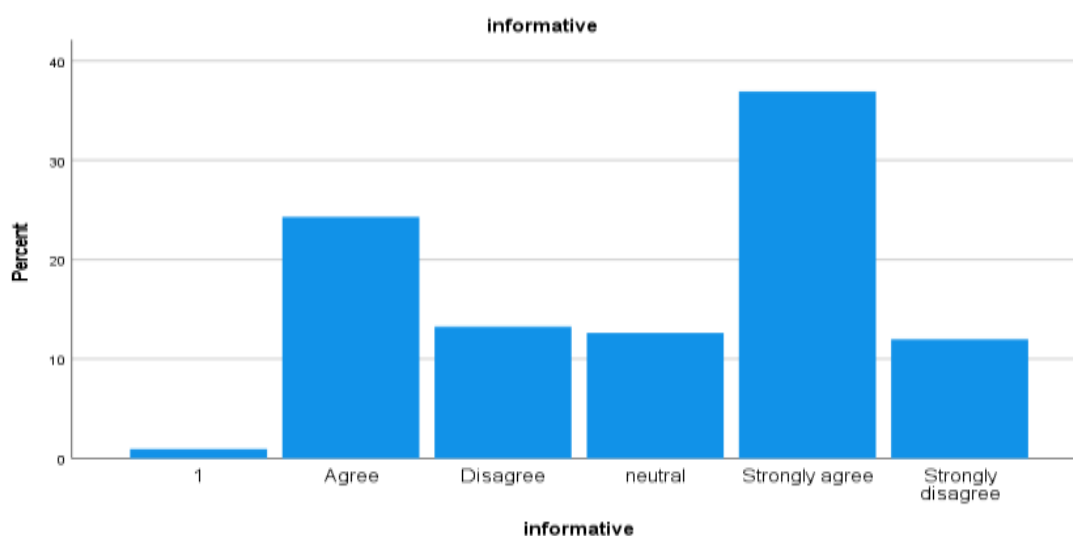
Do you find graphs and charts more informative than text?

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.

Table 03-6 graphs and charts more informative than text

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%

Figure 03-5 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

Table 03-7 financial reports enable to take better decisions

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%

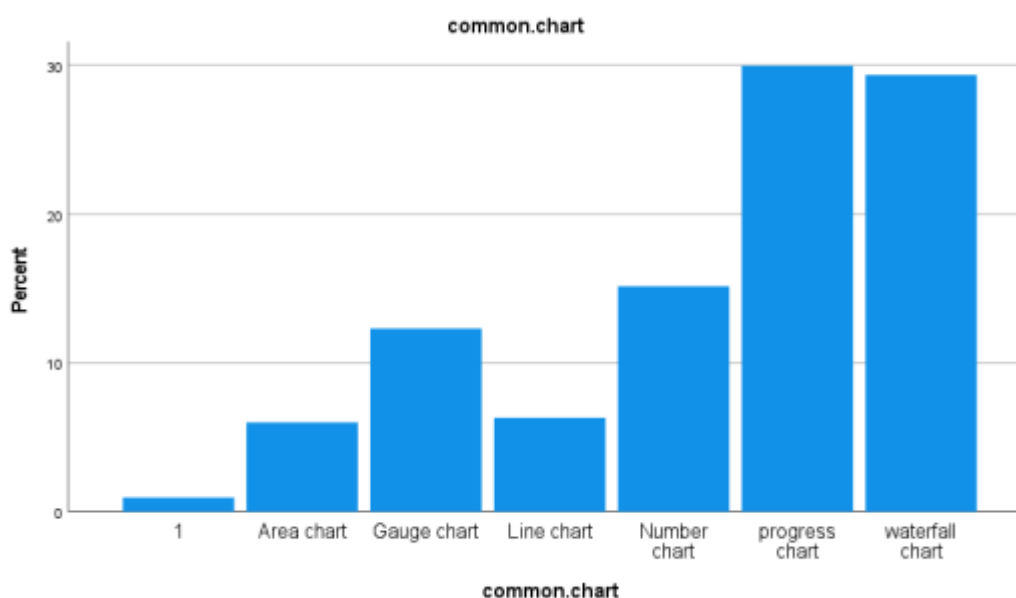
What is the most common type of charts you see in financial reports?

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%.

Table 03-8 common type of charts in financial reports

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%

Figure 03-6 common type of charts in financial reports



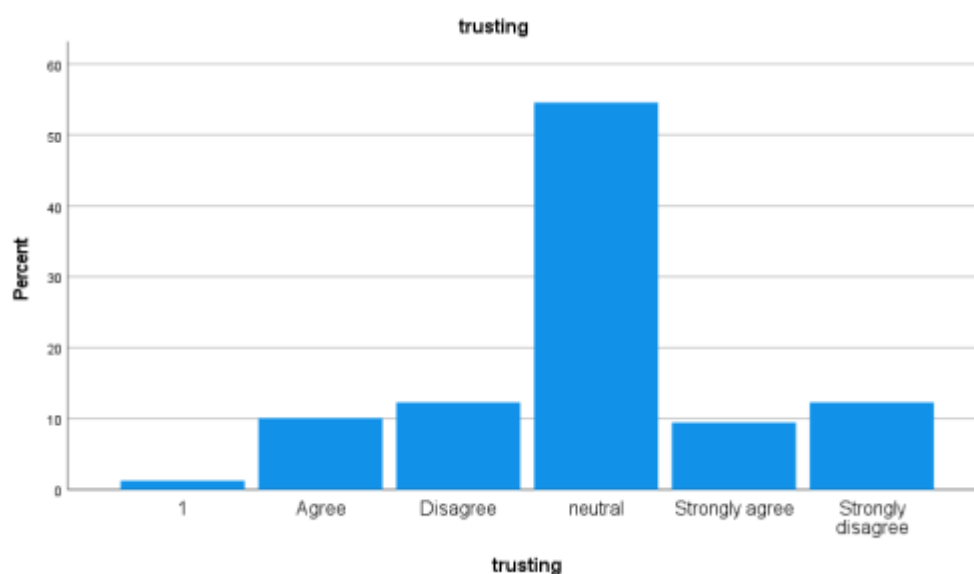
Do you trust the financial report more if it includes charts/graphs?

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.

Table 03-9 trust the financial report more if it includes charts/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%

Figure 3-7 trust the financial report more if it includes charts/graphs.



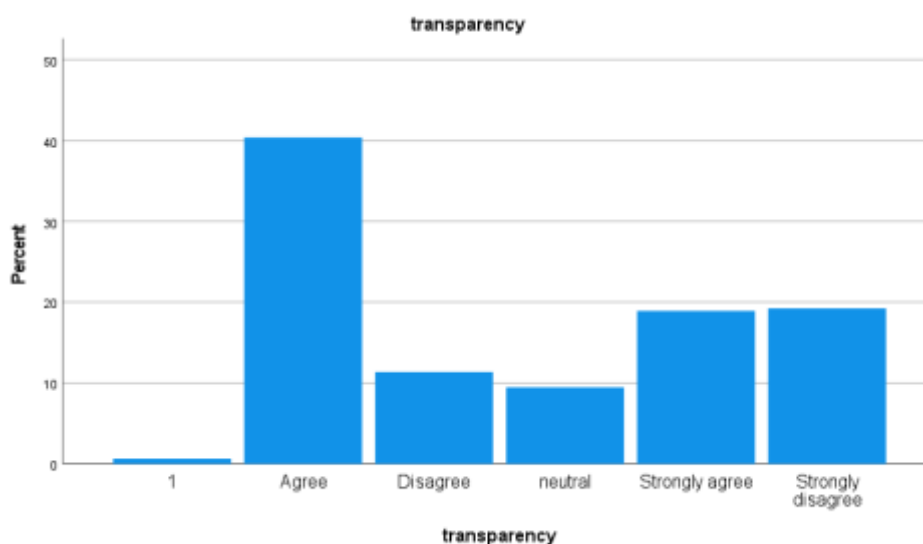
Do you agree that the use of charts and graphs in financial reports enhances transparency in the banking industry?

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.

Table 03-10 charts and graphs in financial reports enhance transparency.

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%

Figure 03-8 charts and graphs in financial reports enhance transparency.



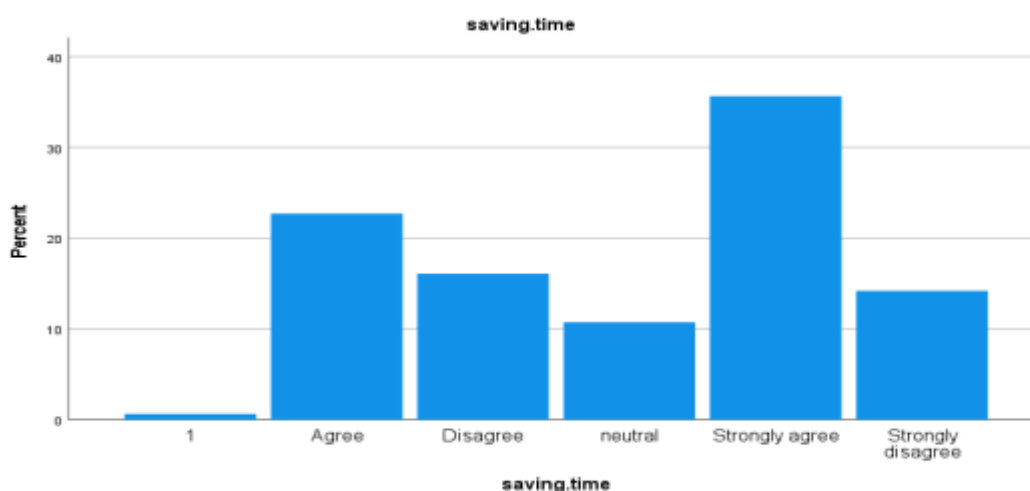
Does charts and graphs save you time and effort while reading a report?

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.

Table 03-11 charts and graphs save time and effort

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%

Figure 03-9 charts and graphs save time and effort.



What division in the bank you are working at?

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

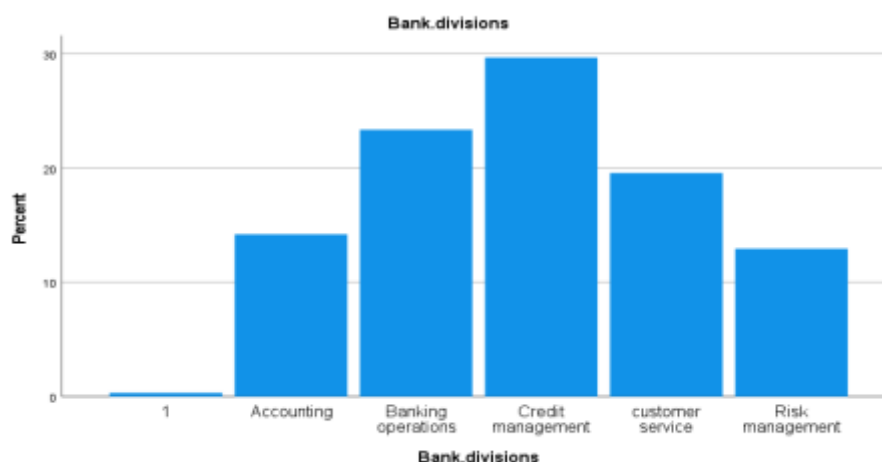
Table 03-12 division in the bank that participants working at

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%

Figure 03-10 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?

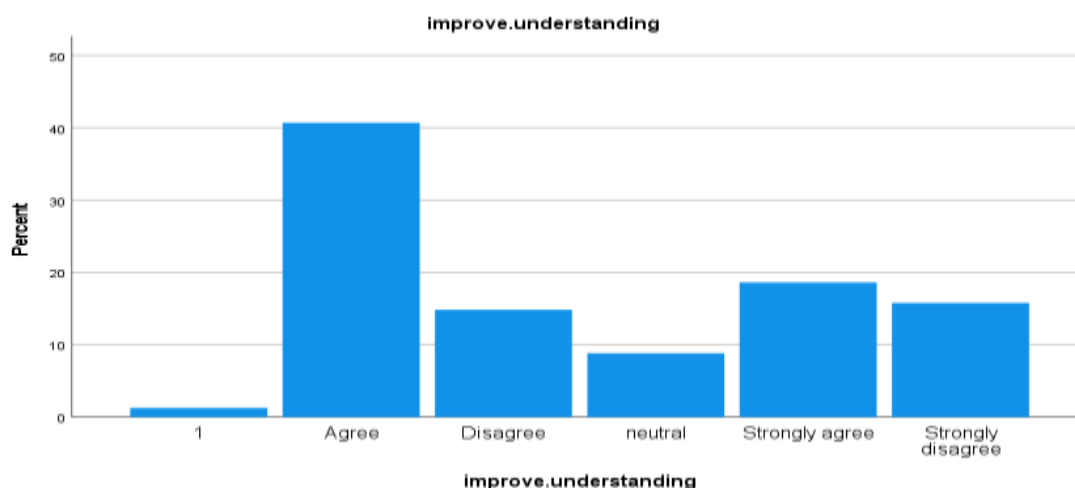
Participants showed that they agreed with a percentage of 40.7% and strongly agreed with a percentage of 18.6% to the use of charts and graphs to improve understanding of financial information, which indicates their importance in financial reports.

Table 03-13 Using charts and graphs in financial reports improves understanding of financial information

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%

Figure 03-11 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?

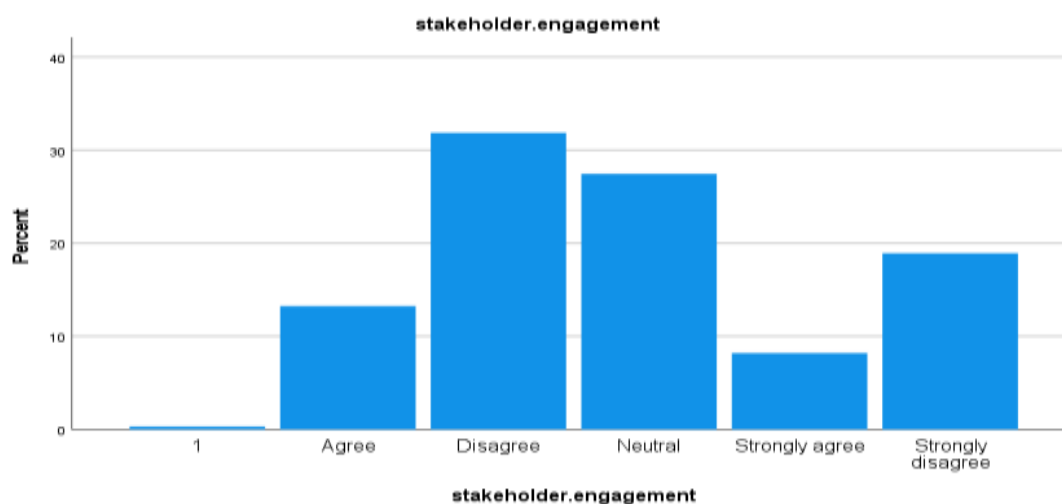
The participants in the questionnaire showed that they responded with Disagree by 31.9% and Neutral by 27.4% that the use of charts and graphs in financial reports improves stakeholder participation in the banking industries.

Table 03-14 Using charts and graphs in financial reports improves stakeholder engagement.

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%

Figure 03-12 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.

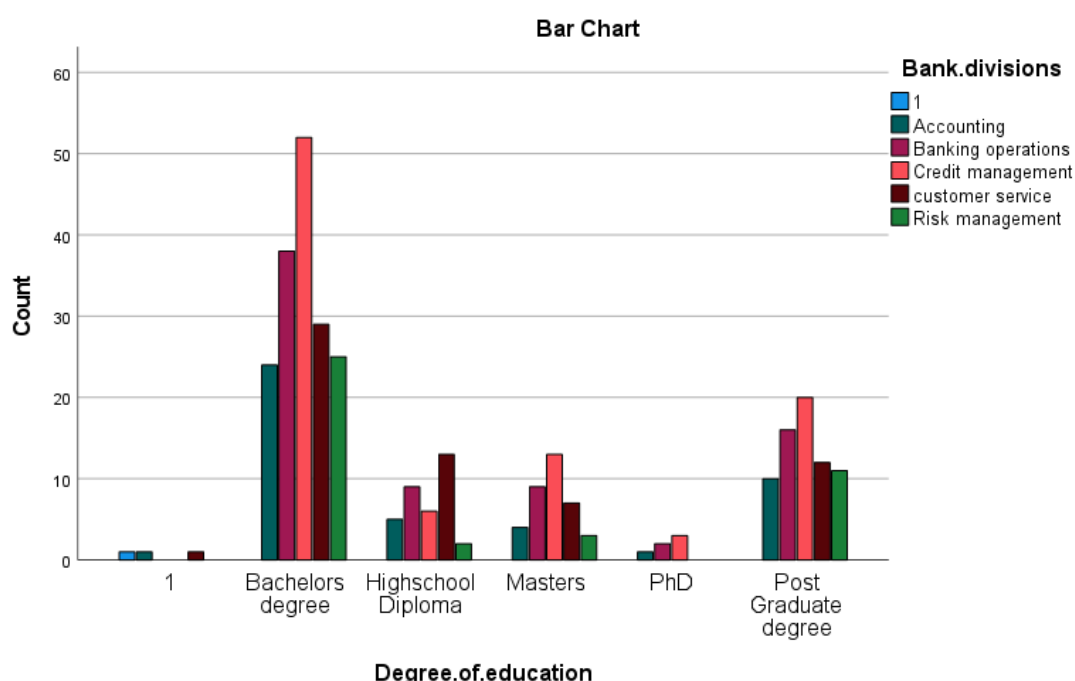
Table 03-15 Relation between education level and bank divisions

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

Figure 03-13 Relation between education level and bank divisions



Relation between enhances transparency and bank division.

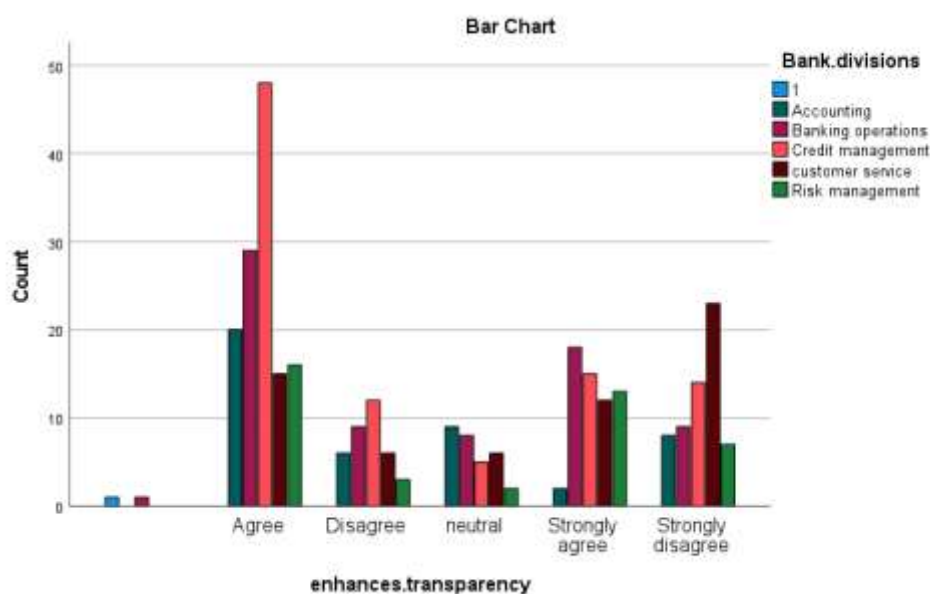
When looking at Chi-Square Tests and its values, the Likelihood Ratio is considered high, which expresses the correlation between variables with the degree of freedom remaining constant at 25. Confidence can be enhanced for employees working in banks when they use charts and tables, as the credit department 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.

Table 03-16 Relation between enhances transparency and bank division.

Chi-Square Tests		Asymptotic	
	Value	df	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.

Figure 03-14 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.

Table 03-17 Relation between informative decision- making and saving time.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	247.136 ^a	25	<.001
Likelihood Ratio	229.063	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.

Figure 03-15 Relation between informative decision- making and saving time.

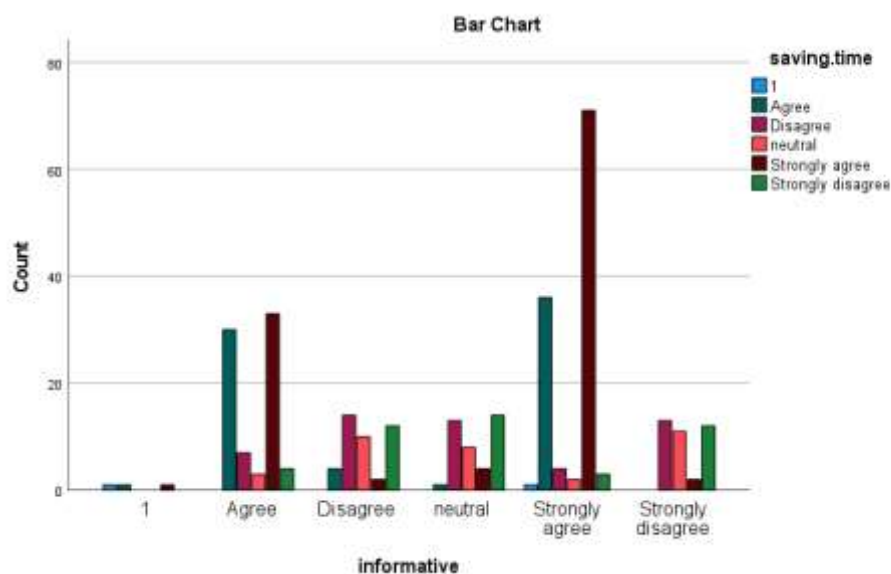
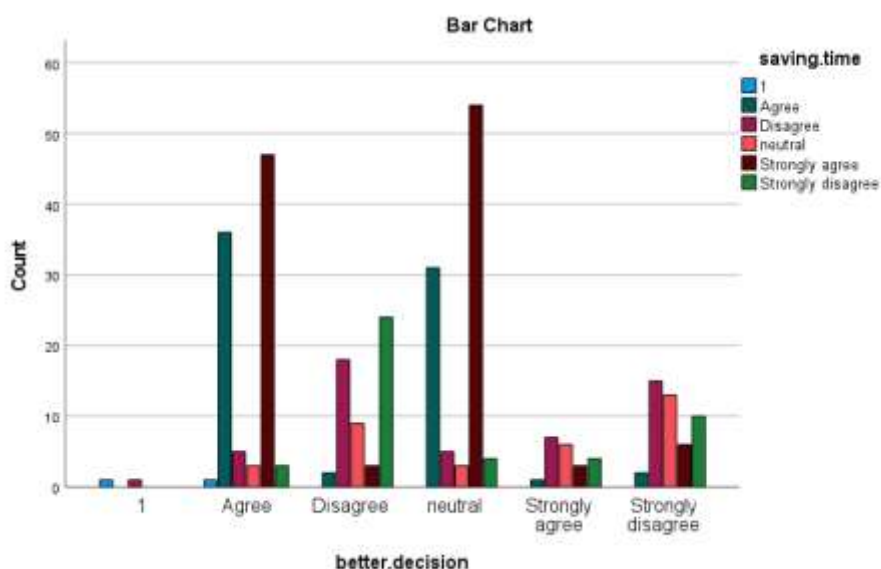


Figure 03-16 Relation between informative decision- making and saving time.



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.

Table 03-18 Relation between bank division & understanding complex information.

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%

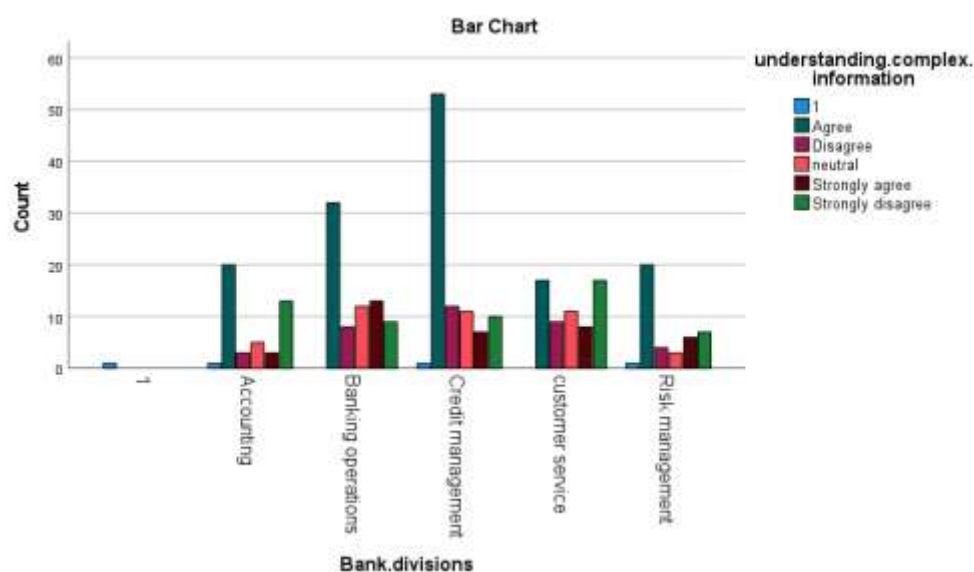
Bank divisions & stakeholder engagement	317	100.0%	0	0.0%	317	100.0%
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Table 03-19 Relation between bank division & understanding complex information 2

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.

Figure 03-17 Relation between bank division & understanding complex information.



One-Way ANOVA

Moving on to the one-way ANOVA analysis, we have considered (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 in bank departments because of their many uses.

Table 03-20 One-Way ANOVA

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

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.

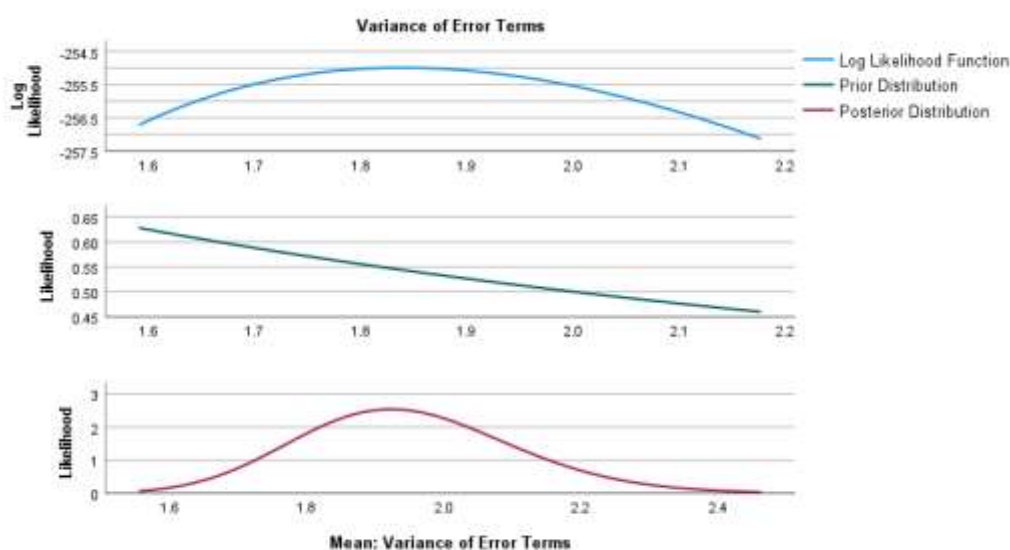
Table 03-21 Bayesian Estimates of Error Variance

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.

Figure 03-18 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.

Conclusion

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.

Research Results

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.

Recommendations

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

analyses 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.

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Appendices

Survey questions:

- **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?

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