Financial Ratio Analysis and Investment Decision Makings in Listed Companies in Rwanda; A Case Study of Listed Companies

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Abstract

The general objective of this study was to assess the financial ratios analysis and the investment decision making in listed companies in Rwanda. The specific objectives of this study were to evaluate the effect of Liquidity Ratio Analysis (current ratio and quick ratio), profitability ratio analysis (ROA and ROE), and efficiency ratio analysis (asset turnover ratio and earnings ratio) on investment decision-making in listed companies in Rwanda. Descriptive research design was used within this study, and the study population comprised 473 licensed brokers working in RSE. Using purposive sampling technique, a sample size of 155 respondents was established, and 139 responses were received. A closed end questionnaire was utilized. Correlation analysis was utilized to assess the data and results generalized for the entire population, while multiple regression analyses was used to test hypotheses. To compute and analyze the data in this study, the SPSS version 27 was used. Correlation between financial ratio analysis in the Rwanda Stock Exchange (RSE) shows that Liquidity ratio analysis has a strong positive correlation (0.724 with P-value = 0.00). Profitability ratio analysis has a very high positive correlation (0.872 with P-value = 0.00) with investment decision-making in RSE, and Efficiency ratio analysis has a moderate positive correlation (0.668 with P-value = 0.00) with investment decision-making in RSE. Regression Model 1 revealed that the two variables of Liquidity ratio analysis contribute to 78.9% of investment decision-making in RSE. The calculated F statistic of 6.351 and the calculated P-value of 0.030 is less than the critical P-value of 0.05, making the entire model significant. Regression Model 2 revealed that the variables in Profitability ratio analysis (measured by ROA and ROE) contribute to 88.2% of investment decision-making in RSE. Findings in ANOVA analysis indicate that the overall model was significant, with a computed F statistic of 11.727 and a calculated P-value of 0.034, which is lower than the key P-value of 0.05. Model 3 revealed that the variables in Efficiency ratio analysis contribute to 72.8% of investment decision-making. Findings in ANOVA indicate that the overall model was significant, as the calculated F statistic of 4.831 and the P-value of 0.012 is less than the critical P-value of 0.05. The study recommends that RSE may improve its efficiency ratio analysis as it was proved that it was not utilized more within the investment decision making. The study recommends a comprehensive approach to enhance investment decision-making in the Rwanda Stock Exchange (RSE), focusing on liquidity, profitability, and efficiency ratio analyses. Furthermore, the study recommends for regular training programs to deepen investors' and financial managers' understanding of these financial metrics.

Keywords: *Financial Ratio, Investment Decision Makings, Listed Companies, Rwanda.*

I.0 Introduction

Due to the high level of sophistication and complexity in the business sectors, it was necessary to find a mechanism to assist the stakeholders in these sectors in rationalising their choice to engage in these businesses (Harinurdin, 2022). According to Harinurdin (2022), financial analysis utilizing ratios has become more significant in Indonesia as a crucial instrument for assessing the effectiveness of establishments and the outcomes of their labor. Additionally, the data from financial analysis employing ratios is utilized to make decisions, identify a company's strengths and weaknesses, and forecast the state of the economy. Maphilipa (2020) claimed that in Tanzania, specifically, the decision-making process necessitates information on both financial and non-financial matters, with financial accounting providing the most crucial financial data required. Financial accounting basically collects, evaluates, and analyses raw data to provide information that may be used to make investment decisions. However, without being analyzed and evaluated using financial ratios, the financial data in the financial statements does not offer users information that is valuable and clear.

The Rwanda Stock Exchange (RSE) was founded to aid in the implementation of the nation's economic reforms and promotes wider ownership of public resources. The collaboration and support of the Government and other important stakeholders continues to be crucial for the support of the economy of the nation. As a result, there needed to be a way to assist investors in these companies in rationalizing their investment decisions. However, Kalisa and Twesige (2022) highlighted that it is crucial to stress that different users must be familiar with how to read those statements, which is not always the case on the Rwanda Stock Exchange, when considering financial statements as a function of decision-making. Brokers and financial analysts are thus needed to assist investors in making their investment decisions. When making investment decisions in the stock market, investors' primary goals are to anticipate receiving the highest annual dividend yields (profit sharing) and capital gains from the sale of their shares back at a higher price in the future (Shakespears, 2020). From the perspective of the corporation, issuing shares on the capital market is a substitute for obtaining funding from investors to support operations and investments.

The tools and techniques of financial ratio analysis are of the utmost interest to financial analysts working for stock exchanges or brokers because they have access to the same basic financial statement data as their principal, employer, investors, lessees, or creditors with regard to their customers and prospective customers. Because of this, they evaluate performance, project future hazards, and assess the firm's potential using financial ratio analysis tools and techniques on current financial data before explaining the results to their clients (Anwar, 2020). Financial analysts frequently adjust the financial statements prepared by the client company's accountants for items they don't deem important or notable but don't appear on the financial statements. The main objective of this study was to investigate the financial ratio analysis and investment decision-makings in listed companies in Rwanda, specifically in RSE Plc.

Hence, conducting of the study was worthy. A firm with a strong liquidity position is often seen as more stable and less risky, which can influence investment decisions. Additionally, in emerging markets, where economic fluctuations can be more pronounced, liquidity ratios become even more critical. They offer a snapshot of financial resilience that is essential for investors who are navigating these potentially volatile markets. By evaluating the impact of these ratios, the study

aims to shed light on how liquidity measures shape investment strategies in Rwanda, providing a template for investors and companies alike to better understand and respond to market dynamics.

In addition, examining profitability ratios like return on assets and return on equity offers insights into a company's ability to generate profits relative to its assets and shareholder equity. These ratios are pivotal for investors as they indicate the potential for future growth and dividends. In the context of Rwanda's growing economy, such insights are invaluable for both local and international investors. They provide a measure of a company's financial performance and its ability to utilize resources effectively. On the other hand, the focus on efficiency ratios, including asset turnover ratio and earnings ratio, underscores the importance of operational efficiency in investment decision-making. These ratios reveal how well a company is using its assets to generate revenue, which is a key determinant of long-term viability and profitability. In Rwanda, where many companies are striving for growth and competitive advantage, these efficiency metrics can be critical indicators for investors looking to identify high-potential opportunities. Overall, the study's examination of the impact of these financial ratios on investment decision-making is not only timely but also pivotal for understanding the financial underpinnings of investment strategies in Rwanda's evolving economic landscape.

1.1 Research Objectives

The study was guided by the following objectives.

i. To evaluate the effect of Liquidity Ratio Analysis (current ratio and Quick ratio) on the investment decision making in listed companies in Rwanda.
ii. To determine the effect of profitability ratio analysis (return on assets and return on equity) on the investment decision making in listed companies in Rwanda.
iii. To identify the effect of efficiency ratio analysis (Asset turnover ratio and earnings ratio) on the investment decision making in listed companies in Rwanda.

2.0 Literature Review

2.1 Theoretical Review

2.1.1 Financial ratios Analysis

According to Saikou and Akuntansi (2021), financial ratio analysis is the methodical application of ratios to the analysis of financial statements to pinpoint an organization's strengths and weaknesses, historical performance, and current financial situation. A financial ratio, according to Arkan (2016), is a scale of two-digit values generated from an organization's financial statements and is typically used in accounting. According to Maphilipa (2020), financial ratio analysis is a quantitative analysis of information from a company's financial statements. Ratio analysis is a tool used in a variety of scenarios to evaluate a firm's operations, performance, and investment choices. Ratio analysis is justified since it makes it possible to compare comparable data (Olayinka, 2022). But when a figure is explained in terms of a related figure, important conclusions might be drawn from the valueless standalone figure. This is the most important instrument offered to financial professionals. The mathematical relationship between two connected accounting data is displayed in accounting using ratios. Ratio analysis is always discussed using decimal numbers like 0.10 or percentages like 10% (Patil & Bagodi, 2021). For the purposes of this study, financial ratios have

been categorized into the three primary areas of liquidity, profitability, and efficiency ratios. Ratios can be categorized into several different categories for expositional purposes.

2.1.2 Liquidity Ratio Analysis

According to Nguyen and Nguyen (2020), the first category of liquidity measures, such as current and fast, are used to assess a company's capacity to pay short-term obligations. Liquidity ratios, according to Harinurdin (2022), are financial statistics that help analysts and investors assess a company's ability to satisfy its immediate financial obligations. They provide data on the firm's liquidity position, which is crucial data to take into account while making investment decisions. Liquidity, according to Diao *et al*. (2023), is the capacity of the corporation to pay its debts as they fall due. This has to do with how quickly the business can sell off its assets to settle its debts. Maintaining liquidity is essential for an organization's seamless operation, claim Ullah *et al.* (2020). It demonstrates the company's capacity to settle current liabilities, such as internal financial commitments and ongoing operating expenses.

Liquidity may be managed with good asset management. Liquidity ratios include, for instance, the ratios of liquid assets to deposits, net loans to total assets, and net loans to deposits. Liquidity ratios measure a company's ability to pay off obligations when they become due using current or short-term assets. When the ratio is high, the bank is more liquid and has more funds to spend on new facilities and people. One of the liquidity ratios that may aid in investment decision-making is the current ratio, which focuses on the company's capacity to sustain its financial stability (Nursari & Suriawinata, 2020). The current ratio is calculated by dividing current liabilities by current assets. However, this ratio, according to Phan and Nguyen (2020), does not account for the liquidity of any component of current assets. In other words, a company's current assets would be far more liquid if they were mostly made up of cash rather than inventory. The cooperative's liquidity is at danger if the ratio is less than 1, which indicates that current commitments are bigger than current assets. This ratio can be raised through a rise in long-term debt, an increase in stock sales, or the sale of inefficient fixed assets with the proceeds kept. Current commitments may also be reduced by keeping a larger portion of the intended savings (decreasing the cash portion) (Phan & Nguyen, 2020). A high current ratio, according to Anwar (2020), indicates that current liabilities may be serviced by cash earned from current assets, which is positive for the financial system.

2.1.3 Profitability Ratio Analysis

The second type of financial ratios consists of profitability ratios, which are financial performance indicators that demonstrate how efficiently an institution's resources have been applied to produce returns (Anwar, 2020). The statistics demonstrate how successful a business may be (Olayinka, 2022). This section will cover the profitability measures Return on Assets (ROA) and Return on Equity (ROE). Metrics of profitability, such as gross profit margin, demonstrate how successfully the cooperative manages its operations. Profitability measurements like return on equity, return on assets, and gross profit margin, in accordance with Patil and Bagodi (2021), provide investors with a window into a company's financial health. Investors can use these figures to assess how efficiently a company uses its resources to generate profits. According to Abdulshakour (2020), investors can discover companies who are outperforming their peers in terms of profitability by comparing their financial performance to that of their competitors, which may be a hint that they are better investments. According to Saikou and Akuntansi (2021), a business that consistently turns a profit is more likely to be financially secure and to have a more promising long-term future.

To determine how well a company rewards its investors, look at its return on assets ratio. The formula involves calculating revenue or turnover, subtracting all costs used to generate the income, and adding the remaining amount as the numerator to the worth of the assets utilized to generate the revenue (Olayinka, 2022). The ratio can be expressed as a fraction or a percentage. According to Maphilipa (2020), return on equity (ROE) describes how a company produces money from the capital it has invested. To calculate this ratio, divide net income by the equity held by common stockholders. As the percentage rises, so is the likelihood that the equity has generated a sizeable sum of money that might be used to grow the company (Kariyoto, 2017).

2.1.4 The Analysis of Efficiency Ratios

Efficiency ratios are financial metrics that demonstrate how effectively a company makes use of its assets and resources to generate revenue. These figures provide insight into a company's operational efficiency and can help investors determine the possibility of its profitability. Investors may profit from studies on efficiency ratios since they demonstrate how effectively a company uses its resources and assets to generate profits (Saikou & Akuntansi, 2021). An efficiency ratio is used to assess how well management generates revenue by utilizing the company's resources and cash flow (Olayinka, 2022). The ratio can be used to calculate the amount and usage of equity, the repayment of obligations, the turnover of receivables, and the total utilization of stocks and machinery, according to Abdulshakour (2020). These ratios, which link the firm's assets to its profit or sales performance, show the ability of the company to use its assets to achieve the highest profit for shareholders and owners (Sanyaolu, *et al.,* 2020).

Anwar (2020) believes that efficiency ratios might also provide insight into a company's potential for future growth and expansion. A company with a high asset turnover ratio, for instance, would be able to increase sales without making substantial investments in new assets. According to Arkan (2016), output volume or production costs can be used to gauge efficiency. The two categories of efficiency are cost efficiency and technical efficiency, which brings us to them. The following numerical representation of the efficiency ratio is possible: Ratio of Cost to Revenue = Cost to Revenue.The earnings ratio forecasts the share price of the company and the market's perception (Olayinka, 2022). Earnings are significant because management and investors seek to understand the current and future prosperity of the company. Therefore, managers would like to comprehend the profitability situation of the company utilizing the earnings ratio before establishing a new business or spending money. Using this ratio, the company's management may project the return on the new investment. Because of the high ratio, the bank will expand its network of locations and hire more staff.

2.1.5 Investment Decision Making

This sentence is explained using the ideas of investment and decision-making. To begin with, it's crucial to understand the difference between decision-making and decision-making. Anwar (2020) defines decision-making as the action of determining the best way to accomplish objectives with a limited number of resources, including both tangible and intangible resources. Investment is the second. In accordance with Diao *et al*. (2023) the definition of investment in the dictionary is "the distribution of financial resources in the form of real and financial assets with the expectation of receiving a suitable return." Anwar (2020) uses a definition that is similar to this one, stating that investing is the act of sacrificing current resources (such as time, money, and energy) in order to acquire better or more resources in the future. Shakespeare (2020) states that when one transacts

on the stock market, the focus of this study, they are either "buying" or "selling" a financial instrument. There are buyers and sellers in every market. On the stock market, buyers and sellers of securities can connect, communicate, and transact business. Markets serve as both a tool for setting share prices and a gauge of the health of the economy (Nguyen & Nguyen, 2020). Buyers and sellers can be confident that they will receive a fair price, a high level of liquidity, and transparency since market participants compete on an open market. Ullah *et al.* (2020) contend that stock markets provide market players with a secure and regulated setting where they can transact with confidence in shares and other legal financial instruments with little to no operational risk.

In Rwanda, shares are bought and sold on the Rwandan Stock Exchange. The term "secondary market" refers to the market where existing shares and bonds are bought and sold by registered stockbrokers who are RSE members. According to the RSE (2023), opening an investment account with a stockbroker for the purpose of trading and investing in securities is the first step in the purchase of securities. To open an account, you must provide a copy of your ID card and two recent passport photos. The stockbroker will also set up a CSD account so that shares or bonds can be held electronically. As a result, long-term investors might find its shares interesting. They can be used, in accordance with Phan and Nguyen (2020), to contrast a company's financial performance with that of its rivals in the same industry. The authors contend that if a company's financial ratios are superior to those of its peers, it may be outperforming its competitors and offering a better investment opportunity. On the other hand, if a company has worse financial statistics than its rivals, it may indicate that it is having problems competing and is not a good investment.

2.1.6 Financial Ratios Analysis and Selling Shares

The research suggests that financial ratios analysis can influence selling shares on the stock market in a variety of ways, much like the prior section on buying shares did. A company's financial ratio analysis may boost investor confidence in the company's future prospects if it produces favorable results, such as high profitability or liquidity, claim Phan and Nguyen (2020). This increased confidence may make the company's shares more desirable to investors, which could increase demand and drive up the stock price. A company's shares may also be more desirable to investors, according to Haixin and Kyunbeom (2022), if it surpasses its rivals in significant areas like profitability or efficiency. According to Arkan (2016), financial analysts regularly use financial ratio analysis to give their clients advise. If a company's financial ratio research produces favourable results, analysts may encourage their clients to buy or hold the shares, which could increase demand and drive up the stock price. On the other hand, analysts may suggest that their clients sell the shares if the inquiry turns up bad information, which would decrease demand and drop the stock price.

2.1.7 Analysis of Financial Ratios and Capital Gain

Capital gain, according to Abdulshakour (2020), is the increase in asset value brought on by a sale. When someone sells an asset for more money than they initially paid for it, the author claims that they have realized a capital gain. Anwar (2020) defines a capital gain as the increase in a capital asset's worth that is realized upon selling the asset. Capital gains taxes apply to all assets, including those acquired for personal use and investments. Whether the gain is long-term (lasting more than a year) or short-term (lasting less than a year), it must be declared on income taxes (Abdulshakour,

2020). A capital asset can be almost any form of asset you own, claims Harinurdin (2022). Investors who bought shares at a discount can therefore realize capital gains when they sell those identical shares at a premium. On the other hand, if a review of a company's financial measurements produces unfavorable results, such as low profitability or liquidity, investors may lose faith in the company's future prospects, according to Phan and Nguyen (2020). Less interest in the stock could follow, which would bring down the price. Investors who paid more for the shares may incur capital losses if they choose to sell them for less in the future. Financial ratio analysis can also be used to contrast a company's financial performance with that of its rivals in the same industry, according to Diao *et al.* (2023). Demand could increase as a result, driving up stock prices. Shareholders who bought the shares at a discount may see capital gains as a result. Financial analysts to guide their client recommendations, according to Patil and Bagodi (2021), commonly use financial ratio analysis. As a result, analysts may urge their clients to buy or hold the stock if a company's financial ratio study produces good results, which could enhance demand and increase the stock price. This may result in capital gains for investors who bought the shares at a discount.

2.2 Theoretical Framework
2.2.1 Positive Accounting Theory (PAT)

Maphilipa (2020) also asserts that the rationales for adopting a normative method to study accounting theory lacked a sound theoretical foundation and were merely ad hoc. Therefore, just like the PAT does, a scientific accounting theory must be able to describe how accounting standards are actually selected. Hopwood (2002) noted that his analysis demonstrated how Zimmerman had too readily allowed his own prejudices to affect both his assessment of the empirical management accounting literature and his suggestions for improvement. Hopwood partially agreed with Zimmerman's criticism of Ittner and Larcker's review of the empirical management accounting research literature. According to Lukka and Mouritsen (2002), Zimmerman's adherence to a strict economics-based paradigm would limit our capacity for critical thought and put the management accounting research community's ability to engage in productive scientific discussion and advancement at danger. In contrast to Zimmerman, they advocate for the continued inclusion of heterogeneity in management accounting studies. It is obvious that the adoption of positive accounting theory has given rise to conflicts among experts. However, as doing current empirical research necessitates an understanding of positive accounting theory (PAT) and how it relates to the selection of accounting policy, the PAT acts as the study's theoretical underpinning.

2.2.2 Modern Portfolio Theory (MPT)

According to Harry Markowitz's 1952 portfolio selection theory of investing, every investor should weigh the risks and potential benefits before making any investments. Modern Portfolio Theory (MPT), the most recent iteration of the theory, is currently used in studies of current economic research. Over time, the theory has been refined. MPT aims to increase portfolio benefits for a given level of risk or to reduce risk for a given level of benefits, according to Arkan (2016).

The concept urges investors to pick their investment plan wisely in order to make sure that their money will yield the best potential return. Numerous economic aspects could be considered in order to achieve this (Olayinka, 2022). In other words, two portfolios with the same degree of variance and returns are equally desirable, according to modern portfolio theory. Crotty (1992)

asserts that the MPT has serious problems in the consistency and caliber of the data used to produce asset allocation. Although returns, risks, and correlations are not always constant over the long term, mean-variance optimization (MVO) models nonetheless apply long-term capital market assumptions. However, the theory is applied in this case to back up the current research because it used financial ratios as advised by MPT to ascertain whether investment decisions made by listed firms in Rwanda were related to them.

2.2.3 Belbin's Theory of Team Roles

In 2004, she carried out a large number of studies that were focused on the tenets of Belbin's thesis. The results of her research led to the creation of a management team model based on the activities required for the team to be successful. Belbin characterized the responsibilities of a team member as those of a servant who contributed to the success of the team through his or her own performance, the performances of others, and the overall structure of the team. She believes that team members are competent in performing two distinct types of duties. According to role theory, the first is an example of a typical functional role. The second group includes team obligations. Instead of functions, positions in a team show how well a member fits in. The position is described using the six components of this model: personality, mental aptitude, motivation, values, field restrictions, experience, and role learning. Belbin, however, was unable to articulate how each element might be responsible for the bulk of the changes. Instead, she argued that all of the roles needed to be assigned fairly for a team to be successful (Holzmann, 2013). Belbin contends that the idea of a team position should be contrasted with a functional role, which emphasizes familiarity with the practical and technical facets of a certain profession. As a result, even if they are in the same functional position, some team members may play multiple roles. Belbin emphasizes the connections between the abilities needed for various team positions at various stages of the team's development. The following are the six steps listed: identifying needs. 2) Developing ideas. 3) making the plans; 4) putting the ideas into practice; 5) putting together the team; and 6) finishing the project. The Shaper and Coordinator will be crucial early on, followed by the Completer-Finishers and the Implemented. She specified the titles of each team member, starting with Chairman, Shaper, Plant, Resource Investigator, Monitor Evaluator, Team Worker, Company Worker, and Completer/Finisher. She later altered the Chairman's title to "Coordinator" and the Company Employee's position to "Implementer."

2.3 Conceptual Framework

The conceptual framework connects all independent variables, dependent variables, and intervening variables. According to Creswell & Creswell (2018), a conceptual framework is a model that illustrates and clarifies the connections between different elements. The pertinent dimensions for the variables of interest in the current study are shown in Figure 1. The independent variable examines the analysis of financial statistics, whereas the dependent variable examines the analysis of investment decision-making.
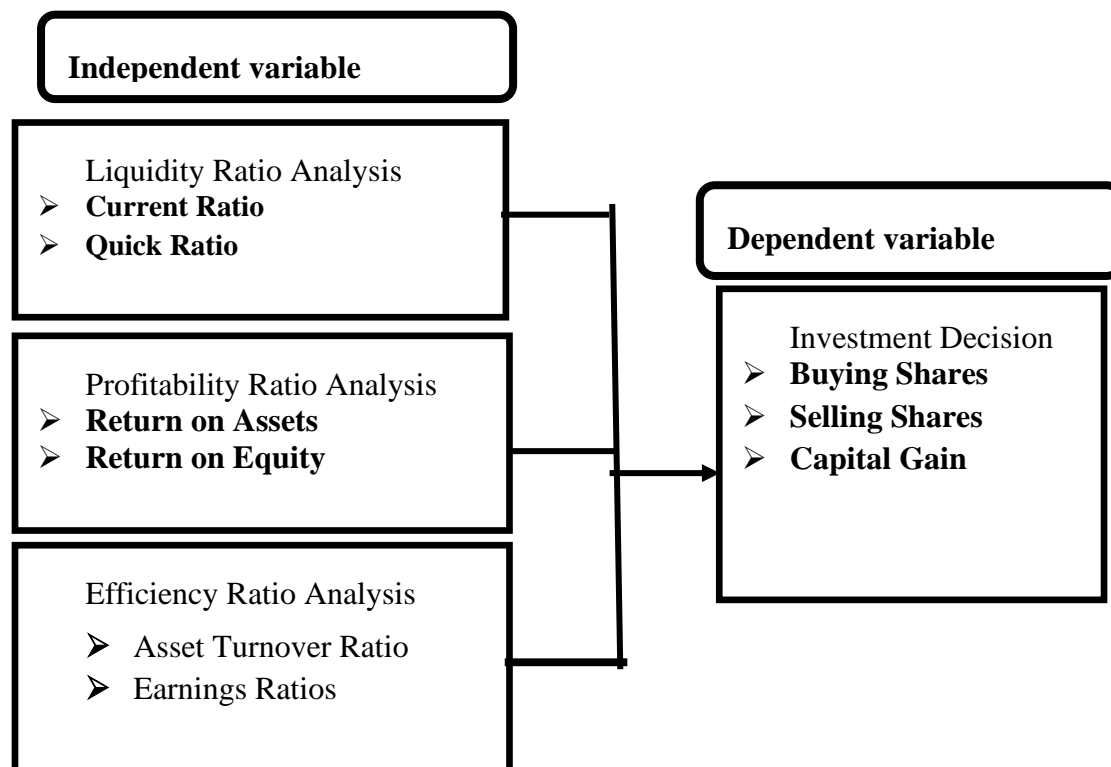
Figure 1: Conceptual Framework

Source: Researcher (2023)

3.0 Research Methodology

The study adopted a survey descriptive research design to understand the perceptions of respondents on financial ratios analysis and investment decision-making in the Rwanda Stock Exchange (RSE). Yin (2014) emphasized that research design was about logical problems, not logistical ones. The study targeted licensed stockbrokers in the RSE, Nyarugenge district, numbering 473, as they were key in providing investment advice. Using Yamane's formula, the sample size was determined to be 155. A purposive sampling technique was employed for selection. Data was collected through both primary (questionnaires) and secondary methods (desk research on existing RSE reports and literature). The study aimed to correlate financial ratios with investment decisions and employed multiple regression to test hypotheses, focusing on the practical application within the context of the RSE.

4.0 Study Results

4.1 Demographic Characteristics Of Respondents

The profile of respondents was deemed necessary because the ability of the respondents to give satisfactory information on the study variables greatly depends on their background. The study evaluated the profile of respondents in terms of gender, age, educational qualification, and experience (number of years in services) within the RSE.

Table 1: Demographic Characteristics of Respondents

Factors	Categories	Frequency	Percentage (%)
Respondents' Gender	Male	91	65
	Female	48	35
	Total	**139**	**100**
Age Group	Below 25 years	0	-
	26-35years	59	42
	35-45 years	45	32
	Above 46 years	35	25
	TOTAL	**139**	**100**
Education level	Professional Certificate	22	16
	Secondary school Diploma	0	-
	Bachelor's Degree	61	44
	Master Degree	42	30
	PHD	14	10
	Total	**139**	**100**
Experience as broker within RSE	Less than 2 years	0	-
	2-5 years	31	22
	5-10 years	71	51
	Over 10 years	37	27
	Total	**139**	**100**

Source: Researcher (2023)

As table 1 shows, during this research, the respondents were both male and female, within RSE whereas 65% were male while 35% were female. This shows that majority of brokers involved in the RSE are male. Table 1 shows that majority 42% of respondents are between the ages of 26-35 years, followed by those aged between 36-45 years meeting 32%, then the remaining 25% were aged above 45 years. This implies that the RSE is using all segment of the population but youth people are not involved in the process, as the research found no licensed broker below the age of 25 years. From the findings it was established that the majority 44% of respondents have a bachelor's degree. Followed by people holding a master's degrees per 30%, then those with professional certificates counting 16%, and finally those with PHD 10%. This is an indication that all the respondents focused on, in this study had bachelor degree and more as their highest level of education. This clearly indicated that all the respondents have a clue on what is financial ratio analysis and how it can enhance investment decision making as they hold academic qualification allowing them to do so. From the findings, the study established that most respondents counting 51% had been involved in RSE for a period between 5-10 years, then 27% reported to being involved in RSE for a period above 10 years, while only 22%, had worked in the RSE for a period between 2-5 years. The findings suggest that the respondents had been participating in the RSE for a sufficient duration, thereby possessing the necessary knowledge about the issues the researcher was investigating.

4.2 Descriptive Analysis

4.2.1 View on Liquidity Ratio Analysis (LRA) in RSE

The study sought to assess the liquidity ratio analysis in RSE. The respondents were questioned if they agreed or disagreed with the statements regarding Liquidity ratio analysis. Findings are presented in the table 2.

Table 2: View on Liquidity ratio analysis in RSE

Statement on LRA	SD		D		N		A		SA		M	SD
N=139	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
We mainly consider current ratio in investment decision making as they offer information on the company's liquidity position	12	9	11	8	9	6	64	46	43	31	3.83	0.52
We mainly consider quick ratio in investment decision making as they offer information on the company's liquidity position	5	4	10	7	4	3	47	34	73	53	4.24	0.45
Due to effective current ratio analysis, price of any stock is determined collectively at RSE	22	16	28	20	15	11	43	31	31	22	3.24	0.74
Due to effective quick ratio analysis, price of any stock is determined collectively at RSE	3	2	5	4	4	3	41	29	86	62	4.45	0.41
We are able to spot trends that might point to possible problems or opportunities by examining changes in a company's liquidity ratios over capital gain	2	1	5	4	5	4	44	32	83	60	4.45	0.41
Overall Mean											**4.04**	

Source: Primary Data (2023)

According to table 2's results, the majority of respondents, 46%, agreed that they mainly consider current ratio in investment decision making as they offer information on the company's liquidity position, with moderate mean 3.83. However, the respondents' perceptions varied, as demonstrated by heterogeneous standard deviation = 0.52. With a high mean of 4.24 and homogeneous standard deviation of 0.45, the results showed that the majority of respondents—53%— strongly agreed that they mainly consider quick ratio in investment decision making as they offer information on the company's liquidity position. This finding suggests that the respondents had similar perception while concurring with the statement. With a moderate mean of 3.24 and a heterogeneity standard deviation of 0.74, the results showed that the majority of respondents—31%— agreed with the statement stipulating that due to effective current ratio analysis, price of any stock is determined

collectively at RSE. This suggests that respondents had dissimilar opinions even if they agreed upon the statement. As shown by a high mean of 4.45 and homogeneous standard deviation of 0.41, the results showed that the majority of respondents (62%) strongly agreed that due to effective quick ratio analysis, price of any stock is determined collectively at RSE. This indicates that the respondents have similar opinions on the statement. Finally, as shown by a high mean of 4.45 and homogeneous standard deviation of 0.41, the results showed that the majority of respondents (60%) strongly agreed that they are able to spot trends that might point to possible problems or opportunities by examining changes in a company's liquidity ratios over capital gain. This indicates that the respondents have similar opinions on the statement. The overall mean is high 4.04 which implies that the fact appears more; consequently, we may consider that liquidity ratio analysis is considered by brokers in RSE, while making investment decision.

4.2.2 Views on Profitability Ratio Analysis

The purpose of the study was to determine how respondents felt about the profitability ratio analysis utilization in RSE. To that end, respondents were asked whether they agreed or disagreed with various claims made regarding these techniques. The results were displayed in table 3.

Table 3: View on Profitability Ratio Analysis in RSE

Statement on PRA	SD		D		N		A		SA		M	SD
N=139	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
We mainly consider the ROE in investment decision making since it enables investors to comprehend a company's capacity for profit	0	0	2	1	5	4	55	40	77	55	4.49	0.39
We mainly consider the ROA in investment decision making since it enables investors to comprehend a company's capacity for profit	9	6	14	10	16	12	37	27	63	45	3.94	0.51
The ROA in the RSE provide accurate information to investors in determining how effectively a business uses its resources to produce profits	11	8	11	8	15	11	41	29	61	44	3.94	0.54
The ROE in the RSE provide accurate information to investors in determining how effectively a business uses its resources to produce profits	3	2	5	4	4	3	42	30	85	61	4.45	0.47
We are able to spot trends that might point to possible problems or opportunities by examining changes in a company's profitability ratios over capital gain	0	0	2	1	5	4	44	32	88	63	4.57	0.4
Overall Mean											4.28	

Source: Primary Data (2023)

Table 3's results showed that 55% of respondents strongly agreed that they mainly consider the ROE in investment decision making since it enables investors to comprehend a company's capacity for profit, with a high mean of 4.49 and a homogeneity standard deviation of 0.39 indicating that the respondents had similar opinion upon the statement. With a moderate mean of 3.94 and a heterogeneous standard deviation of 0.51, the results showed that most respondents, 45%, strongly agreed that they mainly consider the ROA in investment decision making since it enables investors to comprehend a company's capacity for profit. This suggests that respondents have different perception while endorsing the statement. With a moderate mean of 3.94 and a heterogeneity standard deviation of 0.54, the results showed that most respondents—45%— strongly agreed that The ROA in the RSE provide accurate information to investors in determining how effectively a business uses its resources to produce profits. This suggests that respondents had dissimilar opinions while agreeing with the statement. The results showed that most of respondents, 61% of respondents strongly agreed that the ROE in the RSE provide accurate information to investors in determining how effectively a business uses its resources to produce profits. This finding is indicated by a high mean of 4.45 and a standard deviation of 0.47 homogeneous that is less than 0.5 implying that respondents had similar perceptions upon the statement. The results finally indicated that the majority 63% of respondents strongly agreed that they can spot trends that might point to possible problems or opportunities by examining changes in a company's profitability ratios over capital gain, as indicated by a very high mean = 4.57 and standard deviation which is 0.40 homogeneity and implies that the respondents have similar views upon the statement. The overall view of respondents on profitability ratio analysis was at high mean= 4.28 which implies that the fact appears more in RSE, meaning that brokers within RSE always consider profitability ratio while making their investment decision.

4.2.3 Views on Efficiency Ratio Analysis in RSE

The study sought to assess perception of respondents on the Efficiency ratio analysis in RSE. The respondents were questioned if agreed or disagreed with the statements with regard to Efficiency ratio analysis within RSE. The findings were presented in the following table 4.

Table 4: Views on Efficiency Ratio Analysis in RSE

Statement on ERA	SD		D		N		A		SA		M	SD
N=139	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
We always use Efficiency ratio to evaluate how well management uses the listed company's resources and available cash to produce revenue	14	10	10	7	18	13	56	40	41	29	3.72	0.64
We are able to assess a company's inventory management before making an investment decision thanks to effective efficiency ratio analysis	12	9	11	8	16	12	58	42	42	30	3.77	0.61
Effective efficiency ratio analysis allows us to assess the customer payment collection effectiveness in a company before making an investment	14	10	19	14	10	7	51	37	45	32	3.68	0.58
Effective efficiency ratio analysis allows us to evaluate a company's efficiency to that of its rivals before making an investment	11	8	15	11	9	6	54	39	50	36	3.84	0.54
Effective efficiency ratio analysis allows us to pinpoint operational improvement opportunities before making an investment	12	9	14	10	11	8	55	40	47	34	3.80	0.54
Overall Mean											3.76	

Source: Primary Data (2023)

Table 4's results showed that most respondents 40% agreed with the statement that they always use Efficiency ratio to evaluate how well management uses the listed company's resources and available cash to produce revenue, with moderate mean=3.72 and heterogeneity SD=0.64, indicating that respondents agreed with the statement but had different perceptions upon it. The results showed that the majority of respondents (42%) also agreed that they are able to assess a company's inventory management before making an investment decision thanks to effective efficiency ratio analysis, with moderate mean=3.77 and heterogeneity standard deviation=0.61), suggesting that respondents' perceptions differ even though the majority agreed with the statement. The results showed that the majority of respondents (37%) agreed that Effective efficiency ratio analysis allows us to assess the customer payment collection effectiveness in a company before making an investment, with a moderate mean of 3.68 and a heterogeneous standard deviation of 0.58, respondents had differing opinions on the statement. According to the findings in Table 4, most respondents 39% of respondents agreed that Effective efficiency ratio analysis allows us to evaluate a company's efficiency to that of its rivals before making an investment, as shown by the moderate mean of 3.84 and the standard deviation of 0.54, which indicates heterogeneity and suggests that the respondents have differing opinions on the statement. The results finally indicated that the majority 40% of respondents agreed that Effective efficiency ratio analysis allows us to pinpoint operational improvement opportunities before making an investment, as indicated by a moderate mean = 3.80 and standard deviation which is 0.54 heterogeneity and implies that the respondents have dissimilar views upon the statement. The overall view of respondents on

efficiency ratio analysis in RSE was at moderate mean=3.76 which implies that brokers consider moderately efficiency ratios within their investment decision.

4.2.4 Views on the Investment decision making in RSE

The study sought to assess perception of respondents on the investment decision making in RSE as measured by buying shares, selling shares and capital gain. When asked if they agreed or disagreed with the assertions made about investment decision making, the respondents' responses are shown in table 5.

Table 5: Views on the Investment decision making of RSE

Statement	SD		D		N		A		SA		M	SD
N=139	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
It is the liquidity ratio analysis which determine the buying shares at the Rwanda stock exchange	12	9	10	7	12	9	55	40	50	36	3.87	0.57
It is the profitability ratio analysis which determine the buying shares at the Rwanda stock exchange	8	6	14	10	11	5	49	35	57	41	3.96	0.55
We advise the buying of shares at RSE after analyzing efficiency ratios of listed companies at RSE	11	8	28	20	11	8	46	33	43	31	3.59	0.61
It is the liquidity ratio analysis which determine the selling of shares at the Rwanda stock exchange	10	7	9	6	14	10	50	36	56	40	3.96	0.52
It is the profitability ratio analysis which determine the selling of shares at the Rwanda stock exchange	3	2	7	5	10	7	45	32	74	53	4.29	0.49
We advise the selling of shares at RSE after analyzing efficiency ratios of listed companies at RSE	17	12	11	8	11	8	47	34	53	38	3.78	0.58
Buyers and sellers at the RSE are assured of a fair price, thanks to the quality of financial statements of listed companies	14	10	22	16	20	14	51	37	32	23	3.47	0.64
Liquidity ratios analysis in RSE helps investors to increase their capital gain	10	7	7	5	11	8	57	41	54	39	3.99	0.48
The profitability ratio analysis allows investors to choose the best way to achieve the goal of obtaining future returns with limited financial resources	5	4	8	6	5	4	57	41	64	46	4.20	0.44
Efficiency ratio analysis allows us to identify established entities that provide above-average distributions without the risk of default.	12	9	12	9	13	9	59	42	43	31	3.78	0.57
Overall Mean											3.89	

Source: Primary Data (2023)

Regarding the buying of shares, the results from Table 5 show that the majority of respondents (40%) agreed that It is the liquidity ratio analysis which determine the buying shares at the Rwanda stock exchange, with moderate mean=3.87 and standard deviation of 0.57% heterogeneity," meaning that they had different opinions on the statement. With a moderate mean of 3.96 and a heterogeneity standard deviation of 0.55, the results showed that the majority of respondents— 41%— strongly agreed with the assertion that It is the profitability ratio analysis which determine the buying shares at the Rwanda stock exchange. Also with a moderate mean of 3.59 and a heterogeneity standard deviation of 0.61, the results showed that the majority of respondents 33% agreed with the assertion that they advise the buying of shares at RSE after analyzing efficiency ratios of listed companies at RSE. Considering selling shares, the results in Table 5 showed that the majority of respondents, or 40%, strongly agreed that It is the liquidity ratio analysis which determine the selling of shares at the Rwanda stock exchange, shown by a moderate mean of 3.96 and a standard deviation of 0.52, which indicates heterogeneity and suggests that the respondents have different views regarding the statement. The results showed that 53% of respondents strongly agreed with the assertion that It is the profitability ratio analysis which determine the selling of shares at the Rwanda stock exchange, as shown by a high mean of 4.29 and a homogeneity standard deviation of 0.49, which suggests that the respondents have similar opinion. Also, the majority 38% of respondents agreed that We advise the selling of shares at RSE after analyzing efficiency ratios of listed companies at RSE, with moderate mean= 3.78 which implies that the fact appear moderately and standard deviation which is 0.58 is more than 0.5 (heterogeneity) which implies that the respondents have dissimilar views on the statement. Finally, most respondents 37% agreed that buyers and sellers at the RSE are assured of a fair price, thanks to the quality of financial statements of listed companies, indicated by moderate mean 3.47 and SD=0.64 heterogeneity.

Next, the research considered the sub variable capital gain as element of investment decision making in RSE, and the results in table 5 indicated that the majority 41% of respondents agreed that Liquidity ratios analysis in RSE helps investors to increase their capital gain, as indicated by a moderate mean = 3.99 and standard deviation which is 0.48 is homogeneity and implies that the respondents have similar views upon the statement. The results also indicated that the majority 46% of respondents strongly agreed that the profitability ratio analysis allows investors to choose the best way to achieve the goal of obtaining future returns with limited financial resources, as indicated with a high mean= 4.20 and homogeneity standard deviation of 0.44 implying that the respondents have similar views upon the statement. The results indicated finally that the majority of respondents 42% agreed that Efficiency ratio analysis allows us to identify established entities that provide above-average distributions without the risk of default, with moderate mean= 3.78 and standard deviation which is 0.57 is more than 0.5 (heterogeneity) and implies that the respondents have dissimilar views on the statement. The overall view of respondents on the investment decision making in RSE due to financial ratio analysis used was at moderate mean=3.89 which implies that there is an impact of financial ratio analysis on the investment decision making in RSE.

4.3 Correlations Analysis

One of the most popular and helpful statistics is the correlation. The linear correlation coefficient was determined using the Pearson coefficient of correlation to ascertain the strength and direction of the association between the research variables. The Pearson's coefficient of correlation is

between +1 and -1. There will be no correlation between the two variables if the coefficient is zero. A positive correlation between the variables is indicated by a coefficient value greater than 0, therefore an increase in one variable will lead to an increase in the other and vice versa. If one variable's value is larger than 0 and the other variable's value is lower, there is a negative correlation between the two variables (Lohrey, 2014). Finding the relationship between the dependent variable and the independent variables (Liquidity ratio analysis, Profitability ratio analysis, and efficiency ratio analysis) was the aim of the study (investment decision making measured by buying shares, selling shares and capital gain). To assess the degree of connection between the study variables and the outcomes, the Pearson's coefficient of correlation was applied to the survey data (r). The study's findings are presented in Table 6.

Table 6: Correlation Coefficients

		Liquidity ratio analysis	Profitability ratio analysis	Efficiency ratio analysis	Investment decision making
Liquidity ratio analysis	Pearson correlation	1.000			
	Sig. (2-tailed)	0.000			
Profitability ratio analysis	Pearson correlation	0.713**	1.000		
	Sig. (2-tailed)	0.000			
Efficiency ratio analysis	Pearson correlation	0.284**	273**	1.000	
	Sig. (2-tailed)	.067	.085		
Investment decision making	Pearson correlation	.724**	.872**	.668**	1.000
	Sig. (2-tailed)	.000	.000	.000	
	N	139	139	139	

**. Correlation is significant at the 0.05 level (2-tailed).

The study results presented in Table 6 shows that correlation between financial ratio analysis in RSE whereas Liquidity ratio analysis has strong positive correlation (0.724 and P value =0.00). This suggests that improved liquidity ratio analysis help to improve investment decision making. These findings are in line with Ezejiofor, Rolise, and John-Akamelu (2019) who demonstrated that the decision-making process for investments in the Nigerian telecoms sector is heavily influenced by liquidity. Profitability ratio analysis has very high positive correlation (0.872 and P value =0.00) with investment decision making of RSE. This suggests that improved profitability ratio analysis help to improve investment decision making in RSE. These findings concur with those of Bamidele, Ibrahim, and Omole (2018) who found that profitability had a substantial positive impact on investment decisions in Nigerian deposit money institutions. Efficiency ratio analysis has moderate positive correlation (0.668 and P value =0.00) with investment decision making of RSE. This suggests that improved efficiency ratio analysis help to improve investment decision making in RSE These findings are in line with those made by Maphilipa (2020) who found indicate that efficiency ratio analysis is an appropriate method for evaluating a bank's financial performance to determine its success.

4.4 Diagnostics test of the regression model

After the regression model was run, post-estimation tests were carried out to make sure the model fit the data well and that the estimates it produced were accurate and trustworthy. Statistical tests for conditional diagnostics were successfully completed in this study. Both normality and multicollinearity were examined in the study. The test for multicollinearity is presented in Table 7.

Table 7: Test for Multicollinearity

Model	Collinearity Statistics	
	Tolerance	VIF
Liquidity ratio analysis	0.803	1.245
Profitability ratio analysis	0.896	1.678
Efficiency ratio analysis	0.661	2.167

Source: Primary Data (2023)

Table 7, indicated that all the independent variables were not highly correlated with each other as indicated by the Variance Inflation Factors (VIF) of below five. Since all 3 variables has VIF which is less than 5 indicating that there is no multicollinearity. Therefore, all variable of predictors were included in the model.

Table 8: One-Sample Kolmogorov-Smirnov Test

Variables	N	Normal parametersa		Most extreme differences			Kolmogrov-smirnov Z	Asymp. Sig. (2-tailed)
		Mean	SD	Absolute	Positive	Negative		
Liquidity ratio analysis	139	3.968	0.84582	0.266	0.23	-0.266	3.98	0.056
Profitability ratio analysis	139	4.130	0.5181	0.191	0.144	-0.191	2.854	0.864
Efficiency ratio analysis	139	4.173	0.31232	0.132	0.071	-0.132	1.975	0.051
Investment decision making	139	4.122	0.45418	0.167	0.122	-0.167	2.504	1

Source: Primary Data (2023)

The table 8, showing that Sig. value of Kolmogorov-Sminorv of investment decision making is equal to 1.000 which is great than 0.05 implies that investment decision making data is normal because Sig. value of Kolmogorov-Sminorv is greater than 0.05 level of significance. The study concluded that since all variable both independent and dependent are normally distributed, the researcher is allowed to regress the model by using linear regression analysis.

4.5 Multiple linear regression on effect of Liquidity ratio analysis on investment decision making

The study sought to identify the effect of Liquidity ratio analysis on investment decision making in RSE by using multiple linear regression model to determine the effect of each predictor such as Current ratio and quick ratio, as component of Liquidity ratio analysis, on investment decision making in RSE. The regression models were run to test whether the model is significant or not. The Coefficient (β), t-statistic, and Prob. were used to confirm the statistical significance. Additionally, at a 5% level of significance, a statistically significant association between the dependent variable and an independent variable from the model was accepted. In order to calculate the measures of the multiple regressions for the study, the analysis used the Statistical Product & Service Solutions (SPSS) version 27.0. Model relationship with financial ratio analysis these variables can be arranged in a function or equation as follows:

Investment decision making = $Y=\beta_0+\beta_1 X_1+\beta_2 X_2+ \varepsilon$, Model 1

X1 = Current ratio, X2= quick ratio

Table 9: Model summary on LRA and investment decision making

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.968a	.937	.789	.47155

a. Predictors: (Constant): Current ratio and quick ratio

The results from the above table 9, the value of coefficient of determination (R-Square) was .937 (93.7%) and the adjusted coefficient of determination (Adjusted R square) was .789 (78.9%) an indication that the variation of 78.9% in investment decision making was due to changes in Liquidity ratio analysis, which implies that its two variables (Current ratio and quick ratio) contribute 78.9% on investment decision making in RSE. Since the variables in the model or not in count 100%, therefore there are other factors that influence investment decision making of RSE in Rwanda that are not included in the model which account for 21.1%.

Table 10: ANOVA on LRA and investment decision making

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.879	2	1.411	6.351	.030a
	Residual	.667	136	.222		
	Total	**0.73**	**138**			

a. Predictors: (Constant): Current ratio and quick ratio

b. Dependent variable: Investment decision making

The results in Table 10 show that the model as a whole was significant at 5% level of significance. The calculated F statistic of 6.351 and the calculated p-value of =.030 is less than the Critical p-value of =.05 level of significance, making the entire model significant. Therefore, this implies that the variables: Current ratio and quick ratio had significant effect to the variation of investment decision making in RSE. Therefore, it can be concluded that the R and R2 between Liquidity ratio analysis and investment decision making of RSE is statistically significant, and Liquidity ratio analysis can significantly affect investment decision making.

Table 11: Regression coefficients on Liquidity ratio analysis on investment decision making

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.667	1.785		7.097	0.006
	Current ratio	1.907	0.444	0.219	0.750	0.035
	Quick ratio	1.861	0.577	0.682	1.732	0.014

a. Dependent Variable: Investment decision making

The Multiple regression model equation would be ($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$) becomes:

$Y_1 = 12.667 + 0.219 X_1 + 0.682 X_2$

Table 11 provides the summary of results of regression analysis for the effect of current ratio and quick ratio on investment decision making of RSE in Rwanda. The results indicate that current ratio ($\beta_1 = .219$; t= .750, p-value=0.035<0.05), and quick ratio ($\beta_2 = .682$; t= 1.732, p-value=0.014 <0.05) have positive and significant effect on investment decision making in RSE. This shows that 1 per cent increase in current ratio and quick ratio will lead to 0.219% and 0.682% increase in investment decision making of RSE. Therefore, the study rejected the null hypotheses Ho1 stating that there is no statistically significance effect of Liquidity Ratio Analysis (current ratio and Quick ratio) on the investment decision making in RSE Plc, as it was proven that Liquidity ratio analysis in RSE had statistically significant effect on investment decision making in RSE. The findings are in agreement with Ezejiofor, Rolise, and John-Akamelu (2019) who compared the banking and telecom sectors in Nigeria, and demonstrates that the decision-making process for investments in the Nigerian telecoms sector is heavily influenced by liquidity.

4.6 Multiple linear regression on effect of profitability ratio analysis on investment decision making

The study sought to examine how the profitability ratio analysis affect investment decision making of RSE in Rwanda by using multiple linear regression model to determine the effect of each predictor such as ROA and ROE as component of profitability ratio analysis. To determine whether the model is significant or not, regression analyses were done. The Coefficient (β), t-statistic, and Probability were used to confirm the statistical significance. Additionally, at a 5% level of significance, a statistically significant association between the dependent variable and an independent variable from the model was accepted. For the analysis, multiple regressions were used, and the measures were computed using SPSS 27.0, Statistical Product & Service Solutions.

Model relationship with investment decision making these variables can be arranged in a function or equation as follows:

Investment decision making = Y= β_0 + $\beta_1 X_1$ + $\beta_2 X_2$ + ε (Model 2)

X_1 = Return on assets; =X_2= Return on equity

Table 12: Model summary on PRA and investment decision making

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.982a	0.965	0.882	1.471572

a. Predictors: (Constant), ROA and ROE

The results from the above table 12, the value of coefficient of determination (R-Square) was 0.965 (96.5%) and the adjusted coefficient of determination (Adjusted R square) was 0.882 an indication that 88.2% in investment decision making in RSE was due to changes in profitability ratio analysis, which implies that the two variables of profitability ratio analysis (ROA and ROE) contribute to 88.2% on investment decision making in RSE. Since factors either in the model or not in the model count 100% change in investment decision making, therefore, there are other factors that influence investment decision making that are not included in the model which account for 11.8% towards investment decision making of RSE.

Table 13: ANOVA on PRA and Investment Decision Making

Model		Sum of squares	df	Mean square	F	Sig.
2	Regression	18.242	2	2.606	11.727	0.034a
	Residual	.667	136	0.222		
	Total	**18.909**	**138**			

a. Predictors: (Constant), ROA and ROE

b. Dependable variable: Investment decision making

Table 13's findings show that the overall model was significant since the computed F statistic of 11.727 and the calculated p-value of =0.034 is lower than the key p-value of =0.05 level of significance. Therefore, this implies that the variables: ROA and ROE jointly had significant effect to the variation of investment decision making in RSE.

Table 14: Regression coefficients on PRA and investment decision making

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	9.667	1.785		5.416	.012
	ROA	.890	.444	0.497	1.500	0.031
	ROE	.508	.596	0.267	2.798	0.028

a. Dependent Variable: Investment decision making

The Multiple regression model equation would be (Y = β0 + β1X1 + β2X2 +ε) becomes:
Y1= 9.667+ 0.497 X1+ 0.267 X2

Table 14 provides the summary of results of regression analysis for the effect of ROA and ROE on investment decision making of RSE in Rwanda. The results indicate that ROA (β1= 0.497, t=1.500, p-value=0.031<0.05) has positive and significant effect on investment decision making of RSE, while ROE (β2= 1.267, t= 2.798, p-value=0.028<0.05) has positive and significant effect on investment decision making of RSE. This shows that 1 per cent increase in ROA will lead to 0.497% increase on investment decision making of RSE, while 1 per cent increase in ROE will lead to 0.267% increase on investment decision making of RSE. Therefore, the study rejected the null hypotheses Ho2 stating that there is no statistically significance effect of profitability ratio analysis (return on assets and return on equity) on the investment decision making in RSE Plc, as it was proven that Profitability ratio analysis in RSE had statistical significant effect on investment decision making in RSE. The findings are in agreement with Bamidele, Ibrahim, and Omole (2018) investigated the intersection of the relationship between financial reporting quality and investment decision making of Nigerian deposit money banks, and who found that profitability had a substantial positive impact on investment decisions in Nigerian deposit money institutions (=0.003, t = 0.055, p=0.956).

4.7 Multiple linear regression on effect of efficiency ratio analysis on investment decision making

The study sought to analyze to which extent the efficiency ratio analysis affects the investment decision making of RSE by using multiple linear regression model to determine the effect of each predictor such as Asset turnover ratio and earnings ratio as component of efficiency ratio analysis on investment decision making of RSE. The regression models were run to test whether the model is significant or not. The Coefficient (β), t-statistic, and Probability were used to confirm the statistical significance. Additionally, at a 5% level of significance, a statistically significant association between the dependent variable and an independent variable from the model was accepted. In order to calculate the measures of the multiple regressions for the study, the analysis used the Statistical Product & Service Solutions (SPSS). Model relationship with financial ratio analysis these variables can be arranged in a function or equation as follows:

Investment decision making = Y=β0+β1 X1+β2 X2+ ε, Model 3

X1 = Asset turnover ratio, =X2= Earnings ratio.

Table 15: Model Summary on ERA and investment decision making

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.958a	0.919	0.728	0.47123

a. Predictors: (Constant), Asset turnover ratio and earnings ratio

The results from the above table 15, the value of coefficient of determination (R-Square) was 0.919 (91.9%) and the adjusted coefficient of determination (Adjusted R square) was 0.728 an indication that the variation of 72.8% in investment decision making of RSE is due to changes in efficiency ratio analysis which implies that the two variables of efficiency ratio analysis (Asset turnover ratio and earnings ratio) contribute to 72.8% on investment decision making as represented by R2. Since

the contribution of all factors either in the model or not in the model count 100%, therefore, there are other factors that influence investment decision making of RSE that are not included in the model 3 which account for 27.2% towards investment decision making of RSE.

Table 16: ANOVA on ERA and investment decision making

Model		Sum of Squares	Df	Mean Square	F	Sig.
3	Regression	7.515	2	1.074	4.831	.012ba
	Residual	.667	136	0.222		
	Total	**8.182**	**138**			

a. Predictors: (Constant), Asset turnover ratio and earnings ratio

b. Dependent Variable: investment decision making

Table 16 results show that the overall model was significant since the estimated F statistic of 4.831 and the p-value of 0.012 is less than the critical p-value of 0.05. Therefore, this implies that jointly the variables: Asset turnover ratio and earnings ratio had significant contribution to the variation of investment decision making in RSE. Therefore, it can be concluded that the R and R2 between efficiency ratio analysis and investment decision making of RSE is statistically significant.

Table 17: Regression coefficients on ERA and investment decision making

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	6.667	1.785		3.735	.0330
	Ass. Turn. Ratio	3.986	.444	0.642	1.500	0.001
	Earnings ratio	4.758	.596	0.164	.280	0.029

a. Dependent Variable: Investment decision making

The Multiple regression model equation would be $(Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon)$ becomes:

$Y_1 = 6.667 + 0.642\ X_1 + 0.164\ X_2$

Table 17 provides the summary of results of regression analysis for the effect of Asset turnover ratio and earnings ratio on investment decision making of RSE. The results indicate that Asset turnover ratio ($\beta_1 = 0.642$, t=1.500, p-value=0.001<0.05) and Earnings ratio ($\beta_2 = 0.164$, t=0.280, p-value=0.029<0.05) have positive and significant effect on investment decision making of RSE. This shows that 1 per cent increase in Asset turnover ratio and earnings ratio will lead respectively to 0.642% and 0.164% increase on investment decision making in RSE.

Therefore, the study rejected the null hypotheses Ho3 stating that There is no statistically significance effect of efficiency ratio analysis (Asset turnover ratio and earnings ratio) on the investment decision making in RSE Plc, as it was proven that efficiency ratio analysis in RSE had statistical significant effect on investment decision making in RSE. The findings are in agreement with Nguyen and Nguyen (2020) who look into how Vietnamese individual investors make choices based on information about the operating cash flow of companies listed on the local stock exchange, and who investors only consider cash flow from operating activities when profit growth is negative, that they do not consider this information if a company experiences positive profit growth, and that information that contradicts both profit growth and cash flow growth from business activities has a significant negative impact on investors' comfort.

5.0 Conclusion

The study concludes that liquidity ratio analysis has a strong positive correlation (0.724 with P-value = 0.00), suggesting that improved liquidity ratio analysis helps to improve investment decision-making. Regression Model 1 revealed that liquidity ratio analysis variables (measured by Current Ratio and Quick Ratio) and the investment decision-making in RSE (measured by buying shares, selling shares, and capital gain) show that these variables contribute 78.9% to investment decision-making in RSE. With an F statistic of 6.351 and a calculated P-value of 0.030, which is less than the critical P-value of 0.05, the entire model is significant. This implies that Current Ratio and Quick Ratio significantly affect the variation in investment decision-making in RSE. The results indicate that Current Ratio ($\beta_1 = 0.219$; t = 0.750, P-value = 0.035 < 0.05) and Quick Ratio ($\beta_2 = 0.682$; t = 1.732, P-value = 0.014 < 0.05) have a positive and significant effect on investment decision-making in RSE, meaning a 1% increase in these ratios leads to respective increases of 0.219% and 0.682% in investment decision-making.

Profitability ratio analysis has a very high positive correlation (0.872 with P-value = 0.00) with investment decision-making in RSE, indicating that improved profitability ratio analysis helps to enhance investment decision-making. Regression Model 2 showed that variables in profitability ratio analysis (measured by ROA and ROE) contribute to 88.2% of investment decision-making in RSE. The ANOVA findings show the model's significance, with a computed F statistic of 11.727 and a calculated P-value of 0.034, lower than the critical P-value of 0.05. Therefore, ROA and ROE have a significant joint effect on the variation of investment decision-making in RSE. Specifically, ROA ($\beta_1 = 0.497$, t = 1.500, P-value = 0.031 < 0.05) and ROE ($\beta_2 = 1.267$, t = 2.798, P-value = 0.028 < 0.05) positively and significantly influence investment decision-making in RSE, with 1% increases in ROA and ROE leading to 0.497% and 1.267% increases in investment decision-making, respectively.

Efficiency ratio analysis shows a moderate positive correlation (0.668 with P-value = 0.00) with investment decision-making in RSE. The multiple regression analysis findings indicate that efficiency ratio analysis variables (Asset Turnover Ratio and Earnings Ratio) contribute 72.8% to investment decision-making. The overall model is significant, as indicated by a calculated F statistic of 4.831 and a P-value of 0.012, which is less than the critical P-value of 0.05. Thus, Asset Turnover Ratio ($\beta_1 = 0.642$, t = 1.500, P-value = 0.001 < 0.05) and Earnings Ratio ($\beta_2 = 0.164$, t = 0.280, P-value = 0.029 < 0.05) have a positive and significant effect on investment decision-making in RSE, with a 1% increase in these ratios leading to respective increases of 0.642% and 0.164% in investment decision-making.

6.0 Recommendations

The study recommends that to enhance investment decision-making in the Rwanda Stock Exchange (RSE), a comprehensive approach focusing on the analysis of liquidity, profitability, and efficiency ratios should be adopted. It advises investors and company managers to pay closer attention to current and quick ratios, which are crucial for understanding a company's ability to meet short-term obligations. A better liquidity position can increase investor confidence. Companies are advised to maintain a balance in their liquidity levels, as both excessively high and low ratios can indicate underlying issues. Regular monitoring and strategic management of these ratios can lead to more robust investment decisions. Additionally, the study recommends an increased focus on Return on Assets (ROA) and Return on Equity (ROE). These ratios provide deep insights into a company's ability to generate profit from its assets and equity, respectively. For investors, these are key indicators of a company's financial health and growth potential. Companies should strive to improve these ratios through efficient operations and effective financial management, as this can attract more investments and enhance shareholder value. Thirdly, the study emphasizes that efficiency ratio analysis should not be overlooked. Ratios like Asset Turnover Ratio and Earnings Ratio offer valuable perspectives on how efficiently a company is using its assets to generate earnings. Improving these ratios can signal to investors that a company can generate more revenue with fewer assets, a sign of operational efficiency and management effectiveness. Moreover, the study recommends that regular workshops and training programs be conducted to enhance the understanding of these financial metrics among investors and financial managers. This would empower them to make more informed and strategic investment decisions.

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