Exchange Rate Volatility and Decision-Making in Rwanda's Logistics Sector: A Case Study of Gorilla Logistics Limited

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DOI: https://dx.doi.org/10.47772/IJRISS.2024.8090203

Received: 30 August 2024; Accepted: 10 September 2024; Published: 15 October 2024

ABSTRACT

This study examines the impact of exchange rate volatility on decision-making within Rwanda's logistics sector, focusing specifically on Gorilla Logistics Limited. The research addresses challenges in the sector, particularly how exchange rate fluctuations complicate financing, operating, and investing decisions. Utilizing a quantitative research design, data were collected from 41 employees through a structured questionnaire. The findings reveal a significant association between exchange rate volatility and decision-making, with notable effects on financing (Adj-R^2 = 0.65), operating (Adj-R^2 = 0.48), and investing decisions (Adj-R^2 = 0.72). The study concludes that increased exchange rate volatility complicates decision-making, a conclusion supported by qualitative insights. To mitigate these challenges, the study recommends that Gorilla Logistics Limited implement risk management strategies and improve its management of foreign exchange reserves to enhance decision-making processes and maintain competitiveness in Rwanda's logistics sector.

Keywords: Exchange rate volatility, decision-making, financing decisions, investing decisions, operating decisions

INTRODUCTION

Exchange rate volatility is a critical factor influencing trade performance, particularly in countries heavily reliant on international trade, such as Rwanda. As globalization deepens, businesses in the logistics and transportation sector, including Rwanda, are increasingly exposed to fluctuations in exchange rates. These fluctuations can significantly impact decision-making, profitability, and overall performance (International Monetary Fund, 2022). Rwanda's logistics and transportation sector, a vital component of the country's economy, faces challenges due to these exchange rate fluctuations (World Bank Group, 2023).

Globally, the logistics and transportation industry play a crucial role in facilitating international trade, particularly in countries like the USA, Canada, China, and South Korea. The global freight and logistics market is projected to reach $18.69 billion by 2026, with the logistics segment expected to grow to $6.55 trillion by 2027 (Benchmark International, 2024). Exchange rate fluctuations, driven by internal and external factors such as global economic conditions and domestic policies, pose significant challenges for shipping and logistics companies worldwide. Managing these fluctuations is essential for mitigating financial risks and maintaining competitiveness.

In countries like Japan, exchange rate fluctuations are influenced by global economic changes, monetary policies, and external shocks (IMF, 2020). These fluctuations can have both positive and negative effects on trade performance. For instance, a depreciating currency can enhance export competitiveness by making domestic goods cheaper for foreign buyers. However, it can also increase the cost of imported inputs, raising overall production costs (UNCTAD, 2018). The management of exchange rates is closely linked with macroeconomic policies and trade agreements, essential for maintaining economic stability and trade performance in developed countries like the United States, United Kingdom, and Japan (Taylor, 2018).

European countries like Germany and France also grapple with the impact of exchange rate fluctuations on their economies. These fluctuations can affect the prices of imported and exported goods, influencing trade balance

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS |Volume VIII Issue IX September 2024

and economic growth (Bahmani-Oskooee & Kara, 2015). In the East African region, countries like Uganda, Tanzania, and Kenya experience significant impacts from exchange rate fluctuations, particularly in their logistics and transportation sectors. These countries rely heavily on imports for essential goods and capital equipment, making them vulnerable to changes in exchange rates. Their export sectors, which include commodities like coffee, tea, and minerals, are crucial for generating foreign exchange earnings and driving economic growth (Bhattacharyya, 2019).

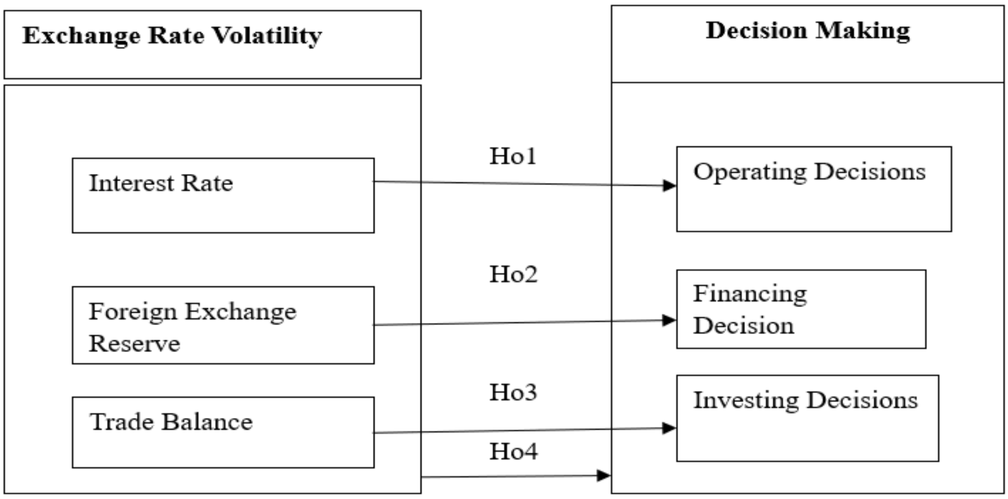
In Rwanda, managing exchange rate fluctuations is paramount due to the country's heavy reliance on imports and the importance of its export sector in generating foreign exchange earnings (National Institute of Statistics of Rwanda, 2022). Despite significant economic progress and reforms aimed at fostering trade and attracting foreign investment, Rwanda remains vulnerable to exchange rate fluctuations, which can both positively and negatively impact trade performance (Owusu & Odhiambo, 2014). Understanding these dynamics is crucial for developing effective exchange rate management strategies, trade policies, and investment decisions to enhance Rwanda's trade competitiveness and economic stability.

The logistics sector in Rwanda faces significant challenges, including weak decision-making exacerbated by increased exchange rate volatility (Kabayiza, Vincent, & Francois, 2017). This study focuses on exploring how exchange rate volatility affects decision-making at Gorilla Logistics Limited, a key player in Rwanda's logistics and transportation industry. The study aims to analyze the impact of exchange rate volatility on financing, operating, and investing decisions and to develop strategies to improve the company’s competitiveness and ensure its long-term success.

Research Objectives:

1. Analysing the impact of exchange rate volatility on operating decisions at Gorilla Logistics Ltd.
2. Investigating the impact of exchange rate volatility on financing decisions at Gorilla Logistics Ltd.
3. Examining the impact of exchange rate volatility on investing decisions at Gorilla Logistics Ltd.
4. Determining the overall effect of exchange rate volatility on decision-making at Gorilla Logistics Ltd.

The conceptual framework developed by the researcher visually represents the relationships among key concepts and variables in the study, providing a comprehensive understanding of how exchange rate volatility impacts decision-making in Rwanda's logistics sector.



Source: Primary Data (2024)

METHODOLOGY

The study employs a descriptive research design, utilizing structured questionnaires to collect quantitative data from 41 employees across various departments, including finance, supply chain, and customer relations. This census approach ensures comprehensive data collection from the entire population of the company, eliminating sampling errors and providing an accurate representation of the organization's practices.

Data were gathered using structured questionnaires designed with a five-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree," to measure respondents' perceptions of the study variables. The validity and reliability of the questionnaires were ensured through reviews by the research supervisor and adherence to established measures such as test-retest reliability and internal consistency.

Data analysis was conducted using SPSS version 20, employing multiple regression analysis to explore the relationships between exchange rate volatility and decision-making variables such as operating, financing, and investing decisions. The study also utilized the coefficient of variation to compare the variability of data sets and the mean to evaluate responses.

There are several gaps in the existing research on exchange rate volatility and its impact on various economic factors:

1. Limited focus on specific industries or sectors: Current studies tend to overlook the broader effects of exchange rate volatility by concentrating on particular industries, such as the agriculture sector in Nigeria or the tea sector in Rwanda. This narrow scope may fail to provide a complete understanding of how exchange rate fluctuations affect the overall economy.

2. Geographical limitations: Many studies are confined to specific countries, such as Ghana or Nigeria, which restricts the generalizability of their findings to other regions or countries. This geographical limitation creates a need for research that spans multiple regions to gain a more universal perspective.

3. Methodological gaps: A significant gap exists in the methodologies used by current studies. Most rely on time series analysis and econometrics without fully accounting for other country-specific factors that could influence trade flows or the balance of trade. This methodological shortfall may limit the robustness of the findings.

4. Need for comprehensive and comparative studies: Overall, there is a need for more comprehensive studies that encompass a broader range of industries, countries, and methodological approaches. These comparative studies would provide a deeper understanding of how exchange rate volatility impacts economies on a larger scale.

In addition, ethical considerations were prioritized, with a focus on voluntary participation, informed consent, and the confidentiality of respondents' information. The data collected were solely for academic purposes, with objective interpretation and analysis to ensure the authenticity and integrity of the research findings.

RESULTS AND DISCUSSION

The findings reveal key insights into the demographic profile of respondents and their perceptions regarding exchange rate volatility's impact on Gorilla Logistics Limited's decision-making processes. The demographic diversity of respondents enhances the credibility of the study’s findings, providing a balanced perspective on the company's workforce.

Respondents generally agree that fluctuations in interest rates significantly impact various aspects of the company's financial operations, particularly borrowing costs, investment decisions, and financial preparedness.

Table 1. Perceptions on Interest Rate

Statements on Interest Rates	Mean	Comment	CV	Comment
Interest rate changes affect the company's borrowing costs	3.83	Tend to Strong	0.30	Heterogeneous
Fluctuations in interest rates influence our company's investment decisions	3.80	Tend to Strong	0.26	Heterogeneous

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS |Volume VIII Issue IX September 2024

The company is well-prepared to handle the impact of changing interest rates on its financial performance	3.88	Tend to Strong	0.28	Heterogeneous
Overall Mean	3.84	Tend to Strong		

Source: Primary Data (2024)

"The study explored respondents' perceptions regarding the effects of interest rate fluctuations as a proxy for exchange rate volatility. As presented in Table 1, the data indicate a general agreement among respondents that interest rate changes significantly influence the company's borrowing costs, with a mean score of 3.83. The corresponding coefficient of variation (CV) of 0.30 suggests a moderate level of variability in their responses. Similarly, the perception that fluctuations in interest rates impact the company's investment decisions scored a mean of 3.80, accompanied by a CV of 0.26, which indicates some variation in views. Furthermore, respondents generally agreed that the company is well-prepared to manage the financial effects of changing interest rates, with a mean of 3.88 and a CV of 0.28, pointing to heterogeneity in responses. The overall mean perception score of 3.84 reflects a strong tendency among respondents to acknowledge the importance of interest rates, particularly in relation to exchange rate volatility. These results underscore a shared recognition of the critical role that interest rate changes play in shaping the company's financial decisions and preparedness."

Table 2. Perception on Foreign Exchange Reserves

Statements on Foreign Exchange Reserves	Mean	Comment	CV	Comment
Our company maintains adequate foreign exchange reserves to manage currency fluctuations	2.80	Tend to Weak	0.42	Heterogeneous
The level of foreign exchange reserves impacts the company's ability to import goods	3.73	Tend to Strong	0.28	Heterogeneous
The management of foreign exchange reserves is crucial for our company's financial stability	3.39	Tend to Strong	0.29	Heterogeneous
Overall Mean	3.31	Tend to Strong		

Source: Primary Data (2024)

The study evaluated respondents' perceptions of foreign exchange reserves as a factor influencing exchange rate volatility. As illustrated in Table 2, respondents expressed mixed views regarding the adequacy of the company’s foreign exchange reserves in managing currency fluctuations, with a mean score of 2.80. The relatively high coefficient of variation (CV) of 0.42 indicates significant variability in responses, reflecting a weak consensus. In contrast, respondents generally agreed that the level of foreign exchange reserves influences the company’s ability to import goods, with a mean score of 3.73 and a CV of 0.28, signifying a strong but heterogeneous response. Furthermore, the importance of managing foreign exchange reserves for the company’s financial stability was rated with a mean score of 3.39 and a CV of 0.29, showing strong agreement alongside a moderate level of variability. The overall mean score of 3.31 suggests that respondents generally recognize the significance of foreign exchange reserves, particularly in ensuring financial stability and facilitating imports. However, there is a notable concern regarding the adequacy of these reserves in mitigating currency fluctuations. These findings highlight the critical role foreign exchange reserves play in the company’s operations, while also pointing to potential vulnerabilities related to their sufficiency.

Table 3. Perception of respondents on Trade Balance

Statements on Trade Balance	Mean	Comment	CV	Comment
Exchange rate volatility affects the company's trade balance	3.85	Tend to Strong	0.28	Heterogeneous

The company's export performance is influenced by changes in exchange rates	3.56	Tend to Strong	0.34	Heterogeneous
The trade balance is a significant factor in our company's decision-making process	3.56	Tend to Strong	0.34	Heterogeneous
Overall Mean	3.66	Tend to Strong		

Source: Primary Data (2024)

Table 3 presents the respondents' perceptions of how exchange rate volatility influences the company's trade balance. With a mean score of 3.85 and a coefficient of variation (CV) of 0.28, the data indicate a strong agreement that exchange rate fluctuations significantly affect the company's trade balance, though responses show moderate variability. Likewise, respondents agreed that changes in exchange rates impact the company’s export performance, reflected by a mean score of 3.56 and a CV of 0.34, which suggests a strong consensus with a higher degree of response variation. Additionally, the perception that the trade balance plays a critical role in the company’s decision-making process was rated with the same mean score of 3.56 and CV of 0.34, further indicating strong agreement alongside heterogeneous opinions. The overall mean score of 3.66 suggests that respondents largely recognize the importance of the trade balance, particularly in the context of exchange rate volatility. These findings emphasize a shared understanding among respondents that the trade balance, influenced by exchange rate changes, is a significant factor in the company’s decision-making and export performance, despite some variability in their views."

Table 4. Respondents’ perception on Operating Decisions

Statements on Operating Decisions	Mean	Comment	CV	Comment
Exchange rate fluctuations influence the company's daily operational decisions	3.61	Tend to Strong	0.33	Heterogeneous
The company adjusts its operations based on changes in the exchange rate	3.63	Tend to Strong	0.32	Heterogeneous
Operational efficiency is impacted by the volatility of exchange rates	3.49	Tend to Strong	0.27	Heterogeneous
Overall Mean	3.58	Tend to Strong		

Source: Primary source, 2024

Table 4 reflects respondents' perceptions of how exchange rate fluctuations influence the company's operating decisions. With a mean score of 3.61 and a coefficient of variation (CV) of 0.33, respondents generally agreed that exchange rate volatility affects the company's daily operational decisions, though there is some variability in their responses. Similarly, the perception that the company adjusts its operations in response to exchange rate changes received a mean score of 3.63, with a CV of 0.32, indicating strong agreement with moderate heterogeneity in views. Additionally, respondents recognized that operational efficiency is influenced by exchange rate volatility, reflected by a mean score of 3.49 and a CV of 0.27, which suggests a slightly more uniform but still diverse set of responses. The overall mean score of 3.58 indicates a strong tendency among respondents to acknowledge the significant impact of exchange rate fluctuations on the company’s operational decisions and efficiency. These findings underscore a broad consensus that exchange rate volatility plays a crucial role in shaping both daily operations and overall operational efficiency within the company.

Table 5. Respondents’ perception on Financing Decisions

Statements on Financing Decisions	Mean	Comment	CV	Comment
Exchange rate volatility affects the company's financing	3.68	Tend to Strong	0.31	Heterogeneous

decisions				
The company considers exchange rate risks when making borrowing decisions	3.95	Tend to Strong	0.25	Heterogeneous
Financing costs are influenced by changes in the exchange rate	3.71	Tend to Strong	0.26	Heterogeneous
Overall Mean	3.78			

Table 5 presents respondents' perceptions of how exchange rate volatility influences the company's financing decisions. With a mean score of 3.68 and a coefficient of variation (CV) of 0.31, respondents generally agreed that exchange rate fluctuations affect the company's financing decisions, though there is some variability in their responses. Similarly, the perception that the company takes exchange rate risks into account when making borrowing decisions was strongly supported, with a mean score of 3.95 and a CV of 0.25, indicating a high level of agreement with less variability. Furthermore, respondents concurred that financing costs are impacted by changes in the exchange rate, reflected by a mean score of 3.71 and a CV of 0.26, signifying a strong but moderately varied response. The overall mean score of 3.78 indicates a strong consensus that exchange rate volatility significantly influences the company's financing decisions, particularly in relation to borrowing and financing costs. These findings highlight a clear recognition among respondents that exchange rate risks are a crucial factor in the company's financial decision-making processes, underscoring the importance of considering currency fluctuations when managing financial strategies.

Table 6. Coefficients between Exchange Rate Volatility and Operating Decisions

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.151	.305		.495	.623
	Interest Rate	.106	.080	.106	1.337	.189
	Foreign Exchange Reserves	.118	.085	.108	1.391	.173
	Trade Balance	.718	.079	.791	9.107	.000
a. Dependent Variable: Operating Decisions						

The coefficients table for the relationship between exchange rate volatility and the operating decisions of Gorilla Logistics Company Ltd reveals varying influences of the predictors. The constant (intercept) has an unstandardized coefficient (B) of 0.151, a t-value of 0.495, and a p-value (Sig.) of 0.623, indicating it is not statistically significant, meaning it does not contribute meaningfully to the model. The interest rate predictor shows a B value of 0.106, a t-value of 1.337, and a p-value of 0.189, while foreign exchange reserves have a B value of 0.118, a t-value of 1.391, and a p-value of 0.173. Neither predictor is statistically significant at the 0.05 level, suggesting that, in this model, changes in interest rates and foreign exchange reserves do not have a significant direct impact on the company's operating decisions.

However, the trade balance exhibits a highly significant effect on operating decisions, with a B value of 0.718, a t-value of 9.107, and a p-value of 0.000. This indicates a strong and statistically significant impact, meaning that fluctuations in the trade balance are closely linked to changes in the company's operating decisions. The standardized coefficients (Beta) highlight the relative influence of each predictor, with Beta values of 0.106 for interest rates, 0.108 for foreign exchange reserves, and a much larger 0.791 for the trade balance. This indicates that the trade balance is by far the most influential predictor in determining the company's operating decisions.

In summary, while interest rates and foreign exchange reserves do not show significant individual effects in this model, the trade balance exerts a substantial and statistically significant influence on Gorilla Logistics Company Ltd's operating decisions, making it the most critical factor among the examined variables."

These findings confirm the significant role of exchange rate volatility in Gorilla Logistics' financial operations. While managing interest rates and trade balances is crucial, there are concerns about the adequacy of foreign exchange reserves. These insights are critical for the company's strategic planning and risk management in a volatile economic environment.

CONCLUSION

The study concludes that exchange rate volatility significantly impacts decision-making at Gorilla Logistics Limited, affecting the company's operating, financing, and investing decisions. To mitigate these challenges, it is recommended that Gorilla Logistics Limited implement risk management strategies and improve its management of foreign exchange reserves to enhance decision-making processes and maintain competitiveness in Rwanda's logistics sector.

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