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Investigating the Impact of Consumer Confidence and Exchange Rates on Purchasing Decisions in South Africa

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Abstract:

Purpose: *The study investigates the long-term and short-term impacts of consumer confidence and the exchange rate on consumer purchasing decisions in South Africa over the period 2013 to 2023.*
Design/Methodology/Approach: *In this study, a range of data analysis techniques and methodologies to examine the impact of consumer confidence and exchange rates on purchasing decisions in South Africa were utilized. Tests for unit roots are carried out to check for stationarity in time series data. These are the Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests.*
Johansen's cointegration method was utilized to test if the variables included in the study were cointegrated. The vector error correction model (VECM) was estimated to determine the exogenous variables' short-term and long-term effects. Statistical diagnostics such as the Lagrange Multiplier (LM), Breusch-Pagan-Godfrey (BPG), and Jarque-Bera (JB) were also carried out to ensure that a robust and statistically sound model was obtained.
Findings: *The results demonstrate a long-term equilibrium relationship among consumer confidence, exchange rates, household income (as a control variable), and purchasing decisions. In the short term, consumer confidence and household income emerge as statistically significant drivers of purchasing behavior, while the exchange rate shows a weaker, yet negative, impact. Granger causality tests further highlight the dynamic interplay between these variables, indicating unidirectional causality from consumer confidence to purchasing decisions and bidirectional causality between household income and purchasing decisions.*
Practical Implications: *The study suggests that clear and open communication from policymakers and government officials to customers can considerably increase consumer confidence. Regular updates on economic realities, fiscal measures, and future economic plans can help minimise uncertainty and boost consumer confidence.*
Originality/Value: *The South African Reserve Bank (SARB) and policymakers can determine suitable interest rates and manage currency exchange rates to encourage*

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or stabilise consumer spending by having a better understanding of how consumer confidence and exchange rates impact purchase decisions.

Keywords: *Consumer confidence, exchange rate, purchasing decisions, South Africa.*

JEL Codes: *C32, D11, E21, F31.*

Paper type: *Research article.*

1. Introduction

This study aligns with the United Nations (UN) Sustainable Development Goal No. 12, which aims to ensure sustainable consumption and production (SCP) patterns. In support of this goal, South Africa adopted the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP) during the World Summit on Sustainable Development (WSSD) in 2012 (Statistics South Africa, 2023).

The 10YFP is a global initiative developed to enhance international cooperation and accelerate the transition towards SCP in both developed and developing nations. It includes strategies that strengthen capacity building and broaden access to technical and financial support for developing countries (UNEP, 2013).

At the provincial level, Limpopo Province established the Green Economy Plan in 2013 to improve the quality of life for its citizens by leveraging its environmental resources (Musyoki, 2012). A core objective of this plan is the promotion of sustainable consumption and production. Understanding the factors that influence consumer behaviour is essential in achieving this objective, as consumers' purchasing decisions are shaped by multiple determinants that vary across consumption categories (Baláková, Pšurný and Stávková, 2023).

Consumer decision-making processes are complex, involving various behavioural and psychological factors (Nasiri and Shokouhyar, 2021). Purchasing decisions are fundamentally about meeting consumers' absolute and established needs, influenced by numerous benchmarks and criteria (Sari, Muchtar and Junaeda, 2023). Among these factors, price, income, and consumer confidence are critical influencers (Tajdar, Ahmad and Khan, 2015).

Consumer confidence is a significant economic indicator reflecting consumers' optimism regarding their financial situations and the broader economy (Sihvonen, 2019). It encapsulates public sentiment on economic health and strongly affects spending behaviours (Sihvonen, 2019; Pavithra and Velmurugan, 2023). High levels of consumer confidence generally led to increased spending, driving higher consumption of goods and services (Sahin, 2021).

Conversely, low consumer confidence often results in increased saving and reduced discretionary spending. As such, consumer confidence plays a pivotal role in shaping economic activity and influencing macroeconomic indicators, including exchange rates (Ludvigson, 2004).

Exchange rates, defined as the value at which one currency is exchanged for another, also significantly impact consumption patterns (Zhao, 2020; Suvendu, 2011). Depreciation of the local currency can boost exports by enhancing international competitiveness but may reduce domestic consumption due to higher prices of imported goods (Angelos, Saavedra, Cortés and De Souza, 2011).

Central banks closely monitor consumer confidence because of its potential to drive inflationary pressures, prompting adjustments in interest rates that, in turn, influence exchange rates (Christelis *et al.,* 2020; Engel and West, 2005; Engel, 2016). Higher interest rates tend to attract foreign capital, leading to currency appreciation, while lower rates can stimulate spending but may result in currency depreciation (Tafa, 2015).

In the context of South Africa, characterised by a diverse socio-economic landscape marked by historical complexities, high unemployment rates, income inequality, and political instability, understanding these dynamics is critical (Mosala, Venter and Bain, 2017). These persistent challenges contribute to fluctuations in consumer sentiment and behavior, making it imperative to investigate the intricate relationship between consumer confidence, exchange rates, and purchasing decisions within this unique national environment.

2. Literature Review

2.1 Theoretical Framework

The Veblenian theory by Thorstein Veblen argues how emulation is on the basis of ownership. Individuals wish to emulate others, especially if they are of higher social or pecuniary standing. Rather, the individual conspicuously consumes due to the desire for social standing. The act of conspicuous consumption becomes the symbol of status rather than the person. This pecuniary emulation drives consumers to spend more on displays of wealth and status symbols rather than useful commodities. The cycle of constant emulation promotes materialism, demotes other forms of fulfilment, and impacts the consumer's decision-making process within the market (Karoui and Khemakhem, 2018).

Social factors have been known to influence consumer purchasing behaviour significantly (Yakup and Jablonsk, 2012). For instance, they can greatly impact the decision to buy certain products, especially those with strong social connotations like cars (Mirzaei and Ruzdar, 2010). It is a natural human tendency to seek acceptance for one's behavior from society or the group one belongs to (Pillai *et al.,* 2011).

The understanding of consumer behaviours can be expanded through societal values like norms, conventions, religion, social class, lifestyle, subculture factors, and various other influences (Lawan and Zanna, 2013). The study will adopt the Veblen theory because consumers no longer make purchasing decisions based on useful commodities or to satisfy their needs but rather to display wealth and status.

The theory of balance of payments (BOP) is also referred to as a theory of demand and supply of exchange rates (Oliphant, 2022). Thus, in a foreign market, supply and demand both influence the exchange rate. This idea states that a nation's balance of payments is a vital factor in determining exchange rates (Oliphant, 2022). A nation's currency gains value abroad when its balance of payments is positive.

Solnik (2000) argues that the sole economic model available for evaluating the exchange rate was the balance of payments. According to the BOP theory, all financial flows outside a nation's borders are regarded as credits, and all transactions within that nation's borders are tracked within a certain phase. There should be no balance remaining after the phase ends. According to this hypothesis, the exchange rate of a country's currency is determined by its balance of payments below free exchange rates (Solnik, 2000).

The interest rate parity (IRP) theory establishes the joint between the spot currency market and the forward currency market with foreign and domestic markets. Arbitrage is used to sustain the IRP. According to the IRP theory, the difference between the interest rates of two nations stays the same as the difference determined by applying the forward and spot exchange rate methodologies. Interest, spot exchange, and foreign exchange rates are all connected through interest rate parity. In the Forex markets, it is quite important.

When examining the correlation between the spot rate and an appropriate forward (future) currency rate, the IRP theory is useful. This theory states that interest rate differentials between two distinct currencies will not arbitrage and that the differential will be represented in the foreign exchange premium or discount for the forward exchange rate.

The theory further emphasizes that the gap between the spot and forward interest rates of the nations under comparison determines the size of the forward premium or discount on a foreign currency (Nwiado and LeneeTorbira, 2016).

Swedish economist Gustav Cassel developed the phrase "purchasing power parity" in 1918 (Mashao and Choga, 2023). According to Grewal and Sheehan (2005), the purchasing power parity (PPP) is a type of exchange rate that considers the price of a common basket of goods and services for two countries.

Because the purchasing power of a nation's currency is represented in its price level, the money price of a reference basket of goods and its services, the PPP theory holds that the exchange rate between two countries' currencies is equal to the ratio of their price levels. (Bawa, Onyowo, Peters, Olufemi, Tata, Bada and Olufemi, 2016).

The law of one price and the idea of arbitrage between goods marketplaces serve as the foundation for the PPP theory. Numerous other economic models, including the monetary model, are based on the PPP idea. The demand and supply sides of money are used by monetary schools to establish exchange rates (Ma, Li and Park, 2017).

2.2 Empirical Literature

Several studies have explored the relationship between consumer confidence, exchange rates, and consumer purchasing decisions. Understanding these dynamics provides valuable insights for policymakers at both local and national levels. This section reviews previous research related to these factors.

Khumalo (2014) investigated the potential long-run relationship between consumer spending and consumer confidence in South Africa using time series data from 1980Q1 to 2012Q3. Employing the Vector Auto-Regressive (VAR) model, along with unit root tests and causality analysis, the study found that causality runs from consumer confidence to consumer spending and from economic growth to consumer spending. Further analysis using the Vector Error Correction Model (VECM) revealed that consumer confidence has a significant and positive effect on aggregate consumer spending in South Africa.

Adrangi and Macri (2011) examined the short- and long-term relationships between consumer confidence and consumption expenditures in the United States, distinguishing among services, nondurable goods, and durable goods. Short-term relationships were assessed using consumption equations from Fair’s (2009) macroeconomic model, while long-term relationships were evaluated using Johansen and Juselius cointegration tests. Their findings indicated a significant relationship between consumer confidence and expenditures on durable goods in both the short and long run, whereas no such relationship was found for services or nondurable goods.

Dees and Brinca (2011) explored whether consumer confidence could predict consumption spending in both the United States and the Euro area. Using a VAR model, they concluded that consumer confidence can, in certain instances, serve as a reliable predictor of consumer spending in these regions. Oduh, Oduh, and Ekeocha

(2012) highlighted those changes in consumer confidence, through their influence on consumption expenditures, affect aggregate spending. Their study found that increased consumer optimism leads to higher aggregate expenditures, whereas reduced confidence has the opposite effect.

Notably, they reported that a 10% increase in consumer optimism results in approximately a 1.4% rise in planned purchases. Tamil (2023) found a significant correlation between macroeconomic indicators such as inflation and exchange rates and consumer perceptions of international fast-moving consumer goods (FMCG) brands. Higher inflation rates were associated with heightened price sensitivity, prompting consumers to reassess their brand preferences.

Iyke and Ho (2020) examined the effects of exchange rate uncertainty on real consumption across selected Asian countries between 1993Q1 and 2017Q4. Utilizing a dynamic panel data approach, their findings indicated that while exchange rate uncertainty hampers consumption in the long run, its short-term effects are minimal. In a related study, Iyke and Ho (2018) analyzed the impact of exchange rate volatility on consumption in Ghana using data from 1980 to 2015.

Their results revealed a positive relationship between the exchange rate and consumption in both the short and long term, with both real and nominal exchange rate volatility negatively affecting consumption.

Derindag, Chang, Gohar, and Salman (2022) employed the multiple asymmetric ARDL (MATNARDL) model to investigate the effects of currency appreciation and depreciation on household consumption in BRICS countries. While the traditional NARDL model found asymmetric effects only in India and China, the MATNARDL approach revealed that in the long run, most sample countries (excluding India) exhibited asymmetric effects, with similar patterns observed in the short run for all countries except Turkey.

Bahmani-Oskooee and Xi (2011) assessed the impact of exchange rate volatility on domestic consumption across 17 countries between 1964 and 2008. Applying an error-correction modelling framework with bounds-testing, their findings showed that exchange rate volatility influences consumption in the short run in 12 countries, and these effects persist into the long run in 9 of them.

3. Research Methodology

This study employs various data analysis techniques to examine the influence of consumer confidence and exchange rates on purchasing decisions in South Africa. Stationarity in time series data is assessed using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. As noted by Asteriou and Hall (2007), ensuring stationarity is critical for meaningful results in time series analysis, as non-stationary data can lead to spurious conclusions.

To determine whether the variables are cointegrated, Johansen's cointegration method is applied. Subsequently, the Vector Error Correction Model (VECM) is estimated to assess both short-term and long-term impacts of the explanatory variables.

To validate the robustness of the model, several diagnostic tests are performed, including the Lagrange Multiplier (LM) test for autocorrelation, the Breusch-Pagan-Godfrey (BPG) test for heteroskedasticity, and the Jarque-Bera (JB) test for normality. These diagnostics ensure the reliability and statistical soundness of the results.

The primary objective of this study was to examine both the long-run and short-run relationships among consumer confidence, exchange rate fluctuations, and purchasing decisions in South Africa. The analysis incorporated four key variables: purchasing decision (PD), consumer confidence (CC), exchange rate (ER), and household income (HY) as a control variable. Consumption was utilised as a proxy for purchasing decisions.

Employing rigorous econometric methods, the study conducted Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests to assess the stationarity of the time series data. The Vector Autoregression (VAR) lag order criteria were used to determine the appropriate lag length for the model. The Johansen co-integration test confirmed the existence of long-run relationships among the variables.

Further, a Vector Error Correction Model (VECM) was estimated to capture the short-run dynamics of the model, followed by a Granger causality test to explore causal relationships. Diagnostic checks including tests for normality, heteroscedasticity, serial correlation, and model stability were performed to ensure the robustness and reliability of the model.

The study also engaged with several theoretical frameworks, including the Purchasing Power Parity (PPP) theory, Balance of Payments theory, Interest Rate Parity theory, as well as consumer behaviour theories such as the Veblenian theory, Maslow's hierarchy of needs, the Theory of Reasoned Action, and fundamental demand and supply theories.

3.1 Model Specification

The model specification on the impact of consumer confidence and exchange rates on purchasing decisions in South Africa was aimed at investigating the causal relationship between the three variables. The model considered several factors, such as household income, data on foreign exchange rates, and external factors that may impact the purchasing decision. The study employed econometric techniques such as regression analysis to estimate the effect of consumer confidence and exchange rates on purchasing decisions.

The results will assist policymakers in creating initiatives and guidelines that improve consumer welfare, financial steadiness, and standard economic prosperity, as well as businesses on how to tailor their marketing strategies and product offerings to align with current levels of consumer sentiments. The model specifies the endogenous variable (purchasing decision) as a function of consumer confidence, exchange rates, and income. The model is specified as follows:

$$PD=f\,(CC+ER+HY) \tag{1}$$

Where:
PD= purchasing decision
f= functional relationship
CC= consumer confidence
ER= exchange rate
HY= household income

The econometric form of equation (1) above is represented as:

$$PD_t = \beta_0 + \beta_1 CC + \beta_2 ER + \beta_3 HY + \mu \tag{2}$$

Where:
β_0= Intercept of relationship in the model/constant β_1, β_2 and β_3= Coefficients of each independent or explanatory variable μ= Error term

The data were transformed into natural logarithms for the sake of increased stability in the model. Therefore, the model was represented as:

$$LogPD=Log\beta_0+\beta_1 LogCC+\beta_2 LogER+\beta_3 LogHY+\mu \tag{3}$$

Where:
LogPD=Logarithm of purchasing decision
LogCC=Logarithm of consumer confidence
LogER=logarithm of exchange rate
LogHY=logarithm of household income β_0= Intercept of relationship in the model/constant β_1, β_2 and β_3= Coefficients of each independent or explanatory variable μ= Error term

4. Research Results and Discussion

4.1 Unit Root Tests

Two-unit root tests are employed to check for stationarity in time series data. These are the Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests. The hypotheses for both tests are as follows:

H_0: The series has unit roots.
H_1: The series is stationary.

Table 1 presents the ADF test for stationarity.

Table 1. *Augmented Dickey-Fuller (ADF) test for stationarity results*

Order of integration	**Variable**	**Test statistic**	**Critical value**	**P-value**	**Implication**
Level	*LnPD*	-2.3548	-3.5266	0.3964	Non-Stationary
1st difference	*DlnPD*	-10.0051	-3.5266	0.0000	Stationary
Level	*LnCC*	-0.4868	-1.9491	0.4989	Non-Stationary
1st difference	*DlnCC*	-6.7696	-1.9491	0.0000	Stationary
Level	*LnER*	-2.9203	-3.5208	0.1667	Non-Stationary
1st difference	*DlnER*	-5.4486	-3.5208	0.0003	Stationary
Level	*LnHY*	-2.3612	-3.5208	0.3932	Non-Stationary
1st difference	*DlnHY*	-9.9655	-3.5208	0.0000	Stationary

Source: *Authors (compiled from E-views).*

At levels, the ADF statistic values -2.3548, -0.4868, -2.9203, and -2.3612 for variables lnPD, lnCC, lnER, and lnHY, respectively, are greater than their critical values -3.5266, -3.5208, -3.5208 for lnPD, lnER, and lnHY and -1.9491 for lnCC.

This means we fail to reject the null hypothesis and conclude that the series are non-stationary in level form. The same conclusion can be reached by observing the p-values 0.3964, 0.4989, 0.1667, and 0.3932 for lnPD, lnCC, lnER, and lnHY, respectively, which are all greater than 0.05. This indicates the presence of a unit root in level form for all variables.

However, after 1st differencing, the computed ADF statistics -10.0051, -6.7696, -5.4486, and -9.9655 for lnPD, lnCC, lnER, and lnHY, respectively, are less (more negative) than the critical values at the 5% level of significance. This leads to the rejection of the null hypothesis of the unit root and the conclusion that lnPD, lnCC, lnER, and lnHY, respectively, are integrated into order 1. The corresponding computed p-values after first differencing are also less than 0.05, respectively, confirming the rejection of the null hypothesis of the presence of a unit root.

4.2 Phillips-Perron (PP) Test

The results for the PP test are presented in Table 2. Results obtained from the PP test are consistent with those of the ADF test. At levels, the test statistic values 1.7725, -0.5708, -2.6117, and 1.7638 for the variables lnPD, lnCC, lnER, and lnHY, respectively, are above their critical values -1.9487, -1.9487, -1.9487 for lnPD, lnCC, and lnHY, and -3.5181 for lnER. This leads to the non-rejection of the null hypothesis to conclude that the series is not stationary in level form. To confirm this outcome, the p-values 0.9800, 0.4642, 0.2773, and 0.9796 for lnPD, lnCC, lnER, and lnHY, respectively, are also above 5%.

Results obtained from the PP test are consistent with those of the ADF test. At levels, the test statistic values 1.7725, -0.5708, -2.6117, and 1.7638 for the variables lnPD, lnCC, lnER, and lnHY, respectively, are above their critical values -1.9487, -1.9487, -1.9487 for lnPD, lnCC, and lnHY, and -3.5181 for lnER. This leads to the non-rejection of the null hypothesis to conclude that the series is not stationary in level form. To confirm this outcome, the p-values 0.9800, 0.4642, 0.2773, and 0.9796 for lnPD, lnCC, lnER, and lnHY, respectively, are also above 5%.

After first differencing, however, it can be observed that the test static values -15.3674, -17.7266, -5.3921, and -15.3858 for lnPD, lnCC, lnER, and -lnHY respectively become less than their respective critical values -1.9487, -1.9487, -1.9487 for lnPD, lnCC, and lnHY and -3.5181 for lnER. The p-values 0.9800, 0.4642, and 0.9796 for lnPD, lnCC, lnHY, and 0.2773 for lnER are greater than 0.05, resulting in the non-rejection of the null hypothesis that there is a unit root in the series.

In line with the above results, we can conclude that the series are integrated in the same order, as they all become stationary after the first difference. They are therefore cointegrated. Therefore, we can proceed with cointegration analysis using the Johansen cointegration approach.

Table 2. *Phillip Perron (PP) test for stationarity results*

Order of integration	**Variable**	**Test statistic**	**Critical value**	**P-value**	**Implication**
Level	*LnPD*	1.7725	-1.9487	0.9800	Non-Stationary
1st difference	*DlnPD*	-15.3674	-1.9487	0.0000	Stationary
Level	*LnCC*	-0.5708	-1.9487	0.4642	Non-Stationary
1st difference	*DlnCC*	-17.7266	-1.9487	0.0000	Stationary
Level	*LnER*	-2.6117	-3.5181	0.2773	Non-Stationary
1st difference	*DlnER*	-5.3921	-3.5208	0.0004	Stationary
Level	*LnHY*	1.7638	-1.9487	0.9796	Non-Stationary
1st difference	*DlnHY*	-15.3858	-1.9487	0.0000	Stationary

Source: *Authors (compiled from E-views)*

4.2 Var Lag Order Selection Criteria

Before conducting a co-integration test, it is important to ascertain the number of lags to be used in estimating the model. The rule of thumb is to select the criterion that has the least value. The lower the value, the better the model (Ghulam and Saud-Ahmed, 2018). The results for the VAR lag order selection criteria are presented in Table 3.

Table 3. *Lag Order Selection Criteria*

Lag	LogL	LR	FPE	AIC	SC	HQ
0	479.5519	NA	5.54e-16	-23.7776	-23.6087	-23.7165
1	529.3901	87.2169	1.03e-16	-25.4695	-24.6251	-25.1642
2	539.1808	15.1756	1.44e-16	-25.1590	-23.6391	-24.6095
3	545.4885	8.5153	2.49e-16	-24.6744	-22.4789	-23.8806
4	632.2459	99.7711*	8.27e-18*	-28.2123*	**-25.3412***	-27.1742*

Notes: ** Indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion.*
Source: *Authors (compiled from E-views).*

Results shown in Table 3 validate lag 4 as the most appropriate, guided by the Schwarz information criterion (SC). The value for the fourth lag under SC is -25.3412, which is the smallest value of all lags and in all criteria. Having determined the lag length, the Johannsen cointegration test is done using 4 lags to estimate the VAR.

4.3 Johansen Cointegration Tests

After ensuring the stationarity of all variables and that they are of the same order of integration, i.e., I (1), cointegration tests are employed to establish whether there was a long-term association between the variables. The study employed the Johansen cointegration test to determine the long-term link between the dependent variable *lnPD* and the independent variables *lnCC, lnER, and lnHY*. The findings are presented in Table 4.

Table 4. *Co-integration rank test (Trace and Maximum-Eigen value tests) results*

Trace tests	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.8937	110.1748	47.8561	0.0000
At most 1	0.3128	20.5129	29.7971	0.3887
At most 2	0.1282	5.5074	15.4947	0.7528
At most 3	0.0005	0.0214	3.8415	0.8836
	Maximum-Eigen results			
	Eigen Value	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.8937	89.6618	27.5843	0.0000
At most 1	0.3128	15.0055	21.1316	0.2885
At most 2	0.1282	5.4860	14.2646	0.6796
At most 3	0.0005	0.0214	3.8415	0.8836

Source: *Authors (compiled from E-views).*

Table 4 displays co-integration rank test results for both the Trace test and the Max-Eigen tests. As stated in methodology, when checking for cointegration, the first assumption of no cointegration is rejected if the value of the t-statistic is higher than the critical value at a 5% significance level to conclude that at least one cointegrating vector is present in the system. In line with the results in Table 4, under none*, the computed trace statistic of 110.1748 is higher than the critical value of 47.8561; hence, the null hypothesis can be rejected.

This is supported by the computed p-value of 0.000, which is less than 5%, hence the non-rejection of the null hypothesis at a 5% level of significance. The same applies to the maximum-Eigenvalue results, where the maximum-Eigenvalue statistic of 89.6618 is greater than the critical value of 27.5843, and the corresponding p-value is greater than 5%. This leads to the rejection decision of the null hypothesis to conclude that at least one co-integrating vector is present in the system.

Under at most 1, the trace statistic value 20.5129 is smaller than the critical value 29.7971 at a 5% significance level, with a p-value of 0.3887, which is greater than the 5% level of significance. As such, the null hypothesis of no cointegration cannot be rejected. Correspondingly, the maximum Eigen statistic of 15.0055 is less than the critical value of 21.1316, and the p-value of 0.2885 is greater than the 5% level of significance. This leads to the non-rejection of the null hypothesis.

Under at most 2, the trace statistic value 5.5074 is also below the critical value of 15.4947 at a 5% significance level, together with the maximum-Eigen statistic 5.4860, which is less than the critical value of 14.2646. The p-values of 0.7528 and 0.6796 for the Trace static and the maximum-Eigen statistic, respectively, are both greater than 0.05. Thus, the null hypothesis of no cointegration among variables cannot be rejected.

The same conclusion can be made under at most 3 where the trace statistic and the maximum-Eigen statistic values are equal at 0.0214 and are below a similar critical value of 3.8415. Their p-value of 0.8836, which is the same for both statistics, is also greater than 0.05. Therefore, the null hypothesis of no cointegration among variables cannot be rejected.

Conclusively, the trace test and maximum-Eigenvalue test results indicate the presence of at least one cointegrating equation at the 0.05 level, which implies a long-term connection among the four variables in the model.

4.4 Vector Error Correction Model

The vector error correction model (VECM) was estimated to determine the short-term and long term effects of exogenous variables (lnCC, lnER, and lnHY) and endogenous variables (lnPD) from 2014Q1 to 2023Q4. As shown in Table 5, the error correction term (CointEq1) measures the rate of adjustment from the disequilibrium state in the short run to a long-run equilibrium position in the event of a shock (Fosu, 2021).

A CointEq1 value of -0.4614 implies that approximately 46% of the error is corrected in the short run as the economy converges back to an equilibrium state. This shows that the pressure exerted by the model on purchasing decisions when trying to re-establish a long-term equilibrium each time the economy is hit by a shock is relatively moderate.

This result is statistically and economically significant since the CointEq1 value is negative and within the required range of between 0 and -1. This is further ascertained by the corresponding t-value of -2.9545, which is above the critical value of 1.96 (in absolute terms) at a 5 percent level of significance.

Table 5. *Vector Error Correction Model Estimation Results*

Variables	**Coefficient**	**Standard Error**	**T-value**
CointEq1	-0.4614	0.1564	-2.9545
lnCC	0.7263	0.2682	2.5146
lnER	-0.0775	0.1506	-0.5144
lnHY	49.3549	19.2806	2.5598
R-squared	0.8765		
F-statistic	8.7643		

Source: *Authors (compiled from E-views).*

In the short term, consumer confidence has a positive impact on purchasing decisions, as shown in Table 5. The coefficient 0.7263 suggests that a percentage increase in consumer confidence will increase purchasing decisions (consumption) by 0.73, all things being equal. This is consistent with economic theory, which suggests that when consumer confidence is high, consumers increase their spending.

A negative relationship can also be observed between exchange rates and purchasing decisions. An increase in the exchange rate of 1% will lead to a decrease in purchasing decisions by 0.08% for all things constant. This seems to be a counterintuitive outcome, considering that consumption is expected to increase as the exchange rate appreciates and not otherwise. A negative relationship between the two might be possible where a stronger currency increases imports as consumers shun domestic goods and services.

Household income was also found to have a strong positive influence on purchasing decisions. A percentage increase in household income leads to an increase in purchasing decisions by 49.35%, all things being equal. This is consistent with economic theory, as income is a strong driver of consumption. Nonetheless, only consumer confidence and household income were found to be statistically significant in influencing purchasing decisions, given their respective t-values of -2.95 and 2.55, which are greater than the critical value of 1.96 in absolute terms. The exchange rate was found to be statistically insignificant in estimating purchasing decisions. A high R-squared of 0.88 suggests that the model is a good fit, making it reliable and useful in making statistical inferences.

4.5 Granger Causality Tests

To understand the causal relationship between purchasing decision (lnPD) and the independent variables, Granger causality analysis was conducted. The results in Table 6 suggest a unidirectional causality relationship between consumer confidence (lnCC) and purchasing decisions (lnPD). Since the p-value 0.0027 is less than 0.05, we reject the null hypothesis and conclude that consumer confidence granger causes purchasing decisions. The reverse, however, cannot be true since the p-value of 0.2694 is above 0.05.

Furthermore, another unidirectional causal relationship between purchasing decisions (lnPD) and exchange rate (lnER) is evidenced by a low p-value of 0.0213, which is below 0.05. Thus, the null hypothesis can be rejected to conclude that purchasing decisions granger cause an exchange rate. However, the exchange rate does not granger cause purchasing decisions, given that the p-value 0.3440 is greater than 0.05.

Table 6. *Granger causality test results*

Null Hypothesis	P-value
LNCC does not granger cause LNPD	0.0027
LNPD does not granger cause LNCC	0.2694
LNER does not granger cause LNPD	0.3440
LNPD does not granger cause LNER	0.0213
LNHY does not granger cause LNPD	0.0037
LNPD does not granger cause LNHY	0.0039
LNER does not granger cause LNCC	0.6228
LNCC does not granger cause LNER	0.7118
LNHY does not granger cause LNCC	0.2703
LNCC does not granger cause LNHY	0.0028
LNHY does not granger cause LNER	0.0214
LNER does not granger cause LNHY	0.3457

Source: *Authors (compiled from E-views)*

A bi-directional causal relationship exists between purchasing decisions and household income (lnHY). Since p-values 0.0037 and 0.0039 are less than 0.05, we reject the null hypotheses and conclude that the purchasing decision granger causes household income and the household income granger causes purchasing decisions. There is no causality, however, between exchange rate and consumer confidence, as evidenced by the p-values of 0.6228 and 0.7118, which are both above 0.05.

Thus, we fail to reject the null hypothesis of no causality between the two variables. Subsequently, a unidirectional causal connection can also be observed between household income and consumer confidence. While household income does not Granger-cause consumer confidence, as revealed by a higher p-value of 0.2703, it can be observed that the reverse is true.

A lower p-value of 0.0028 means that we reject the null hypothesis to conclude that consumer confidence granger causes household income at a 5% level of significance. Finally, another one-way causal relationship is observed between household income and the exchange rate. The p-value 0.0214 is below 0.05, suggesting that household income Granger causes the exchange rate. Nonetheless, the exchange rate does not Granger-cause household income given a p-value of 0.3457, which is higher than 0.05.

In summary, the Granger causality results reveal that consumer confidence and household income are significant predictors of purchasing decisions, while the exchange rate exhibits limited predictive power.

4.6 Diagnostic Analysis

Diagnostic tests were done to ensure the accuracy of parameter estimates obtained in regressing the purchasing decision model. The purpose of a diagnostic test is to classify or predict the presence or absence of a normal series, hence the best fit of the model. Three tests were conducted on the growth model to verify its fitness, normality, serial correlation, and autoregressive conditional heteroscedasticity. The results are highlighted in Table 7.

Table 7. *Diagnostic test results*

Test	Null hypothesis	P-value
Lagrange Multiplier (LM)	No Serial correlation	0.1634
Breusch-Pagan-Godfrey (BPG)	No conditional heteroscedasticity	0.8866
Jarque-Bera (JB)	There is a normal distribution.	0.0000

Source: *Authors (compiled from E-views).*

The results of the diagnostic checks are displayed in Table 7, with the Lagrange Multiplier (LM) test having a p-value of 0.1634, which is greater than 5%. This means that the null hypothesis of no serial correlation cannot be rejected, and it is concluded that serial correlation does not exist in the model.

Subsequently, the Breusch-Pagan-Godfrey (BPG) test for heteroscedasticity revealed a probability value of 0.8866, indicating that the null hypothesis of no heteroscedasticity is not rejected. The results for the Jarque-Bera (JB) normality test show a probability of 0.0000. This indicates that the results are insignificant because they exceed the 5% significance.

Thus, a normal distribution's null hypothesis was rejected. Nonetheless, given that Schmidt and Finan (2018) argue that in a model with more than ten observations per variable, violations of the assumption of normality do not significantly affect the outcome, these results can be relied on given that each variable has observations that are greater than 10. Thus, the series can be said to be well-specified, with valid results.

4.7 Stability Tests: CUSUM and CUSUMQ Test

In terms of model stability, the results below show the cumulative sum and cumulative sum of squares curves trending within the confines of the 5% boundary, indicative of a stable model (Figures 1 and 2).

Figure 1. *CUSUM test*

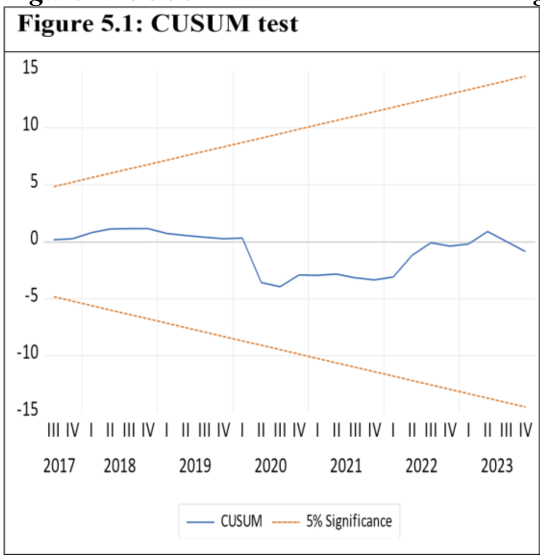
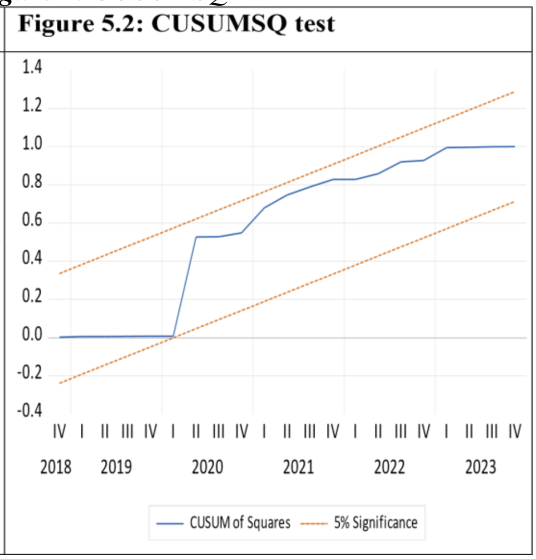


Figure 2. *CUSUMSQ test*



Source: *Authors (compiled from E-views).*

Overall, the empirical findings confirm a long-term equilibrium relationship among consumer confidence, exchange rate, household income, and purchasing decisions. In the short run, consumer confidence and household income emerge as statistically significant drivers of purchasing behavior, while the exchange rate exhibits a weaker, albeit negative, impact.

Granger causality tests further underscore the dynamic interplay between these variables, revealing unidirectional causality from consumer confidence to purchasing decisions, and a bidirectional causality between household income and purchasing decisions. These insights offer valuable implications for policymakers and businesses aiming to stimulate consumer spending.

5. Conclusion

The study recommends that policymakers, economists, and industry experts engage in collaborative efforts to exchange knowledge and best practices for managing consumer confidence and exchange rate fluctuations. Such collaboration may foster the development of more effective policy interventions and strategies aimed at mitigating the influence of consumer confidence and exchange rate volatility on purchasing decisions.

Importantly, these policies should align with South Africa's broader long-term economic objectives, considering interrelationships among exchange rate stability, inflation, employment, and other critical macroeconomic variables.

To address the significant impact of consumer confidence on purchasing behaviour, the study underscores the importance of promoting overall economic stability. Policymakers are advised to implement measures that foster job creation, enhance income stability, and provide social safety nets to cushion the effects of economic downturns. Such initiatives are crucial for strengthening consumer confidence and, consequently, stimulating domestic consumption.

In addition, the study highlights the necessity of improving consumer education. Educational programs aimed at enhancing public understanding of exchange rate dynamics and their implications for purchasing decisions can empower consumers to make more informed choices. An informed consumer base is more likely to respond constructively to economic policies and maintain confidence during periods of market volatility.

Policymakers bear the responsibility of ensuring exchange rate stability to cultivate a favourable economic environment and reduce the adverse effects of currency fluctuations on consumer purchasing decisions. Given South Africa's high level of economic openness and vulnerability, measures that discourage excessive dependence on imported goods are vital. Strategies that promote domestic production and consumption can enhance productivity and generate employment opportunities, thereby supporting overall economic resilience. These policy recommendations have relevance beyond South Africa and could be adapted for use in other countries facing similar economic dynamics.

The study further recommends additional research to deepen understanding of the interplay between consumer confidence, exchange rates, and purchasing behaviour. Future research should encompass various industries, countries, and economic contexts to provide a more comprehensive perspective on these relationships. Such research would offer valuable insights for refining policies and business strategies.

Implementing these recommendations enables policymakers to design initiatives that enhance consumer welfare, financial stability, and sustainable economic growth.

Businesses, in turn, can derive significant insights for market research, competitiveness, and strategic planning. By understanding the role of consumer confidence in purchasing decisions, firms can better identify market trends, consumer preferences, and potential growth opportunities.

Moreover, the study proposes proactive intervention by the government and central bank to manage the exchange rate effectively and limit deviations. Efforts to maintain a stable exchange rate, coupled with measures to control inflation, are crucial for fostering a stable economic environment that promotes positive consumer sentiment and purchasing behaviour.

The regression analysis revealed that consumer confidence and household income were statistically significant predictors of purchasing decisions, with t-values exceeding the critical thresholds in absolute terms. Notably, the exchange rate variable was found to be statistically insignificant in influencing purchasing decisions. A high R-squared value indicated a good model fit, affirming the reliability of the findings for policy and strategic applications.

These findings reinforce the central role of consumer confidence in shaping purchasing behaviour in South Africa. As such, the results are of significant utility to policymakers, businesses, and researchers. The insights provided by this research can inform the development of effective policies and strategies that enhance economic stability and consumer welfare.

In conclusion, this study offers valuable contributions to understanding the complex interrelations between consumer confidence, exchange rates, and purchasing behaviour. It provides an empirical foundation for future research and practical policymaking, ultimately supporting efforts to strengthen South Africa's economic resilience and consumer confidence.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflict of Interest: The authors declare no conflict of interest.

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