

Devaluation and stock prices

David UMORU

Edo State University Uzairue, Iyamho, Nigeria

Oseni Hussein OMOMOH

Edo State University Uzairue, Iyamho, Nigeria

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Aim: The study evaluated the causal link between exchange rate devaluation and stock prices in African stock markets within the African region, namely, Zambia, Nigeria, Uganda, Tunisia, Tanzania, Botswana, Indonesia, Egypt, South Africa, and Malaysia.

Research method: The Toda-Yamamoto (T-Y) Granger causality methodology which entails a determination of maximum order of integration, determination of optimal lag length, and finally conducting the T-Y causality test based on augmented var $k + d_{max}$ was used in the study. We also deployed the ARDL model to estimate the effects of devaluation on stock prices in Africa. To accommodate issues of endogeneity, we further implemented dynamic panel model estimation to unravel the true effects of exchange rate devaluation on stock prices.

Findings: Currency devaluation and the consumer prices negatively impacted stock prices by 3.6% and 3.2% respectively in the short term period following a 1% rise in devaluation and consumer prices. In the long-term period, a 1% rise in currency devaluation and consumer price level stimulated 1.45% and 0.68% reductions in stock prices respectively in ten developing African countries. The lending interest rate also significantly and positively impacted stock market prices over the long-term period by 0.25% following a 1% rise in lending rate, whereas, in the short-term period, a 1% rise in lending rate stimulated 0.38% decline in stock prices of the ten African countries.

Originality: in this research, we executed the Toda-Yamamoto granger causality methodology in explaining the causal relation between exchange rate devaluation and stock prices in ten developing African countries and with the ARDL model, the study estimated the effects of devaluation on stock prices in Africa.

Contributions: The research is a contribution to a remarkable long-run connection linking stock market price, exchange rate and price index. Though there was a remarkable long-term association linking them, the outcome also showed an essential short-run relationship linking stock market price, consumer price index and interest rate.

Correspondence address: UMORU David, Department of Economics, Edo State University Uzairue, Iyamho, Nigeria. E-mail: david.umoru@yahoo.com. Oseni Hussein OMOMOH, Department of Economics, Edo State University Uzairue, Iyamho, Nigeria

Limitations: This research is limited to ten countries within the African region. This choice of countries was made on basis of the available data. Hence, data could be sought on additional developing countries and estimation done for a larger sample of countries to obtain results that can be used to generalize the causality between devaluation and stock price movements.

Keywords: devaluation, stock prices, lending rate, Toda-Yamamoto, ARDL, developing African countries

JEL: C30, D42, C36

1. Introduction setting the stage

The devaluation of exchange rates or national currencies has been one of the basic macroeconomic measures to stimulate economic development and solve macroeconomic problems such as stock market volatility. However, over the years, it has been found that this measure (the devaluation of the exchange rate) did not achieve its desired goal, but instead adjusted its multiplier effect on the negative impacts on the economy, particularly the depletion of stock prices and stock returns. Khan et al. (2016) define exchange rate devaluation as the authorized decline in values of local currencies against international currencies causing a reduction in export prices and a more favourable balance of trade. The value of the exchange rate falls as a result of an excess supply of domestic currency making the exchange rate, an endogenous variable (Ndubuaku et al. 2019).

In the 1970s, the impact of the exchange rate on the economy became a prominent topic of discussion. This was mostly owing to many developing countries shifting from a fixed conversion scale framework to a gliding conversion scale framework. The instability of the trading scale causes eccentricities and risk in speculation decisions, which hurts the macroeconomic display (Mahmood, Ali 2011). In recent years, there has been a significant deal of worry about the implications of devaluations on the economy. The supply-side consequences of the exchange rate devaluation, came under heightened attention during the 1970s when the globe experienced its first oil price shock. However, given the volatility experienced by most national stock markets, developing countries suffer more than developed countries with economic and political uncertainty, reduced competition, information movement inefficiencies, and lack of transparency and liquidity (Lagoarde-Segot, Lucey 2008). For Oztekin et al. (2016), these problems can moderate the effectiveness of emerging markets. This

is why Reboredo et al. (2016) concluded that emerging markets respond rapidly to notional investments, policy modifications to accomplish exchange rates, capital movements, and economic uncertainty.

Today, Africa's exports of non-oil goods are still dragging on due to excessive devaluation of local currencies, competition for imported goods, as well as political losses, economic and financial since the mistakes of the African economy have hampered its relatively efficient effect on currency devaluation. Our goal is to revisit empirically the relationship linking stock market prices and devaluation in the exchange rate of African nations. This investigation is limited to ten countries within the African region. The study indeed evaluates the inter-temporal link between exchange rate devaluation and stock prices in African stock markets. The research addresses a universal problem faced by developing countries, and the findings provide valuable insights for the analysis of international financial markets. The study fills a gap in the existing literature and contributes to a better understanding of the dynamics between exchange rates and stock markets, specifically in the context of African stock markets. The research is designed into five sections with the next section concerned with literature, theoretical review, empirical review and a gap in the literature. Section three is the methodology which consists of a theoretical framework, study design, data source, and specification of model and techniques of analysis. Section four had results and a discussion. Concluding remarks were made in the final section.

2. Literature review

Due to Adam Smith (1776), the absolute advantage theory uses a 2x2 model in which two countries trade two commodities while using only two factors of production: labour and capital. It stated that countries should export and import a more productive good than another country (Dunn, Mutti 2004). Absolute advantage is a country's ability to produce more goods than another country with the same resources that is, manufacturing capabilities (Carbaugh 2007; Hoag, Hoag 2006). Therefore, one nation does not need to win at the expense of another, as all nations can win at the same time (Afaha, Aiyelabola 2012). The absolute cost advantage comes from the specialization of labour proposed by Smith in his theory. Specialization of labour, or

division of labour, significantly increases productivity per unit of labour, lowering the cost of production. Smith also used the concept of 'economies of scale' to describe a reduction in production costs because an increase in output due to labour diversification significantly reduces production costs. Absolute advantage can only explain some parts of global trade, such as trade-in asymmetric situations (Beaudreau 2011).

According to Ricardo, even if a country has an absolute cost disadvantage in producing both goods, there is a basis for reciprocal trade benefits. The least efficient countries should specialize in the production and export of relatively less inefficient goods (with the smallest absolute penalty), and the most efficient countries should specialize in the production and export of relatively more efficient goods (if the absolute advantage is the greatest). With Heckscher-Ohlin's theory, free international trade specialization of production based on relative factor grants will tend to equalize factor prices, raising the return on labour in poor countries to similar levels to those of rich countries. Accordingly, differences between countries in factor abundance are the basis for foreign trade and in particular, different factor intensities in the production of different products lead to comparative cost advantages (Södersten, Reed 1994). According to Södersten and Reed (1994), it is a long-run general equilibrium theory which sees labour and capital, move from one sector to another. We have an absolute variant of PPP and a relative version respectively. Aside the absolute PPP, relative PPP requires equality of inflation rates and exchange rates of two trading countries within the same period of time. The area of optimal currency (OCA) due to Mundell (1961) and McKinnon (1963) focuses on stabilizing trade and economic cycles based on the symmetry of impact, and mobility of the labour market. Hence, with a fixed exchange rate trade and output would rise following a reduction in exchange rate uncertainty and consequent hedging costs, and can also encourage investment by reducing the premium on interest rates.

Theoretically, we have the arbitrage pricing theory (APT). The theory upholds that raising the real interest rate, according to Rashid and Jabeen (2016), lowers the current value of a company's imminent cash flows and lowers its stock price. But at the same time, rising interest rates create an inflow of money, causing the exchange rate to fall. Thus, actual interest rate shocks may be responsible for the positive

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relationship linking average stock prices and exchange rates. The concept admits that currency rates might affect the stock market in this way. Also, on stock theory, Pilbeam (1992) argued that the noticeable difficulty with the flow-oriented model is that it has not thing to do with global capital movements. As a result, the movement of international capital is very large and is known to drive the foreign exchange market. The stock-centric model highlights the part of monetary (once capital) accounts in determining exchange rates. Adjasi and Biekpe (2007) argued that “in a stock-oriented model, exchange rates equalize the supply and demand for assets (bonds and stocks).” Therefore, opportunities for parallel exchange rate fluctuations have an important influence on rate fluctuations of financial resources. Particularly, exchange rate instabilities can affect stock price activities. However, Ajayi and Mougoue (1996) pointed out those common factors like interest rate affects most of the changes in both markets.

According to the flow theory, there was an unexpected association between exchange rates and stock prices. Particularly, movements in exchange amounts affect stock prices. Variations in exchange rates alter the drive of companies through their effects on the prices of inputs and outputs (Joseph 2002). Exporters will be badly impacted if the exchange rate increases. The rise in currencies will make your goods and services more costly in global markets. This reduces exports because buyers in the global market find it expensive, thereby, making the same uncompetitive at the international level. As a result, their profits decrease, and when profits decline, companies lose their attractiveness in the national stock market. Accordingly, attraction to the local stock market drops and this out-turn in share price falling. As a result, a negative relationship connecting local money and stock price can be established. Dornbusch and Fischer (1980) used a flow-oriented model and proposes that exchange rate volatility affects global trade and affects the real income and output of firms. They noted that the discounted existing value of a company’s projected impending cash flows, a major determinant of the share price, affects the exchange rate fluctuations on the company’s balance sheet.

Dornbusch and Fischer (1980) supported the flow-oriented hypothesis by clarifying the underlying connection linking the exchange rate and the stock marketplace. This concept asserts that when the home interchange is devalued (when

it is valued), the cost of exporting becomes lesser (higher), local companies become further (less) fierce, and their exports rise (decrease). This growth leads to an upsurge in the stock value of domestic companies. Meanwhile, Branson and Frankel (1983) pointed out the negative association linking stock prices and exchange rates while emphasizing the portfolio equilibrium theory. In their model, changes in stock values can move capital account deals, which are alleged to be a major factor in exchange rates. Giving to their ideal, foreign capital can be brought into the economy by a well-performing stock thereby leading to a rise in the stock market which is capable of influencing positive returns on capital and the currency to increase in value.

On the empirical side, empirical research results provide a mixed indication concerning the association linking the FX and the stock market. For example, the Asian financial crisis of 1997 generated a discussion and investigation on the association linking exchange rates and stock markets in emerging nations (Bahmani-Oskooee, Saha 2016). Kutmos and Martin (2003) used the idea of intermediate outcomes to separate exchange rate volatility into two components: evaluation and appreciation and conveyed the asymmetry in indicators keys in Germany, Japan, the UK and Germany. Adjasi et al. (2011) and Rashid et al. (2002) found no long-run steady connection concerning stock prices and currency rates in some countries. Furthermore, there was no long-term association between stock prices and currency rates in Pakistan and India. Though there appeared to be a two-way causal relationship between these two financial factors in the case of Bangladesh and Sri Lanka. Alam et al. (2007) acknowledged the prerequisite for continued examination in the field of exchange rates and stock markets, given the mixed results accepted by various studies. Also, studies by Morales (2008), have acknowledged that more research is needed to more fully establish the nature of the indirect consequence of exchange rates on the stock market in this regard. Between 1999 and 2009, Kasmann et al. (2011) employed OLS and GARCH valuation models to assess the bearing of exchange rate volatility on Turkish stock prices. Their discoveries suggest that exchange rate changes have an adverse hold on earnings. The results of the ARDL model of Javangwe and Takawira (2022) disclosed that there is generally a relationship linking markets regulated in equilibrium.

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To explore the influence of exchange rate volatility on US stock yields, Sekmen (2011) employed the residual squared of an ARMA model. It was able to mitigate the detrimental impact of fluctuating currency rates on operational size. Using the Johansen test of co-integration, Olugbenga (2012) evaluated the short and long-run controls of exchange rates on the evolution of the Nigerian stock market between 1985:1 and 2009:4. Their study showed important stock market performance at short-term exchange rates and significant negative stock market achievement at long-term exchange rates. Earlier devaluation analysis was centred on the well-known Marshall-Lerner condition (MLC). Meade (2011), a typical Keynesian economist, concludes in his study that the prices of many household items are sticky due to widespread unemployment and imperfect competition. If a country's currency falls in value, the aggregate demand function shifts outwards in the presence of MLC. This, in conjunction with the horizontal aggregate supply function, boosts domestic output and improves the balance of payments (Phillips, Jin 2015).

In India, Indonesia, South Africa, and Turkey, Akel et al. (2015) found long-term positive links linking stock values and currency rates. Sui and Sun (2016) used VAR and VECM models to show that exchange rates have an important indirect stimulus on stock prices in the short run in the BRIC nations. Nguyen (2019) studied the short-term correlations between currency rates and stock prices in six countries from 2007 to 2013. The multivariate causality test found that no short-term links were linking the variables in China and India. The most extensively used approach in this subject is the Granger causality test, notably in the situation of the VECM, the Johansen-Engle-Granger co-integration test (Bahmani-Oskooee, Saha 2015). If a currency appreciation negatively affects a stock price, the general assumption is that a devaluation will have a similar opposite effect. Until recently, there was not enough attention to asymmetry in the relationship between two variables (Shahbaz et al. 2018). The USA Bahmani-Oskooee and Saha (2015) propose to use the nonlinear ARDL method and consider the asymmetric consequence of exchange rates on the share prices of other stocks to confirm that there is an asymmetric hold of the minimal active exchange rate of the US dollar and the S&P 500 currencies.

3. Methodology

The study employs the T-Y model in testing for the dynamic causal link between exchange rate devaluation and stock prices. The methodological procedures involved in the application of T-Y causality approach involve, the determination of the maximum order of integration, the determination of optimal lag length , and testing for causality. In effect, the VAR (k) model of a T-Y test was specified as:

$$StockP_t = \phi + \sum_{i=1}^{k+d \max} B_{1i} StockP_{t-i} + \sum_{j=1}^{k+d \max} \Phi_{1j} EXDV_{t-j} + e_{1t} \quad (1)$$

$$EXDV_t = \delta + \sum_{i=1}^{k+d \max} \Theta_{1i} EXDV_{t-i} + \sum_{j=1}^{k+d \max} \Gamma_{2j} StockP_{t-j} + e_{2t} \quad (2)$$

The H0 and H1 of VAR equation (6) are given as follows

$$H_0 : \sum_{j=1}^{k+d \max} \Phi_{1j} = 0$$

$$H_1 : \sum_{j=1}^{k+d \max} \Phi_{1j} \neq 0$$

The H0 and H1 of VAR equation (7) are given as follows:

$$H_0 : \sum_{j=1}^{k+d \max} \Gamma_{2j} = 0$$

$$H_1 : \sum_{j=1}^{k+d \max} \Gamma_{2j} \neq 0$$

This paper employed panel model ARDL estimation to traverse the relationship linking the daily stock market price and customer price index, lending and exchange rates of ten African countries. The framework of a panel ARDL regression model is specified as follows:

$$\Delta StockP_t = \theta_0 + \theta_1 StockP_{t-1} + \sum_{j=1}^k \mu_j \Delta StockP_{t-j} + \varepsilon_t \quad (3)$$

The following is an explanation of the most general form of the ARDL (1, 1) model.

$$StockP_t = \theta_0 + \theta_1 StockP_{t-1} + \rho_0 Z_t + \rho_1 Z_{t-1} + \varepsilon_t \quad (4)$$

In long-run equilibrium, we adopted the fact that:

$StockP_t = StockP_{t-1}$ and $Z_t = Z_{t-1}$, so we could write equation (2) as:

$$StockP_t = \theta_0 + \theta_1 StockP_{t-1} + \rho_0 Z_t + \rho_1 Z_{t-1}$$

or

$$(1 - \theta_1)StP_t = \theta_0 + (\rho_0 + \rho_1)Z \quad (5)$$

The ARDL ($m, n; p$) equation was specified as:

$$StockP_{t-1} = \theta_0 + \sum_{i=1}^m \theta_1 StockP_{t-1} + \sum_{j=1}^p \sum_{i=0}^n \rho_{ij} Z_{jt-i} + \varepsilon_t, \quad (6)$$

Where $\varepsilon_t \sim iid(0, \sigma^2)$. Using relevant variables for our study, our ARDL model was specified as in equation (4).

$$StockP_t = \gamma_0 + \sum_{i=1}^m \alpha_i StockP_{t-1} + \sum_{i=1}^n \mu_i CPI_{t-1} + \sum_{i=1}^r \delta_i LINT_{t-1} + \sum_{i=1}^z \varphi_i EXDV_{t-1} + \varepsilon_t \quad (7)$$

The model captured the relationship between stock price (StockP), consumer price index (CPI), financial lending rate (LINT) per cent per annum and exchange rate devaluation (EXDV) of domestic currency per USD. By definition, m, n, r and z are lag lengths of stock market price, consumers price index, lending interest rate and exchange rate; ε signifies white noise error terms; $\theta, \rho, \delta, \varphi$ and γ are drift components. The sample size for this research is a period of 1st January 2010 to 1st December 2022 for each of the ten countries. Stock prices of the emerging market economies from ten African countries were obtained from the official website, www.investing.com. The data were sourced from the IMF database.

4. Results and discussions

In Table 1, Levin, Lin, and Chu's tests were able to demonstrate the occurrence of this stationarity. The test P-values were greater than 0.05 at the level; as a result, we refused to discard the non-stationarity at a 5% level of importance, resulting in the conclusion that the stock market price, exchange rate, consumer price index, and lending rate are non-stationary from January 1, 2010, to December 1, 2020.

Table 1. Levin, Lin and Chu's unit root test at levels

Variable	Test Statistic	P – value	Critical value
StockP	-1.5719	0.0580	1%, 5%, 10%
Exdev	-0.31904	0.0036	1%, 5%, 10%
CPI	1.93714	0.9736	1%, 5%, 10%
LINT	0.58431	0.7205	1%, 5%, 10%

Source: Authors' estimations with Eviews 10.

Table 2 shows that stock market gains are factored into zero-order $I(0)$, whereas exchange rates devaluation series are $I(1)$.

Table 2. Levin, Lin and Chu's unit root test after first differenced

Variable	Test Statistic	P – value	Critical value
StockP	-9.76589	0.0001	1%, 5%, 10%
Exdev	5.79618	0.0001	1%, 5%, 10%
CPI	-6.17242	0.0001	1%, 5%, 10%
LINT	-5.08287	0.0001	1%, 5%, 10%

Source: Authors' estimations with Eviews 10.

Table 3. Cross-sectional ARDL with Bounds test for the African countries

Countries	F-statistic	$I(0)$	$I(1)$
Zambia	3.398	2.37	3.2
Nigeria	4.442	2.37	3.2
Uganda	1.029	2.37	3.2
Tunisia	2.789	2.37	3.2
Tanzania	2.789	2.37	3.2
Botswana	1.246	2.37	3.2
Indonesia	2.094	2.37	3.2
Egypt	2.350	2.37	3.2
South Africa	5.348	2.37	3.2
Malaysia	3.026	2.37	3.2

Source: Authors' estimations with Eviews 10.

Table 4. Reports the optimal lag length of one as selected by FPE, AIC, and HQ

Lag	LR	FPE	AIC	SC	HQ
0	NA	2.44e+10	23.5356	40.8378	22.6598
1	180.469	233155*	27.3870*	25.73807	30.2876*
2	50.27029	546987	29.485	29.64973*	28.2754
3	19.3704*	470589	24.6903	32.4874	367937
4	23.54768	209837	35.9201	22.3789	20.8405
5	10.65897	486093	30.7460	23.7460	23.4679

Source: Authors' estimations with Eviews 10.

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According to Pesaran et al. (2001), the ARDL test in the co-integration analysis, the regressors might be pure I(0), pure I(1), or a mix of I(0) and I(1). So in this case the ARDL model can be tried. The following investigation is divided into three parts. The ARDL model was evolved to determine the impact on market returns in 10 African countries using stock market prices, devaluation of official exchange rates, CPI and loan interest rates as independent variables. For the ARDL model to suffice, we conducted the bounds co-integration test. The results are reported in Table 5 below. The estimated F-statistic 10.932 was estimated with Eviews 10.932 and this exceeds both the lower and upper bound critical values of 7.4693 and 9.035 at a 1% level. We so reject the lack of co-integration assumption between StP, Exdev, CPI, and LINT.

Table 5. Bounds test results

No. of Regressors (k)	Bounds critical F-Test values					
	1%		5%		10%	
3	I(0)	I(1)	I(0)	I(1)	I(0)	(1)
		7.4693	9.035	5.487	6.932	3.279
Calculated F-Statistics: (StockP Exdev, CPI, LINT) 10.932***						
Notes: ***indicate significance at 5% level.						

Source: Authors' estimations with Eviews 10.

Table 5 clearly shows that exchange rate devaluation, consumer prices, and short-term interest rates all granger cause stock prices in African stock markets and not the other way around. This is unidirectional causality. However, bidirectional causality exists between devaluation and CPI in Africa.

The section starts with an investigative analysis of the normality of the three variables under study: stock market prices, exchange rates, consumer prices, and active interest rates. This is trailed by ARDL and ECM methods. Table 7 shows the coefficient of the exchange rate that hurts the stock market price. CPI and lending interest rate are statistically important since the p-values are less than 0.05 leaving the interest rate statistically insignificant if who p-value is greater than 0.05. This means that the CPI and lending interest rate have a short-run consequence on the stock market price of the ten African nations and the exchange rate has no important short-run consequence on the stock market price of the ten African nations.

Table 6. T-Y results

Null Hypothesis	Chi-Sq	Prob.	Granger Causality
<i>StockP</i> does not G-cause <i>Exdev</i>	2.7690	0.5623	Unidirectional causality <i>Exdev</i> \square \square <i>StockP</i>
<i>Exdev</i> does not G-cause <i>StockP</i>	34.748	0.0000	
<i>CPI</i> does not G-cause <i>StockP</i>	19.542	0.0001	Unidirectional causality
<i>StockP</i> does not G-cause <i>CPI</i>	12.368	0.5230	<i>CPI</i> \square \square <i>StockP</i>
<i>LINT</i> does not G-cause <i>StockP</i>	26.562	0.0000	Unidirectional causality
<i>StockP</i> does not G-cause <i>LINT</i>	41.374	0.7928	<i>LINT</i> \square \square <i>StockP</i>
<i>CPI</i> does not G-cause <i>Exdev</i>	11.238	0.0012	Bidirectional causality
<i>Exdev</i> does not G-cause <i>CPI</i>	13.452	0.0002	<i>Exdev</i> \leftrightarrow <i>StockP</i>
<i>LINT</i> does not G-cause <i>Exdev</i>	5.632	0.956	No causality
<i>Exdev</i> does not G-cause <i>LINT</i>	10.578	0.423	

Source: Authors' estimations with Eviews 10.

The consequence of the long-run association concerning stock market price, exchange rate devaluation, consumer price index and lending interest rate in Table 7 displays that the coefficients of exchange rate devaluation and lending rate contribute an encouraging consequence on the stock market price of the ten African countries. The coefficient of the customer price index and the stock market price are inversely related with a coefficient of -0.3217. The exchange rate and consumer price index are statistically significant with p-values lesser than 0.05. Since the p-value is more than 0.05, the loan interest rate is statistically insignificant. As a result, currency devaluation and the consumer prices negatively implicated stock prices by 3.6% and 3.2% respectively in the short term period following a 1% rise in devaluation and consumer prices. In sum, stock price effects of devaluation and consumer price level are the same and the impact is significantly adverse over the short-term period. In the long-term period, a 1% rise in currency devaluation and consumer price level

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stimulated 1.45% and 0.68% reductions in stock prices respectively in ten developing African countries. The lending interest rate also significantly and positively impacted stock market prices over the long-term period by 0.25% following a 1% rise in lending rate, whereas, in the short-term period, a 1% rise in lending rate stimulated 0.38% decline in stock prices of the ten African countries.

Table 7. Estimated ARDL coefficients: ARDL (1, 1, 1, 1) selected by AIC

Regressors	Coefficients	p-value
Dln(StockP-1)	1.6049	0.0000
Dln(EXDV)	-0.3627	0.0005
Dln(CPI)	-0.3217	0.0003
Dln(LINT)	-0.3771	0.0005
C	-0.4650	0.0021
Cointeq01	-0.6700	0.0000
ln(EXDV)	-1.4526	0.0000
ln(CPI)	-0.6750	0.0000
ln(LINT)	0.2493	0.0145
Diagnostics		
R2	0.67	
F-stat (Prob)	28.90(0.000)	
Mean (StockP)	0.673	
S.E. of regression	1.3260	

Source: Authors' estimations with Eviews 10.

5. Conclusion

The motive of this research was to assess the long-term relationship connecting stock market rates, exchange rates, consumer price indexes and lending rates in ten African countries. This study implemented the ARDL boundary methodology. The study found a positive long-term positive association linking stock market prices, exchange rates, consumer price indexes and loan interest rates in 10 African countries. The exchange rate was found to be considerably significant in its effects on stock prices. This result agrees with the literature and in particular, the flow theory which posits an association between exchange rates and stock prices. Hence, movements in exchange rates influence stock prices. Consumer price index lending interest rates are

statistically insignificant. This shows that exchange rates have an important long-term influence on stock market prices in 10 African countries. CPI and effective interest rates do not have an important long-term consequence on stock market changes in 10 African countries. This research paper also raises important real-world significance for policymakers and African central banks. African state banks should consider the regime before altering their policy rate. Rising inflationary borrowing costs not only make it difficult for small local investors to start new businesses but also limits business divergence opportunities for large organizations. This practice before the economic crisis has proven to have hurt stock market indices. However, before the crisis, increases in borrowing costs and capital flows not only lowered the stock index in the short term just as well had a long-term effect from the rise of two fundamental variables indices. This might be because a rise in borrowing costs not only negatively affects short-term investors but also continues to sell stocks at lower prices due to the rise in borrowing rates of the loan-term investor.

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