

Original Paper

Effect of Interest Rates on Private Sector Debt in Kenya

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Abstract

This study sought to examine the effect of interest rates on domestic private sector debt in Kenya over the 30 year period from 1990 to 2019. The dependent variable was private sector domestic debt, the independent variable was commercial bank weighted average lending rate while the control variables were annual GDP growth, extended broad money (M3) and annual USD-KES exchange rate. Using the Prais-Winstein estimator model, the regression model findings were commercial bank lending rate had an insignificant relationship with domestic debt at 95% confidence level but significant at 90% level while money supply had a negative and significant relationship with domestic debt. The study noted predominance of the banking sector in the financial sector and identified the need of a well-developed corporate debt market.

Keywords

private sector credit, commercial bank lending rate, external private debt, GDP, money supply, exchange rate

1. Introduction

There has been a general outcry on the high cost of credit in the East Africa Community region. This led to the passing of the interest cap by the Kenya parliament in 2016 whose objective was to lower the cost of credit and increase accessibility of bank credit. However, empirical evidence collected by the various players in the financial sector revealed negative implications far from the intended objectives in the short time that the law was in place (Central Bank of Kenya, 2018). Similar moves had been attempted in prior years before the enactment of this law but were not successful due to stronger calls for a free interest rates market. These attempts for calls to banks to lower their lending were also noted in the other economies in the region with the governor of Bank of Tanzania making such a call in 2017 and the Bank of Uganda urging commercial banks to lower their lending rates or face an interest rate cap (Reuters, 2020).

Since an investor postpones a current consumption in favour of an investment, this leads to exposure to a number of risks such as, default by the borrower, inflation due to loss of value, etc., and for this reason, a compensation will be demanded. This compensation, referred to as interest, is a key variable in the economy and the financial markets. It introduces the concept of present value, loosely defined as, a shilling at hand today is worth a shilling tomorrow and incorporates four key factors, namely default risk, inflationary expectation, liquidity and maturity (Patterson & Lygnerud, 1999). Liquidity refers to the relative ease and speed in which a financial assets can be converted into cash. Default risk will arise

due to the possibility of the issuer of bonds defaulting on interest payments and/or the face value at maturity of the bond. Credit rating of borrowers is a critical process and developed economies have formulated a rating system which classifies bonds according to the creditworthiness of the issuer (IMF, 2016). Financial intermediaries in the East Africa region have also taken steps which incorporate credit risk monitoring practices (Moronya, Onditi, & Nyagoi, 2016).

The World Bank data (2020) reported the average lending rate for Kenya for the period 2010 to 2019 averaged 15.8% compared to an East African Community average of 16.4%, high and upper middle income countries in the sub-Saharan region at 9.8%, BRICS countries at 15.01% and OECD countries at 5.04 %. Despite the lending rate for Kenya being relatively high compared to the global average, the ratio of non-performing loans to the gross loan during the same period which was quite close to that of the OECD countries. The risk premium, which as per World Bank statistics was measured as lending rate minus treasury bills rate, was however more than five points over the figure for the OECD countries.

The sub-Saharan credit market is not well developed and can be termed as riskier than that of developed economies. This was evidenced in the Kenyan market during the period of the interest rate cap as bank declined to extend credit to some sectors of the economy citing increased risk which could not be passed to the consumer (Kenya Bankers Association, 2019). In a meeting of central bank governors in May 2013, it was noted that African economies were in need of a vibrant financial sector which needed to support the growing economies (Collier, 2014). This growth, largely driven by the SME sector, has its own unique challenges and risks, requiring “financial actors accustomed to such risky investments”. These sentiments are echoed in another study on the reason for high lending interest rates in Uganda (Mugume & Rubatsimbira, 2018). This creates a catch-22 situation for the bank regulators where, on one hand they try to push for lower lending rates and on the other hand, they try to control the asset quality of the financial intermediaries. Debt, just like interest, is a key variable and can easily disrupt the financial stability of the economy, judging from the effects of the recent global financial crisis. This has made some economists argue that debt is not given its due importance despite the role it plays in the economy (Cecchetti et al., 2011).

This study therefore sought to examine the impact of interest rates on private sector debt in Kenya over the thirty year from 1990 to 2019. The specific objective was to evaluate the effect of interest rates on domestic private sector debt in Kenya. To achieve this objective, the rest of the paper is divided into section 2, literature review and section 3, methodology while section 4 contains the analysis, discussion and summary findings. Section 5 concludes the study.

2. Literature Review

2.1 Theoretical Review

The Liquidity Preference Theory was put forward by John Maynard Keynes in 1936. It states that interest rates are determined in the market through supply and demand forces, with the supply being quantity of money available in the economy as determined by the monetary authority. The theory considered the three motives of holding money, namely, transactional, precautionary and speculative and concluded that the speculative motive, which was the opportunity cost for holding money, represented by the interest rate payable on bonds, was the key function in the determination of interest rates. The theory asserts that interest rate was inversely related to money demand (Katarzyna, 2016; Mishkin & Serletis, 2011).

The Baumol-Tobin Transaction Demand Function was developed in the 1950s by William Baumol and James Tobin. They made a further improvement to the Keynes theory by demonstrating that balances held for transactional and precautionary motives were also sensitive to interest rates. The theory claimed that transactional and precautionary demand for money were negatively related to interest rates while income had a positive relationship (Mishkin & Serletis, 2011). This theory built on the trade-off between holding cash and forgoing interest on bonds. It was however criticized for its failure to consider that individuals can institute behaviours which limit their accessibility to cash and therefore check their expenditure behaviour without considering interest rates (Gonen, Weber, Tavor, & Spiegel, 2017).

The Loanable Fund Theory was developed by the neo-classic school and it claimed that interest rates were determined by demand and supply players in the loanable funds market (Ampatzoglou, Ampatzoglou, Avgeriou, & Chatzigeorgiou, 2015). The demand side comprise of firms and households who require funds for investments while the supply side are firms and households who use the loanable fund market for saving. The interaction between the demand and supply forces would determine an equilibrium rate of interest.

2.2 Empirical Review

All economies have limited resources and while some units have surplus economic resources and others deficits, a medium for transferring the surplus resources to the deficit units will be created by the economic units (Abasimi & Martins, 2018; Jaiblai & Shenai, 2019). One such scarce economic resource is money and the surplus units make funds available to the deficit units through the financial markets. Debt securities are financial claims that have features of negotiability, capable of being legally transferred from one unit to another through an organized exchange or over-the-counter markets. The securities can either be short-term, for example, treasury bills, promissory notes, commercial papers, etc., or long-term such as bond securities and debentures. Loans, on the other hand, are created when a creditor lends money directly to a debtor and are in most cases not negotiable nor transferable as provided in the contractual agreements. If there is evidence that loans are trading in a secondary market with market makers and frequent market quotes, it is recommended that these be reclassified as debt securities (IMF, 2016).

Private sector debt is defined as debts obtained by private institutions which do not fall under the control of the government (IMF, 2014) and can either be private financial sector debts or private non-financial sector debts (Cotton & Jagesser, 2018). Private non-financial sector debt, if used wisely and prudently, can lead to financial gains and growth. However, if used excessively or in an unwise manner and without moderation, it can result in financial ruin (Cecchetti, Mohanty, & Zampolli, 2011). In the recent past, an increase in global amount of corporate debt has been noted which was attributed to an expansionary monetary policy adopted by central banks (Çelik, Demirtaş, & Isaksson, 2020). These debts were noted to have lower overall credit quality, higher payback requirements, longer maturities and inferior covenant protection, making them extremely sensitive to changes in monetary policy. Other observable reasons to the increase in the levels of private sector debts over the last decade was rising income levels, rising real estate prices, favourable monetary policies influencing interest rates and less stringent credit policies by financial intermediaries (Stockhammer & Wildauer, 2017). One study argued that a loose monetary control policy in the form of low interest encouraged private sector debt and noted in the findings that low interest rate was a key predictor of household debt. Another study on private sector debt, financial constraints and the effect of monetary policy, Breitenlechner and Scharler (2020) quoted a number of studies which had reported a direct relationship

between interest rates and loan (Clyone, Ferreira, & Surico, 2018; DiMaggio, Kermani, Keys, Piskorski, Ramcharan, Seru, & Yao, 2017). A relationship noted in the studies was the effect changes in interest rates had on the disposal incomes. Another study noted that interest rates, amongst other macro-economic variables, had an influence on corporate bond market development in Nigeria (Nwede, Uguru, & Nkwegu, 2016).

Gross external debt is defined as existing and outstanding amounts of liabilities that require payment(s) of principal and/or interest by the debtor at some point(s) in the future and are owed to non-residents by residents of an economy (IMF, 2014). External debt private sector debt is defined as liabilities owed to non-residents by residents of an economy that are not public corporations or do not fall under government control. A study done by BIS (April, 2017) on the external debt composition and domestic credit cycles noted that international capital flows helped alleviate domestic credit demand gaps and, depending on the financing instrument used, was strongly associated with a growing domestic credit market (Avdjiev, Binder, & Sousa, 2017). A study done to examine the relationship between private capital flows and economic growth in Africa indicated that, in the case of least developed financial markets, private capital flows had a negative effect on economies with least developed financial markets (Agbloyora, Abora, Adjasib, & Yawson, 2014). The monetary action of one country can have an effect on the macroeconomic factors of another country. A study noted that the Banco de Mexico scheduled their monetary policy meetings to be convened after the meetings of the Federal Reserve Bank of US in order to forestall a US monetary policy action which would affect its currency valuation (Davis, 2017). Other studies have also noted that countries with an adverse external liability position were prone to mimic the interest rate movements of a base currency country in order to retain external capital (Forbes & Klein, 2015; McKinnon & Schnabl, 2004). Other studies have argued on the presence of an explicit relationship between external debt and domestic interest rates (Drobyshevsky, Trunin, Bozhechkova, & Sinelnikova-Muryleva, 2017; Turner & Spinelli, 2013).

Kenya has laid out economic strategies with the objective of pushing the country to an industrialized middle income country by the year 2030 targeting an annual average growth of 10% (KIPPRRA, 2019). The report noted that to achieve that level of economic growth, GDP increase of at least 30% was required and this would inevitably call for an increase in private sector debt. A report on the East Africa economic outlook noted that the EAC countries have in the recent past been recording higher economic growth rates (African Development Bank, 2019). It has also been noted empirically that economies with higher economic growth have higher leverage and these economies tend to have longer-term debt financing and lower short-term debt (Almeida & Tressel, 2020; Babu, Kiprop, Kalio, & Gisore, 2015). Another study noted that the ratio of domestic private sector credit to GDP was the most robust variable in modelling bank, debt and currency crises (Babecky, Havranek, Mateju, Rusnak, Smidkova, & Vasicek, 2014). A well-developed financial market enables flow of funds to deficit units and has a positive effect on economic growth (Agbloyora, Abora, Adjasib, & Yawson, 2014). On the contrary, a study by OECD reported that GDP growth was aided by more use of equity funding than debt issues by private sector (Cournède & Denk, 2015).

Money has two key functions namely, a medium of exchange and a storage of value and both play a key role in the definition of broad money. Broad money is defined as the sum of all liquid financial instruments which are acceptable in an economy as a medium of exchange including those which can be converted into a medium of exchange at a short notice and close to their nominal value (IMF, 2016). A healthy banking sector has liquidity features and studies have shown a positive and significant relationship between money supply and credit to private sector (Akinlo & Oni, 2015). In Kenya,

extended money supply increased concurrently with domestic credit over the last five years from 2015 to 2019 (KNBS, 2019) and this supports empirical evidence that monetary policy, which has an effect on bank liquidity, is a key determinant of bank credit (Akinlo & Oni, 2015; Ufoeze, Odimgbe, Ezeabalisi, & Alajekwu, 2018).

According to the interest rate parity, a relationship exists between interest and currency exchange rates. The theory holds that the forward exchange rate will be equal to the spot currency rates times the ratio of home country interest rate and foreign country interest rate, and if this fails to hold true, arbitrage activity will bring about interest parity relationship. This is further alluded by the Law of one price which states that, assuming no transaction costs, assets with identical payoffs should have identical prices thus eliminating any existence of arbitrage (Liao, 2016). A study conducted on 40 EU and OECD countries covering the period 1970 to 2010 noted that rising domestic private credit played a key role in currency crises in developed economies (Babecky et al., 2014). Another study on the relationship between capital flight and exchange rate volatility in Nigeria observed that domestic credit outflow had a damaging effect on the exchange rate although it was noted that differentiating between capital flight and domestic credit outflow was a challenge in developing economies (Uguru, Ozor, & Nkwagu, 2014). A study on the impact of interest rates on foreign direct investment in Sierra Leone indicated a relatively high correlation between interest rates and exchange rates (Alie & Hongliang, 2015).

3. Methodology

This section lays down the methodology which was followed in order to answer the research question. The study used the time series longitudinal research design. Data was collected from Central Bank of Kenya (CBK), Kenya National Bureau Statistics (KNBS) and World Bank reports for the thirty-year period from 1990 to 2019. The dependent variable was domestic debt, measured as domestic credit to private sector as a percentage of GDP (Akinlo & Oni, 2015; Frimpong & Marbrah, 2010). The independent variable was interest rate measured as the annual weighted average of commercial bank lending and overdraft rate (Akinlo & Oni, 2015; Hameed & Amen, 2011). The control variables were external private sector debt, which was measured as private sector external long-term debt as a percentage of GDP (Frimpong & Marbrah, 2010), annual GDP growth (Akinlo & Oni, 2015; Hameed & Amen, 2011), exchange rate, measured as the annual average USD-KES exchange rate (Akinlo & Oni, 2015; Jaiblai & Shenai, 2019) and money supply, measured as extended broad money (M3) as a percentage of GDP (Akinlo & Oni, 2015; Hameed & Amen, 2011).

The study estimation model was presented as follows:-

$$DDEBT=f(IR, EDEBT, GDP, MONEY, ERATE) \quad (1)$$

where; DDEBT was domestic credit to private sector, IR was commercial banks weighted average lending rate, EDEBT was private sector external debt, GDP was annual GDP growth, MONEY was extended broad money (M3) and ERATE was annual average USD-KES exchange rate.

The study used the Prais-Winsten regression estimator which corrects for first-order serially correlated residuals (Stata.com).

The model was presented in econometric form as follows:-

$$DDEBT=\alpha+\beta_1tIR+\beta_2tEDEBT+\beta_3GDP+\beta_4tMONEY+\beta_5tERATE+U \quad (2)$$

where: α was the constant intercept, tIR was the log of commercial bank weighted average lending rate, GDP was annual GDP growth, $tEDEBT$ was the log of private sector external debt, $tMONEY$ was the inverse of extended broad money (M3), $tERATE$ was the cubic root of annual average USD-KES

exchange rate and U was the error term. The data for IR, EDEBT, MONEY and ERATE were transformed in order to address normality and outliers.

4. Results and Discussion

Table 1. Descriptive Statistics

| Measure | IR | DDEBT | EDEBT | GDP | ERATE | MONEY |
|--------------------------|--------|--------|---------|---------|---------|--------|
| Observations | 30 | 30 | 21 | 30 | 30 | 30 |
| Mean | 0.1854 | 0.2597 | 0.0331 | 0.0389 | 1.8370 | 0.4000 |
| 50% Percentile | 0.1681 | 0.2579 | 0.0138 | 0.0430 | 1.8811 | 0.3955 |
| Standard Deviation | 0.0561 | 0.0425 | 0.0381 | 0.0237 | 0.1602 | 0.0515 |
| Minimum | 0.1208 | 0.1850 | 0.0006 | -0.0080 | 0.3033 | 1.3601 |
| Maximum | 0.3111 | 0.3425 | 0.1211 | 0.3033 | 0.5261 | 2.0146 |
| Coefficient of Variation | 30.23% | 16.36% | 115.10% | 60.97% | 8.72% | 12.88% |
| Skewness | 0.8856 | 0.2094 | 1.1930 | -0.3405 | -1.5478 | 0.8386 |
| Kurtosis | 2.6135 | 2.5822 | 2.9806 | 2.1615 | 5.0609 | 3.6375 |

Note. Key: IR-Commercial banks weighted average lending rate; DDEBT-Domestic credit to private sector (% of GDP); EDEBT-Private sector external debt (% of GDP); GDP-Annual GDP growth; ERATE-Annual average exchange rate (USD-KES); MONEY-Extended broad money (M3).

The descriptive statistics on Table 1 indicated that the median of most of the variables was very close to the mean. The Shapiro-Wilk test for normality however failed to reject the null hypothesis that the data is normally distributed for private sector domestic debt and annual GDP growth both of which returned p-values greater than 0.05. The test results for the other variable reported that these were not normally distributed. The skewness and kurtosis results however indicated that commercial banks weighted average rates, domestic credit to private sector, extended broad money and private sector external debt were positively skewness while. Annual GDP growth and annual average exchange rate had negative skewness.

The Pearson's product-moment correlation results are analysed in Table 2 below. Domestic credit to private sector had a moderate negative and significant correlation with commercial bank lending rate, a strong negative and significant negative correlation with private sector external debt and a strong positive and significant relationship with exchange rate.

Table 2. Correlation Matrix

| | tIR | DDEBT | tEDEBT | GDP | tMONEY | tERATE |
|--------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|--------|
| tIR | 1.000 | | | | | |
| DDEBT | -0.3928* 0.0318 30 | 1.000 | | | | |
| tEDEBT | 0.5496* 0.0099 21 | -0.6479* 0.0015 21 | 1.000 | | | |
| GDP | -0.5007* 0.0048 30 | 0.4848* 0.0066 30 | -0.4130 0.0628 30 | 1.000 | | |
| tMONEY | -0.4123* 0.0236 30 | -0.1478 0.4356 30 | -0.0214 0.9267 21 | 0.1300 0.4935 30 | 1.000 | |
| tERATE | -0.4326 0.0170 30 | 0.7589* 0.0000 30 | -0.6982* 0.0004 21 | 0.4907* 0.0059 30 | -0.0913 0.6314 30 | 1.000 |

Note. Key: The sign * denotes a significant correlation at 95% confidence level.

The fitted econometric model was presented as follows:-

$$\text{DDEBT} = 0.225 - 0.0662\text{tIR} - 0.003\text{tEDEBT} + 0.0882\text{GDP} - 0.0416\text{tMONEY} + 0.0017\text{tERATE} + u_t$$

(0.029) (0.082) (0.748) (0.757) (0.046) (0.829)

and $u_t = .8152u_{t-1} + e_t$

$$N=21 \quad R^2 = 74.47\% \quad \text{rho} = 0.8152$$

The p-value of the model, prob>F was significant, an indication that the regressors were good predictors of the dependent variable. The R-squared of the model was 0.7447, which meant that 74.47% of the variations in domestic credit to private sector was explained by commercial bank lending rates, private sector external debt, annual GDP growth, extended broad money (M3) and exchange rate. The balance of 25.53% was explained by other factors not included in the above model. The regressors' coefficients indicated a negative relationship between domestic credit to private sector and commercial bank lending rates, private sector external debt and extended broad money supply. It however had a positive relationship with annual GDP growth and exchange rate.

The relationship between domestic credit to private sector and extended broad money (M3) was negative and significant at 95% confidence level. This appears to support the assertions of the Keynes' liquidity preference theory that money demand is negatively related to interest rates. This implies that if financial intermediaries anticipate that interest rates are bound to drop in the future due to excess money supply, they may choose not to advance credit to the private sector (Mishkin & Serletis, 2011). The same fact was reported by the Pearson correlation coefficient which indicated a negative significant relationship between extended broad money (M3) and commercial bank lending rates. It however differs with the observation in the study by Akinlo and Oni (2015) that the relationship was positive. Domestic debt to private sector had a negative relationship with commercial banks' lending rates which was insignificant at the 95% confidence level but significant at 90% confidence level.

There was a positive and insignificant relationship between domestic debt and GDP growth. The direction of the relationship was in agreement with a study conducted on finance and economic growth in OECD and G20 countries which noted that finance was a key boost in the economic growth of these countries (Cournède & Denk, 2015).

5. Findings and Conclusion

This study sought to examine the impact of interest rates on private sector debt in Kenya over the thirty year period from 1990 to 2019. The specific objective was to evaluate the effect of interest rates on domestic private sector debt and the study noted that interest rates has no significant relationship with private sector debt at 95% level of confidence but significant at the 90% level of confidence. The results indicated a negative relationship between the regressor and the regress and which is in agreement with the loanable fund theory, that as interest rates rise, the demand for debt will decrease due to the increased cost. The relationship between domestic debt and money supply, was noted to be negative and significant. The Pearson correlation coefficient statistic also reported a negative correlation between lending rate and money supply and concurred with the both the liquidity preference theory and the Baumol-Tobin transactions theory which states that interest rates and money demand are inversely related. The relationship between private sector domestic debt and the other control variables, namely, annual GDP growth and annual exchange rates was noted not to be significant.

The study noted that that money supply was a more significant variable in the determination of domestic credit to private sector thus making it a more effective tool to spur domestic credit and concurrently manage interest rate. This is a reflection of the key role played by monetary policy tools in the determination of credit in the domestic market. The Monetary Policy Committee of the Central Bank of Kenya actively participates in the determination of lending cost through its bi-monthly review of the central bank rate and it is worthwhile to note that the defunct Banking Amendment Act had pegged the interest rate cap to this rate. The attempt to usurp the monetary policy tools to push up domestic credit through the Banking Amendment Act (2016) were hampered by the actions of the supply side who were unwilling to extend credit due to the perceived low lending rate. Previous studies conducted have indicated that attempts to interfere with interest rates had adverse effects on GDP and this was not an advisable option. Other empirical evidence has also shown that too much debt can have an adverse effect on the economic growth of a country and it is important that this be managed effectively.

The study also noted that the banking sector largely dominates the domestic financial markets. The Kenya financial sector stability report released in 2019 reported that the assets of the banking subsector were close to 50% of the annual GDP, a reflection of the sector's predominance in the domestic economy. This has resulted in commercial banks being on the receiving end each time the issue of cost of lending to private sector arises. It also creates a major financing imbalance since banks give preference to short-term over long-term lending and therefore fail to meet the financing needs of private sector firms. An oversized banking sector can be detrimental to the domestic economy since it leads to an excessively regulated financial sector which does not allow for free participation of market forces.

The lack of a well-developed bond market in Kenya has also contributed to the stress faced by commercial banks. The private sector is then forced to access funds from international markets to fill the finance gaps in the domestic market and this introduces other exposures to the firms such as sudden capital outflows during times of global financial crises and higher exchange losses in times of adverse exchange rate movements. Empirical evidence has proved that strong debt markets are evidence of mature financial systems and they assist in creating stability in the domestic financial markets by diversifying risk. Inefficiencies in the banking sector can also be addressed by bond markets in addition to encouraging credit discipline on the part of the borrowers.

There is need for future research to determine the effect of credit risk exposure of financial intermediaries. One argument advanced by commercial banks was that the capped interest rate did not take into account the risk profiles of the borrowers yet World Bank data (2020) on non-performing loans of the East African Community and the major economic blocs did not indicate large variations. Measuring the creditworthiness of borrowers is vital as it reduces the risk of adverse selection. This is one aspect lacking in the domestic market considering the higher number of defaults rates recorded in Kenya in recent years mainly in the retail sectors. This has made investors to be sceptical making it hard for firms to raise funds in the financial domestic markets and leads to crowding out in the loanable fund market.

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