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RESEARCH PAPER

Public Domestic Borrowing and its Effect on Deposit Growth, Private Sector Credit and Interest Rates: Evidence From Uganda

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ABSTRACT

PURPOSE: This paper investigates the effect of public domestic borrowing (PDB) on deposit growth (DG), private sector credit (PC), and interest rates (IR) among commercial banks in Uganda.

DESIGN/METHODOLOGY/APPROACH: Three equations are formulated to allow the application of the Generalized Methods Moment (GMM) approach to estimate the equations while controlling for bank internal factors, industry level and

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macro-economic indicators. Data for commercial banks were drawn from annual reports provided by a Bank of Uganda Depository Corporation survey (2008-2019).

FINDINGS: The study finds a significant negative relationship between PDB and IR. Although this result is not consistent with the behavioural expectations, it suggests that an increase in PDB would lower IR and increase savings and deposits. The study further finds evidence to support the fact that high PDB facilitates business undertaking and improves deposit growth in the banking sector. Lastly, the study result reveals that banks create more loans to the private sector and households when PDB reduces.

PRACTICAL IMPLICATIONS: Our results contribute to academia and policy on the effective use of public domestic borrowing to harness deposit growth, private sector credit and interest rates. The results suggest that efficient and effective utilisation of public borrowed funds would ease the cost of doing business, boost labour productivity, output, employment, savings and taxes; all these are associated with improved GDP and deposit growth that causes a reduction in the lending rate charged by banks.

ORIGINALITY/VALUE: Existing literature has not paid enough attention to the effect of public domestic borrowing on the three specific outcomes, deposit growth, private sector credit and interest rates, mostly in the African context.

KEYWORDS: *Public domestic borrowing; deposit growth; private sector credit; interest rates*

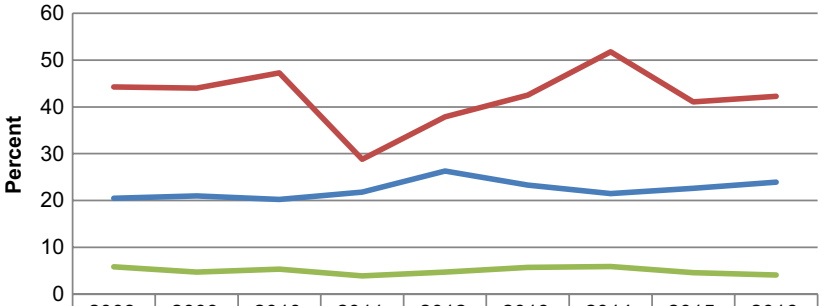
BACKGROUND

While there has been an increasing wealth of empirical work on the effect of public domestic borrowing on private sector growth, bank efficiency and economic stability in contemporary times, this has remained scarce in developing economies. The existing empirical work indicates that government borrowing creates competition for loanable funds within the private sector, resulting in high interest rates that affect enterprise growth (Tumwine *et al*., 2018; Tennant and Folawewo, 2009). This is further supported by an International Monetary Fund (IMF) report that states that crowding-out of private sector credit is an important reason why fund supported programmes limit domestic financing of the private sector (IMF, 2005a, p.34). Earlier research by Were and Wambua (2014) indicates that public sector borrowing reduces funds available to the private sector, and banks tend to respond by increasing lending rates. This is because lending to the private sector and other individual borrowers are considered risky and the chances of them defaulting is higher compared to the public sector that is highly secure. Consequently, commercial banks direct much of their loanable funds to the public sector, viewed by many scholars as crowding-out.

While this reprehensive phenomenon covers the biggest part of the literature, there is no systematic evidence on the crowding-out effect of public borrowing from the banking sector on private credit (Tumwine *et al.,* 2018; Ahokpossi, 2013). For instance, when the government borrows one dollar more from the domestic banking, how much does it reduce the private sector in an emerging economy? Or does it lead to more private credit (crowding-in) or crowding-out? To the best of our knowledge, there is no reliable answer to these questions in the existing literature.

FACTS ABOUT PUBLIC DOMESTIC BORROWING IN UGANDA

As a way of revitalising the private sector, many governments across Africa adopted new financing strategies that would provide cheap and readily available funds for investment in infrastructure, and reduce the cost of doing business. In order to achieve this, the government of Uganda has been supporting its budget by using external and internal borrowing so there are enough finances to support infrastructure development and other social services deemed to stimulate investment, boost economic activity and lower the cost of doing business, increase savings and overtime, scale down the lending rates. However, as Figure 1 shows, credit supply to the public sector has remained extremely high, averaging to 45% in relation to gross loans, GDP growth has remained at the same level (averaging 5%), while the country's lending rates have remained high (averaging 22%), and unresponsive to the growing public domestic borrowing that was supposed to provide infrastructure to boost the private sector, reduce the cost of doing business, create employment and improve savings.



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ave. Interest rate (%)	20.5	21	20.2	21.8	26.3	23.3	21.5	22.6	23.9
PBR to Gross loans (%)	44.3	44	47.3	28.8	37.9	42.5	51.8	41.1	42.3
GDP growth (%)	5.8	4.7	5.3	3.9	4.7	5.7	5.9	4.6	4.1

Figure 1: Trend in PSB, GDP Growth and Interest Rate

Source: Bank of Uganda Annual Report (2008-2016)

The study benefits scholars, policy-makers and practitioners who have an explicit understanding of the effect of public domestic borrowing on deposit growth, private sector credit and interest rates in emerging economies. It will also guide government on the possible policy direction for the maximum utility of resources borrowed.

The rest of the paper is organised as follows. The next section presents the empirical literature, followed by a section describing the theoretical framework and econometric model. This is followed by a section presenting the controlling factors for the study variables, data sources and estimation procedure, results and discussion and the final section contains the conclusions.

LITERATURE REVIEW

Theoretical Literature Review

Public Debt Theory

The issue surrounding public domestic borrowing has not been a central topic in studies of public debt and political economy. Classical research areas related to public domestic borrowing were on the debt burden and inter-temporal debt effects. More recently, the focus has shifted from public sector borrowing to public debt determinants with two viewpoints; the normative and positive approaches (Barro, 1979).

According to Robert Barro (1979), the normative approach to public debt indicates that the state is a benevolent social planner whose aim is to maximise the welfare of its citizens. He suggests that the effects of fiscal policy (taxation) are least distorted if tax rates are kept constantly at the same level. Since economies pass through periods of expansion and recession, with constant tax rates they will undergo alternate periods of budget deficit and budget surplus. In addition, the appearance of deficit or surplus will depend on the effect that some external factors have on public expenditures. Therefore, borrowed funds are spent in periods of temporary increase in public expenditures, while in post-war periods unchanged rates will generate a budget surplus that will compensate for the present deficit in terms of its current value (Alesina and Perotti, 1994). In other words, the idea of this approach is that tax rates smooth out with time and will have the most neutral effect on the economy, termed as an equilibrium approach to fiscal policy or tax smoothing policy. Therefore, the appearance of public debt is a logical result of pursuing such a policy in the periods when it is justified.

An alternative to the normative approach in explaining public debt is the positive approach. A positive approach abandons the presumption of the state as a benevolent social planner, and considers that politicians decide on the source of financing based on their own interest and specific limitations set up by the institutional environment (Heinemann, 1992). Therefore, excessive deficit tendencies emerge from the self-willed behaviour of politicians and bureaucrats, whose aim is to secure re-election and retain their power and other related benefits (Ribeiro *et al.*, 2012). Models based on a positive approach to deficit and public debt are much more established than models based on the normative approach. In other words, the very fact that in modern democracies politicians behave like any other citizens (looking after themselves instead of social welfare), explains the recent appearance of relatively high deficits and public debt manifested through domestic borrowing and, worst of all, external borrowing. The political attractiveness of debt suggested by the positive approach may even take borrowing across sustainable limits. This justifies the need to monitor the dynamics of borrowing by revealing sustainable levels of public debt and by limiting growth of debt before it exceeds sustainability level.

Theory of Expenditure

Peacock and Wiseman's (1990) analysis on public expenditure originates from the analyses of political theory of public determination that suggests that governments like to spend more money and

citizens do not like to pay taxes, and that governments need to pay attention to the demands of their citizens by using borrowed funds (domestic or external). As the economy expands, government's incomes grow and tax revenues rise; this enables an upward trend in public expenditure. However, with a divergence between what people regard as being a desirable level of public expenditure and a desirable level of taxation, and during periods of social upheaval, the gradual upward trend in public expenditure is disturbed. Second, Peacock and Wiseman (1990) further linked the public expenditure ideology to wars and other natural calamities. The authors indicate that disasters are not paid for from taxation but rather from immediate domestic borrowing. Another effect that they thought might operate was the "imperfection effect" that arises from people's keener awareness of social problems during periods of upheaval. By way of managing such unpreparedness for events, governments are able to finance these higher levels of expenditure through increased domestic borrowing (Cohen, 1999).

From the review of the existing theories, the effect of public domestic borrowing and its effect on deposit growth, private sector credit and interest rates has remained non-figurative and in some cases contradictory to varying degrees, a necessity for this study.

Empirical Literature

Public domestic borrowing is a way of reducing taxation and encouraging the growth of the private sector. This belief follows the nature of finance identities that governments borrow to fund key priorities whose use by citizens accrue returns and stimulate economic growth and development (Ribeiro *et al.*, 2012). However, the increase in government expenditure in the absence of any change in the money supply raises output, income and the transaction demand for money. Given a constant money supply, the increase in the transaction demand for money and increase in supply of both domestic and external debt in the market, pushes interest rates upwards. This reduces private sector spending on investment, purchases of consumer durables and, in some cases, state and local government expenditure.

According to Were and Wambua (2014), for public domestic borrowing to grow and stimulate the private sector and the economy, two important qualifications are necessary. First, the purpose for which public borrowing is undertaken: is it for consumption or investment. Second, the size of the tax base itself: if the tax base is small, it necessitates more domestic and, worse, external borrowing, while a large tax base may not necessitate either domestic borrowing or external borrowing. This could happen in a variety of ways: for example, a tax cut may overcome a deficiency of demand and add to real output; in the long run, a tax cut may also act as an incentive to raising the supply of output by the private sector. Either way, it would generally be true that the need for finance could be fully met through public domestic borrowing or external debt (Tumwine *et al*., 2018).

Closely related to the present study is that of Jimenez *et al*. (2014) that provides evidence on the links between purchasing power, demand for loans, deposit creation and interest rates. Using data from Egyptian commercial banks, the study tests hypotheses about the inter-relationships

among interest rates and demand for loans, purchasing power and ability to pay. A negative effect between demand for loans and interest rates for a most efficient bank was observed and supports the view that banks that perform well are more suited to attract more savings and increase their deposits. The study attributed the negative effect to the level of business activity and private sector productivity, employment and output growth. The study further finds that banks with more deposits operate efficiently because they lend money at a lower rate, enabling borrowers to pay their loans as scheduled, thereby providing funding for the next borrower. Moreover, a straight upward line is detected between loan growth and deposits, indicating that operating efficiency improves at a decreasing lending rate as loan growth rate increases. This suggests increasing loanable funds because of the ability of savers to increase their savings at banks; should induce banks to reduce the cost of lending so as to attract more borrowers (Tumwine *et al.,* 2018).

Folawewo and Tennant (2008) investigated the effect of public domestic borrowing, a macro-economic indicator on interest margins, using a dynamic panel analysis in 33 Sub-Saharan African (SSA) countries. The results of the study show that high public domestic borrowing creates competition for loanable funds with the private sector, resulting in banks increasing interest rates. With respect to macro-economic variables, Aboagye *et al*. (2008) indicated that an increase in public domestic borrowing has the effect of lowering lending rates; however, it is not statistically significant in all countries but depends on who borrows. In his study on the determinants of bank interest margins in Sub-Saharan Africa, Ahokpossi (2013) found a significant positive effect between public domestic borrowing and interest rates, suggesting that an increase in public domestic borrowing follows an increase in interest rates. However, the findings by Ben-Khedhiri *et al.* (2005) in Tunisia fail to find a significant influence of public domestic borrowing and output growth on bank interest rates.

The existing empirical literature has not provided a clear understanding on the interplay of public domestic borrowing on the three specific outcomes—private sector credit, interest rates and deposit growth. Most studies have been done in isolation with emphasis on interest rate spreads and general macro-economic indicators. However, while analysing variables of tightly focused and contentious issues that have an impact on growth and development, Osei-Assibey and Asenso (2015) and Ribeiro *et al*. (2012) suggest that there is need for evidence that stresses the salient issues in the banking sector, and specific level outcomes that are inseparably inter-related. Therefore, the contradictions in both theory and existing scholarly work make this study imperative.

THEORETICAL FRAMEWORK AND ECONOMETRIC MODEL SPECIFICATION

Within the framework of the role of public debt in financial institutions, Ribeiro *et al.* (2012) indicated that public domestic borrowing can have unintended consequences. This is because, in response to an increase in government securities to gross loans ratio, a bank might attract deposits and raise its probability of charging low interest rates. For example, increases in deposits by savers

create more funding, prompt interest rate and credit adjustments, and result in changes in banks' risk-taking tendencies to serve both public and private demanders to stay competitive. However, the theory hypothesises that public borrowing is used in periods of temporary increases in public expenditure to generate budget surplus and compensate for the present deficit in terms of its current value (Alesina and Perotti, 1994). This behaviour maintains taxation of the private sector and its intended consequences to productivity, output and savings that create more loanable funds for banks. As far as deposit growth is concerned, Karazijienė (2009) indicates that imperfections in the utilisation of funds borrowed by governments may affect deposit growth if the borrowed funds are not put to rightful use that eases the cost of doing business. Moreover, Cohen (1999) states that when government expands the scope of social services, the conditions for savings and money multiplier expand. For instance, economic stability induces investment in perceived high risk sectors, such as agriculture and industry, which increases output at a low cost, and creates high end employment that eventually creates savings that end up with banks. The increasing deposits put upward pressure on interest rates and, eventually, interest rates are scaled down (Ahokpossi, 2013).

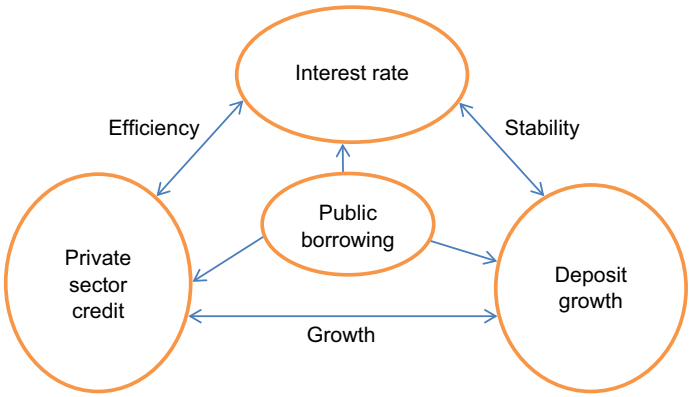


Figure 2: Public Domestic Borrowing and its Effect on Bank Level Outcomes
Source: Adapted and modified from existing literature

In Figure 2, the extent of public domestic borrowing is central to the growth and stability of the private sector. The growth in the private sector stimulates productivity, output and employment that in turn trigger counter-demands from banks' deficit financing units. This implies that all these variables are endogenously dependent and jointly determined. In this regard, we model three separate equations as indicated below:

$$IR_{it} = \beta_1 + \beta_2 PDB_{it} + \beta_3 EC_{it} + \beta_4 DG_{it} + \beta_5 MS_{it} + \beta_6 DPG_{it} + \beta_7 PSC_{it} + e_{1t} \quad (1)$$

$$DG_{it} = \beta_{10} + \beta_{11} PDB_{it} + \beta_{12} EC_{it} + \beta_{13} MS_{it} + \beta_{14} DPG_{it} + \beta_{15} IR_{it} + e_{2t} \quad (2)$$

$$PSC_{it} = \beta_{20} + \beta_{21}PDB_{it} + \beta_{23}EC_{it} + \beta_{24}DG_{it} + \beta_{25}MS_{it} + \beta_{26}DPG_{it} + \beta_{27}IR_{it} + e_{3t} \quad (3)$$

where IR_{it} is interest rate, PDB_{it} is public domestic borrowing by government from commercial banks, DG_{it} is deposit growth due to customer deposits, PSC_{it} is private sector borrowing, EC_{it} is equity capital, MS_{it} is the market share (MS) controlled by a bank, DPG_{it} is the domestic product growth rate. The residual terms are represented by $e_{1,2,3t}$ while the Betas (β_s) are the impact coefficients of all the variables.

Measuring Public Domestic Borrowing

Public domestic borrowing (PDB) is the ratio of government borrowing from commercial banks to total loans and advances to customers. This ratio measures the extent to which not only government borrowing crowds out funds that would have been used by the private sector but also the level of government dependency on commercial banks for funding its activities. The effect of PDB and how it affects each of the dependent variables is shown in the equations. Equation (1) represents bank efficiency, equation (2) represents stability, and equation (3) represents growth. Based on the specified equations, we estimate the impact of PDB on efficiency, stability and growth.

PDB and Interest Rate (IR)

IR is measured as a percentage rate of interest income receives on loans and advances against the average stock of net loans and advances to customers. In some cases, however, interest rates remain high despite a bank's operations being efficient, owing to the need to be more profitable. Therefore, government reliance on commercial bank funds for its deficit financing, however efficient a bank is, may increase lending rates, especially in the absence of any change in the money supply. Given a constant money supply, an increase in transaction demand for money and increase in supply of debt in the market push interest rates upward. Emran and Farazi (2009) concludes that financing public spending by a growth of the public debt instead of increasing taxes leads to a rise in interest rates. Therefore, we expect a positive effect between PDB and IR.

PDB and Deposit Growth (DG)

Deposit growth, representing stability in funding, is measured as a ratio of total customer deposits (time and savings account balances) to total funding. PDB is expected to have a negative effect with DG, as banks are likely to lend more funds when they have more excess liquidity arising from customer deposits as their savings.

PDB and Private Sector Credit (PSC)

PSC is the ratio of loans and advances to customers to sector gross loans and advances. Its increasing trends indicate the growth rate in the private sector and its outcomes of productivity, output that drives economic growth and development. PDB is believed to finance infrastructure that provides

conductive private sector undertaking. Increasing public financing needs self-governing debt yields that induce an increased net flow of funds out of the private sector into the public sector. We expect a positive effect between PDB and PSC.

CONTROLLING FOR OTHER BANK INTERNAL FACTORS, INDUSTRY AND MACRO-ECONOMIC INDICATORS

Bank internal factors include equity capital (EC) provided by shareholders to finance asset growth and act as a cover to potential credit losses. This is a key factor when safety and soundness of a particular bank is being assessed (Osei-Assibey and Asenso, 2015). Accordingly, an adequate capital base serves as a safety net as well as funding a variety of bank activities. In addition to absorbing possible losses and providing a basis for maintaining depositor confidence in a bank, Equity Capital also serves as the determinant of a bank's lending capacity and risk taking activities (Osei-Assibey and Asenso, 2015). Greuning and Bratanovic (2000) indicate that capital availability determines not only the maximum level of assets a bank holds, but also the amount and cost of capital it impacts on a bank`s efficiency and its competitive position.

The industry factor includes concentration that is concerned with the degree to which banks and their branches serve the industry in a market. A more concentrated market implies that customers have fewer choices, competition is less and the market power of individual banks is greater. Consequently, the lending rates of a bank from such a concentrated market are high because of monopolistic tendencies (Cetorelli, 2003). On the other hand, concentration may offer competitive advantages and the lending rate is not increased, especially if the benefits are in the form of a more relaxed environment in which costs are allowed to rise and revenue-enhancing opportunities are foregone (Berger and Humphrey, 1997). Therefore, concentration may lead to greater revenues because of low lending rates; however, greater expenses incurred by banks in more concentrated markets will be offset.

For the purpose of this study, macro-economic indicators include GDP growth that is considered a proxy for the business cycle. Choon *et al.* (2013) found a positive impact of GDP growth on DG and stability of the private sector.

DATA SOURCES AND ESTIMATION PROCEDURE

Data Sources

This study uses quantitative secondary income statement and balance sheet data of commercial banks extracted from Bank of Uganda depository corporation survey. BoU regulates all commercial banks for which they are obliged to report periodically. To ensure reasonable coverage for commercial banks, we include only those banks with complete data in a given year. This yielded a dataset covering 20 commercial banks for 2008-2016, with 180 individual commercial banks accounting observations.

Estimation Procedure

This study identifies the system GMMs estimation technique as the appropriate parameter for the estimation. This is because (i) it overcomes the problem of endogeneity by lagged values of explanatory variables as instruments, (ii) it eliminates the problem of information loss in cross-sectional regressions, because it allows for multiple observations for each bank across time, (iii) it allows for the use of level and lagged values of the variables in the estimation equation, and (iv) it is able to give consistent estimates, even when time periods in years are small and the number of banks is large.

Diagnostic Tests

Hausman Test

Although the econometric theory recommends random effect estimation for balanced panels among different units, a confirmatory test using the Hausman specification test was necessary to evaluate the efficiency between fixed effects and random effects. The p-value being more than 0.05, the acceptance of random effects regression model over fixed effects estimates is confirmed (see Table 1).

Table 1: Hausman Test Summary

Test Summary	χ^2 Statistics	χ^2 df	Prob
Cross section random	11.43	7	0.2397

Source: Constructed by authors

Robustness Test

In order to ascertain whether the variables, if monitored over a specific time as is the case of longitudinal panel data, are non-consistent, a Breusch-Pagan Langrage Multiplier (LM) test was carried out to test for heteroscedasticity in the regression model (see Table 2).

Table 2: Breusch and Pagan Lagrangian Multiplier Test

	Variance	SD = Square Roof of Variance
PDB	18.81	4.337
E	6.51	2.551
U	3.19	1.786

Notes: Test Var (u) = 0; $\chi^2(01) = 19.38$; $P > \chi^2 = 0.000$
Source: Constructed by authors

The results show that heteroscedasticity of the error term exists (Prob > χ^2 = 0.000). To overcome this, the instrumental variable, robust, is applied in the random effects regression model to reduce the expected risk because it is an efficient estimator of panel data models. It provides consistent estimates, addresses the endogeneity problem and allows for efficient estimation in the presence of heteroscedasticity (Baum *et al*., 2003).

RESULTS AND DISCUSSION

The equations are separately estimated using the dependent variables, interest rate (IR), deposit growth (DG), and private sector credit (PC). The regression results of the three models are shown in Table 3 and discussed below.

Interest Rate as a Dependent Variable

The results on interest rates, which represents banking efficiency, reveal a significant negative effect with PDB. Although this is in contrast with the study expectations, the result suggests that an increase in PDB would lower interest rates holding other factors constant. The reason could be that, first, governments are risk-free borrowers and banks would prefer to lend to them at low interest rates; also, it comes with no monitoring costs. Second, governments borrow for investment in assets to boost business undertakings. In the long run, upon utilisation by the private sector, the investment would reduce the cost of doing business and increases savings. Over time, banks would have more deposits to lend at a low rate. This result is not consistent with the findings of Tumwine *et al*. (2018) who find that governments' heavy reliance on the domestic banking sector for deficit financing increases competition for funds and causes interest rates to rise.

Table 3: Regression Results

Variables	Interest Rate (IR)	Deposit Growth (DG)	Private Sector Credit (PC)
PDB	-0.058* (-1.94)	0.303*** (3.89)	-0.065* (-1.58)
EC	0.107** (2.16)	0.074 (0.58)	-0.021 (-1.91)
MS	-0.383** (-2.07)	0.101** (1.48)	0.179*** (4.79)
GDP-Growth	-0.058* (1.91)	0.078* (1.28)	0.014* (1.47)
DG			0.052** (1.72)
PC	-2.106* (-1.68)		
IR		-0.595*** (-2.94)	
Constant	17.753*** (4.26)	14.094*** (3.137)	21.703*** (5.173)
Number of banks	20	20	20
Observations	180	180	180
P-value	0.0000	0.0001	0.0000
AR^2 (P-value)	0.327	0.143	0.629
Rho	0.509	0.524	0.514

Notes: The dependent variables in the three regression models are Interest Rate (IR), Deposit Growth (DG) and Private sector Credit (PC) respectively. Figures in parentheses are t-statistics, and *, ** and *** indicates statistical significance at the 10%, 5% and 1% levels respectively

Source: Constructed by authors

The result for EC and IR is positive and, under normal accounting practice, interest rates respond to increased interest income and earnings after tax (EAT); this has a counter-intuitive effect on retained earnings and EC. However, other study results in model one establish a significant negative effect between MS and IR. This could be due to the concentration of banks and their branch networks, with the experience in Uganda, first define MS banks as demonstrating a less concentrated market. This implies that an increase in branch network increases competition and efficiency, and attracts more deposits because branches are spread. This necessitates banks to lower lending rates so as to attract customers to borrow the growing deposits. Further, due to increased use of agency banking, depositors find ease in savings and moreover without a charge on such transactions. This has attracted savings and reduced the operating costs that would have increased IR. The result also established a significant negative effect between GDP growth and IR. This result suggests that the growth in GDP reduces bank interest rates, an indication that banks are more likely to charge a low lending rate on loans to the private. As economic stability espouses an increase in savings and deposits, banks would, in turn, lower interest rates to borrowers.

Deposit Growth as a Dependent Variable

Results in Table 3, column 3 with deposit growth as a dependent variable, reveals a significant positive effect with PDB. This suggests that growth in bank deposits causes banks to advance more loans both to government and the private sector to offset the huge deposit liability. This study's findings suggest that a higher MS appears to have an improvement in as far as attracting deposits is concerned, as previous results by Hamza and Kachtouli (2014) suggest. Further, results indicate that GDP growth, a proxy of stability, positively influences deposit growth. This result implies that as people's disposable incomes increases due to improved economic stability, they save more with banks; when banks lend out the savings, this raises the money multiplier. This result is consistent with economic theory and other empirical literature, that GDP growth facilitates savings and deposit growth.

Private Sector Credit as Dependent Variable

The results in Table 3, column 4 with PC as a dependent variable reveals a significant and negative effect with PDB. This means that government borrowing from commercial banks reduces the loanable funds available to the private sector, leading to high lending rates. Overtime, economic stability manifests, government investment in infrastructure yields economic gain to the private sector through reduced cost of doing business, leading to growth in savings. Peacock and Wiseman (1990) argue that economic growth heightens private sector and household incomes and, in periods of economic expansion, governments experience budget surplus and reduce domestic borrowing to enable public spending and boost business undertaking.

Further, the result reveals a significant positive effect between MS and PC. This suggests that a less concentrated banking sector is associated with higher PC. Therefore, banks would charge lower lending rates to the private sector because the high levels of concentration would facilitate increased

deposits that are dealt with by lowering the lending rate. In addition, the result reveals a significant positive effect between GDP growth and PC. Stability in the economy would provide guaranteed business continuity, leading to more private sector borrowing to finance business. In addition, the study finds that DG has a positive effect on PC. This is due to the fact that a rise in deposits would raise incentives for the private sector and other households to borrow and invest so as to tap into the growing disposable income of the citizens.

CONCLUSIONS

This paper investigates the effect of public domestic borrowing on deposit growth, private sector credit and interest rates while controlling for specific bank factor (equity growth), industry factor (market share) and macro-economic indicator (GDP growth). The study established a significant negative effect between PDB and IR. Although this is in contrast with the expectations, the result suggests that an increase in PDB would lower IR and increase savings. The significant negative effect between MS and IR found is linked to the less concentrated banking sector with efficient operations. Efficiency corresponds with low lending rates. We also found that as the economy stabilises (GDP growth), liquidity at banks increases due to increased savings and deposits; this would lead to a reduction in lending rates.

This study provides evidence to support the fact that excess deposits held by banks should be advanced to borrowers (PDB) at a low IR. Growth in customer deposits result in increased liquidity that is offset by lowering the lending rate so as to make enough returns to compensate the depositors. The study also found that MS and GDP growth play a significant role in deposit growth. The spread of banks coupled with stability in the economy stimulates deposit growth and, by turning deposits into loans, furthers GDP growth and market stability. Further, we find that PDB and PC move in perfect tandem. Efficient utilisation of government loans boosts the provision of social amenities to the benefit of the private sector in form of reduced cost of doing business, output, employment and savings to the citizen.

REFERENCES

Aboagye, A.Q.Q., Akoena, S.K., Antwi-Asare, T.O. and Gockel, A.F. (2008): Explaining interest rate spreads in Ghana. *African Development Review*, Vol. 20, No. 3, pp.378-399.

Ahokpossi, C. (2013): *Determinants of Bank Interest Margins in Sub-Saharan Africa*, IMF Working Paper WP/13/34. Washington D.C.: International Monetary Fund.

Alesina, A. and Perotti, R. (1994): *The Political Economy of Budget Deficits*, IMF Working Paper, WP/94/85, pp.1-35.

Barro, R.J. (1979): On the determination of the public debt. *Journal of Political Economy*, Vol. 87, No. 5, pp.940-971.

Baum, J.K., Myers, R.A., Kehler, D.G., Worm, B., Harley, S.J. and Doherty, P.A. (2003): Collapse and conservation of shark populations in the northwest. *Atlantic Science*, Vol. 299, pp.389-392.

Ben-Khedhiri, H., Casu, B. and Sheik-Rahim, F. (2005): *Profitability and Interest Rates Differentials in Tunisian Banking*, University of Wales, Bangor.

Berger, A.N. and Humphrey, D.B. (1997): Efficiency of financial institutions: International survey and directions for future research. *European Journal of Operational Research*, Vol. 98, No. 2, pp.175-212.

Cetorelli, N. (2003): Real effects of bank concentration and competition in Europe. Conference on Bank Concentration and Competition, World Bank, Washington, DC, April 3-4.

Choon, L.K., Hooi, L.Y., Murthi, L., Yi, T.S. and Shven, T.Y. (2013): *The determinants influencing liquidity of Malaysia commercial banks, and its implication for relevant bodies: evidence from 15 Malaysian commercial banks*. Bachelor of Business Administration (Hons) thesis. Universiti Tunku Abdul Rahman, Malaysia.

Cohen, D. (1999): Low investment and large LDC debt in the 1980s. *The American Economic Review*, Vol. 83, No. 3, pp.439-449.

Emran, M.S. and Farazi, S. (2009): Lazy Banks? Government Borrowing and Private Credit in Developing Countries. Institute for International Economic Policy.

Folawewo, A.O. and Tennant, D. (2008): Determinants of Interest Rate Spreads in Sub-Saharan African Countries: A Dynamic Panel Data Analysis. Paper Presented at the 13th African Econometric Society Conference, Pretoria, South Africa, 9-11 July.

Greuning, H.V. and Bratanovic, S.B. (2000): Analyzing bank risk, a framework for assessing corporate governance and financial risk management. World Bank Working Paper No. 332.1/068, Washington, DC.

Hamza, H. and Kachtouli, S. (2014): Competitive conditions and market power of Islamic and conventional commercial banks. *Journal of Islamic Accounting and Business Research*, Vol. 5, No. 1, pp.29-46.

Heinemann, F. (1992): *Sustainability of National Debt in Europe: Why it Matters in the EMU and How it is Assessed*, Zentrum fur Europaeische Wirtschaftsforschung (ZEW), Discussion Papers No. 92-02.

IMF (2005a): Update on the Assessments and Implementation of Action Plans to Strengthen Capacity of HIPCs to Track Poverty-Reducing Public Spending. (Washington: International Monetary Fund).

Jiménez, G., Ongena, S., Peydró, J. and Saurina, J. (2014): Hazardous times for monetary policy: what do twenty-three million bank loans say about the effects of monetary policy on credit risk-taking? *Econometrica*, Vol. 82, No. 2, pp.463-505.

Karazijienė, Ž. (2009): Modeling of the effect of the public domestic borrowing on the Lithuanian economy. *Inzinerine Ekonomika-Engineering Economics*, Vol. 64, No. 4, pp.24-31.

Osei-Assibey, E. and Asenso, J.K. (2015): Regulatory capital and its effect on credit growth, non-performing loans and bank efficiency: Evidence from Ghana. *Journal of Financial Economic Policy*, Vol. 7, No. 4, pp.401-420.

Peacock, H. and Wiseman, K. (1990): The pure theory of public expenditure. *The Review of Economics and Statistics*, Vol. 36, No. 4, pp.387-389.

Ribeiro, H.N.R., Vaicekauskas, T., Lakštutienė, A. (2012): The effect of public debt and other determinants on the economic growth of selected European countries. *Economics and Management*, Vol. 17, No. 3, pp.914-921.

Tennant, D. and Folawewo, A. (2009): Macroeconomic and market determinants of interest rate spreads in low- and middle-income countries. *Applied Financial Economics*, Vol. 19, No. 6, pp.489-507.

Tumwine, S., Sejjaaka, S.K., Bbaale, E. and Kamukama, N. (2018): Determinants of interest rate in emerging markets: A study of banking financial institutions. *World Journal of Entrepreneurship, Management and Sustainable Development*, Vol. 14, No. 3, pp.267-290.

Were, M. and Wambua, J. (2014): *Assessing the determinants of interest rate spreads in commercial banks in Kenya, an empirical investigation*, The Kenya Bankers Association (KBA) Working Paper Series, WPS/01/15.

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