

Iddrisu, Abdul Ganiyu; Turkson, Festus Ebo

Article

Political business cycles, bank pricing behaviour and financial inclusion in Africa

Cogent Economics & Finance

Provided in Cooperation with:

Taylor & Francis Group

Suggested Citation: Iddrisu, Abdul Ganiyu; Turkson, Festus Ebo (2020) : Political business cycles, bank pricing behaviour and financial inclusion in Africa, Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 8, Iss. 1, pp. 1-22,
<https://doi.org/10.1080/23322039.2020.1762286>

This Version is available at:

<https://hdl.handle.net/10419/245317>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Political business cycles, bank pricing behaviour and financial inclusion in Africa

Abdul Ganiyu Iddrisu & Festus Ebo Turkson |

To cite this article: Abdul Ganiyu Iddrisu & Festus Ebo Turkson | (2020) Political business cycles, bank pricing behaviour and financial inclusion in Africa, Cogent Economics & Finance, 8:1, 1762286, DOI: [10.1080/23322039.2020.1762286](https://doi.org/10.1080/23322039.2020.1762286)

To link to this article: <https://doi.org/10.1080/23322039.2020.1762286>



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



Published online: 13 May 2020.



Submit your article to this journal [↗](#)



Article views: 390



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)



Received: 04 September 2019
Accepted: 22 April 2020

*Corresponding author: Festus Ebo Turkson, University of Ghana, Economics Department Legon. P.O. Box LG 57, Legon, Accra, Ghana
E-mail: eturkson@ug.edu.gh

Reviewing editor:
David McMillan, University of Stirling,
Stirling, UK

Additional information is available at
the end of the article

GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

Political business cycles, bank pricing behaviour and financial inclusion in Africa

Abdul Ganiyu Iddrisu¹ and Festus Ebo Turkson^{2*}

Abstract: This paper analyses financial inclusion in Africa focusing on the role of political business cycles and pricing behaviour of banks. We employ a sample of 330 banks operating in 29 African countries to test for two related hypotheses. Panel fixed and random effects were estimated for the period 2002 to 2013. The regression results that ensued suggests first that loan price increases in pre-election and election years. Building on this result and employing various specifications of financial inclusion, the second results suggest that, high bank loan prices in election years tend to increase financial access more, compared to non-election years, and that, high deposit price reduces financial usage but increases financial access in election years, compared to non-election years. By extension, these results have important policy implications for policymakers.

Subjects: African & Third World Politics; Elections; Banking;

Keywords: political business cycles; election; banks' pricing behaviour; financial inclusion; Africa

JEL classification: P16; D72; E43; G2

1. Introduction

Financial inclusion has recently become a global-acclaimed policy objective which should not be downplayed by any form of political activism. Political business cycles (PBCs) are cycles in macro-economic variables such as inflation, unemployment, output, among others, which are caused by



Abdul Ganiyu Iddrisu

ABOUT THE AUTHORS

Abdul Ganiyu Iddrisu holds a bachelor's degree in Economics and Mathematics (2012) and an MPhil degree in Economics (2016), all from University of Ghana. He was a teaching and research assistant at the University of Ghana Business School until 2018. He is currently pursuing a PhD at the University of Aberdeen, UK. Abdul Ganiyu's research interests are in the area of development in Africa, applied microeconomics, macroeconomics, innovations in Africa, poverty interventions and political cycles in Africa. Email: glibertik.ag@gmail.com.

Festus Ebo Turkson received his PhD from the University of Nottingham, UK. He is currently a senior lecturer and senior economist at the University of Ghana Economics Department. He has wide range of teaching and research experience. His research interests are in the area of development, international trade, macroeconomics and applied microeconomics.

PUBLIC INTEREST STATEMENT

Political Business Cycle (PBC) is a situation where incumbent governments spend money in election years to brighten their re-election chances. This expenditure is largely argued to be inflationary rather than translating to economic growth, human development, employment creation, inter alia. In this paper, we investigate the effect of PBC on financial inclusion and explore the mediating role of banks' pricing behaviour in African countries. The results suggest that financial access, in the light of banks' pricing behaviour, increases in election years more than in non-election years. This finding will help African policymakers to be mindful that if financial inclusion is reducing, it is not because of political business cycles.

election cycles. PBCs are categorized largely into the “opportunistic” and the “partisan” positions. The “opportunistic” view has it that all governments, regardless of their ideological orientation, apply expansionary policies ahead of elections in order to increase their popularity and brighten their re-election chances. Whereas the proclamation of the “partisan” view has it that right-wing and left-wing governments produce different results from the selection of different policies that reveal the preferences of their class-defined main political electorates. Thus, PBCs are caused by differences among parties in their philosophy and economic goals.

The argument of the “opportunistic” model points out good reasons to expect an increase or decrease in financial inclusion as a result of election cycles. This is buttressed by the existence of empirical evidence of monetary policy influencing banks’ pricing behaviour (see Ciccarelli et al., 2015) and that a reduction in banks’ interest rates leads to increased financial inclusion (Dev, 2006). Financial inclusion has several benefits for national development. According to extant literature, communities with access to savings instruments experience increased savings, productive investments as well as increased consumption and female empowerment (Aportela, 1998; Ashraf et al., 2010). Access to financial services also decreases the level of inequality, enhances private investment and economic growth, boosts attraction of remittances, eases the transfer of funds from abroad and reduces poverty (Allen et al., 2016; Bruhn & Love, 2014; Demirgüç-Kunt et al., 2011; Mohammed et al., 2017).

There is evidence of the existence of political business cycles and their effect on economic growth as well as human development in Africa (see Block et al., 2003; Iddrisu & Bokpin, 2018; Iddrisu & Mohammed, 2019; Mosley & Chiripanhura, 2016). In particular, Iddrisu and Bokpin (2018) confirm the existence of political business cycles in Africa and that these cycles do not translate into economic growth in African economies. Again, Iddrisu and Mohammed (2019) confirm that it worsens human development in Africa; however, little is known about how PBCs affect financial inclusion.

According to Block (2002), Sub-Saharan Africa offers conducive ground for the study of political business cycles, because Africa is concurrently going through a prolonged process of economic reform. Further, Block (2002) notes that the period from 1989 to 1995 mark a clear transition in the politics of Africa, particularly marked by improved political rivalry and leadership turnover. Again, Bratton and Van De Walle (1997) report that from the year 1990 to 1994, 38 out of 47 of countries in Africa held competitive legislative elections as compared to 9 in the course of the previous 5 years. Till now, this trend has been improving, suggesting that democracy is gaining grounds in Africa and that election cycles will be the order of the day. Do political business cycles influence financial inclusion? We investigate this question using large representative data from Africa where financial inclusion is very low. Specifically, we first investigate whether political business cycles influence banks’ pricing behaviour, and secondly, whether political business cycles affect inclusive finance in the light of banks’ pricing behaviour. We argue that the pricing behaviour of banks is the transmission mechanism through which political business cycles affect inclusive finance.

Employing micro-bank-specific and macro-country-level data from 29 African countries, this paper contributes to the literature by analysing financial inclusion in Africa, focusing on the role of political business cycles and the pricing behaviour of banks. First, we assess how political business cycles influence the pricing behaviour of banks in Africa. From an economic policy perspective, it is important to identify the effect of political business cycles on the pricing strategy of banks so that action can be taken to reduce the economic shocks associated with the pricing distortion of banks. Second, we examine the effect of loan price, deposit price and fees price as used to proxy for pricing behaviour of banks on inclusive finance. This is rarely examined empirically in the literature. Financial inclusion is represented by two categories of indicators: financial usage and financial access, and arguably determined partly by banks’ pricing behaviour. Finally, we examine the effect of political business cycles on inclusive finance in the light of the pricing behaviour of banks. This is to bring out evidence to support the argument that the pricing

behaviour of banks is the transmission mechanisms through which political business cycles affect inclusive finance.

The following key results were found: First, the results show that political business cycles affect banks' pricing behaviour in Africa. For example, our results suggest that banks' loan prices are low in election years as compared to non-election years. Second, on the effects of banks' pricing behaviour on inclusive finance, the results show that high loan prices decrease financial access. This means that some people are banking with the expectation of acquiring low-interest loans for investment and may resort to alternative ways to finance their businesses when loan price is high; therefore, loan accounts and the need more bank branches will reduce. Finally, the results also show that financial inclusion is sensitive to political business cycles and to banks' pricing behaviour. In particular, the results indicate that high bank loan prices tend to increase financial access in election years, compared to non-election years. We thus conclude that, even though there is evidence of political business cycles worsening economic growth and human development, they do not discourage financial inclusion in Africa. On the policy implications, domestic policymakers of African countries should be mindful that, if financial inclusion is reducing in their various countries, is not because of political business cycles.

The rest of the paper is organized as follows: Section 2 provides theoretical bases of the paper while Section 3 reviews the existing empirical literature. Section 4 presents various specifications of inclusive finance, political business cycle and pricing behaviour of banks, including other explanatory variables used and the estimation methodology employed to achieve our stated objectives. Section 5 contains the analysis of the results. Finally, in Section Six, we offer our conclusions.

2. Theoretical framework

There is generally low central bank independence in African countries; thus, the central banks are not free from interference from the incumbent government in their conduct of monetary policy; they are always influenced to embark on expansionary policies, particularly in election years. The theoretical principles underlying banks' pricing behaviour can be explained using the operational level the Central Bank (CB) targets of the interbank money market interest rate (denoted by, i^B); the risk-neutral bank determines its loan (L) and deposit (D) portfolios and the level of reserves (R^d) it plans to hold in the end of the day, and the competitiveness of the banking system. Taking into account the deficiencies and the limited competitiveness in the banking systems of developing countries, we argue that the banking system is characterized by imperfect competition. Consequently, banks have a degree of monopoly power in the pricing of retail credits and deposits, but in the interbank money market, they all behave as price-takers. We incorporate costly intermediation into the model, along the lines of Mishra et al. (2010), which is a function of the size of bank's loan portfolio. Further, assuming that the central bank leaves the money market short in the end of the day (in the model denoted by the term u), this will increase the demand for bank reserves at the central bank. We also introduce uncertainty in the bank's end-of-day settlement positions, denoted by v in the model, which provides another link to central bank's reserves. Taken together, the profit maximization problem of a risk-neutral bank can be written as follows:

$$\pi = i^L L - i^D D - c(L) + i^B [(D - L) - R^d] + \frac{i^{CB,D}}{2v} \int_{-R^d}^{v+u} (R^d + x) dx + \frac{i^{CB,L}}{2v} \int_{-v+u}^{-R^d} (R^d + x) dx \quad (1)$$

where $i^L(L)$ is the bank's lending interest rate and a decreasing function of the loan portfolio, $i^D(D)$ is the bank's deposit interest rate and an increasing function of deposits (here, we assume that there are no statutory reserve requirements), and $c(L)$ is the inter-mediation cost function where the marginal cost of lending is an increasing function of the loan portfolio ($c' > 0$ and $c'' > 0$). The difference $(D - L) - R^d$ refers to the bank's net interbank market position and can be either positive or negative. The last two terms in equation (1) relate to the overnight deposit and credit operations with the central bank. The shock to the end-of-day liquidity is assumed to be distributed normally with a zero mean. Furthermore, we assume that the central bank has adopted an asymmetric

band around its policy rate (i^{CB}); that is, the deposit rate equals $i^{CB,D} = i^{CB} - h'$ and the lending rate equals $i^{CB,L} = i^{CB} + h''$, where h' and h'' are positive constants. Each bank maximizes its profit, equation (1), with respect to L , D , and R^d , which leads to the following first-order conditions:

$$i^L = \frac{1}{\left(1 + \frac{1}{\phi^L}\right)} [i^{CB} + c'(L)] \quad (2a)$$

$$i^D = \frac{1}{\left(1 + \frac{1}{\phi^D}\right)} i^{CB} \quad (2b)$$

$$i^{CB} = i^{CB} + \frac{h'' - h'}{2v} (R^d + u) + \frac{h'' - h'}{2} \quad (2c)$$

The interest rate on a bank's lending, i^L , depends on the term $\left(1 + \frac{1}{\phi^L}\right)$, which is mark-up over the marginal cost of loanable funds, where the latter is given by the interbank market interest rate, i^{CB} , and the marginal intermediation cost, $c'(L)$. The size of the mark-up reflects the lack of competition in the banking system; that is, it is larger in less competitive banking systems. The marginal cost of intermediation is assumed to reflect banks' lending activities (overhead costs, provisioning, and so on). Hence, banks with higher costs of operation would charge higher interest rates on their loans. The pass-through from interbank market rates to lending interest rates, i.e., $\frac{\partial i^L}{\partial i^{CB}}$, which refers to the change in the lending rate over the change in the interbank rate, is also related to the marginal intermediation cost. That is, banks are less likely to adjust their lending rates to changes in the policy rate when the costs of inter-mediation are steeply rising (when $c'' > 0$). Regarding deposits interest rates, these are also determined by the interbank interest rate and are lower for higher reserve requirements. Furthermore, in this model, the deposit interest rate does not directly enter equation (2a).

Regarding the interbank interest rate, equation (2c), the model establishes a link between the policy rate and the interbank market interest rate (changes in the policy rate are often called *signalling*). That is, the level of the policy rate would be reflected in the interbank market interest rates. The *liquidity effect* and its impact on interbank interest rates is present in the model, as indicated by the terms R^d and u . In the end, the supply and demand for reserves must be equal. By lowering available reserves, the Central Bank can push interbank interest rates higher by increasing the demand for liquidity in the money market. When the band around the policy rate is symmetric, that is, $h' = h''$, then the second term drops out and the spread between the interbank and policy rates will equal h .

To link banks' interest rates to financial inclusion, we adopt Cúrdia and Woodford (2016)'s model of financial frictions and aggregate demand. However, we replace household with individual and discard the assumption that each individual owns an equal share in the intermediary sector. We also assume that individuals do not have access to insurance agency at all periods. Therefore, the individual makes his spending, saving and borrowing decisions as in any other period but taking into account his post-transfer financial wealth.

Individual i 's beginning-of-period (post-transfer) nominal net financial wealth $A_t(i)$ is then given by:

$$A_t(i) = [B_{t-1}(i)]^+ (1 + i_{t-1}^d) + [B_{t-1}(i)]^- (1 + i_{t-1}^b) + T_t(i), \quad (3)$$

where $B_{t-1}(i)$ is the individual's nominal net financial wealth at the end of period $t - 1$;

$$[B]^+ \equiv \max(B, 0), \quad [B]^- \equiv \min(B, 0) \quad (4)$$

Here, i_t^d is the (one-period, riskless nominal) interest rate that savers receive at the beginning of period $t + 1$ on their savings deposited with intermediaries at the end of period t , while i_t^b is the

interest rate at which borrowers are correspondingly able to borrow from intermediaries in period t for repayment at the beginning of period $t + 1$. Note that the final term $T_t(i)$ is necessarily equal to zero in any period in which individual i does not have access to the insurance agency. An individual's end-of-period nominal net financial wealth $B_t(i)$ is correspondingly given by:

$$B_t(i) = A_t(i) - P_t C_t(i) + \int W_t(j) h_t(j; i) dj + D_t + T_t^g, \quad (5)$$

where P_t is the Dixit–Stiglitz price index in period t (and hence the price of the composite consumption good); $W_t(j)$ is the wage of labour of type j in period t ; D_t represents the individual's share in the distributed profits of goods-producing firms; and T_t^g is the net nominal (lump-sum) government transfer received by each household in period t . Since the individual has no insurance against income shock, if the financial intermediary sets a higher interest rate spread (difference between i_{t-1}^d and i_{t-1}^b), it will lead to lower individual's end-of-period nominal net financial wealth $B_t(i)$, which will in turn discourage financial inclusion. In the same vein, lower interest rate spread will encourage financial inclusion.

3. Literature review

There has been extensive debate about political business cycles and their impact on several other outcome variables. Incidentally, the emerging literature has significantly illustrated the existence of PBCs with few relating these to economic growth and development; however, little effort has been made to assess their effect on inclusive finance. In this section, we present an up to date review of suitable empirical literature regarding the existence of political business cycles and their effect on the economy and development. Starting with single country cases, Efthyvoulou (2011) documents a shift in partisan and economic policies outcome and points out that as globalization progresses these outcomes declines. He further notes that fiscal balance subcomponents shift as the electoral fortunes shift. In the United States, Funashima (2016) found robust results even after controlling for the effects of government expenditure that, with the exception of the 1990 s; however, the Federal Reserve is inclined to cut the funds rate before presidential elections. According to Funashima, this political manipulation is affecting output in many eras significantly. However, he attributed his findings to changes in voters' preferences.

Cross country evidence about political business cycles is also not far-fetched. Block (2002) shows evidence of the presence of political business cycles in Sub-Saharan African countries, by discovering systematic electorally timed interventions in nine cases of fiscal and monetary policy in Africa. In a related development, Block et al. (2003) found evidence in African states that political cycles are noted in states with a multiparty system and moderate in countries that have “founding” elections. Still in Africa, Mosley and Chiripanhura (2016) claim that there is non-homogeneity in PBCs in African and that they occur comparatively rarely in supposed “dominant-party systems” where the incentive of a pre-election confers slight political advantage. Also, they contend that institutional damage is not necessarily caused by election cycles in countries where they transpire. Nevertheless, whether it causes damage or not, it does not depend so much on whether there exists an electoral cycle but rather on whether this cycle brings down or strengthens fears of unbalanced allocations of resources.

Recently, the work of Iddrisu and Bokpin (2018) found political business cycle to be present in Africa, and that such cycles do not translate into economic performance in African countries. In the same vein, Iddrisu and Mohammed (2019) assessed the impact of PBC on human development using 38 African countries covering the period 1990–2015. Employing fixed effect, random effect and the system GMM, they found PBC to be worsening human development in Africa. Their finding was consistent when they limited the sample to various sub-regions and also at different income levels. Away from Africa, Enkelmann and Leibrecht (2013) examined this subject in Eastern European countries and found that, in aggregate spending and in specific sub-categories, election cycles existed in these countries. Finally, Higashijima (2016) argued that when dictators can

reliably signal popularity through polls, they have a strong urge to overspend prior to the polls. He then assessed the subject in dictatorships and noted that in authoritarian regimes, fiscal deficits are more pronounced than in their democratic counterparts' regimes. He also noted that autocrats that have semi-structured competitive elections but less fraudulent elections are quick to engage in expansionary fiscal policies before elections.

Considering the above discussion, one can say that the existence of PBCs and its effect on economic performance and welfare is firmly established in the literature, particularly for African economies. However, the argument seems to be one-sided so far. The current study, therefore, seeks to verify whether such cycles encourage financial inclusion in the African continent.

4. Evaluating methodology

4.1. Data sources

This study employs both micro-bank level and macro-country level data. Bank-level data are taken from the bank scope database maintained by Fitch/IBCA/Bureau Van Dijk. Series are yearly, covering a sample of 330 banks across 29 African countries. In order to reduce the possibility of introducing data aggregation bias in the empirical analysis, unconsolidated financial statements of the banks are used. The sample includes all commercial banks, cooperative banks, development banks, savings banks, real estate and mortgage banks for which annual data are available. To ensure that banks that are important players in the deposit and/or loan markets are not omitted, medium and long-term credit banks and specialised government institutions are included in the sample. Observations with outliers such as zero and/or negative capitalisation are dropped. Also, observations for capitalization above the 99th percentile are dropped. In addition, loan growth rate observations above 99th percentile of the distribution were equally dropped. This is to correct for mergers, acquisitions and start-ups during the study period. Macroeconomic data are sourced from the World Bank Economic Development Indicators.

4.2. Variable measurements

We proxy financial inclusion by two categories of indicator variables as: *financial access* which is measured by the number of branches per 100,000 adults, and *financial usage* which is proxied by percentage of adults that own an account in regulated institutions.

Following Brewer and Jackson (2006), we use loan price, deposit price and price of providing non-interest-related services (*Fees price*) as measures of banks' pricing behaviour in Africa. Lending rate is measured as total interest income as a percentage of total earning assets; the deposit rate is calculated as total interest cost divided by total interest-bearing liabilities; the fees price is the cost of providing non-interest income services such as fees on commission, trading and others.

The political business cycle variable is measured by the election cycle dummy (ELE) which takes the value 1 in a presidential election year and 0 otherwise, as used in other works, including that of Mosley and Chiripanhura (2016), Iddrisu and Bokpin (2018) and Iddrisu and Mohammed (2019).

We also control for variables that affect inclusive finance and bank pricing behaviour. These controls include bank-specific characteristics and the characteristics of the macroeconomic and monetary environments. For bank-level controls, bank *Age* is the year of establishment till date; *Loan* is the ratio of loan to total assets used to control for loan size; *Market share* is the individual bank loan to total market loan is used to proxy bank's market share; *Efficiency* is a proxy to cost to gross income ratio; *Funding source* is the total liability to total assets. PREELE is the pre-election dummy which takes the value 1 in pre-presidential election year and 0 otherwise. Inflation is the

rate of inflation based on the consumer price index. GDP growth measures business cycle fluctuations.

4.3. Model and estimation strategy

In addressing the issue of inclusive finance, monetary policy and pricing behaviour of banks, the study investigates the influence of monetary policy on inclusive finance in the light of pricing behaviour of banks. We follow the work of Mosley and Chiripanhura (2016); Iddrisu and Bokpin (2018) and consequently estimate the following empirical model:

$$FI_{t,c} = \alpha_1 + \alpha_2 ELE_c + \alpha_3 PBB_{it,c} + \alpha_4 (ELE_c * PBB_{it,c}) + \sum_{j=5}^k \alpha_j X_{ij} + \mu_i + \nu_t + \varepsilon_{it} \quad (6)$$

where $FI_{t,c}$ is financial inclusion of country c at period t , ELE_c is the election cycle of country c , $PBB_{it,c}$ is the pricing behaviour of bank i in country c in period t , $(ELE_c * PBB_{it,c})$ is the interaction between the election dummy and the pricing behaviour of bank i in country c at period t , the variable X_{ij} are a set of $\{k\}$ variables controlling for bank-specific characteristics, respective countries' macroeconomic environments and contestability variables, α 's are the parameter vectors. μ_i represents country-fixed effects which control for time-invariant unobserved country characteristics. ν_t are year-fixed effects which control for macroeconomic changes and ε_{it} is the random error term of the equation.

We estimate equation (6) by fixed effects and also by random effects. Fixed effects and random effects models eliminate omitted variable bias by measuring change within a group across time. The fixed effects technique assumes that the individual-specific effects are correlated with the regressors and therefore removes the effect of time-invariant characteristics in order to assess the net effect of the independent variables on human development. On the other hand, the random effects work under the assumption that the individual-specific effects are uncorrelated with the regressors. Furthermore, the use of fixed effects does not allow for inference outside the data set. However, since the random effects assume that the data set is normally distributed, inferences can be extended to a larger population. Also, in the random-effects model, time-invariant characteristics can be included in the model; nonetheless, in the case of the fixed effect models, time-invariant variables are absorbed into the intercept.

The data analysis is led by performing tests to determine suitability and goodness-of-fit of the model. A Hausman specification test was performed to establish the choice between a fixed-effects model and a random-effects model. The results of the Hausman test showed significant P -values which depict the presence of the problem of endogeneity bias, and hence, the preferred estimation technique should be the fixed effects model which provides consistent estimates in this instance (see in Appendix Tables A1-A3). The study also adopted the Panel Corrected Standard Errors (PCSE) model of Fixed and Random effects which is robust to heteroscedasticity and autocorrelation. The choice of this estimation technique was in response to the results of other econometrics tests performed in line with panel data.

5. Empirical results

5.1. Summary and descriptive statistics

Table 1 presents summary statistics for the key country-level variables used in this study. All variables are averaged by country during the period 2002–2013. The variables are grouped into macroeconomic and financial inclusion. Under financial inclusion are financial access and financial usage. Tunisia records the highest average of financial access of about 700 number of branches per 100,000 adults, while the lowest average of about 77 number of branches per 100,000 adults was recorded by Burkina Faso. With financial usage, Morocco has the highest of about 17 number of accounts with Tanzania recording average of about 2 accounts per 100,000 adults. This shows that countries' strengths in financial inclusion indicators varies and justifies the alternative use of

Table 1. Averages for the country-level variables

Country	Macroeconomic variables		Financial inclusion variables	
	GDP growth	Inflation	Financial access	Financial usage
Algeria	0.03925	3.989149	—	—
Egypt	0.052965	8.990811	371.6584	4.49596
Morocco	0.048018	1.829395	—	16.91693
Sudan	0.066118	12.79251	—	—
Tunisia	0.046245	3.815263	700.128	14.50709
Benin	0.04	3.174899	—	—
Burkina Faso	0.051667	3.199441	76.72372	1.731433
Cameroon	0.032076	2.43566	—	—
Cote d'Ivoire	0.010678	2.828464	115.9514	3.043622
Ethiopia	0.08327	14.58635	—	—
Ghana	0.058935	14.29811	265.7059	4.632849
Kenya	0.039952	10.59747	328.767	4.088392
Mali	0.0487	2.663761	—	—
Mauritania	0.041629	6.825447	—	—
Nigeria	0.066873	11.85653	397.1476	5.456959
Rwanda	0.074875	8.137947	—	—
Senegal	0.039721	2.137373	—	—
Sierra Leone	0.092374	12.89041	—	—
Uganda	0.079374	8.370174	135.9226	1.929845
Angola	0.133823	40.67299	—	—
Botswana	0.038,526	8.52434	437.8815	8.113323
Malawi	0.05625	12.81765	151.1452	1.954094
Mauritius	0.038917	5.653335	—	—
Mozambique	0.075442	8.486622	—	—
Namibia	0.049842	6.01191	310.7661	8.239515
South Africa	0.036893	5.926116	—	8.411995
Swaziland	0.024524	7.245928	—	—
Tanzania	0.07074	8.189333	—	1.718701
Zimbabwe	−0.06845	2899.289	—	—

Source: Bankscope and authors' own calculation

The data comprise 330 banks across 29 countries over the period 2002–2013

—Information is not yet available.

Table 1 presents the mean value of country-level variables involving macroeconomic indicators and financial inclusion variables. Financial inclusion variables are the measures of financial usage (Bankaccountsper1000adults) and financial access (Bankbranchesper100000adults). The macroeconomic variables are; GDP growth is the annual growth rate of Gross Domestic Product and Inflation is the annual consumer price inflation.

the two specifications in the analysis as a robustness check. Regarding the macroeconomic variables; Angola tops in terms of macroeconomic growth with about 0.13% growth rate, while Zimbabwe records a negative average growth rate of about −0.68% and at the same time, a whopping average price instability (inflation). Prices were more stable in Morocco, as an average inflation of about 1.8% was recorded.

Table 2 shows summary statistics for the bank-level variables used in this study. Bank-specific variables are also averaged by country during the same period as above and are grouped into bank pricing and other bank-level controls. Banks' pricing variables considered are loan price, fees price and deposit price. Figures from the banks' pricing variables show that banks in Zimbabwe, on

Table 2. Averages for the bank-level variables by country

Country	Bank pricing variables			Other Control Variables				
	Loan price	Fee price	Deposit price	Bank age	Loan/Total assets	Efficiency	Funding sources	Mkt. share
Algeria	0.04017	0.022249	0.019455	22.55953	0.440736	0.319414	0.848434	0.084508
Egypt	0.065758	0.015652	0.055094	34.38334	0.478219	0.240519	0.891071	0.038027
Morocco	0.050658	0.009863	0.024206	62.86364	0.552603	0.341447	0.912198	0.104348
Sudan	0.046127	0.049864	0.05804	19.16667	0.351919	0.50077	0.864544	0.177419
Tunisia	0.052546	0.015254	0.042021	49.38726	0.760904	0.363356	0.861213	0.067073
Benin	0.056296	0.027444	0.025003	12.375	0.552656	0.490792	0.906864	0.244898
Burkina Faso	0.067622	0.038943	0.024481	28	0.600794	0.494454	0.918967	0.212766
Cameroon	0.056169	0.0324	0.023662	21.92857	0.523423	0.425458	0.928634	0.164384
Cote d'Ivoire	0.055063	0.042519	0.022802	29.34722	0.611757	0.551225	0.906209	0.181818
Ethiopia	0.046788	0.032674	0.022612	25.625	0.511628	0.268839	0.888373	0.127907
Ghana	0.123045	0.042696	0.075898	30.22222	0.450323	0.424849	0.879703	0.068024
Kenya	0.09155	0.033274	0.043818	35.02778	0.563299	0.432365	0.841996	0.042187
Mali	0.054804	0.033927	0.015545	17.51389	0.578961	0.532492	0.896227	0.206897
Mauritania	0.053593	0.041531	0.025202	28.5	0.564532	0.488026	0.782448	0.20339
Nigeria	0.096554	0.045141	0.05834	33.80953	0.38526	0.451825	0.834976	0.058201
Rwanda	0.087468	0.038188	0.052689	17.55556	0.54723	0.568237	0.846952	0.222222
Senegal	0.060858	0.028696	0.022034	32.20238	0.618218	0.514865	0.907938	0.322
Sierra Leone	0.108884	0.079976	0.034262	28.38889	0.314371	0.548089	0.817128	0.26087
Uganda	0.11066	0.025986	0.034518	42.95454	0.446809	0.452914	0.852696	0.116678
Angola	0.061864	0.045289	0.030207	11.91667	0.310697	0.403912	0.870597	0.103448
Botswana	0.034132	0.024345	0.097455	23.08333	0.549747	0.282539	0.837013	0.15
Malawi	0.12974	0.073634	0.062926	26.55	0.411407	0.513189	0.857273	0.134831
Mauritius	0.056394	0.038375	0.048575	42.50758	0.576895	0.305189	0.804573	0.110092

(Continued)

Table 2. (Continued)

Country	Bank pricing variables			Other Control Variables			
	Loan price	Fee price	Deposit price	Bank age	Loan/Total assets	Efficiency	Funding sources
Mozambique	0.112419	0.044445	0.042651	22.01042	0.485435	0.533189	0.859407
Namibia	0.091608	0.028271	0.085022	58.01389	0.732214	0.340321	0.662757
South Africa	0.107579	0.052537	0.117903	33.375	0.6516	0.334845	0.820412
Swaziland	0.087107	0.044077	0.042339	31.7	0.691535	0.478065	0.848358
Tanzania	0.077844	0.032307	0.032737	23.56018	0.47033	0.490193	0.878589
Zimbabwe	0.355246	0.102527	0.224294	51.5	0.401217	0.388544	0.841196

Source: Bankscope and authors' own calculation

The data comprise 330 banks across 29 countries over the period 2002–2013.

Table 2 presents the mean value of bank-specific variables of the selected banks. Bank pricing variables are the measures of bank interest income (Loan Price), non-interest income (Fees Price), and interest cost (Deposit Price). The bank-specific controls are: Bank Age is the year of establishment till date, Bank Equity is the ratio of equity to total assets used as a proxy for capitalization, Loan is the ratio of loan to total assets used to control for loan size, Mkt. Share is the individual bank loan to total market loan is used to proxy bank's market share, Efficiency is a proxy to cost to gross income ratio, Funding source is the total liability to total assets. The mean values of the selected banks are in percentage terms, except for bank age which is in years.

average, charge high prices of about 0.36%, 0.10% and 0.22% loan, fees and deposit prices, respectively. This can be attributed to the high price instability in Zimbabwe over the period. The various low prices are about 0.03% loan price, 0.0098% and 0.015% for Botswana, Morocco and Mali, respectively. For the other bank-level control variables, more older banks are found in Morocco than in the other countries in the sample, as it records an average bank age of about 63 years, while the opposite is true for Angola which records an average bank age of about 12 years. Tunisian banks, on average, give more loans, with banks in Angola offering the least loans in the sample. In terms of efficiency, the figures indicate that banks in Rwanda are more efficient in the sample, with banks in Egypt being the least efficient. Banks in Cameroon and Namibia have the highest and lowest funding sources, respectively. Finally, a market share of about 26% is recorded for banks in Sierra Leone, while banks in Egypt hold the least market share of about 0.04% in our sample.

Table 3 presents the pair-wise correlation coefficient as a preliminary analysis of the relationship between various financial inclusion indicators and the bank pricing behaviour. The correlation coefficient between inclusive finance variables and loan and fees prices is negative and statistically significant, indicating that for banks operating in Africa, financial inclusion improves when loan and fees prices decrease. Inclusive finance variables also have positive and significant relationships with deposit price, indicating high financial inclusion with increase in deposit price, except between financial usage and deposit price which is not statistically significant.

5.2. Effects of political business cycles on bank pricing behaviour

This sub-section analyses the empirical results with the aim of examining election cycles' influence on the pricing behaviour of banks in Africa. Table 4 presents the results of the regressions that use bank-specific variables, accounting for the respective countries' level of development and macro-economic stability. The first three columns (columns 1, 2 and 3) are estimated using the fixed effect estimator, while the last three (columns 4, 5 and 6) are estimated using the random effect estimator. All regressions are corrected for robust standards errors, controlled for country effects as well as for year effects.

The results show that for the first and fourth columns, the coefficient of election cycle dummy (ELE) positively and significantly affects loan price at 5% level. This suggests that banks' loan prices are low in election years compared to non-election years. To be specific, the results show that loan prices are lower by about 0.28% in election years as compared to non-election years, all else being equal. In the same vein, the coefficient of the pre-election dummy (PREELE) in the same columns indicates that loan prices are lower in pre-election years compared to non-pre-election years. In sum, our results support the hypothesis that political business cycles influence pricing behaviour of banks in Africa. The results are in line with the "opportunistic" model which argues that all governments, irrespective of their ideological orientation, apply expansionary policies ahead of elections in order to increase their popularity and brighten their re-election chances. By applying expansionary policies, commercial banks loan prices tend to reduce, all else being equal.

Another significant factor that affects banks pricing is the age of the bank. The results indicate that older banks have higher loan prices but lower fees and deposit prices. With loan to total asset, the results shown in columns 1, 3, 4 and 6 confirm that higher loan/total assets go with higher loan and deposit prices. This is logical in the sense that the higher the loan and deposit prices the higher the amount of money banks give out as loans to reap more profit. Also, market share is negative and significant only in columns 1 and 4, indicating that the market share increases when loan price decreases. The coefficient of efficiency in columns 1, 3, 4 and 6 also indicate that more efficient banks tend to reduce their loan and deposit prices. Results of the bank funding sources suggest in column 6 that a decrease in banks' funding sources tend to increase their deposit price, which is intuitive, as banks may want to mobilise more deposit funding. Results of the macroeconomic

Table 3. Pair-wise correlation coefficient between selected variables

	Loan price	Fees price	Deposit price	Financ access	Financ usage	Bank age	Loan	Mkt. share	Efficiency	Funding source	Inflation	GDP growth
Loan price	1											
F. price	0.16*	1										
D. price	0.60*	0.11*	1									
F. access	-0.23*	-0.32*	0.05*	1								
F. usage	-0.27*	-0.14*	-0.002	0.79*	1							
Bank age	0.03	-0.12*	-0.02	0.15*	0.27*	1						
Loan	0.02	-0.17*	0.11*	0.30*	0.34*	0.17*	1					
Mkt. share	0.02	0.04*	-0.04*	-0.17*	0.03	0.17*	0.14*	1				
Efficiency	-0.03	0.28*	-0.21*	-0.28*	-0.20*	-0.11*	-0.08*	0.05*	1			
Fun. source	-0.10*	-0.31*	-0.27*	-0.02	-0.003	0.08*	-0.08*	0.17*	-0.06*	1		
Inflation	0.19*	0.08*	0.16*	-0.17*	-0.36*	0.03	-0.06*	0.06*	-0.03	-0.04*	1	
GDP growth	-0.23*	-0.04	-0.20*	-0.076*	-0.21*	-0.10*	-0.19*	-0.08*	0.08*	0.05*	-0.07*	1

Source: Bankscope and authors' own calculation.

Pairwise correlation coefficient estimated on sample of 330 banks across 29 African countries. * implies significant at 5% or more. Bank pricing variables are the measures of bank interest income (Loan Price), non-interest income (Fees Price), and interest cost (Deposit Price). Financial inclusion variables are the measures of financial usage (Bankaccountsper1000adults) and financial access (Bankbranchesper100000adults). The bank-specific controls are: Bank Age is the year of establishment till date, Bank Equity is the ratio of equity to total assets used as a proxy for capitalization, Loan is the ratio of loan to total assets used to control for loan size, Mkt. Share is the individual bank loan to total market loan is used to proxy bank's market share, Efficiency is a proxy to gross income ratio, Funding source is the total liability to total assets. The macroeconomic controls: GDP growth is the annual growth rate of Gross Domestic Product and Inflation is the annual consumer price inflation.

Table 4. Election cycles and bank pricing behaviour

Dependent variable: Bank pricing (Loan, Fees and Deposit prices)

Independent variables	Fixed-effect model			Random-effect model		
	Loan price	Fees price	Deposit price	Loan price	Fees price	Deposit price
	(1)	(2)	(3)	(4)	(5)	(6)
ELE	−0.00284** (0.00119)	−0.000789 (0.000765)	0.000579 (0.00280)	−0.00271** (0.00122)	−0.000640 (0.000768)	0.000360 (0.00283)
PREELE	−0.00252*** (0.000951)	−0.000505 (0.000752)	0.000729 (0.00159)	−0.00242** (0.000953)	−0.000411 (0.000747)	0.000558 (0.00163)
Bank age	0.000920* (0.000499)	−0.000767 (0.000534)	0.000935 (0.000657)	−3.87e-05 (7.20e-05)	−0.000182*** (6.91e-05)	−0.000158* (8.21e-05)
Loan/Total assets	0.0352*** (0.00720)	−0.00237 (0.00661)	0.0197* (0.0104)	0.0338*** (0.00702)	−0.00658 (0.00650)	0.0282*** (0.0103)
Mkt. share	−0.0393*** (0.0140)	−0.00961 (0.00752)	−0.0253 (0.0382)	−0.0341*** (0.0119)	−0.00603 (0.00659)	−0.0264 (0.0339)
Efficiency	−0.0635*** (0.0121)	−0.0105 (0.0117)	−0.0790*** (0.0185)	−0.0527*** (0.0108)	−0.00391 (0.0107)	−0.0841*** (0.0169)
Funding sources	−0.0259 (0.0261)	−0.0186 (0.0185)	−0.0683 (0.0466)	−0.0341 (0.0225)	−0.0319 (0.0205)	−0.114*** (0.0415)
Inflation	0.000182 (0.000135)	0.000173** (8.08e-05)	0.000176 (0.000165)	0.000200 (0.000136)	0.000164** (7.98e-05)	0.000181 (0.000161)
GDP growth	0.0252 (0.0198)	−0.000861 (0.0195)	0.00699 (0.0351)	0.0263 (0.0194)	−0.00149 (0.0191)	0.00263 (0.0339)
Constant	0.0919*** (0.0285)	0.0783*** (0.0237)	0.1 22*** (0.0440)	0.124*** (0.0244)	0.0740*** (0.0233)	0.194*** (0.0449)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,698	1,691	1,674	1,698	1,691	1,674
R-squared	0.174	0.043	0.094	0.1703	0.0378	0.0902
Number of banks	272	272	268	272	272	268

Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The coefficient of the year dummies is not stated for brevity.

stability variable (inflation) shows that higher inflation tends to increase banks fees prices. However, the economic growth variable (GDP growth) was not statistically significant across all regressions.

5.3. Effects of bank pricing behaviour on financial inclusion

The next is to analyse how banks' pricing behaviour affects financial inclusion in Africa. Table 5 presents the regression results that have financial inclusion as the dependent variable. The different columns relate to different measures of financial inclusion (financial usage and financial access).

The results indicate that loan price is negative and statistically significantly related to financial access at a 1% level. This means that an increase in loan price decreases financial access (bank branches per 100,000 adults). This finding is intuitive since an increase in loan price may reduce the number of loan accounts and may consequently curtail the need for more branches. To conclude, our results do not reject the hypothesis that pricing behaviour of banks influences financial inclusion in Africa. Our result agrees with the argument of Dev (2006) that pricing behaviour of banks exerts significant influence over financial inclusion.

Table 5. Effect of Bank pricing behaviour on financial inclusion

Dependent variable: Financial inclusion (financial usage and access)

Independent variables	Fixed-effects model					Random-effects model						
	Financial usage		Financial access			Financial usage		Financial access				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Loan price	0.860 (0.630)			-0.593*** (0.227)			-0.589 (0.566)			-0.867*** (0.248)		
Fees price		-0.109 (0.662)			0.104 (0.256)			-0.820 (0.651)			0.0255 (0.241)	
Deposit price			0.235 (0.330)			-0.162 (0.126)			0.242 (0.363)			-0.122 (0.0964)
Bank age	-0.00129 (0.00572)	-0.000333 (0.00567)	-0.000859 (0.00567)	-0.000943 (0.000660)	-0.0013*** (0.000482)	-0.0013** (0.000631)	0.00190 (0.00153)	0.00187 (0.00152)	0.00146 (0.00160)	0.00421*** (0.00150)	0.00422*** (0.00153)	0.00394** (0.00155)
Loan/T. assets	0.432*** (0.105)	0.460*** (0.103)	0.412*** (0.100)	0.0317 (0.0421)	0.0109 (0.0411)	0.0308 (0.0395)	0.524*** (0.102)	0.502*** (0.0991)	0.450*** (0.0967)	0.0780* (0.0416)	0.0473 (0.0404)	0.0646* (0.0386)
Mkt. share	-0.659*** (0.202)	-0.667*** (0.203)	-0.656*** (0.204)	0.0784 (0.0953)	0.101 (0.0941)	0.0856 (0.0962)	-1.143*** (0.236)	-1.068*** (0.218)	-1.010*** (0.216)	0.00613 (0.105)	0.0417 (0.105)	0.0391 (0.104)
Efficiency	-0.229* (0.133)	-0.289** (0.128)	-0.247* (0.131)	-0.0176 (0.0508)	0.0151 (0.0448)	0.00308 (0.0487)	-0.501*** (0.129)	-0.460*** (0.126)	-0.406*** (0.130)	-0.0760 (0.0512)	-0.0318 (0.0452)	-0.0355 (0.0484)
Fund. sources	0.0266 (0.282)	0.0909 (0.276)	0.0631 (0.273)	0.120 (0.101)	0.0772 (0.0978)	0.114 (0.0987)	0.0863 (0.237)	0.0780 (0.248)	0.0787 (0.259)	0.0684 (0.0990)	0.0203 (0.0956)	0.0836 (0.0968)
Inflation	0.00787*** (0.00194)	0.00877*** (0.00185)	0.00830*** (0.00184)	0.000407 (0.000563)	-0.000170 (0.000564)	6.22e-05 (0.000559)	0.00874*** (0.00194)	0.00826*** (0.00190)	0.00774*** (0.00187)	0.000468 (0.000583)	-0.000411 (0.000572)	-0.000207 (0.000562)
GDP growth	-2.564*** (0.487)	-2.372*** (0.468)	-2.458*** (0.473)	0.520*** (0.186)	0.463** (0.181)	0.463** (0.183)	-2.160*** (0.460)	-2.070*** (0.447)	-2.224*** (0.451)	0.504*** (0.182)	0.434** (0.178)	0.429** (0.179)
Constant	5.266*** (0.289)	5.253*** (0.302)	5.289*** (0.291)	1.528*** (0.0883)	1.520*** (0.0865)	1.494*** (0.0873)	5.318*** (0.223)	5.294*** (0.244)	5.265*** (0.256)	1.422*** (0.111)	1.388*** (0.108)	1.337*** (0.111)

(Continued)

Table 5. (Continued)

Dependent variable: Financial inclusion (financial usage and access)

	Fixed-effects model						Random-effects model					
Independent	Financial usage			Financial access			Financial usage			Financial access		
variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	999	999	992	1,225	1,225	1,215	999	999	992	1,225	1,225	1,215
R-squared	0.463	0.458	0.458	0.681	0.684	0.688	0.452	0.452	0.454	0.679	0.682	0.686
No. of banks	151	151	149	195	195	193	151	151	149	195	195	193

Robust standard errors in parentheses, *** p < 0.01, ** p < 0.05, * p < 0.1. The coefficient of the year dummies is not stated for brevity.

Some of the control variables also significantly affect financial inclusion. The age of the bank has both a significantly negative relationship and positive relationship with financial access (bank branches per 100,000 adults) under fixed and random effect models, respectively. Loan to total asset is also positive and significant on both financial access and usage. This indicates that an increase in banks' loan portfolio increases financial access and usage, which is logical since a large loan portfolio will increase revenue for banks' expansion. The coefficient of market share indicates that a higher market share tends to reduce financial access. Again, the results of efficiency show that high efficiency in banks tend to reduce financial access; this suggests that highly efficient banks do not need many bank branches to be able to serve their customers. However, bank funding sources were not statistically significant. The macroeconomic stability variable (inflation) positively influences financial access, suggesting that a high inflation level increases financial access. Finally, the coefficients of GDP growth suggest that high economic growth tends to reduce financial access but increases financial usage.

5.4. Political business cycles and financial inclusion: The role of banks' pricing behaviour

This section presents the role of banks' pricing behaviour on the effect political business cycle has on inclusive finance. Having established that political business cycles affect the pricing behaviour of banks and that banks' pricing behaviour influences financial inclusion in Africa, we now present evidence of how political business cycles affect inclusive finance in the light of bank pricing behaviour.

In Table 6, the results of the election and pre-election cycle dummies (ELE and PREELE) across all regressions indicate that, all else equal, financial inclusion is high in election and pre-election years as compared to non-election and non-pre-election years. Loan price and deposit price individually exert a significantly positive effect on financial usage but have a negative effect on financial access. The negative relationship between loan price and financial access is in line with our earlier analysis in Table 5. More importantly, in Table 6, the coefficients of the interactive term "ELE*Loan price" exert positive and significant influence on financial access, indicating that banks' high pricing in election years increase financial access more, compared to non-election years. This means that people take more bank loans, even if the loan price is high, and this may suggest that governments contracts, which are also often awarded in pre-election and election years to brighten the incumbent's re-election chances, compel contractors to compete for bank loans to execute the projects, regardless of the bank's loan pricing. This may stimulate the need for more bank branches (increased financial access). For the "ELE*Deposit price" interactive term, the coefficients are negative and significant on financial usage but positive and significant on financial access. This shows that a high deposit price reduces financial usage but increases financial access in election years, compared to non-election years. This follows logic because a high deposit price in election years may attract depositors as a result of high liquidity in the system, with no need to seek loans (low loan account and low financial usage). At the same time, banks may fund the construction of new branches with their deposits thereby increasing financial access. However, the coefficient of "ELE*Fees price" was not statistically significant across regressions.

In sum, our results support the hypothesis of a significant effect of the interaction terms (ELE*Loan Price and ELE*Deposit Price), on financial inclusion. That is, political business cycles play a role in financial inclusion through banks' pricing behaviour in Africa. Specifically, these cycles promote financial inclusion in the African continent.

For the control variables, a bank's age exerts a positive and significant effect on financial access in columns 4, 10, 11 and 12, suggesting that older banks have more bank branches, which is logical. Loan to total asset is also positive and significant for both financial usage and access across regressions, except for columns 4, 5, 6 and 11. This makes sense as it indicates that the more banks give out loans, the more clients and loan accounts they will have, and this will lead to the creation of new branches. The coefficient of efficiency also indicates that more efficient banks tend to reduce financial usage and access, that is, efficient banks have less loan accounts and bank branches. The bank's funding sources show insignificant results across regressions. The macroeconomic stability variable

Table 6. Bank pricing behaviour and financial inclusion: The role of election cycles

Dependent variable: Financial Inclusion (financial usage and access)											
Independent variables	Fixed-effects model						Random-effects model				
	Financial usage			Financial access			Financial usage			Financial access	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ELE	0.109*** (0.0372)	0.0902*** (0.0312)	0.103*** (0.0212)	0.000508 (0.0116)	0.0546*** (0.00888)	0.0395*** (0.00767)	0.0995*** (0.0367)	0.0870*** (0.0322)	0.103*** (0.0216)	-0.00275 (0.0120)	0.0542*** (0.00894)
PREELE	0.0849*** (0.00971)	0.0765*** (0.0100)	0.0826*** (0.0102)	0.0370*** (0.00912)	0.0399*** (0.00879)	0.0385*** (0.00850)	0.0716*** (0.0100)	0.0683*** (0.0102)	0.0769*** (0.0102)	0.0352*** (0.00903)	0.0388*** (0.00875)
Loan price	1.419** (0.625)			-0.640*** (0.224)			-0.0855 (0.561)			-0.904*** (0.219)	
ELE*Loan price	-0.301 (0.378)			0.641*** (0.103)			-0.357 (0.356)			0.659*** (0.113)	
Fees price		0.241 (0.685)			0.159 (0.260)			-0.494 (0.683)			0.0793 (0.247)
ELE*Fees price		-0.449 (0.832)			0.0958 (0.195)			-0.521 (0.832)			0.0922 (0.198)
Deposit Price			0.731** (0.342)			-0.392*** (0.0806)			0.792** (0.354)		-0.327*** (0.0759)
ELE*Deposit price			-0.580** (0.227)			0.342*** (0.0580)			-0.640*** (0.228)		0.325*** (0.0640)
Bank age	-0.00114 (0.00602)	8.36e-05 (0.00624)	-0.00104 (0.00600)	0.00100* (0.000600)	0.000524 (0.000504)	0.000653 (0.000508)	0.00112 (0.00171)	0.00118 (0.00168)	0.000730 (0.00174)	0.00444*** (0.00146)	0.00415*** (0.00149)
Loan/Total assets	0.335*** (0.104)	0.380*** (0.102)	0.324*** (0.0986)	0.0412 (0.0410)	0.0181 (0.0406)	0.0402 (0.0389)	0.393*** (0.102)	0.389*** (0.0996)	0.330*** (0.0966)	0.0809** (0.0401)	0.0489 (0.0395)
Efficiency	-0.234* (0.104)	-0.315** (0.102)	-0.250* (0.0986)	-0.0418 (0.0410)	-0.0134 (0.0406)	-0.0328 (0.0389)	-0.501*** (0.102)	-0.491*** (0.0996)	-0.397*** (0.0966)	-0.0991* (0.0401)	-0.0597 (0.0395)

(continued)

Table 6. (Continued)

Dependent variable: Financial Inclusion (financial usage and access)

Independent variables	Fixed-effects model						Random-effects model					
	Financial usage			Financial access			Financial usage			Financial access		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Funding sources	0.0207 (0.133)	0.111 (0.129)	0.0921 (0.133)	0.122 (0.0504)	0.0758 (0.0440)	0.112 (0.0488)	0.0258 (0.131)	0.0472 (0.129)	0.0747 (0.132)	0.0717 (0.0506)	0.0230 (0.0441)	0.0837 (0.0483)
Inflation	0.00636*** (0.280)	0.00791*** (0.271)	0.00683*** (0.267)	-1.66e-05 (0.0979)	-0.000702 (0.0939)	-0.000164 (0.0951)	0.00769*** (0.239)	0.00767*** (0.246)	0.00646*** (0.255)	3.33e-05 (0.0963)	-0.000948 (0.0917)	-0.000458 (0.0925)
GDP growth	-2.632*** (0.00181)	-2.427*** (0.00174)	-2.482*** (0.00173)	0.594*** (0.000667)	0.520*** (0.000625)	0.494*** (0.000653)	-2.324*** (0.00183)	-2.169*** (0.00181)	-2.303*** (0.00177)	0.558*** (0.000656)	0.479*** (0.000629)	0.452*** (0.000654)
Constant	5.201*** (0.477)	5.188*** (0.461)	5.215*** (0.466)	1.464*** (0.174)	1.467*** (0.166)	1.452*** (0.168)	5.307*** (0.458)	5.292*** (0.447)	5.213*** (0.452)	1.406*** (0.170)	1.378*** (0.162)	1.344*** (0.164)
Time effects	0.292 (0.292)	0.314 (0.314)	0.291 (0.291)	0.0855 (0.0855)	0.0840 (0.0840)	0.0845 (0.0845)	0.226 (0.226)	0.245 (0.245)	0.253 (0.253)	0.108 (0.108)	0.104 (0.104)	0.106 (0.106)
Observations	999	999	992	1,225	1,225	1,215	999	999	992	1,225	1,225	1,215
R-squared	0.475	0.467	0.470	0.696	0.697	0.706	0.4659	0.4631	0.4682	0.6952	0.6962	0.7046
Number of banks	151	151	149	195	195	193	151	151	149	195	195	193

Robust standard errors in parentheses, *** p < 0.01, ** p < 0.05, * p < 0.1. The coefficient of the year dummies is not stated for brevity.

(inflation) positively influences financial usage across all regressions. This means that a high inflation level increases financial usage. Finally, the economic growth variable (GDP growth) was negative and statistically significant with financial usage but positive and significant with financial access. This suggests that economic growth tends to increase financial access but reduces financial usage.

6. Conclusion and policy implications

This paper contributes to literature by providing empirical evidence on how political business cycles through banks' pricing behaviour affects financial inclusion in Africa. In particular, using a panel dataset of 330 banks across 29 African countries over the period 2002–2013 and employing fixed and random effect estimation techniques, the study first analysed how political business cycles affect banks' pricing behaviour, secondly, it assesses the effects of banks' pricing behaviour on inclusive finance, and finally, it looked at the sensitivity of financial inclusion to political business cycles and banks' pricing behaviour. The paper uses two indicators of financial inclusion: financial usage and financial access. The Election dummy which takes the value 1 in presidential elections is used to measure political business cycles together with three specifications of bank pricing behaviour: loan price, fees price, and deposit price. This is to make our results withstand intellectual criticisms with regard to the use of alternative specifications.

The following key results were found: First, the results demonstrate that political business cycles affect banks' pricing behaviour in Africa. Specifically, our results suggest that banks' loan prices are lower in election years compared to non-election years. This finding is consistent with the argument of the "opportunistic" model that argues that all governments, irrespective of their ideological orientation, apply expansionary policies ahead of elections in order to increase their popularity and to brighten their re-election chances. By applying expansionary policies, commercial banks' loan prices tend to reduce, all else equal. Second, on the effects of banks' pricing behaviour on inclusive finance, the results show that a high loan price decreases financial access. This means that some people are banking with the expectation of acquiring low-interest loans for investment and may resort to alternative ways to finance their businesses when the loan price is high; therefore, loan accounts and the need for more bank branches will reduce. Finally, the results also show that financial inclusion is sensitive to political business cycles and banks' pricing behaviour. In particular, the results indicate that a high bank loan price in election years increases financial access more than in non-election years; and a high deposit price reduces financial usage but increases financial access in election years compared to non-election years.

We, thus, conclude that, even though there is evidence of political business cycles worsening economic growth and human development, it does not discourage financial inclusion in Africa. Rather, it encourages inclusive finance; specifically, PBCs increase financial access through loan and deposit prices. The inability of the paper to account for endogeneity is its potential limitation. Therefore, future work in this area can account for endogeneity. On the policy implications, domestic policymakers of African countries should bear in mind that if financial inclusion is decreasing in their various countries, it is not because of political business cycles. Therefore, they should concentrate on other factors to improve inclusive finance. Thus, political business cycles could be blamed for low economic growth and human development among others, but not for inclusive finance.

Funding

The authors received no direct funding for this research.

Author details

Abdul Ganiyu Iddrisu¹
E-mail: glibertik.ag@gmail.com
Festus Ebo Turkson²
E-mail: eturkson@ug.edu.gh

¹ University of Aberdeen, Department of Economics, Scotland, UK.

² University of Ghana, Department of Economics, Legon Ghana.

Citation information

Cite this article as: Political business cycles, bank pricing behaviour and financial inclusion in Africa, Abdul Ganiyu Iddrisu & Festus Ebo Turkson, *Cogent Economics & Finance* (2020), 8: 1762286.

References

Allen, F., Demirgüç-Kunt, A., Klapper, L. F., & Martinez Peria, M. S. (2016). The foundations of financial inclusion: Understanding ownership and use of formal accounts. *Journal of Financial Intermediation*, 27, 1–30. <https://doi.org/10.1016/j.jfi.2015.12.003>

- Aportela, F. (1998). *Effects of financial access on savings by low-income people*. MIT, mimeo.
- Ashraf, N., Karlan, D., & Yin, W. (2010). Female empowerment: Impact of a commitment savings product in the Philippines. *World Development*, 38(3), 333–344. <https://doi.org/10.1016/j.worlddev.2009.05.010>
- Block, S. A. (2002). Political business cycles, democratization, and economic reform: The case of Africa. *Journal of Development Economics*, 67(1), 205–228. [https://doi.org/10.1016/S0304-3878\(01\)00184-5](https://doi.org/10.1016/S0304-3878(01)00184-5)
- Block, S. A., Ferree, K. E., & Singh, S. (2003). Multiparty competition, founding elections and political business cycles in Africa. *Journal of African Economies*, 12(3), 444–468. <https://doi.org/10.1093/jae/12.3.444>
- Bratton, M., & Van De Walle, N. (1997). *Democratic experiments in Africa: Regime transitions in comparative perspective*. Cambridge University Press.
- Brewer, III., & Jackson, III. (2006). A note on the “risk-adjusted” price–concentration relationship in banking. *Journal of Banking & Finance*, 30(3), 1041–1054. <https://doi.org/10.1016/j.jbankfin.2005.06.006>
- Bruhn, M., & Love, I. (2014). The real impact of improved access to finance: Evidence from Mexico. *The Journal of Finance*, 69(3), 1347–1376. <https://doi.org/10.1111/jofi.12091>
- Ciccarelli, M., Maddaloni, A., & Peydró, J. (2015). Trusting the bankers: A new look at the credit channel of monetary policy. *Review of Economic Dynamics*, 18(4), 979–1002. <https://doi.org/10.1016/j.red.2014.11.002>
- Cúrdia, V., & Woodford, M. (2016). Credit frictions and optimal monetary policy. *Journal of Monetary Economics*, 84, 30–65. <https://doi.org/10.1016/j.jmoneco.2016.10.003>
- Demirgüç-Kunt, A., Córdova, E. L., Pería, M. S. M., & Woodruff, C. (2011). Remittances and banking sector breadth and depth: Evidence from Mexico. *Journal of Development Economics*, 95(2), 229–241. <https://doi.org/10.1016/j.jdevecto.2010.04.002>
- Dev, S. M. (2006). Financial Inclusion: Issues and Challenges. *Economic and Political Weekly*, 41(41), 4310–4313. <https://www.jstor.org/stable/4418799>
- Efthyvoulou, G. (2011). Political cycles under external economic constraints: Evidence from Cyprus. *Journal of Economics and Business*, 63(6), 638–662. <https://doi.org/10.1016/j.jeconbus.2011.04.001>
- Enkelmann, S., & Leibrecht, M. (2013). Political expenditure cycles and election outcomes: Evidence from disaggregation of public expenditures by economic functions. *Economics Letters*, 121(1), 128–132. <https://doi.org/10.1016/j.econlet.2013.07.015>
- Funashima, Y. (2016). The Fed-induced political business cycle: Empirical evidence from a time–frequency view. *Economic Modelling*, 54, 402–411. <https://doi.org/10.1016/j.econmod.2016.01.011>
- Higashijima, M. (2016). *Political business cycles in dictatorships*. □□□□□□□□ (WIAS).
- Iddrisu, A. G., & Bokpin, G. A. (2018). Political business cycles and economic growth in Africa. *Journal of Economic Studies*, 45(4), 760–772. <https://doi.org/10.1108/JES-02-2017-0056>
- Iddrisu, A. G., & Mohammed, J. I. (2019). Is political business cycle an enemy to human development? Empirical evidence from Africa. *Journal of Economic and Political Studies*, 7(3), 337–351. <https://doi.org/10.1080/20954816.2019.1633821>
- Mishra, P., Montiel, P. J., & Spilimbergo, A. (2010). *Monetary Transmission in Low Income Countries*. Centre for Economic Policy Research, Discussion Paper Series, 7951, August.
- Mohammed, J. I., Mensah, L., & Gyeke-Dako, A. (2017). Financial inclusion and poverty reduction in Sub-Saharan Africa. *The African Finance Journal*, 19(Part), 1.
- Mosley, P., & Chiripanhura, B. (2016). The African political business cycle: varieties of experience. *The Journal of Development Studies*, 52(7), 917–932. <https://doi.org/10.1080/00220388.2015.1113263>

Appendix

Table A1. Hausman specification test for Table 4

Coefficients				
	(b)	(B)	(b-B)	sqrt (diag (V _b -V _B))
	FE	RE	Difference	Standard errors
ele	-.0027644	-.002451	-.0003133.	
preele	-.0022787	-.0019257	-.000353.	
ESTAB	-.0010757	-.0002215	-.0008542	.000176
loan	.0341687	.031835	.0023336	.0013837
mktsh	-.03152	-.0253251	-.0061948	.0023826
xeff	-.0629901	-.0514594	-.0115307	.0013085
lev	-.0230528	-.0292944	.0062416	.0045111
Infla	.0002051	.000205	4.04e-08.	
gdpgrp	-.0082716	-.0158657	.0075941	.0005055

b = consistent under H₀ and H_a; obtained from xtreg.

B = inconsistent under H_a, efficient under H₀; obtained from xtreg.

Test: H₀: difference in coefficients not systematic.

chi2 (9) = (b-B)'[(V_b-V_B)⁻¹](b-B)

= 77.62

Prob>chi2 = 0.000

Therefore, (V_b-V_B is not positive definite)

Source: Author's computation using STATA.

Table A2. Hausman specification test for Table 5

Coefficients				
	(b)	(B)	(b-B)	sqrt (diag (V _b -V _B))
	FE	RE	Difference	Standard errors
intpr	1.075711	-1.340341	2.416052.	
ESTAB	.0535178	.009254	.0442638	.0029043
loan	.3930159	.5284491	-.1354332.	
mktsh	-.390882	-1.100782	.7099002.	
xeff	-.2605491	-.6349418	.3743927.	
lev	-.0618374	-.0786657	.0168283.	
Infla	.0081478	.0144227	-.0062749.	
gdpgrp	-3.13511	-2.147396	-.9877134.	

b = consistent under H₀ and H_a; obtained from xtreg.

B = inconsistent under H_a, efficient under H₀; obtained from xtreg.

Test: H₀: difference in coefficients not systematic

chi2 (8) = (b-B)'[(V_b-V_B)⁻¹](b-B)

= 2003.35

Prob>chi2 = 0.000

Therefore, (V_b-V_B is not positive definite)

Source: Author's computation using STATA.

Table A3. Hausman specification test for Table 6

Coefficients				
	(b)	(B)	(b-B)	sqrt (diag (V _b -V _B))
	FE	RE	Difference	Standard errors
ele	.0426923	.0606039	-.0179116.	
intpr	1.337058	-1.196253	2.533311.	
eleintpr	.6518877	.2249139	.4269738.	
preele	.0829569		.0456762	.0372807.
ESTAB	.0551749	.009079	.046096	.0028494
loan	.3362429	.4160223	-.0797794.	
xeff	-.2979814	-.6593779	.3613965.	
lev	-.0374484	-.138305	.1008566.	
Infla	.0074795	.0146801	-.0072007.	
gdpgp	-3.018538	-2.022236	-.9963027.	

b = consistent under H₀ and H_a; obtained from xtreg.

B = inconsistent under H_a, efficient under H₀; obtained from xtreg.

Test: H₀: difference in coefficients not systematic

$\chi^2(10) = (b-B)'[(V_b-V_B)^{-1}](b-B)$

= 42.67

Prob> χ^2 = 0.000

Therefore, (V_b-V_B) is not positive definite)

Source: Author's computation using STATA.



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



Cogent Economics & Finance (ISSN: 2332-2039) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

