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**Testing the Quiet Life Hypothesis in the African Banking Industry[1]**

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Research Department

**Testing the Quiet Life Hypothesis in the African Banking Industry**

**Simplice A. Asongu & Nicholas M. Odhiambo**

**Abstract**

The Quiet Life Hypothesis (QLH) is the pursuit of less efficiency by firms. In this study, we assess if powerful banks in the African banking industry are increasing financial access. The QLH is therefore consistent with the pursuit of financial intermediation inefficiency by large banks. To investigate the hypothesis, we first estimate the Lerner index. Then, using Two Stage Least Squares, we assess the effect of the Lerner index on financial access proxied by loan price and loan quantity. The empirical evidence is based on a panel of 162 banks from 42 African countries for the period 2001-2011. The findings support the QLH, although quiet life is driven by the below-median Lerner index sub-sample. Policy implications are discussed.

**1. Introduction**

There are three main motivations for the positioning of this study: (i) surplus liquidity issues in African financial institutions and limited financial access to households and corporations (Saxegaard, 2006; Fouda, 2009; Asongu, 2014, p.70);  (ii) recent claims that banks in Africa, instead of enhancing financial access, have been enjoying  a "quiet life" (Asongu *et al*., 2016a; Boateng *et al*., 2018) and (iii) gaps in the literature  because the existing bulk of studies  on "quiet life" in the banking industry has failed to engage the African continent.  The Quiet Life Hypothesis (QLH) is a postulation that large financial institutions would invest less in enhancing financial access through the pursuit of intermediation efficiency. According to the hypothesis, instead of using their favourable market position to increase the quantity of loans and/or decrease the price of loans, such financial institutions tend to exploit such market

advantages from their large size to improve their gains or enjoy a "quiet life" (Coccorese & Pellecchia, 2010).

The literature accords with the perspective that relative to large banks, small banks are associated with lower interest margins (see Beck & Hesse, 2006; Ahokpossi, 2013). For instance: the size of a bank substantially influences interest spread/variations in the banking sector (Beck & Hesse, 2006);  big banks are related to a higher cost of loans (see Ngigi, 2013a, 2013b) and in sub-Saharan Africa (SSA), competition-friendly policies reduce the price of loans because they enhance interbank competition (Ahokpossi, 2013).

From a theoretical perspective, however, large banks with substantial market influence are expected to be linked to lower interest margins owing to internal and external economies of scale. Unfortunately, big banks have been associated with financial allocation inefficiency because they contribute to reduce financial access (Mitchell & Onvural, 1996). Three main narratives have been provided to elucidate this paradox in the recent financial development literature: (1) Large banks could be employing credit information agencies (such as private credit bureaus and public credit registries) to boost their profit margins (Brown & Zehnder, 2010; Asongu *et al.*, 2016b). (2) Large financial institutions are also associated with diseconomies of scale which engender management, organisational and coordination inefficiencies (Mester, 1992; Clark, 1996; Karray & Chichti, 2013). (3) Big banks could be more focused on enjoying a 'quiet life' than on leveraging on their positions to boost financial intermediation efficiency (Mitchell & Onvural, 1996; Boateng *et al.*, 2018). The positioning of the study falls within the framework of the third dimension. Hence, by investigating the QLH, we seek to clarify whether big banks are reducing financial access by increasing interest margins (price of loans) and reducing credit availability (quantity of loans).

In the light of the above, the positioning of the inquiry also complements a recent strand of African financial literature that is based on claims that big banks are associated with less financial access (Triki & Gajigo, 2014; Barth *et al.*, 2009; Tchamyou & Asongu, 2017)[2]. The complementary character of this study is based on the fact that claims from the underlying literature are founded on policy inferences of indirect nature. This is essentially because specific "quiet life" indicators are not directly engaged. We directly assess how banks

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[2] Moreoover, the bulk of recent financial development literature on Africa has not focused on market power in the banking industry  (Daniel, 2017; Fowowe, 2014; Wale & Makina, 2017;  Chikalipah, 2017; Bocher *et al.*, 2017; Osah & Kyobe, 2017; Oben & Sakyi, 2017; Ofori-Sasu *et al.*, 2017; Chapoto & Aboagye, 2017; Iyke & Odhiambo, 2017; Boadi *et al.*, 2017).

with strong influence in the banking industry affect financial access in order to bridge the identified gap.

Noticeably from existing literature on the QLH summarised in Table 1, the African continent has not been given the scholarly attention it deserves, despite being the region with comparatively more issues of financial access (Triki & Gajigo, 2014). In essence, with the exception of Ariss (2010), who has included a few African countries, the majority of studies have failed to engage Africa.

**Table 1: Summary of empirical literature**

| Author(s) | Regions (Period) | Quiet Life Hypothesis(QLH) |
|---|---|---|
| Tu & Chen (2000) | Taiwan (1986-1999) | Yes |
| Weill (2004) | Europe (1994-1999) | No |
| Maudos & de Guevara (2007) | Europe (1993-2002) | No |
| Koetter & Vins (2008) | Germany (1996-2006) | Yes |
| Koetter et al. (2008) | USA (1986-2006) | No |
| Pruteanu-Podpiera et al. (2008) | Czech Republic (1994-2005) | No |
| Schaeck & Cihak (2008) | Europe & USA (1995-2005) | Yes |
| Al-Jarrah & Gharaibeh (2009) | Jordan (2001-2005) | No |
| Solis & Maudos (2008) | Mexico (1993-2005) | No (for deposit market) Yes (for loans market) |
| Al-Muharrami & Mathews (2009) | Arab Gulf (1993-2002) | No |
| Fan & Marton (2011) | SEE (1998-2008) | No |
| Fu & Heffernan (2009) | China (1985-2002) | No |
| Delis & Tsionas (2009) | Europe (1996-2006) | Yes |
| Fu & Heffernan (2009) | China (1985-2002) | No |
| Punt &van Rooij(2009) | EU (1992-1997) | No |
| Ariss (2010) | A sample of developing countries (1999-2005) | Yes (cost efficiency) No (profit efficiency) |
| Coccorese & Pellecchia (2010) | Italy (1992-2007) | Yes |
| Tetsushi et al. (2012) | Japan (1974-2005) | Yes |
| Titko & Dauylbaev (2015) | Baltic countries (2007-2013) | No |

Sources: Coccorese and Pellecchia (2010); Titko and Dauylbaev (2015) and Author. SEE: South East European countries. EU: Europe Union. QLH: Quiet Life Hypothesis.

In order to assess the QLH in the African banking industry, two main hypotheses are investigated:

H1: The Lerner index reduces financial access.

H2: The negative effect of the Lerner index on financial access is higher in the above-median Lerner index sub-sample.

In order for the hypotheses to be confirmed, we expect the Lerner index to increase loan price and reduce loan quantity. Using Two Stage Least Squares, we assess the effect of the Lerner index on financial access proxied by loan price and loan quantity. The empirical evidence is based on a panel of 162 banks from 42 African countries for the period 2001-2011.

The findings support the QLH, although quiet life is driven by the below-median Lerner index sub-sample. Hence, Hypothesis 1 is valid while Hypothesis 2 is rejected.

The rest of the study is structured as follows. Section 2 discusses the data and methodology. Section 3 covers the empirical results while Section 4 presents concluding implications and future research directions.

## 2. Data and Methodology

### 2.1 Data

The paper examines a panel of 162 banks with data for the period 2001-2011 from 42 African countries. The data is from African Development Indicators of the World Bank and Bankscope. The adopted periodicity, number of banks and number of countries are due to constraints in data availability.

In accordance with recent banking literature (see Ariss, 2010; Boateng *et al*., 2018), we use the Lerner index as a proxy for banks with substantial market influence. The index measures the degree to which banks set prices above marginal cost. It follows that a higher index reflects a greater monopolistic tendency. The computation of the index is discussed in sub-Section 2.2.1.

Financial access (or the dependent variable) is measured in terms of loan price and loan quantity with respectively 'price *charged on loans*' and '*logarithms of loans*' (Coccorese & Pellecchia , 2010; Asongu & Le Roux, 2016). Three main sets of control indicators are adopted by the study, namely: (i) market-oriented characteristics (GDP per capita growth, Inflation and population density); (ii) bank-related characteristics (Bank branches and Deposit/Assets ratio) and (iii) the unobserved heterogeneity in terms of *ownership* (domestic versus (vs) foreign); *size* (small vs big) and '*compliance with Sharia finance*' (Islamic vs non-Islamic). The choice of control variables is consistent with recent literature on financial

access (Boateng *et al.*, 2018; Asongu & Le Roux, 2016). In what follows we discuss expected signs.

First, with regard to market-related features, the following signs are anticipated: (1) from intuition, rising inflation should decrease the quantity of loans and increase the price of loans . In essence, given that investment (and correspondingly loan quantity) is less apparent in economic uncertainty periods (e.g. in times of chaotic inflation), the interest charged by banks or price of loans is normally adjusted to account for inflation. It is worthwhile to mention that investors prefer investing in economic environments that are less ambiguous (Kelsey & le Roux, 2017a, 2017b). (2) The density of population is anticipated to affect both loan price and loan quantity positively. This is probably because increasing demand for credit owing to increasing population density also positively influences the price of credit (or loan price). (3) GDP per capita, which is used to control for business cycle fluctuations, is projected to positively influence the quantity of loans. Conversely, it is difficult to establish the anticipated sign of loan price, essentially because the effect is contingent on market dynamism and expansion. It is also interesting to note that GDP per capita can influence financial access (or both loan quantity and loan price) because of diminishing demand. A negative impact is expected from GDP per capita because in Africa, over the past decade, on average terms, GDP growth has been growing at a slower rate than population growth (Asongu, 2013).

Second, in relation to bank-oriented features, the following can be anticipated: (1) the number of bank branches intuitively has a positive (negative) influence of loan quantity (loan price). (2) Both loan quantity and loan price are expected to increase with the 'deposit/asset' ratio. This is probably because the principal source of resources for banks is mobilised financial deposits. Hence, a greater proportion of liquid liabilities can increase interest rate margins and/or loan quantity, since good organisation is imperative for effective management and adequate mobilisation of financial deposits.

Third, it is very difficult to establish expected effects from the three dummy variables used to control for the unobserved heterogeneity for the following reasons. (1) Regardless of bank size (big vs small), financial institutions can be related to both positive and negative impacts from dynamics of loans, albeit financial institutions with comparatively large sizes are more linked to issues of management and coordination. Furthermore, it is important to address challenges which are inherently linked to growing bank size such as inefficiency, partly owing to issues that banks could encounter when trying to resolve conflicts associated

with customer needs and requirements. (2) Within the same logical framework, the roles of heterogeneity in ownership (domestic vs foreign) and compliance with 'Sharia finance' (Islamic vs Non-Islamic) depend on a multitude of features, among others: market dynamism, organisational capacities and market expansion.

A tabular summary of expected signs from the control indicators is revealed in Appendix 1, whereas the definition and sources of data are disclosed in Appendix 2. The corresponding correlation matrix and summary statistics are provided in Appendix 4 and Appendix 3 respectively.

## 2.2 Methodology

We are investigating the quiet life hypothesis (QLH), which is the pursuit of less efficiency by firms. Within the framework of this study, the QLH is consistent with the pursuit of financial intermediation inefficiency by banks with monopolistic power. To investigate the hypothesis, we first estimate the Lerner index. Then, using the Two Stage Least Squares estimation strategy, we examine the effect of the Lerner index on financial access proxied with loan price and loan quantity.

### 2.2.1 Estimation of the Lerner Index

A stochastic frontier model is employed to estimate the Lerner index. The use of the approach is in accordance with a bulk of literature on the subject (Battese & Coelli, 1992; Coccorese & Pellecchia, 2010; Boateng *et al.*, 2018). With respect to Coccorese and Pellecchia (2010), when compared with alternative estimation strategies that are founded on deterministic frontiers (Aigner & Chu, 1968; Farrell, 1957), the adopted estimation approach is more efficient. The selected modelling technique accounts for: the likelihood that, beside business inefficiencies, variations between the observed output and frontier outcome can be founded on characteristics such as stochastic shocks and measurement errors.

Let us suppose that for bank $i$ at time $t$, production costs are contingent on output ($Q$), input prices ($W$), random error ($v$) and inefficiency ($u$). If the related random error and inefficiency terms are identically and independently distributed (iid), then the logarithmic specification reflecting the cost function can be provided as follows:

$$\ln C_{it} = f(Q_{it}, W_{it}) + v_{it} + u_{it} ,$$ 

(1)

where the error term and non-negative inefficiency terms are iid, and respectively follow a normal distribution and a truncated normal distribution. Hence, whereas $v_{it}$ is $N(0, \sigma_v{}^2)$, $u_{it}$ is $N(\mu, \sigma_u{}^2)$.

Cost is then estimated with the translog cost function. It encompasses three inputs and one output. The translog cost function has been widely used in both non-contemporary (Christensen *et al.*, 1971; Brown *et al.*, 1979) and contemporary (Koetter & Vins, 2008; Ariss, 2010; Coccorese & Pellecchia, 2010; Boateng *et al.*, 2018) literature.

The cost function is as follows:

$$\ln C_{it} = \alpha_0 + \alpha_1 \ln Q_{it} + \sum_{h=1}^{3} \alpha_h \ln W_{hit} + \frac{1}{2}\left\{ \alpha_{QQ}(\ln Q_{it})^2 + \sum_{h=1}^{3}\sum_{k=1}^{3} \alpha_{hk} \ln W_{hit} \ln W_{kit} \right\}$$

$$+ \sum_{h=1}^{3} \alpha_{Qh} \ln Q_{it} \ln W_{hit} + v_{it} + u_{it} \,, \tag{2}$$

where $i = 1, \ldots\ldots N$ and $t = 1 \ldots\ldots T$, are respectively subscripts of banks and time. $C$ denotes the total cost, $Q$ represents the output, $W_h$ entail factor prices, while $u_{it}$ and $v_{it}$ are the error and inefficiency terms respectively.

One output and three inputs are specified while estimating the cost. The following variables are used to measure the total operation cost: total operating cost proxied by overheads, inputs by deposits price, output by total assets, price of capital and price of labour[3].

As emphasised in Eq. (4), the Lerner index is then estimated from the marginal cost and price. Whereas the former is obtained from the output of a translog cost function (see Eq. (3)), the latter represents the price that is charged by banks on their output or total assets. It is calculated as the ratio of total revenues (net interest income plus noninterest income) to total assets.

$$MC_{it} = \frac{\partial C_{it}}{\partial Q_{it}} = \frac{\partial \ln C_{it}(C_{it})}{\partial \ln Q_{it}(Q_{it})} = \left( \alpha_Q + \alpha_{QQ} \ln Q_{it} + \sum_{h=1}^{3} \alpha_{Qh} \ln W_{hit} \right) \frac{C_{it}}{Q_{it}} \tag{3}$$

$$LERNER_{it} = \frac{P_{it} - MC_{it}}{P_{it}} \,, \tag{4}$$

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[3] The price of labour is defined as the ratio of personnel expenses to total assets. The deposit price is derived by dividing interest expenses with the sum of deposits, short-term finance plus money market. The price of capital is equal to the ratio of 'other operating costs' to the value of fixed assets.

where $P_{it}$ is the price that a bank charges on its output. From a theoretical perspective, the Lerner index ranges from 0 (in a scenario of perfect competition) and 1.

*2.2 2 Instrumentation and Two Stage Least Squares estimations*

After computing the Lerner index, a simultaneity-robust Two Stage Least Squares approach that further controls for the unobserved heterogeneity is employed. The issue about simultaneity (in endogeneity) is tackled by intstrumenting the Lerner index with its first lag. Hence, the process of instrumenting the Lerner index is disclosed in Eq. (5) below.

$$LI_{i,t} = \alpha + \delta_j \left(LI_{i,t-1}\right) + \eta_i + \varepsilon_{i,t} \quad , \tag{5}$$

where $LI_{i,t}$, is the Lerner index of bank $i$ at period $t$, $\alpha$ is a constant, $LI_{i,t-1}$, represents the Lerner index in bank $i$ at period $t-1$, $\eta_i$ is the bank-specific effects and $\varepsilon_{i,t}$ the error term.

The instrumentation process in Eq. (5) consists of regressing the Lerner index on its first lag and then saving the fitted values which are then employed as the independent variable of interest in the second stage of the Two Stages Least Squares process. The specification is Heteroscedasticity and Autocorrelation Consistent (HAC) in terms of standard errors.

The second-stage of Two Stage Least Squares process is presented in Eq. (6) below.

$$LQ_{i,t} = \partial_0 + \partial_1 MP_{i,t} + \sum_{h=1}^{5} \omega_h W_{h,i,t-\tau} + \eta_i + \varepsilon_{i,t} \quad , \tag{6}$$

where $LQ_{i,t}$ is Loan quantity of bank $i$ at period $t$, $\partial$ is a constant, *MP* denotes instrumented the Lerner index. *W* is the vector of control variables (*GDP per capita growth, Inflation, Population density, Deposit/Assets, Bank Branches*)), $\eta_i$ is the bank-specific effects (*Small banks, Domestic banks* and *Islamic banks*) and $\varepsilon_{i,t}$ the error term.

## 3. Empirical results

Table 2 and Table 3 respectively present baseline Ordinary Least Squares and Two Stage Least Squares. The former is performed without the instrumentation process whereas the latter entails the process of instrumentation outlined in Eq. (5). For either table, the left-hand side shows estimations corresponding to the price of loans whereas the right-hand-side reveals estimations related to the quantity of loans. For either dependent variable, three specifications are apparent, one on the full sample and two on above-median and below-median Lerner

index sub-samples. The choice of a median cut-off point is motivated by the need to have comparable sub-samples. Whereas the full sample enables us to assess Hypothesis 1, comparing the Lerner index from the two sub-samples provides insights into whether Hypothesis 2 is valid or not.

From Table 2, Hypothesis 1 is validated because the Lerner index increases (decreases) the prices of loans (quantity of loans). Hence, by decreasing financial access, the Lerner index contributes to financial intermediation inefficiency. Hypothesis 2 is not confirmed because opposite effects are apparent in the above-median Lerner index sub-sample. It follows that the QLH is fundamentally driven by banks with comparatively lower Lerner indices or the below-median Lerner index sub-sample. Most of the significant control variables have the expected signs.

## Table 2: Baseline Ordinary Least Squares

| | Dependent Variable: Financial Access | | | | | |
|---|---|---|---|---|---|---|
| | **Price of Loans** | | | **Quantity of Loans** | | |
| | Full Sample | Lerner ≤ Median | Lerner >Median | Full Sample | Lerner ≤ Median | Lerner >Median |
| Constant | **0.099*** | **0.084*** | **0.188*** | **3.510*** | **4.448*** | 0.735 |
| | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | (0.264) |
| Lerner index | **0.006*** | **0.008*** | **-0.111*** | **-0.090**** | **-0.077**** | **2.383*** |
| | **(0.000)** | **(0.008)** | **(0.000)** | **(0.012)** | **(0.014)** | **(0.001)** |
| GDPpcg | -0.0005 | **-0.001*** | -0.0001 | **-0.020*** | **-0.041**** | -0.003 |
| | (0.165) | **(0.055)** | (0.805) | **(0.061)** | **(0.031)** | (0.786) |
| Inflation | **0.0001*** | **0.0002*** | 0.00008 | 0.002 | -0.0009 | **0.003*** |
| | **(0.099)** | **(0.098)** | (0.255) | (0.176) | (0.667) | **(0.000)** |
| Pop. density | **0.00003*** | **0.00006**** | 0.00001 | **-0.0009*** | **-0.001**** | **-0.001*** |
| | **(0.009)** | **(0.019)** | (0.202) | **(0.002)** | **(0.023)** | **(0.003)** |
| Deposit/Assets | 0.011 | **0.043*** | **-0.020*** | **2.093*** | **1.772*** | **2.312*** |
| | (0.168) | **(0.000)** | **(0.061)** | **(0.000)** | **(0.000)** | **(0.000)** |
| Bank Branches | **-0.002*** | **-0.002*** | **-0.001*** | **-0.046*** | **-0.089*** | **-0.028*** |
| | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.001)** |
| Small Banks | **0.008**** | 0.001 | **0.012*** | **-0.756*** | **-0.924*** | **-0.346**** |
| | **(0.033)** | (0.775) | **(0.007)** | **(0.000)** | **(0.000)** | **(0.034)** |
| Domestic Banks | 0.004 | 0.002 | **0.008**** | **0.307*** | 0.029 | **0.765*** |
| | (0.173) | (0.498) | **(0.049)** | **(0.003)** | (0.830) | **(0.000)** |
| Islamic Banks | **-0.021*** | **-0.019**** | -0.014 | **-0.425**** | **-0.687*** | -0.069 |
| | **(0.001)** | **(0.026)** | (0.312) | **(0.002)** | **(0.008)** | (0.762) |
| Adjusted R² | 0.112 | 0.216 | 0.129 | 0.195 | 0.279 | 0.220 |
| Fisher | **14.16*** | **10.94*** | **6.83*** | **36.73*** | **22.12*** | **33.47*** |
| Observations | 748 | 346 | 402 | 748 | 346 | 402 |

*, **, ***: significance levels of 10%, 5% and 1% respectively. IV: Instrumented Variable. The median of the Lerner index is: 0.58822.

**Table 3: Two Stage Least Squares**

| | Dependent Variable: Financial Access | | | | | |
|---|---|---|---|---|---|---|
| | **Price of Loans** | | | **Quantity of Loans** | | |
| | Full Sample | Lerner ≤ Median | Lerner >Median | Full Sample | Lerner ≤ Median | Lerner >Median |
| Constant | **0.110*** | **0.100*** | **0.510*** | **3.743*** | **4.461*** | -3.149 |
| | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | (0.204) |
| The Lerner index (IV) | -0.002 | 0.008 | **-0.674*** | **-0.489*** | **-0.430*** | **9.757**  |
| | (0.753) | (0.132) | **(0.000)** | **(0.003)** | **(0.004)** | **(0.016)** |
| GDPpcg | -0.0006 | **-0.001**  | -0.0003 | -0.017 | -0.009 | -0.013 |
| | (0.120) | **(0.018)** | (0.501) | (0.168) | (0.624) | (0.377) |
| Inflation | 0.0001 | 0.00008 | 0.0001 | 0.002 | 0.001 | 0.001 |
| | (0.120) | (0.428) | (0.108) | (0.121) | (0.396) | (0.329) |
| Pop. density | **0.00002*** | **0.00004*** | 0.000009 | **-0.0009*** | **-0.001**  | **-0.001**  |
| | **(0.062)** | **(0.080)** | (0.512) | **(0.004)** | **(0.031)** | **(0.014)** |
| Deposit/Assets | 0.005 | **0.032**  | **-0.018*** | **2.106*** | **1.850*** | **2.242*** |
| | (0.563) | **(0.010)** | **(0.088)** | **(0.000)** | **(0.000)** | **(0.000)** |
| Bank Branches | **-0.002*** | **-0.002*** | **-0.001*** | **-0.047*** | **-0.081*** | **-0.034*** |
| | **(0.000)** | **(0.000)** | **(0.005)** | **(0.000)** | **(0.000)** | **(0.000)** |
| Small Banks | **0.007*** | -0.0009 | **0.009**  | **-0.743*** | **-0.947*** | **-0.365**  |
| | **(0.080)** | (0.884) | **(0.036)** | **(0.000)** | **(0.000)** | **(0.033)** |
| Domestic Banks | 0.003 | 0.005 | 0.005 | **0.328*** | 0.082 | **0.699*** |
| | (0.302) | (0.231) | (0.203) | **(0.003)** | (0.593) | **(0.000)** |
| Islamic Banks | **-0.022*** | **-0.027*** | -0.008 | **-0.499**  | **-0.834*** | -0.110 |
| | **(0.002)** | **(0.009)** | (0.552) | **(0.019)** | **(0.009)** | (0.640) |
| Adjusted R² | 0.122 | 0.191 | 0.164 | 0.202 | 0.267 | 0.212 |
| Fisher | **9.59*** | **7.38*** | **7.16*** | **32.22*** | **17.17*** | **18.60*** |
| Observations | 621 | 287 | 334 | 621 | 287 | 334 |

*, **, ***: significance levels of 10%, 5% and 1% respectively. IV: Instrumented Variable. The median of the IV Lerner index is: 0.57200.

## 4. Concluding implication and future research directions

One of the most serious challenges to do business in Africa is a lack of finance, which is compounded by surplus liquidity issues in financial institutions of the continent. In order to finance its growing investment needs, enhanced financial access represents an important policy concerns for the continent.

Building on concerns raised in a recent strand of the literature as well as apparent gaps in the engaged literature, this study has assessed if powerful banks in the African banking industry are enjoying a quiet life by reducing financial access. The Quiet Life Hypothesis (QLH) is consistent with the pursuit of financial intermediation inefficiency by banks with such high market share and/or substantial market influence. To investigate the hypothesis, we have first estimated the Lerner index. Then, using Two Stage Least Squares, we have examined the effect of the Lerner index on financial access proxied by loan price and loan quantity. The empirical evidence is based on a panel of 162 banks from 42 countries for the

period 2001-2011. The findings support the QLH, although quiet life is driven by the below-median Lerner index sub-sample.

The findings confirm the recommendation of Ariss (2010) that, increased market influence by large banks should be welcomed in developing countries in order to enhance bank soundness. This is essentially because the relevance of large banks on financial access depends on the degree of market influence, with banks with above-median Lerner index increasing financial access whereas their counterparts with below-median Lerner index have decreasing financial access. An immediate implication is that blanket policies based on mean values of the Lerner index may not be effective unless they are contingent on existing levels of the Lerner index and hence, tailored differently across banks with varying levels of Lerner indices. A possible reason why banks with above-median "Lerner index" behave differently from their below-median "Lerner index" counterparts may be the economies of scale associated with bank size. It will be interesting for future research to ascertain this inference. Moreover, investigating the interaction of the Lerner index with complementary mechanisms (that are theoretically designed to reduce information asymmetry and enhance financial access) is another relevant future research outlet. Such channels include: information sharing offices (such as private credit bureaus and public credit registries) and information and communication technologies.

## Appendices

### Appendix 1: Summary of expected signs

|  | Variables | Expected sign on loan price | Expected sign on loan quantity |
|---|---|---|---|
| Bank-oriented features | Deposit/Asset ratio | + | + |
|  | Bank Branches | - | + |
| Market-related characteristics | GDP per capita growth | Uncertain | + |
|  | Population density | + | + |
|  | Inflation | + | - |
| Characteristics of the unobserved heterogeneity | Small versus(vs). Big banks | Uncertain | Uncertain |
|  | domestic vs. foreign banks | Uncertain | Uncertain |
|  | Islamic vs. non-Islamic banks | Uncertain | Uncertain |

GDP: Gross Domestic Product.

### Appendix 2: Variable Definitions

| Variables | Signs | Variable Definitions | Sources |
|---|---|---|---|
| Market Influence | Lerner index | The ratio of the 'difference between the Marginal Cost and Price' on the Price | Authors' calculation and BankScope |
| Loan Quantity | Quantity | Logarithm of Loans Quantity | BankScope |
| Price (charged on Loans or Quantity) | Price | (Gross Interest and Dividend income +Total Non-Interest Operating Income)/Total Assets | BankScope |
| GDP per capita | GDP | GDP per capita growth (annual %) | WDI (World Bank) |
| Inflation | Infl. | Consumer Price Index (annual %) | WDI (World Bank) |
| Population density | Pop. | People per square kilometers of land area | WDI (World Bank) |
| Deposits/Assets | D/A | Deposits on Total Assets | BankScope |
| Bank Branches | Bbrchs | Number of Bank Branches (Commercial bank branches per 100 000 adults) | BankScope |
| Small Banks | Ssize | Ratio of Bank Assets to Total Assets (Assets in all Banks for a given period) ≤ 0.50 | Authors' calculation and BankScope |
| Large Banks | Lsize | Ratio of Bank Assets to Total Assets (Assets in all Banks for a given period)>0.50 | Authors' calculation and BankScope |
| Domestic/Foreign banks | Dom/Foreign | Domestic/Foreign banks based on qualitative information: creation date, headquarters, government/private ownership, % of foreign ownership, year of foreign/domestic ownership…etc | Authors' qualitative content analysis. |
| Islamic/Non-Islamic | Islam/NonIsl. | Islamic/Non-Islamic banks based on financial statement characteristics (trading in derivatives and interest on loan payments…etc) | Authors' qualitative content analysis; Beck et al. (2010); Ali (2012). |

WDI: World Development Indicators. GDP: Gross Domestic Product. The following are dummy variables: Ssize, Lsize, Open, Close, Dom/Foreign and Islam/NonIsl.

## Appendix 3: Summary Statistics

|  |  | Mean | S.D | Minimum | Maximum | Observations |
|---|---|---|---|---|---|---|
| Market Influence | Lerner | 0.513 | 0.587 | 0.032 | 0.969 | 893 |
| Dependent variables | Price of Loans | 0.338 | 0.929 | 0.000 | 25.931 | 1045 |
|  | Quantity of Loans (ln) | 3.747 | 1.342 | -0.045 | 6.438 | 1091 |
| Market variables | GDP per capita growth | 13.912 | 96.707 | -15.306 | 926.61 | 1782 |
|  | Inflation | 10.239 | 22.695 | -9.823 | 325.00 | 1749 |
|  | Population density | 81.098 | 106.06 | 2.085 | 633.52 | 1782 |
| Bank level variables | Deposits/Assets | 0.664 | 0.198 | 0.000 | 1.154 | 1052 |
|  | Bank Branches | 6.112 | 6.158 | 0.383 | 37.209 | 1129 |
| Dummy variables | Small Size | 0.195 | 0.396 | 0.000 | 1.000 | 1255 |
|  | Large Size | 0.804 | 0.396 | 0.000 | 1.000 | 1255 |
|  | Domestic | 0.753 | 0.431 | 0.000 | 1.000 | 1782 |
|  | Foreign | 0.246 | 0.431 | 0.000 | 1.000 | 1782 |
|  | Islamic | 0.037 | 0.188 | 0.000 | 1.000 | 1782 |
|  | Non-Islamic | 0.962 | 0.188 | 0.000 | 1.000 | 1782 |

Ln: Logarithm. GDP: Gross Domestic Product. S.D: Standard Deviation. GDP: Gross Domestic Product.

**Appendix 4: Correlation Matrix**

| Market-Level Controls | | | Bank-Level Controls | | Financial Access | | | | Dummy-Controls | | | | Lerner | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP | Infl. | Pop. | D/A | Bbrchs | Price | Quantity | Ssize | Lsize | Dom. | Foreign | Islam | NonIsl. | | |
| 1.000 | 0.136 | 0.007 | -0.008 | -0.068 | -0.014 | -0.026 | -0.0002 | 0.0002 | 0.034 | -0.034 | 0.0001 | -0.0001 | -0.016 | GDP |
| | 1.000 | -0.028 | 0.037 | -0.236 | 0.256 | -0.009 | 0.046 | -0.046 | 0.028 | -0.028 | -0.050 | 0.050 | -0.062 | Inf. |
| | | 1.000 | 0.112 | 0.410 | -0.029 | -0.125 | -0.098 | 0.098 | -0.045 | 0.045 | -0.088 | 0.088 | 0.035 | Pop. |
| | | | 1.000 | -0.041 | 0.080 | 0.306 | -0.041 | 0.041 | -0.062 | 0.062 | -0.210 | 0.210 | 0.021 | D/A |
| | | | | 1.000 | -0.266 | -0.227 | -0.078 | 0.078 | 0.135 | -0.135 | -0.051 | 0.051 | 0.109 | Bbrchs |
| | | | | | 1.000 | -0.075 | 0.094 | -0.094 | 0.016 | -0.016 | -0.097 | 0.097 | 0.082 | Price |
| | | | | | | 1.000 | -0.171 | 0.171 | 0.052 | -0.052 | -0.067 | 0.067 | -0.038 | Quantity |
| | | | | | | | 1.000 | -1.000 | 0.026 | -0.026 | -0.020 | 0.020 | -0.056 | Ssize |
| | | | | | | | | 1.000 | -0.026 | 0.026 | 0.020 | -0.020 | 0.056 | Lsize |
| | | | | | | | | | 1.000 | -1.000 | 0.089 | -0.089 | 0.147 | Dom. |
| | | | | | | | | | | 1.000 | -0.089 | 0.089 | -0.147 | Foreign |
| | | | | | | | | | | | 1.000 | -1.000 | 0.006 | Islam |
| | | | | | | | | | | | | 1.000 | -0.006 | NonIsl. |
| | | | | | | | | | | | | | 1.000 | Lerner |

Info: Information. GDP: GDP per capita growth. Infl: Inflation. Pop: Population growth. D/A: Deposit on Total Assets. Bbrchs: Bank branches. Szize: Small banks. Lsize: Large banks. Domestic: Domestic banks. Foreign: Foreign banks. Islam: Islamic banks. NonIsl: Non-Islamic banks. Price: Price of Loans. Quantity: Quantity of Loans. Lerner: Market Influence.

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