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Abstract

This study examines the Nigerian banking consolidation process using a dynamic panel for the period 2000-2010. The Arellano and Bond (1991) dynamic GMM approach is adopted to estimate a cost function taking into account the possible endogeneity of the covariates. The main finding is that the Nigerian banking sector has benefited from the consolidation process, and specifically that foreign ownership, mergers and acquisitions and bank size decrease costs. Directions for future research are also discussed.

Keywords: Nigeria, banking consolidation, dynamic panels
G21, C23, O55

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This paper focuses on the impact of banking consolidation in Nigeria on banks during the period 2000-2010. This process started in 2004 after the Central Bank of Nigeria (CBN) announced new capital requirements for Nigerian banks. The intention was to make banks increase their average size through mergers and acquisitions. Some of them could neither satisfy the new capital requirements nor find a suitable merger partner, and therefore were forced to go into liquidation. As a result, their number was considerably reduced. Not surprisingly, all foreign banks survived the recapitalisation as they usually relied on capital injections from the parent company to meet the capital requirements. The total number of Nigerian banks immediately after the consolidation, that is, before the Stanbic Bank/IBTC merger, was 25 (Hesse, 2007; Porter, 2007; Assaf, Barros and Ibiowie, 2011).

The present study makes a threefold contribution. First, it provides evidence on the impact of consolidation on costs in the specific case of Nigerian banks, as this can vary from country to country, depending on market characteristics and regulations (Focarelli, Panetta and Salleo, 2002; Vander Vennet, 2002). Second, it adds to the limited number of existing studies on banking consolidation (Chapelle and Plane, 2005a; 2005b; Francis, Hasan and Wang, 2008; Yildirim and Philippatos, 2007; Binam, Gockowski, and Nkamleu, 2008; Igbekele, 2008; Assaf, Barros and Ibiowie, 2011) by estimating a more suitable dynamic model rather than conducting the efficiency analysis typical of most papers. In particul(t)-4(h)17(a)-nnd,

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empirical results. Section 8 summarises the main findings and their implications and suggests directions for future research.

The Nigerian banking system has evolved since the colonial periods in three distinct phases. The first, generally referred to as the free-banking era, was the pre-independence period when the industry was dichotomised between foreign and indigenous banks. The foreign banks, which obtained their operating licences abroad and dominated banking activities during this era, were seen to act solely in the interest of their foreign owners rather than of Nigerians and of the Nigerian economy (Brownbridge, 1996). Since there was neither a banking legislation nor a regulator, entry was relatively free. This created an avenue for all kinds of speculative investors who operated banks that were generally under-capitalised and poorly managed. Early exit was common among the domestic banks, which were clearly disadvantaged. By 1940, the majority of indigenous banks had collapsed, with the only survivors being those that were established and, in all likelihood, patronised by the three regional governments. Yet this did not stop the creation of more banks: there were in fact 150 indigenous banks established between 1940 and 1952 (Adegbite, 2007). The experience of the banking crashes of the 1930s and 1940s possibly informed the adopt in 1952 the banking ordinance, which represents the first major attempt at regulating banking operations. However, this regulation appeared to make little or no impact on the way banking was conducted, as there was no regulator to enforce compliance. The CBN was established in 1959 to regulate and perform other overseeing functions (Hesse, 2007). The second phase was the indigenisation period of the 1970s when the government introduced various control measures such as the nationalisation of foreign-owned banks, entry restrictions, a deposit rate floor or an interest rate ceiling. This period is known as the static period which reflects the low number of banks and the establishment of very few branches by the existing banks.

The next phase began in 1986 with the implementation of the Structural Adjustment Programme (SAP) prescribed by the World Bank/IMF. Some of the control measures such as entry conditions, sectoral credit allocation quotas and interest rate regulation of the indigenisation period were relaxed. This reintroduced dilution into the industry and the number of banks increased from 42 in 1986 to 107 in 1990, and by 1992 it had reached 120. The sharp increase in the number of banks without a correspondingly large increase in the capacity of the

quality and weak corporate governance (Soludo, 2006). This led to another round of recapitalisation in 2004 when banks were required to increase their minimum capital base from Naira 2 billion to Naira 25 billion by the end of 2005. This brought about radical changes to the structure and nature of banking operations.

Other important results of the consolidation process were that bank branch networks rose from 3382 prior to consolidation to 4500 post consolidation, aggregate bank assets increased from Naira 3209 billion in 2004 to Naira 6555 billion in 2006 and the capital adequacy ratio climbed from 15.2% in 2004 to 21.6% in 2006 (Balogun, 2007). More information on the performance of the banking industry is provided in Table 1.

3. Literature Review

Most studies on bank efficiency (Altunbas¸, Gardener, Molyneux, and

market structure and bank-specific variables have been proposed on the basis of the structure conduct performance paradigm, and have been used to test the role of ownership and governance in explaining bank performance (see Berger, 1995; Berger and Humphrey, 1997; Bikker and Haaf, 2002; Goddard et al., 2001; Molyneux, Altunbas¸, and Gardener, 1996). In general, the extensive empirical evidence does not provide conclusive proof that bank performance is explained by either concentrated market structures and collusive price-setting behaviour or superior management and production techniques. Bank performance levels are found to vary widely across banks and banking sectors (Altunbas¸ et al., 2001; Maudos et al., 2002; Schure et al., 2004).

Another strand of the literature analyses the impact of consolidation on banking costs. The need to reduce costs through economies of scales and scope, or to increase revenues through gaining additional market shares, are usually the main drivers of consolidation (Amel, Barnes, Panetta, and Salleo, 2004). The literature also discusses the linkage between mergers and acquisition activities and the transfer of knowledge between the acquiring and the acquired company. However, the relationship between consolidation and costs does not seem to be always positive. Some studies, for instance, suggest that efficiency gains from consolidation disappear after a certain size is reached and that above a certain threshold a firm might start exhibiting diseconomies of scale (Amel et al., 2004). The increase in size also creates further pressure on managers owing to the difficulty of managing large institutions. The evidence for the banking industry is mixed. Banal-Estañol and Ottaviani (2006, 2007), for instance, highlighted the need for diversification to ensure the success of bank mergers. They also argued that mergers are not always beneficial as they might make firms more aggressive when they compete in quantities.

The evidence on the effects of consolidation also seems to vary by country. This is because each country has its own market characteristics and regulations (Focarelli, Panetta, and Salleo, 2002; Vander Vennet, 2002). In general, no strong evidence on the benefit of consolidation is found in the US, while in Europe the conclusions seem to be mixed (Carbo and Humphrey, 2004; Cavallo and Rossi, 2001; Diaz, Garcia, and Sanfilippo, 2004; Esho, 2001; Sathye, 2001).

For Asian countries such as Japan

group affiliation can be beneficial, though this might be dependent on the size of the group. Other studies have also linked the success of group affiliation to the type of market, firms with group affiliation tending to outperform those without in competing markets, since for the latter it is harder to gain new market shares (Khanna and Palepu, 2000; Ghemawat and Khanna, 1998; Cho, 2007; Griffith-Jones, 2007). Therefore it might be more profitable to join a foreign group, thereby sharing its resources and reputation to make up for external market failures (Khanna and Paleou, 2000).

H1: Foreign group ownership decreases Nigerian banks costs. This hypothesis is tested with the variable oreign .

5.2 Mergers and Acquisitions

Mergers and acquisitions between similar companies are known as horizontal mergers (Andrade, Mitchell and Stafford, 2001), and aim to improve cost performance and synergy through a larger market share. In the former case the merged companies reduce operating costs but keep the premises of the merged or acquired company (Garette and Dussauge, 2000).

H2: Bank mergers and acquisitions reduce Nigerian bank costs. This hypothesis is tested with the variable M&A .

5.3 Firm Size

It is often argued that large firms might be more efficient, because they can use more specialised inputs, coordinate their resources better, reap the advantages of economies of scale (Alvarez and Crespi, 2003) and make up for external market failures (Khanna and Palepu, 2000; Ghemawat and Khanna, 1998). Related studies also indicated that firm size has a positive impact on efficiency and decreases costs (Altunbas et al., 1997, Berger and Humphrey, 1991, Alvarez and Arias, 2003).

H3: An increase in bank size reduces Nigerian bank costs. This hypothesis is tested with the variable otal Assets .

5.4 Banking Consolidation

Banking consolidation aims to improve cost performance (Amel, Barnes, Panetta and Salleo, 2004) and therefore it may have a negative impact on bank costs. This hypothesis will be tested with a consolidation dummy variable.

H4: Banking consolidation reduces Nigerian bank costs.

6. Data

The dependent variable in our model is bank costs, that have been extensively analysed in the empirical literature (Francis, Hasan and Wang, 2008; Yildirim and Philippatos, 2007; Assaf, Barros and Ibiowie, 2011). The independent variables listed in Table 2 were selected on the basis of microeconomic theory (Varian, 2009).

Our sample includes all the 25 Nigerian banks that got past the recapitalisation hurdle. Data were collected from annual reports of the banks for the period 2000-2010 (275 observations). In the empirical banking literature, there are two approaches to measuring bank outputs and costs (Berger and Humphrey, 1997). The production approach treats banks as producing accounts of various sizes by processing deposits and loans, and incurring capital and labour costs. Operating costs are thus specified in the cost function and output is measured as the number of deposits and loan accounts. The intermediation approach sees banks as transforming deposits and purchased funds into loans and other assets. Costs are expressed as total operating plus interest costs and output is measured in monetary units. These two approaches have been applied in different ways. Limited data availability means that in our case we are constrained to apply only the intermediation approach, which is in fact the most commonly used one in banking studies (Sealey and Lindley, 1977; Berger and Humphrey,1997). The estimated function is the following:

$$Ln\frac{Cost_{it}}{PD_{it}} \quad _{it} \quad _{CL}CL_{it} \quad _{SEC}SEC_{it} \quad _{PL}Ln\frac{PL_{it}}{PD_{it}} \quad _{PK}Ln\frac{PK_{it}}{PD_{it}} \quad _{CL,CL}\frac{1}{2}LnCL_{it}LnCL_{it}$$

$$_{SEC,SEC}\frac{1}{2}LnSEC_{it}LnSEC_{it} \quad _{PL,Pl}\frac{1}{2}Ln\frac{PL_{it}}{PD_{it}}Ln\frac{PL_{it}}{PD_{it}} \quad _{PK,PK}\frac{1}{2}Ln\frac{PK_{it}}{PD_{it}}Ln\frac{PK_{it}}{PD_{it}}$$

$$_{CL,SEC}.LnCL_{it}LnSEC_{it} \quad _{CL,PL}LnCL_{it}Ln\frac{PL_{it}}{PD_{it}} \quad _{CL,PK}LnCL_{it}Ln\frac{PK_{it}}{PD_{it}} \quad _{SECPL}LnSEC_{it}Ln\frac{PL_{it}}{PD_{it}}$$

$$_{SEC,PK}LnSEC_{it}Ln\frac{PK_{it}}{PD_{it}} \quad _{PL,PK}Ln\frac{PL_{it}}{PD_{it}}Ln\frac{PK_{it}}{PD_{it}}$$

$$_{1}Foreign_{it} \quad _{2}M\ \&\ A_{it} \quad _{4}Size_{it} \quad _{5}Consolidation_{it} \quad _{it}$$

with the associated factor share equations.

The data characteristics are presented in Table 2.

7. Results

The results based on the Arellano-Bond (1991) model using three different specifications are presented in Table 3. F-tests suggest that the third specification should be preferred. The Hausman test is used to test for endogeneity (omitted variable biased, measurement error, or reverse causality; Woldridge, 2002; Baltagi, 2001). The Hausman statistic is 145.41 (p-value 0.000) and therefore the hypothesis that the variables are endogenous is clearly rejected.

The autoregressive parameter is found to be positive and statistically significant in all cases, which supports the use of a dynamic panel data model. The Sargan test of over-identifying restrictions is used to assess the validity of the instruments and the results imply acceptance of the null hypothesis that the restrictions are valid (Roodman, 2006). Furthermore, there is strong evidence against the null hypothesis of zero autocorrelation in the first-differenced errors at order 1 and 2. Overall, costs increase with positive covariates and decrease with negative ones.

8. Conclusions

This paper analyses the cost performance of Nigerian banks over the period 2000-2010 using the Arellano-Bond panel method. Furthermore, it compares their performance in terms of costs before and after consolidation using a binary consolidation variable. The main finding is that the Nigerian banking sector has benefited from the consolidation process, and specifically that foreign ownership, mergers and acquisitions and bank size decrease costs. These are important results for banking associations, often relying on simple methods and partial ratios in their analysis, as well as policy-makers**:** policies and regulations should take into account the endogeneity issue, namely the simultaneity between banks costs and covariates.

Future studies could also examine in depth the impact of the current financial crisis, as a result of which the large and sudden capital inflows that were injected by foreign investors during the consolidation exercise were abruptly withdrawn. Another development was the unwillingness of correspondent banks to confirm lines for Nigerian banks. However, with consolidation, fewer banks now require correspondent banks and the reverse is also true as fewer

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20	Skye Bank	31.469	Prudent, EIB, Bond, Reliance, Coop Bank	5
21	Zenith Bank	95.324	Zenith	1
22	Stanbic Bank	28.386	Stanbic Bank	1
23	Standard Chartered	33.760	Standard Chartered	1
24	Ecobank	25.763	Ecobank	1
25	GTB	36.420	GTB	1
Total number of merging banks				75
Failed banks				14
Pre Consolidation Total				89

Variable Description

			0.815 (3.07)***
Nobs	275	275	
F-Statistic (p-value)	17.50 (0.000)	17.83 (0.000)	17.91 (0.000)
First order serial correlation[a] (p-value)	-7.68 (0.000)	-7.63 (0.000)	-7.66 (0.000)
Second order serial correlation [a] (p-value)	0.27 (0.003)	0.11 (0.002)	0.12 (0.007)
Sargan test [b] (p-vaule)	0.80 (0.931)	0.611 (0.214)	0.435 (0.153)

Notes: All m