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The Banking System in Africa: Main Facts and Challenges

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Abstract

This brief presents a comparative review of the banking systems and regulations in Africa relative to other regions of the world. It compares indicators of the banking environment (including efficiency, depth, penetration, innovation, and competition), as well as regulation and supervision standards. The review suggests that while Africa's banking environment is relatively shallow and less penetrated, it is as competitive as those in other developing and high income regions. The region has made improvements in banking technology and innovation, and in some cases, has leap-frogged ahead of other regions particularly in mobile banking. In terms of regulations, banks in Africa are well regulated with competition and entry regulations on par with standards in other major regions. In spite of this, there has been tremendous progress in curbing systemic bank crises in the region. Since the mid-1990s, the region has registered a single systemic bank crisis (43 prior to that) relative to 47 for the rest of the world. This is attributed to a relatively safe banking environment that has emerged from stronger financial regulations and improved overall governance.

1 | Introduction

Since the mid 1980s, many African countries have implemented financial sector reforms. To a large extent, these reforms were aimed at restructuring and privatizing state controlled banks as part of the IMF and World Bank structural adjustment policies (SAP), but were accompanied by auxiliary policies that eased entry and exit restrictions, interest and capital controls, as well as the overhaul of supervisory and regulatory frameworks in the banking sector. While the overall economic benefits of SAP continue to be debated among experts, the consensus is that at least in the financial sector, such policies have led to the emergence of more efficient private deposit-taking institutions that are directly channeling financial resources to more productive sectors, facilitating risk sharing and supporting private sector development[3]. In this paper, we provide a review of the banking system and financial regulations at

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work across the continent. The first part is geared towards four key features of the banking system in Africa, namely (i) the depth and penetration of banking and banking services, (ii) innovation and technology in the banking industry, (iii) banking efficiency and (iv) competition and ownership in the banking sector. The second part provides an overview of the banking sector regulations and supervision, focusing on the rationale for regulatory processes. We then examine how regulatory authorities can effectively supervise and regulate banks across the continent. The last part discusses the Basel principals and how they are relevant for Africa.

In doing so, we compare financial ratios and regulatory indicators, and search for commonalities and disparities in the banking industry and the supporting supervisory policies in Africa with those in other developing regions as well as the OECD group. For regional comparability, we also divide the African continent into various sub-regions --North Africa, Southern Africa, West and East Africa-- and report results for these sub-regions. We use the AfDB's country groupings to classify countries into sub-regions[4]. For results on West and Southern Africa, we report tables for those regions including Nigeria and South Africa and other excluding those countries. We do so to see if the effects of the relatively more matured banking sector in South Africa, and Nigeria are driving averages in those sub-regions. In the case of Southern Africa, we also experiment by excluding Mauritius, but the averages reported do not qualitatively change our conclusions. In spite of recent developments in capital and insurance market across the continent, we limit our attention to deposit-taking financial institutions that, in our opinion, are less opaque and more structured.

This review suggests that, contrary to what is commonly stated, Africa's banking industry is as competitive as those in Latin America & Caribbean and not very different from the competitive environment existing in high-income OECD countries. However, the banking sector in Africa is much shallower and less penetrated than those in other major regions of the world. In terms of technology and innovation, the region continues to improve and in some cases, has leap-frogged ahead of other regions, particularly in mobile banking. The continent lags behind OECD and Latin America & Caribbean on other dimensions of banking innovation such as electronic payments.

At the sub-regional level, there are significant differences in terms of competition and entry regulations. While it is relatively easy for new banks to enter the industry in West Africa, it is much more challenging to gain entry in North and Southern Africa. Also banking systems in Southern Africa and North Africa are generally more developed than those in East and West Africa, driven by the more matured systems in South Africa and Mauritius in the case of Southern Africa and Tunis and Egypt in the case of North Africa. In particular, across the sub-regions, North African banks are much deeper, well penetrated, and efficient but they do not generally surpass the sub-regions in terms of innovation and competitiveness.

Also banks in Africa are well supervised as well as those in other developing countries with competition and entry regulations on par with those in other regions. In addition, Africa's banking system seems to be resilient, the number of systemic banking crises decreased since the late-nineties. However, this seems to be paradoxical. Most regulatory and supervisory authorities in Africa are still using Basel I framework while other countries are implementing Basel III. Africa's limited integration in international financial markets and improved governance may explain this resiliency.

2 | The Banking System in Africa

This section provides a general overview of the banking environment in Africa relative to the rest of the world by focusing on the broad challenges that hinder the demand for and supply of financial services in Africa. It discusses the depth and access penetration of banks across the continent and presents some of the innovative initiatives implemented by banks in their attempt to improve efficiency and competitiveness in the banking industry.

2.1 Depth and Penetration of Banking Institutions

The depth of financial development, an indicator of the extent to which agents are able to use financial markets for savings and investment decisions has a strong link with long-term economic growth as it enhances firms and businesses' ability to invest in long-term and risky initiatives. A common indicator of financial deepening is domestic credit to the private sector as a percentage of GDP. It captures claims on the private sector by deposit taking financial institutions relative to economic activity and hence, reflects the role played by financial intermediaries in channeling savings to private sector investors. Higher domestic credit to the private sector is therefore indicative of the provision of productivity enhancing financial services (King and Levine, 1993).

[3] Various studies have examined the extent to which reforms have contributed to financial development, promoted faster and sustainable economic growth [Levine, 2005 ; King and Levine, 1993 and Calderon and Liu, 2003] reduced poverty and favored equality through the provision of financial services to small firms which employ the majority of low income household [Beck, Demirguc-Kunt, and Levine, 2007].
[4] We eliminate Central Africa due to lack of data on countries in the region.

Using this measure, sub-Saharan Africa has the shallowest financial depth among the various regions as shown in Table 1. At 24%, domestic credit to the private sector is about half the average ratio for North Africa and Latin America & Caribbean and less than a quarter of that of OECD countries. Within the sub-regions, West and East Africa record the lowest ratios of 20% and 21% respectively, while Southern Africa records a relatively high ratio of 43%, driven mainly by the high financial depth of South Africa. The ratio of liquid liabilities to GDP, a measure of monetary resources, serves as a comprehensive indicator of the level of financial intermediation by key financial players (central bank, deposit taking and other financial intermediaries) and bank deposits as a percentage of GDP show a similar pattern of low financial depth for West and East Africa as reflected in Columns 3 and 4 of table 1.

Deepening the financial sector in the long run partly depends on financial institution's ability to track repayment history that requires credit registry and information sharing among financial intermediaries. Difficulties in establishing borrowers' ability and willingness to repay, and lack of legal support for creditor rights limit banks' lending schemes, which contributes to shallow financial development.[5] In weak legal and institutional environment, financial institutions run the risk of lending to agents with little to no prospects of repayment.

Figure 1 presents a plot of public credit registry coverage reporting the number of individuals and firms listed with current information on repayment history, unpaid debts, or credit outstanding as a percentage of the adult population. Southern Africa and North Africa are sub-regions that have made substantial progress on record keeping on credit history. The percentage of registered adults increased from less than 1% in 2005 to around 7% in 2013 in the case of Southern Africa and from 3% to 9% in North Africa. However in East and West Africa, the percentage of adults in public credit registry remains low on average, accounting for less than 1% and 3% of adult population respectively.

Financial penetration also remains low in Africa. Less than a quarter of sub-Saharan Africa's population has access to a formal bank account. This indicates that (i) there is less financial inclusion particularly in low income communities and (ii) the degree to which private individuals can access financial services is limited. As shown in Table 2, with about 21% of adult population having a bank account, sub-Saharan Africa has the lowest level of financial penetrations. In other developing regions such as Latin American and the Caribbean, the share increases to 34%, whereas in OECD countries the average is 90%. Within the sub-regions, West Africa has the lowest share of adults holding a bank account with close to 14% of adults reportedly having an official bank account. The Southern Africa economies however are relatively well penetrated by the banking system. Another measure of the extent of bank access is the number of bank accounts per 1000 adult population. Sub-Saharan Africa falls short relative to other regions. For any given 1000 adult population, almost twice as many have bank accounts in North Africa and Latin America & Caribbean as in sub-Saharan Africa. Compared with the OECD average where a typical adult has more than one bank account, the difference is four times as much.

Table 1 Depth of Financial Development in Africa

Region/Sub-Region		Domestic Credit to Private Sector	Liquid Liabilities as % of GDP	Bank deposit as a % of GDP
Africa		36.3	54.4	45.5
of which	Sub-Saharan Africa	24.4	35.3	29.7
	North Africa	48.1	73.4	61.4
	East Africa	21.0	30.4	26.4
	West Africa	20.3	35.5	27.2
	West Africa without Nigeria	20.3	35.7	27.0
	Southern Africa	43.1	45.1	44.4
	Southern Africa without South Africa	31.8	45.7	42.6
Latin America & Caribbean		45.5	54.0	48.9
High income: OECD		134.3	114.4	100.4
Low income group including Africa		26.8	44.5	36.6
Low income group excluding Africa		28.5	38.9	31.8

Source: Global Financial Development, 2014 and authors' calculations.

[5] As noted by McDonald and Schumacher (2007), while financial liberalization and macroeconomic stability are necessary for financial deepening, they are not sufficient.

Figure 1 Public Credit Registry (Mean) by Region and Sub-Regions

Source: Global Development Finance, 2014 and authors' calculations.

Cumbersome processes and requirements in obtaining a bank account may be one of the key impediments to financial inclusion especially in underserved regions and communities. In some countries and even among the top banks, opening a bank account necessitates having access to a formal address, identification card, proof of formal employment and a constant stream of income with a minimum required deposits. To open a savings account at Ecobank, one of Africa's largest Pan African Banks, an individual has to fulfill the following requirements: complete account opening form, a valid piece of ID of each signatory (current driver's license, national ID, international passport, student ID card for students or a registered association), proof of address (utility bills for preceding three months, site visitation, certificate of residence, tenancy agreement), two passport pictures among others. While such requirements may be routine, majority of the population in low-income countries may not meet more than one of these requirements.

2.2 Technical Innovation

Many banks across the continent have moved from manual banking systems in the 1980s and 1990s to front office digital services. They have spent the last decade investing in banking infrastructure including online banking and electronic transactions systems. Such use of digital infrastructures has not only allowed domestic banks to efficiently reach higher number of clients and compete with large foreign competitors, but also improved banks' margins by reducing operations cost.

Table 2 Access to Financial Institutions

Region/Sub-Region		Share of population with bank account	Bank accounts per 1000 adults
Africa		24.7	450
of which	Sub-Saharan Africa	20.9	334.5
	North Africa	28.5	565.1
	East Africa	21.1	242.2
	West Africa	13.7	337.3
	West Africa without Nigeria	11.7	252.5
	Southern Africa	36.7	380.7
	Southern Africa without South Africa	34.9	380.7
Latin America & Caribbean		33.7	635.2
High income: OECD		90.1	1456.2
Low income group including Africa		19.2	546.8
Low income group excluding Africa		21.1	584.8

Source: Global Financial Development, 2014 and authors' calculations.

In East Africa in particular, expanding mobile communication networks and access to mobile phones in rural areas have created path to banking innovation technology that challenge conventional ATM machines and electronic payments. Rather than installing ATMs that require regular maintenance, liquidity balancing and security, in rural underserved communities, banks are now coordinating with telecommunication companies to pioneer mobile banking systems that bring financial services to the door steps of clients. This has lowered the "shoe-leather" cost of paying regular visits to ATM machines by clients, and allowed real time money transfer through agents that clients are familiar with.

Mobile banking however has been more successful in East Africa than elsewhere, notably in Kenya where the M-PESA money transfer and payment system developed by Safaricom in 2007 now serves over 17 million clients with more than 40 000 agents across the country. As shown in Table 3, East Africa has the highest percentage of adults (22%) using mobile banking. In West, Southern and North Africa, that number is 2%, 6% and 7% respectively. In OECD countries, only 3% of the population relies on mobile banking. However, East Africa has the lowest ATM per 100 000 adults (3.45) among the sub regions as shown in column 1 of Table 3. A related issue is to understand whether mobile banking and ATM are complement or substitute.

Kenya's success in mobile banking technology is often attributed to a combination of factors. First is the first-mover advantage of Safaricom and then the regulatory system that allowed the mobile company to develop the system largely unscathed before authorities moved in with regulations to further allow the system to function efficiently afterwards. The use of local community agents also allowed rural communities with little trust in formal banking institutions to enjoy a form of "personal banking" through agents they are familiar with. Unlike a bank account that requires owners to have access to a physical address, filling in of onerous personal and family details and showing proof of employment, M-PESA only requires users to provide proof of national identification (usually ubiquitous voter ID cards) or passport and a mobile phone number to get registered (The Economist, 2013[6]). The system has also benefited from the quick adaptation of the private sector to mobile payments, allowing users and firms to pay salaries and bills using mobile money.

Other innovations in the banking sector are less widespread in Africa relative to other regions. The use of electronic payments such as wire transfers is particularly low in Africa. While usual in OECD countries (where close to 58% of adults reported using it), only 4% of the adult population uses electronic payments in sub-Saharan Africa (3% in North Africa), relative to 6% in Latin America & Caribbean. In the sub-regions of Africa, Southern Africa reports the highest percentage of adults (8%) using electronic payments, relative to 1% in West Africa and 2% in East Africa. Due to the fact that both the sender and the receiver in a wire transfer transaction must have bank accounts and given the low level of bank penetration in Africa, the low number of wire transfers in the continent is not surprising.

Table 3 Innovation in the Banking Sector in Africa

Region/Sub-Region		ATM per 100,000 adults	% of adults using mobile money	% of adults using electronic payments
Africa		15.4	7.7	3.4
of which	Sub-Saharan Africa	13.9	8.8	3.7
	North Africa	16.8	6.6	3.1
	East Africa	3.4	21.8	2.4
	West Africa	7.8	1.6	0.9
	West Africa without Nigeria	6.5	0.6	0.7
	Southern Africa	26.7	5.6	8.0
	Southern Africa without South Africa	22.5	5.7	7.4
Latin America & Caribbean		43.2	1.4	5.8
High income: OECD		97.0	2.3	57.9
Low income group including Africa		14.7	8.5	2.6
Low income group excluding Africa		14.1	4.4	2.8

Source: Global Financial Development, 2014 and authors' calculations.

[6] "Why does Kenya lead the world in mobile money" May, 2013, Economist Magazine.

2.3 Competitiveness and Ownership Structure

The African banking system has also benefited from the growing presence and participation of foreign banks across the continent, including Pan African Banks such as Ecobank and Bank of Africa that have expanded beyond their parent countries. Ecobank currently operates in 36 countries across the continent, particularly in Western and Central Africa, while Bank of Africa Group has activities in about 14 African countries. A key outcome of the wave of banking reforms and consolidations that swept across the continent in the 1990s is the increasing presence of foreign banks. They have helped bolster competitive pressure in the industry and allowed banking techniques such as good corporate governance and innovations to spillover to domestic banks.

Evidence suggests that the presence of larger foreign banks is usually associated with greater access to finance for small and medium scale enterprise (Clarke et. al. 2005). However, unfair competition can arise in cases where foreign banks disproportionally dominate the banking industry in terms of assets and branches. Foreign banks with the capacity to obtain both hard and soft information about borrowers and businesses can embark on anticompetitive schemes by "cherry picking" borrowers, while worsening the remaining credit pool for small domestic banks (Detragiache, Gupta and Tressel, 2008). This can have an overall negative effect on small businesses and mitigate the positive effect of foreign bank entry experience.

Table 4 provides an overview of the competiveness and ownership structure in the banking industries in Africa relative to other regions. We use the Lerner index of competition that captures pricing behavior using the difference between banks' revenue over assets and marginal operations cost. Higher values of the Lerner index indicate lower degree of competition. As shown in column 1 of Table 4, sub-Saharian Africa's banking environment is as competitive as those in Latin America & Caribbean and not far from the competitive environment that exists in high-income OECD countries. Within the sub-regions, West Africa's banking environment is much more competitive than that of other regions including North Africa. This is partly due to the relatively more competitive environment in the Nigerian banking sector as illustrated by the higher value of the Lerner index when Nigeria is excluded from the sample.

While North and East Africa have higher Lerner indices (0.35 and 0.34 respectively) signaling low competitive banking environment, foreign banks in those regions also have the least share of total banking assets (24% and 58% respectively) and the lowest degree of asset concentration among the top 5 banks (78%). However in Southern Africa, a relatively low competition (Lerner of 0.33) is recorded in the face of high asset concentration among the top 5 banks (90%) and a relatively large asset ownership of foreign banks (66%) making it harder to conclude whether foreign presence increases or decreases competition in the banking sector across the continent. This suggests that perhaps there are other regional differences (e.g. general development and regulations) influencing the effect of foreign presence and assets concentration on competitiveness and efficiency as hinted by Claessens and Horen (2014).

2.4 Efficiency of Financial Institutions

Cost controls and effective utilization of resources are central to the success of financial intermediaries operating in a competitive environment. While innovations in service delivery through electronic

Table 4 Competition and Ownership of Banks

Region/Sub-Region		Lerner index of Competition	Foreign bank assets as % of total bank assets	Top 5 bank assets as % of total bank assets
Africa		0.3	42.7	82.5
	Sub-Saharan Africa	0.26	61.7	86.6
	North Africa	0.35	23.7	78.3
	East Africa	0.34	58.2	78.1
of which	West Africa	0.16	64.5	85.5
	West Africa without Nigeria	0.24	85.0	86.9
	Southern Africa	0.33	61.6	90.1
	Southern Africa without South Africa	0.34	66.6	88.9
Latin America & Caribbean		0.27	45.7	81.6
High income: OECD		0.20	34.1	81.1
Low income group including Africa		0.22	53.1	82.7
Low income group excluding Africa		0.26	50.8	80.3

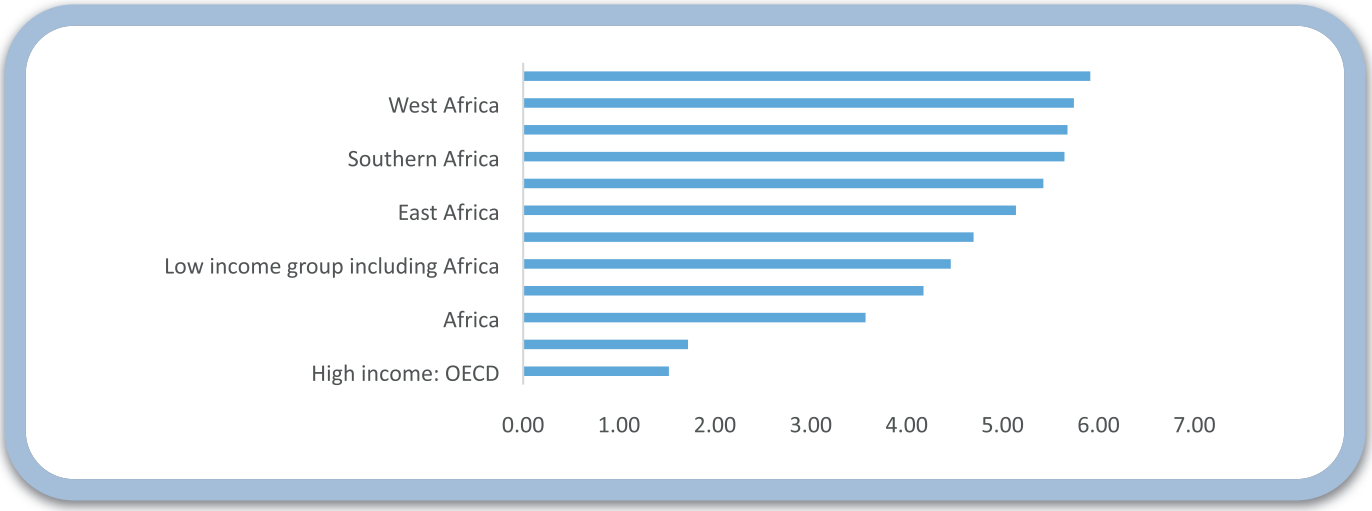
Source: Global Financial Development, 2014 and authors' calculations.

systems and consolidation movements in the banking industry are geared toward improvements in efficiency standards, there is no consensus on what factors drive banking efficiency (see Berger and Mester (1997); Altunbas and Molyneux (2001)). It is generally argued that inefficiencies in the banking sector are quite large and that the most efficient banks have huge costs and competitive advantage over those with below average efficiency standards in the developed world (Spong, Sullivan and Young, 1995).

In Africa, there is evidence that, foreign and private owned banks are more efficient than their public counterparts and that banks could save between 20% to 30% of their total cost if they were operating efficiently (Chen, 2009). To get an insight into how African banks compare to banks in other regions in terms of efficiency, we use banks' overhead costs as a percentage of total assets as a proxy for operational efficiency as shown in Figure 2. Operating expenses account for 5.4% of total assets in sub-Saharan Africa, whereas in North Africa, they account for 1.7%, close to the overhead cost of OECD countries of 1.5%. There is little variation in efficiency among the other sub-regions where overhead costs hovers close to 6% of total assets, higher than in Latin America and the Caribbean (4%) and low income groups excluding Africa (4.7%). Another ratio of efficiency measure is the cost-to-income ratio. A lower value is generally associated with a more efficient business model. Using this measure of efficiency we observe that, on average, West African banks are relatively less efficient. Banks in the region spend slightly more to generate an extra income relative to those in other sub regions. The average cost-to-income ratio for the West African region is 61% compared with a low of 48% for North Africa.

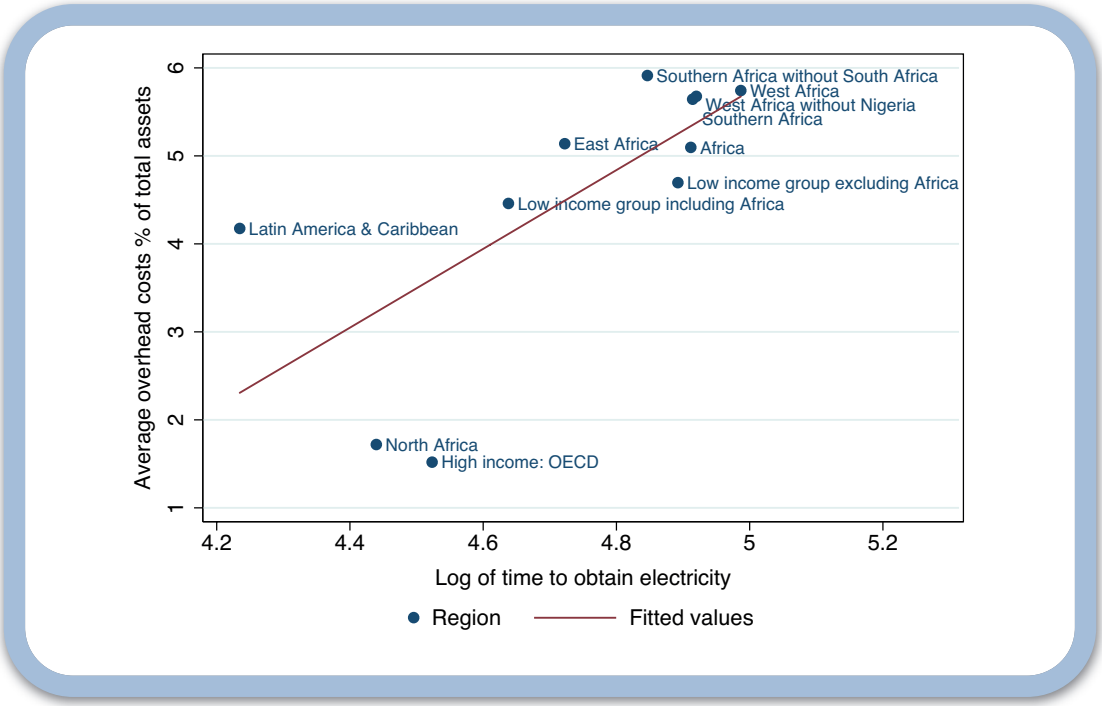
While there is no clear evidence on the factors driving banking efficiency, we speculate that the excess operating cost of banks in sub-Saharan Africa (in West Africa in particular) could partly be the result of external factors unrelated to banking structures. In regions where business regulations and procedures are inefficient, banks incur substantial day-to-day operational expenses. Sub-Sahara African banks, like other nonbanking institutions, have to deal with inefficient overall business environment and legal institutions, and relatively weak public infrastructures such as irregularities in electricity. Figure 3 shows the relationship between banks overhead costs and the time required to obtain electricity, used as a proxy for the business environment in which banks operate. One observes a positive correlation between the average overhead costs and the time to obtain electricity with SSA and its sub regions clustered around the northwest of the plot. It is not surprising that even in South Africa, where the financial sector and the banking system are relatively more matured than in the rest of the region, overhead costs over total assets are high and not substantially different from what prevails in East African region.

Figure 2 Bank overhead costs to total assets



Source: Global Development Finance, 2014 and authors' calculations.

Figure 3 Overhead Costs and Time to Obtain Electricity



Source: Global Development Finance, 2014 and authors' calculations.

2.5 Assets and Liability Matching Across Africa

Given their role as maturity transformers, banks sometimes hold assets and liabilities with non-conforming maturities. In the event of internal or external shocks (e.g. reversal of foreign capital flow) such maturity mismatches make banks (especially small banks) vulnerable to liquidity risks. Across the continent, short-term but highly liquid deposits such as demand deposits with maturity of less than a year account for a significant share of financing base for bank's loan portfolio. Using data from 272 banks from 45 countries, Table 5 below shows the percentage of banks holding given percentage ranges of total deposits as short-term deposits for each sub-region in 2011. Over 45 percent of banks in the region have short-term deposits of less than a year accounting for between 90 and 100 percent of total deposit by customers. Central Africa has the largest number of banks (70 percent) in the 90-100 percent bin, followed by roughly similar percentage of banks for East Africa and Southern Africa of 58 and 59 percent respectively.

The dominance of short-term liabilities influences overall commercial banks' lending structure, which predominantly focuses on short and medium term loans. Except in North Africa, a small percentage of commercial banks report issuing loans with long-term maturity of 60 months or more such as mortgage and business investment loans.

Table 5 Percentage of Banks by Short term Deposits

Region	[0% to 75%]	[76% to 89%]	[90% to 100%]
Central Africa	17.65%	11.76%	70.59%
East Africa	28.57%	13.39%	58.04%
North Africa	59.52%	7.14%	33.33%
Southern Africa	29.09%	11.82%	59.09%
West Africa	50.61%	15.51%	33.88%
Total	41.06%	13.50%	45.44%

Source: Trade Finance Survey, AfDB 2014 and authors' calculations.

Table 6 below reports statistics on the percentage of banks by common loan tenure for each sub-region in 2011. In West and East Africa, 45 and 32 percent of commercial banks have common tenure of between 0-12 months respectively as opposed to 6 and 5 percent for common tenures of over 60 months. In contrast 38 percent of North African banks have common loan tenure of over 60 months as opposed to 29 percent reporting a common tenure of 0 to 12 months. For the region overall, two-third of banks report having a common maturity of less than 3 years for their loan portfolio with the majority (37%) of banks reporting a common maturity of less than a year for their aggregate loan portfolio against 10 percent with a common tenure of over 60 months.

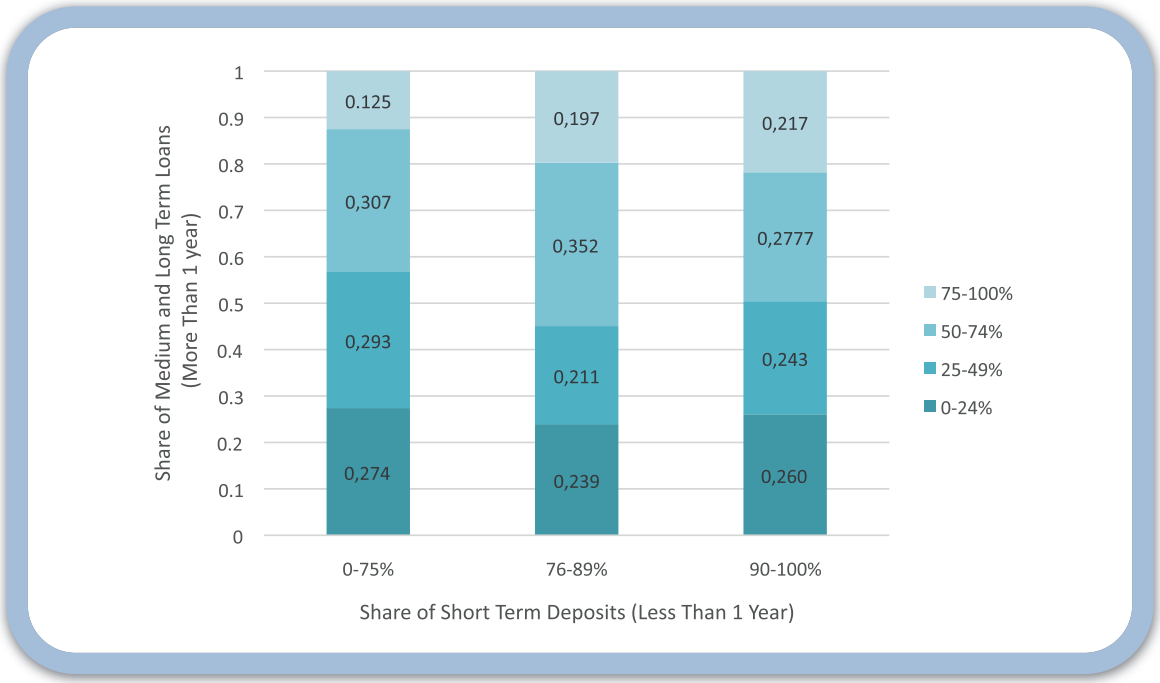
However, over one-fifth of commercial banks surveyed undertake long-term investment whose maturity is not conformable to the predominantly short-term liabilities that accounts for a large share of their financing source. Figure 4 below shows the distribution of short-term deposit institutions by medium to long term loan tenor. 12.5% of banks with short-term deposits accounting for 75 percent or less of total liabilities have medium to long-term loans accounting for between 75 to 100% of total loan portfolio. However, 22% of banks with short-term deposit accounting for between 90-100 percent of liabilities report having medium and long-term loans accounting for 75-100% of total loan portfolio. Such maturity mismatches for the latter group make these banks more vulnerable to liquidity shocks. This suggests that the underlying structure for the financial sector in African economies is similar to other emerging markets where consumers have a strong preference for liquidity that do not conform to banks propensity for long-term investment opportunities that have higher payoffs (Allen and Gale, 2007).

Table 6 Percentage of Banks by Loan Tenure

Region	0-12 months	13-36 months	37-60 months	Over 60 months
Central Africa	12.50%	75.00%	12.50%	0.00%
East Africa	31.58%	35.09%	28.07%	5.26%
North Africa	28.57%	19.05%	14.29%	38.10%
Southern Africa	34.55%	23.64%	29.09%	12.73%
West Africa	44.63%	27.27%	22.31%	5.79%
Total	37.40%	29.01%	24.05%	9.54%

Source: Trade Finance Survey, AfDB 2014 and authors' calculations.

Figure 4 Distribution of Short-term Deposit Institutions by Loan Tenure



Source: Trade Finance Survey, AfDB 2014 and authors' calculations.

3 | The Regulation and Supervision of Banks in Africa

To ensure well-functioning banking systems, governments have to define regulatory rules and create various authorities to supervise banks. Regulations here refer to "the set of laws and rules applicable to banking" while supervision refers "to the monitoring by authorities of banks' activities and the enforcement of banking regulations". In other words, regulation is the body of law establishing rules while supervision is the implementation and monitoring of the regulation and rules. This section first discusses why it is important to regulate and supervise banks, and also which instruments supervisory authorities may use. We then discuss the state of the banking systems' regulation and supervision in Africa.

3.1 Why Regulate and Supervise Banks?

The economic and financial crisis that began in the United States of America in 2007 has revived discussion on why and how banks should be regulated and supervised. Even though Africa does not have global banks like the so-called "too-big-to-fail[7]", the regulation and supervision of banks remain no less important.

Banks play a crucial role in the economy as financial intermediaries. They exist in order to screen potential borrowers, monitor customers' actions and efforts, provide liquidity risk insurance and create safe assets[8]. Through these functions, banks reduce both moral hazard and adverse selection by collecting information from individual depositors, identifying profitable investments and then channeling these funds to productive ventures. However the extent to which banks can act as financial intermediaries is not perfect and this in turns calls for the need to regulate and supervise them.

As argued by Heremans (2000), financial institutions need to be regulated because banks cannot overcome all information asymmetries. The first goal of regulatory authorities is to ensure the stability of the financial system. Banks should be regulated and supervised to ensure that at any time they are channeling funds correctly from lenders to borrowers. Any breach on this role may disturb the economic system and potentially lead to economic and financial crises such as the recent subprime crisis.

The second reason that can justify regulation of banks is to protect lenders who are mostly unsophisticated depositors from banks' risky operations. In developed countries (and increasingly in developing countries, see Table 1) depositors hold a significant proportion of their resources in banks. In this case, depositors are concerned with the stability of the banking system and any doubt about the safety of their deposits can lead to a bank run (Diamond and Dybvig, 1983). At the individual level, it is costly or even impossible for depositors to monitor banks and this call for a delegated authority who can regulate and supervise them. In developing countries such as those in Africa, due to the fact that financial markets are underdeveloped, banks usually play a primary role in the financial system.

The third reason that justifies the regulation and supervision of banks is to assure the stability of the financial system by mitigating excessive risk taking that can damage the interests of creditors and by preventing systemic crises that can impair the whole economic system. Following the removing of capital controls, this role has become increasingly important due to the fact that financial markets are becoming more developed across the world but also much volatile (Rajan, 2005). Last but not least, governments may want to regulate banks in order to monitor their activities by privileging some economic sectors. This is done by targeting the supply of credit by banks toward some sectors such as agriculture, exports or housing.

In their fundamental role as financial intermediaries between borrowers and lenders, the activities of banks sometimes lead to negative externalities such as bank failures and systemic risk, with adverse consequences for the whole economic system. These adverse outcomes do not imply that the governments can carry out these functions more effectively. Rather, the role of public authorities is to implement safeguards that minimize the likelihood of these negative externalities. In this role of ensuring that the financial system functions efficiently, governments employ various instruments to supervise and regulate banks.

3.2 How to Regulate and Supervise Banks?

There are various instruments that can be used by authorities to regulate and supervise banks. As already mentioned by Mishkin (2001) they go from restrictions on asset holdings and activities, separation of traditional banking from other financial service industries, limits on competition, capital requirement, imposition of a risk-based deposit insurance premium and disclosure requirements, bank chartering to bank examination.

The restrictions of asset holding and activities prevent banks from engaging in too much risk-taking. Government regulation can be imposed on the asset side of banks. A restriction on the

[7] A jargon term to designate large complex banking institutions.
[8] For a development on why banks exist, see Freixas, X. and Santomero, A.M. (2002).

asset side is when banks are not allowed to invest in a set of assets in general or in a set of very risky assets in particular. Banks can also be restricted from investing in some activities such as real estate or insurance. For example, Switzerland allows investing in all these three main banking activities while in United Arab Emirates, banks are allowed to invest only in securities activities. The separation of traditional banking from other financial service industries can also be imposed on banks. The goal is to prevent commercial banks from combining banking and security activities for example. The most well-known restriction of this type is the Glass-Steagall Act that was at work in the United States for more than fifty years after the Great Depression. Another rationale for restricting banks from engaging in other financial activities (Mishkin, 2001) is that they can have an unfair competitive advantage over other financial institutions due to their role as financial intermediaries or get an implicit or explicit subsidy due to them being regarded as too-big-to-fail.

The restriction on the degree of competition seeks to prevent banks from taking more risk. When the level of competition is intense, banks may engage in too much risk-taking behavior in order to maintain their profits. This may provoke a crisis and generate instability in the financial system. The limits on competition can take various forms including, but not limited to, barriers to entry of foreign banks into the domestic banking system, limits on the total number of banks in a given economy and restrictions on the number of branch opening.

The imposition of capital requirement is among the most commonly used form of regulation. This usually takes the form of capital adequacy ratio. The restriction is to ensure that banks hold enough capital so as to remain solvent at all times, i.e. to sustain unexpected shocks.

Deposit insurance is an important ingredient of modern banking systems. Its main function is to insure unsophisticated depositors against the risk of failure. Hence, it strongly reduces the possibility to observe bank runs (a very damaging phenomenon) in case of troubles in the banking system (Diamond and Dybvig, 1983). The imposition of risk-based deposit insurance premiums ensures that banks correctly price risk. In presence of deposit insurance with flat premium, banks are more likely to engage in risky activities (Ioannidou and Penas, 2010) and increase significantly their leverage (Lé, 2014). Introducing a risk-based premium helps to mitigate the moral hazard associated with these explicit guarantees.

The presence of a disclosure requirement is to ensure that banks make public enough information that allows market participants to assess the healthiness of the banking system. A bank chartering requires that regulatory authorities oversee who operates as bank. Chartering is a good way to reduce the adverse selection problem in choosing managers of banks.

Supervisory authorities enforce the regulation of banks. Their role is to ensure that banks comply with the regulations. Supervisory authorities are supposed to have the power to enforce the law when the rules are not respected. The extent to which the above eight regulatory instruments are implemented and enforced is the theme of the next section.

3.3 The State of Regulation and Supervision of Banks in Africa

To gauge the state of the regulation and supervision of the banking system in Africa, we exploit the data assembled by Barth, Caprio and Levine (2009). The dataset comes from a survey conducted by the authors for the World Bank. Four surveys were conducted in 1999, 2003, 2007 and 2011. We exploit mainly the last survey, which was released in 2012. It contains information on banking regulation and supervision in 125 countries. Our focus is banking regulations in Africa compared to those of other regions around the world.

3.3.1 The State of Regulation of Banks in Africa

We analyze the data along three dimensions to assess the state of banks' regulation in Africa. First, we evaluate the severity of restrictions that regulatory authority imposes on banks' activities. Second, we compare capital requirements imposed on banks. Finally, we examine the degree of competition in the banking system. All these indicators are measured for Africa but are also compared to other regions of the world. Due to page limitation, all tables of this section are removed but are available upon request.

Banks Regulations in Africa:
The Role of Bank Activity Restrictions

A first way of regulating the banking system is to limit their activities. Even if banks are not the same across countries, their activities are usually shared between lending, investment securities, insurance and real estate activities. We use four indexes to gauge the restrictions on banking activities and the degree to which banking activities are separated from other financial service industries. All index values for banking activities range from 1 to 4. Higher value indicates greater restriction on the specific bank activity. If the index is equal to 1, the activity is completely allowed while when the value is 4, the activity is fully prohibited.

Regulations pertaining to securities activities indicate the degree to which banks are allowed to engage in underwriting, brokering and dealings in securities, and all aspects of the mutual fund industry. The scores of sub-Saharan Africa and North Africa, respectively 2.29 and 2, indicate that securities activities are permitted but with some restrictions. Within sub-Saharan Africa, securities activities are least constrained by authorities in West Africa. However, in Africa as a whole, the level of restrictions on securities activities is not higher than other developing countries. On the other hand, there are few restrictions on securities activities in developed countries.

Insurance activities are restricted to a greater extent in Africa than securities activities and especially in North Africa. However insurance activities are allowed at greater latitude in sub-Saharan Africa than in any other region except Latin America & Caribbean. Real estate activities also face greater restrictions than security and insurance activities in all regions, particularly in Southern and North Africa. East Africa is similar to developed countries in that banks face fewer restrictions in participating in real estate activities despite their high scores in the relevant indices.

Bank Regulations in Africa: The Role of Capital Requirement

Capital requirement is another tool that authorities can use to regulate the banking system. It usually takes the form of the amount of capital that banks must hold as a share of (risk-weighted) total assets. Three indices are used to assess the extent to which capital is regulated in Africa relative to other world regions. The first index measures whether the capital requirement reflects certain risk elements and deducts certain market value losses from capital before minimum capital adequacy is determined. The second index measures whether certain funds may be used to initially capitalize a bank. The third index is an aggregation of the two first indices and it measures the overall regulation of capital in banks. The higher the values of these indices, the more stringent the capital regulations are. Overall we found that developing countries impose more regulations on capital compared to developed countries and that North Africa imposes more regulation than any other region in the world.

Bank Regulations in Africa: The Role of Competition Policy

How banks can fund the economy depend importantly on the degree of competition in the banking system, the more competitive the banking system, the higher the capacity for banks to fund many viable projects. But, greater competition can also induce excessive risk-taking behavior by banks. Consequently, the effect of competition on risk-taking is mixed (see Boyd and De Nicolò, 2005[9]).

Five indices are used to gauge the degree of banking competition in Africa. The first index measures whether foreign banks may own domestic banks and whether foreign banks may enter a country's banking industry. Lower values in this index indicate greater stringency in competition regulatory.

We found that developed countries and North Africa are more open to foreign bank ownership. Sub-Saharan Africa, particularly East Africa, has relatively strong stringency towards foreign bank ownership. The second index measures whether various types of legal submissions are required to obtain a banking license. Higher values in this index indicate greater stringency in competition regulations. There are few restrictions on obtaining a banking license in all regions of the world. The third index assesses the degree to which applications to enter the banking industry are denied. The fourth index measures the degree to which domestic applications to enter the banking industry are denied and the fifth index measures the degree to which foreign applications to enter the banking system are denied. The last three indices are expressed in percent. The degree to which applications to enter banking are denied in sub-Saharan Africa (21%) is relatively close to those in practice in other developing countries (19%). However there are huge differences within Africa in term of entrance in the banking sector. It is easy to enter the banking system in West Africa (9.5%) and in East Africa (5.5%), while the prohibitions of bank entrance are higher in the North (28%) and in the Southern of Africa (30%).

Bank Regulations in Africa: The Role of Deposit Insurance

Few countries across Africa have established explicit deposit insurance protection systems that follow the core principles for effective deposit insurance systems outlined by the Basel Committee on Banking Supervision. According to the International Association of Deposit Insurers (IADI), 12 African countries have some form of deposit insurance schemes to protect depositors. Eight are fully-fledged members of the IADI, and by law or agreements, have deposit insurance schemes that meet internationally accepted deposit insurance criteria. Four countries are also considering the establishment of deposit insurance systems and are currently associates of the IADI.

[9] Boyd, John H., and Gianni De Nicolò, (2005), "The Theory of Bank Risk Taking and Competition Revisited", Journal of Finance, Volume 60, Issue 3, 1329-1343.

3.3.2 The State of Supervision of Banks in Africa

As discussed earlier, the supervision of banks refers to the monitoring by authorities of banks' activities and the enforcement of banking regulations. In other words, how the supervisory authority has the possibility and the power to obtain all information needed in order to assess the health of the banking system. With respect to our section on how to regulate and supervise banks, we refer to the following instruments that supervisory authorities may use to monitor banks: disclosure requirement, bank chartering and bank examination.

Official Supervisory Structural Variables

Three indices are further used to measure the extent to which supervisory agencies have the authority to effectively supervise banks by implementing structural measures. The first index indicates the degree to which the supervisory authority is independent from political influence. Higher values indicate greater independence. This index is relatively low in Sub-Saharan Africa and in North Africa compared to other developing countries or developed countries. The second index assesses the degree to which the supervisory authority is protected by legal systems from the banking industry. Higher values indicate greater independence. This index is relatively homogeneous across the major regions except in Latin America and Caribbean. The third index is an aggregate measure of the degree to which the supervisory authority is independent from political influence and legally protected from the banking industry. Higher values indicate greater independence. The index ranges from 0 to 3 and is relatively homogeneous across the regions in the world except in North Africa and Latin America and Caribbean.

4 | Basel's principals and Africa's Banking System

This section discusses the extent to which international rules on regulation and supervision are implemented in Africa. We start by presenting a brief evolution of the Basel committee rules and then discuss whether these rules are adapted to Africa's banking system. We also discuss how their implementation on the continent has helped to improve the stability of Africa's financial system.

4.1 Basel I-II-III and Basel IV for the next financial crisis

Basel I was developed at the end of the eighties and launched in December 1992 in order to regulate the new global banking by imposing on them regulatory capital. This is known as the Cook's ratio. The ratio required that 8% of capital covered the commitments of the bank. The goal of the Cook's ratio was to allow bank to absorb unexpected negative shocks without damaging the economic system.

A new framework - Basel II – was launched in June 2004 by the Basel committee and is organized under three pillars: equity, risk monitoring and transparency. With Basel II, banks may organize their internal risk assessment (the well-known Internal Rating Based model) in order to ensure a proper monitoring of risks by themselves. The Cooke's ratio became the McDonough's ratio with the same threshold (8% of total capital) but incorporating operational risk (in addition to credit risk) and narrowing the definition of capital (Tier 1 capital).

When the subprime crisis started in the United State in 2007 and spread quickly around the world, the Basel committee released an interim report, in order to overcome most urgent problems during the crisis. Three years later, Basel III was published to overcome the inherent drawbacks in Basel II. The aim of Basel III is to increase the ratio of total capital ratio– from 8% to 10.5% in 2019 – and to increase the Tier 1 capital ratio (now called Core Tier 1 ratio) – from 4.5% to 6% in 2019 – in order to strength the capital requirement in Basel II. Beyond capital requirement strengthening, liquidity ratios, countercyclical capital buffer, systemic surcharges and a raw leverage ratio will be introduced progressively. Consequently, the main goal of Basel III compared to Basel II is that (i) it strengthens the micro-prudential regulation that existed in Basel II and (ii) it introduces macro-prudential regulation to avoid systemic crisis.

Basel III seems to be an ongoing work and many regulatory authorities are not yet adopting this reform. If the measures recommended by Basel III are adopted, there is a possibility that financial crisis like the subprime crisis may not happen again. By introducing leverage ratio, capital buffer and dealing with procyclicality, Basel III offers very useful elements for the stability of the financial system (Blundell-Wignall and Atkinson, 2010). But every financial crisis has its specificities. There are probably flaws in the current financial system that regulators have not spotted, like the moral hazard related to bailout and to Too Big to Fail institutions. But whatever our ingenuity, financial crises will always have a leg up on the controller. We can limit their effect on the economic system, but can never avoid them. No doubt that Basel IV is coming, the question is just when.

4.2 Systemic banking crises in Africa

If systematic banking crisis is defined as when "a country's corporate and financial sectors experience a large number of defaults and financial institutions and corporations face great difficulties re-

paying contracts on time". And if we assume that this definition is operational when a crisis involves a "significant signs of financial distress in the banking system" and a "significant banking policy intervention measures in response to significant losses in the banking system" (Laeven and Valencia, 2012), then between 1970 and 2012, the continent experienced on average one systemic banking crisis per year while the equivalent figure for the rest of the world is 2.4.

At the international level, the Basel Committee on Banking Supervision (BCBS) defines the regulatory rules. Working under the monitoring of the G20 Finance Ministers, the Basel committee rules reflects mainly the concerns of industrial countries' banking system. The improvement of Basel III with respect to Basel I and II is mainly through the introduction of macroprudential regulations in order to mitigate systemic banking crises. This evolution stems from the global financial crisis where the number of systemic bank crises registered a peak (22 in 2008) compared to historical standard.

Africa experienced 43 systemic banking crises between the mid-seventies to the mid-nineties (56 in the rest of the world) but since then, the continent registered a single systemic crisis (in Nigeria in 2009) against 47 in the rest of the world. Consequently, mid-nineties seem to be a turning point for African countries in term of banking stability. At least, two plausible explanations underlie this change.

First, the mid-nineties were characterized by an acceleration of financial globalization. Africa being less integrated to the global financial market, the number of banking crises soared in the rest of the world except in Africa. Second, before the mid-nineties, African countries represent 30% of countries for which we have data but they account for 43.5% of all systemic banking crises in the world. Consequently, African regulatory authorities implemented various reforms - more privatization, increasing competition, better governance, etc. - such that the continent account for only 2% of systemic banking crises after the mid-nineties. However, it is difficult to disentangle the role of the two explanations in decreasing banking crises in Africa.

Honohan and Beck (2007) argues that banking crises in Africa were somewhat different from those outside because crises on the continent were caused by governance related problems both in the banking and in the regulatory systems. These crises made regulatory authorities more conservative and reforms taken helped the continent improve the stability of its banking system. The banking system has also made great progress towards better asset quality and more capitalization (Beck et al., 2011).

4.3 How relevant are Basel's rules for Africa?

While countries are discussing the implementation of Basel III (only Europe implemented it in early 2014), most regulatory and supervisory authorities in Africa are still using Basel I framework. While most African countries plan to implement Basel II principals, until now only Mauritius and South Africa have done so. This seems paradoxical. As emphasized, during the last decade, the stability of Africa's banking system improved a lot while the continent lags in term of implementation of recent Basel's rules. A short explanation could be that the rules suggested by the Basel committee are less relevant for Africa. A more detailed view of the facts will note that the low integration of Africa in global finance means that Basel II and III rules are too complex for its banking systems. The lack of a large market for derivatives, the high liquidity of banks, and the recent improvement in governance seem to be sufficient to ensure the stability of the banking system in Africa. Also due to the complexity of Basel II and III – risk models are very sophisticated even for bank in developed countries – their implementation may just be very complicated due to the lack of human resource capacity and deficiencies in information technology.

However, access to international financial markets may become more difficult for African banks (Beck et al., 2011) due to the fact that on one hand, the adoption of recent Basel committee's rules by non-member countries is mainly explained by the fact that foreign-controlled banks are operating under Basel II (FSI 2004[10]), and on the other hand, international investors may perceived Basel I to be of a lower standard compared to Basel II and III.

As argued by Beck et al., due to the specificity of its financial system, Africa needs to define what its priorities are in terms of banking regulation and supervision. Basel III is mainly intended to address the weakness of developed countries financial markets.While Africa is far from the level of financial development in the developed world, it does not have to ignore Basel's principals. Since its banking system is quite liquid and well capitalized, regulatory and supervisory authorities should focus on improving the quality of assets, increase the transparency of financial transaction and continue to improve the governance of its banks, the training of its staffs and greater adoption of information technology.

[10] FSI (Financial Stability Institute), 2004.

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