REVIEW OF FINANCIAL LIBERALISATION POLICIES IN DEVELOPING COUNTRIES FROM 1986 TO 2016

Gladys Gamariel *

* Department of Business, Management and Entrepreneurship, Botswana International University of Science and Technology, Palapye, Botswana
Contact details: Department of Business, Management and Entrepreneurship, Botswana International University of Science and Technology, Private Bag 16, Palapye, Botswana

How to cite this paper: Gamariel, G. (2021). Review of financial liberalisation policies in developing countries from 1986 to 2016. *Risk Governance and Control: Financial Markets & Institutions, 11*(4), 47–61.
https://doi.org/10.22495/rgcv11i4p4

ISSN Online: 2077-4303
ISSN Print: 2077-429X

Received: 11.11.2021
Accepted: 07.01.2022

JEL Classification: G28, E44, E58
DOI: 10.22495/rgcv11i4p4

Abstract

By the late 1980s, most sub-Saharan African (SSA) countries had undertaken policy reforms to abolish financial sector controls. While studies have produced several liberalization indices, available measures are limited in scope and time coverage. The purpose of this research is to address this limitation by constructing a new set of indicators that tracks the magnitude, pace, and timing of reform aspects in 26 countries between 1986 and 2016. The paper uses questions and coding rules from a framework developed by Detragiache, Abiad, and Tressel (2008) to collect and analyse data on seven liberalization policies: credit controls, interest rate controls, entry barriers, state ownership of banks, capital account restrictions, prudential regulation and supervision, and securities market policy. Results indicate that interest rate liberalization is the most advanced dimension, followed by the abolition of entry restrictions. The least advanced dimension is bank supervision and prudential regulation. An aggregate liberalization index constructed using principal component analysis (PCA) confirms advancements in financial liberalization over time. This study is significant as it provides indicators critical for policy formulation in developing economies whose performance hinges on sufficiently developed and stable financial sectors. The study recommends implementing further reforms to update and modernise prudential regulation and supervision of banks in line with good governance.

Keywords: Financial Sector Regulations, Financial Repression, Prudential Regulation

Authors' individual contribution: The Author is responsible for all the contributions to the paper according to CRediT (Contributor Roles Taxonomy) standards.

Declaration of conflicting interests: The Author declares that there is no conflict of interest.

1. INTRODUCTION

The dawn of the 1980s saw many sub-Saharan African (SSA) countries reforming their financial sectors by replacing former protectionist economic policies, blamed for economic and financial stagnation, with more market-oriented policies. Prior to the financial sector reforms (also referred to as financial deregulation or financial liberalization), most SSA governments had all the hallmarks of financial repression. SSA governments were directly involved in the financial markets and made decisions to determine interest rates, reserve requirements, allocation of credit, entry requirements of new institutions in the credit market, creation of state-owned financial institutions, as well as control of the capital account. The justification of such government intervention in the financial markets was premised on two basic arguments. First, governments assumed that market

failure is pervasive and hence it would be necessary for intervention to reallocate resources such that market equilibrium is attained. Second, there was a widely held historical perception that post-colonial governments could promote development through intervening in financial systems.

Based on the seminal work of McKinnon (1973) and Shaw (1973), it was determined that financial repression had a negative effect on institutional development and operational efficiency while liberalisation provided a remedy to problems associated with repressive policies. The rapidly deteriorating economic and financial conditions in many SSA countries were attributed to government intervention in financial markets. Persuaded by both these theoretical assertions and experiences of some developed countries, most SSA countries undertook policy reforms to abolish controls in the financial sector. These reforms were largely drawn from the framework of Structural Adjustment Programmes (SAPs) supported by the International Monetary Fund (IMF) and the World Bank. The main objective of the SAPs was to replace former protectionist economic policies blamed for economic and financial instability, with more market-oriented policies. Thus, the reforms focused on the removal of all operating obstacles in the financial sectors to foster financial deepening and ensure financial stability. In recent years, technological improvements and financial innovation in a global world have exerted more pressure on SSA governments to further reform traditional regulation policies and adapt to the financial system transformations of the modern world.

Financial liberalization adopted by many SSA countries entailed reform along several dimensions to allow variables such as interest rates and credit allocation to be determined by free market forces. Specifically, most countries abolished credit controls, reduced or removed compulsory reserve requirements, privatised state-owned banks, removed interest rate ceilings, relaxed capital account restrictions, eased bank entry requirements, and eliminated restrictions on the scope of banking activities. In addition, countries were to grant more autonomy to central banks, strengthen prudential regulation and supervision as well as promote domestic stock markets.

Theoretical and empirical literature finds evidence that financial sectors play a crucial role as conduits for economic development (Guru & Yadav, 2019; Alexiou, Vogiazas, & Nellis, 2018; Ibrahim & Alagidede, 2018). This strand of literature argues that financial liberalisation cultivates efficient financial intermediation necessary for economic growth. Thus, financial liberalisation is expected to enhance financial development through increased domestic savings, investments, competition, and technology transfers associated with foreign direct investment. Other studies also suggest that financial liberalization promotes financial stability (Moyo & Le Roux, 2020; Hamdaoui, Zouari, & Maktouf, 2016). Tornell, Westermann, and Martinez (2004) suggest that financial liberalisation may promote financial stability occurrence if liberalisation results in financial systems with diverse instruments which can enhance the financial sector's resilience to shocks. In addition, Levine (2005) asserts that financial liberalization leads to higher levels of domestic competition and technology transfers hence positively impacting economic growth. On the other hand, a strand in the literature suggests that financial sector deregulation induces excessive risk-taking and increases macroeconomic volatility resulting in increased probability of financial crises occurrence (Hamdaoui, 2017; Arestis, 2016). A possible explanation of such mixed empirical results could be the use of different proxies of financial liberalization owing to the unavailability of a wide array of data on the measures of financial liberalization.

This study addresses critical issues concerning measures of financial liberalisation used in empirical studies. While different research bodies have produced several liberalisation indices, most datasets cover developed and developing countries outside Africa. Most of the existing indices are therefore not useful in cross-country and panel studies in Africa. Furthermore, most financial liberalization measures examined in the available literature are limited both in terms of time coverage as well as in scope. The truncated nature of such data limits its usefulness in analyzing the effects of liberalisation on the long-run performance of financial sectors in cross-country and panel studies. In addition, the binary variables often used to proxy financial liberalisation in the literature, do not capture the levels and rates of implementation of policy changes, which further limits their usefulness.

To address this measurement issue, this study constructs a new set of liberalisation indicators using country by country information on the timing of seven liberalisation policies using the framework developed by Detragiache, Abiad, and Tressel (2008)[1]. Specifically, the study focuses on the following policies in 26 sub-Saharan African countries: 1) credit controls and reserve requirement, 2) interest rate controls, 3) entry and activity barriers, 4) state ownership in the banking sector, 5) capital account restrictions, 6) prudential regulation and supervision of the banking sector, and 7) securities market policy. The indicators compiled in this study provide liberalisation measures that capture the magnitude, pace, and timing of reform aspects, on a wide spectrum of SSA countries. In addition, we construct aggregate liberalization indices, one of which was computed by principal component analysis (PCA), to analyse the overall trend of financial liberalisation across the region over the study period.

This study is thus significant in that it provides liberalization indicators critical in the analysis of the role of financial liberalization on financial sector development and economic growth of SSA. Liberalisation of financial markets is a core element of policy reform especially for countries in SSA, whose poor economic performance hinges on a sufficiently developed and stable financial sector. The SSA region is one of the least economically developed regions in the world, whose economic and financial performance has increasingly become a concern in African policy circles. Furthermore, given that some countries in SSA continue to implement and modify financial liberalisation policies, this study responds to policy concerns regarding the effects of liberalisation on financial

[1] We extend the financial liberalisation database of Detragiache et al. (2008) from 14 to 26 SSA countries.

sector performance and consequently on economic growth. As such, results from this study should guide policymakers to understand the dynamics of financial reform in SSA. Furthermore, the PCA-based measure of total liberalisation captures the maximum variance across common aspects of financial liberalisation across time in our sample period. This provides an improved view of the financial liberalisation process and coverage of the sub-dimensions of the financial liberalisation compared to what prevails in literature.

The rest of this paper is organised as follows. Section 2 gives a synopsis of the financial sectors in SSA countries and reviews relevant literature, while Section 3 discusses the methodology used to collect data for various components of financial liberalisation in SSA. Results are presented and discussed in Section 4, whilst Section 5 summarises and gives policy recommendations.

2. LITERATURE REVIEW

By the late 1980's several countries in SSA had moved towards liberalising their financial markets after decades of financial repression. Liberalisation episodes entailed reform along distinct but inter-related dimensions, at different implementation rates and levels. Table A.1 in the Appendix indicates that most countries did not opt for liberalising all previously controlled activities of their banking sectors at the same time. Instead, most countries partially liberalised their banking sectors, leaving some dimensions under government control for some time before moving on to lift controls on other aspects of financial systems. There have also been cases of withdrawal and policy reversals as well as re-implementations.

One of the key outcomes of financial sector reforms was the reduction in bank concentration ratios thus increasing competition in the sector. By allowing for privatization of state-owned banks and removal of stringent entry requirements, financial liberalisation resulted in a marked increase in the number of both foreign and pan-African banks (PABs), as well as a reduction in state-owned banks (Mlambo, Kasekende, & Murinde, 2012). The PABs that have headquarters in other African countries have made immense contribution in enhancing financial integration and inclusion, as well as spurring financial innovation and competition[2]. However, the banking systems in SSA remain highly concentrated and dominated by a few large foreign-owned banks compared with other developing countries (Fowowe, 2013). The share of foreign-owned banks as a percentage of total banks increased from 40% to 56% in East Africa, and from 48% to 56% in Southern Africa during the period from 1998 to 2006 (Allen, Otchere, & Senbet, 2011). Foreign-owned banks dominated the banking systems in fragile economies such as Guinea, Guinea-Bissau, Madagascar, São Tomé, and Príncipe (Mlachila et al., 2016). Overall, foreign banks account for an average of 40% to 60% of total bank assets in most SSA countries.

Regarding stock markets, financial reforms targeted the development of capital markets resulting in significant strides in the establishment of stock markets. Whilst there were only five stock markets in SSA before 1989, liberalisation of financial markets propelled the growth of existing markets and the establishment of several others (Atsin & Ocran 2017; Yartey & Adjasi, 2007). The number of stock exchanges increased to 17 by the end of 2010, and as of 2019, there were 28 stock exchanges in operation in SSA with 800 listed domestic companies. Despite these developments, stock exchanges in SSA remain thin and illiquid. In addition, governments are the main issuers of bonds unlike in similar markets in both developed and developing countries. Thus, the financial systems in SSA are dominated by the banking sector, mainly commercial banks and very few investment banks, which record the largest share in terms of total financial sector assets in a majority of countries (Soumaré, Kanga, Tyson, & Raga, 2021; Yartey & Adjasi, 2007).

While financial liberalisation opened up the financial sector, little has been done to strengthen regulatory oversight. In several countries, the capabilities of relevant institutions to provide regulatory oversight were not upgraded to keep up with the new financial structures and instruments following financial liberalization (Atsin & Ocran, 2017). A surge in the number of intermediaries as well as widening of the scope of bank activities after financial liberalization stretched the monitoring capacity of supervisory agencies. One of the major challenges of these regulatory frameworks has been the lack of provisions for the supervision of non-bank financial institutions (NBFIs) and stock markets. Furthermore, globalization and technological innovation in financial services have been putting pressure on policymakers and regulators to develop new regulations that address the emerging risks and challenges of the new market participants and products in the digital economies (Atsin & Ocran, 2017; Gakunu, 2007). All these challenges have prompted several SSA countries to implement further reforms in order to update and modernise financial sector regulations. While some progress has been made, prudential regulation and supervision of banks in SSA remain highly constrained.

Another notable outcome of liberalisation in SSA was the financial fragility experienced in some countries. A majority of SSA countries experienced banking problems, many of which were severe enough to be regarded as systemic, of similar or worse magnitudes as those prior to liberalisation. For instance, Lesotho's banking sector experienced a series of bank failures after financial liberalisation (Mottelle & Masengetse, 2012). On the other hand, liberalisation reduced the risk of bank distress and the magnitude of non-performing loans attributed to the government's directed lending to economically unviable projects in other countries (Gakunu, 2007). For instance, financial liberalisation in Uganda helped clean up small weak banks, and improved bank supervision and the privatization of state-owned banks which historically made huge losses. This left the Ugandan banking system more stable than prior to liberalisation with non-performing loans dropping from 29% in 1998

[2] Pan-African banks such as Ecobank and Bank of Africa operate outside their parent countries. For instance, Ecobank operates in 36 countries mainly in Western and Central Africa, while Bank of Africa Group has footprints in 14 African countries.

to 12% in 1999 and subsequently to 3% by September 2004.

It is widely accepted that financial sectors play a crucial role as conduits for economic development. Contemporary literature on finance-led growth argues that in the absence of government intervention, financial institutions can efficiently allocate credit to investors using market-based rates (Levine, 2005; Arestis & Caner, 2004; King & Levine, 1993b; Park, 1993). Arguments in favour of liberalisation are based on the neoclassical perspective, which argues that markets are most efficient in allocating scarce resources and the assertion from the endogenous growth models on the role of financial intermediation in attaining steady state growth (Ang & McKibbin, 2007; King & Levine, 1993a). Based on economic theory, this strand of literature argues that financial liberalisation cultivates efficient financial intermediation, allows for greater risk diversification and increased investment returns, all necessary for economic growth.

Beginning with the seminal work of McKinnon (1973) and Shaw (1973), financial liberalisation advocates put forward the following arguments in support of financial liberalisation. First, the advocates opined that financial repression negatively impacts institutional development and operational efficiency in financial systems which have led to poor economic growth in developing countries (Atsin & Ocran, 2017; Levine, 1997; Shaw, 1973; McKinnon, 1973). Thus, they postulated the hypothesis of interest rate liberalisation, asserting that interest rate ceilings may result in negative real interest rates, discouraging savings and hence loanable funds available for investments and consequently hinder economic growth. Conversely, unrestrained interest rate regimes provide a remedy to the negative impacts associated with repressive policies. For instance, financial liberalisation policies that retain positive real interest rates are associated with boosting savings resulting in increased credit supply in an economy[3]. Consequently, this will enhance financial deepening, increase investment and economic growth (Rousseau & Wachtel, 1998; Levine, 1997; Shaw, 1973; McKinnon, 1973). Several empirical studies support these theoretical assertions. Jafarov, Maino, and Pani (2019) find growth-diminishing effects of financial repression (interest rate controls) using data from 90 countries over 45 years. Akinsola and Odhiambo (2017) establish a positive relationship between financial liberalisation and economic growth from a sample of 30 sub-Saharan African countries. Similarly, Tajudeen, Olusola, and Ademola (2017) confirm a positive interest rate-economic growth hypothesis in open SSA economies with stable prices. In a two-sector general equilibrium model of China, Liu, Wang, and Xu (2021) posit that interest rate liberalization can improve capital allocations within each sector, hence an increase in the efficiency of investment. However, Bara, Mugano, and Le Roux (2016) concluded that increased credit to the private sector dampens economic growth.

Second, abolition of entry and activity restrictions increases competition in the domestic market which forces banks to reduce loan rates, resulting in a reduction in the cost of debt and an increase in investment and economic growth. Furthermore, to keep up with the competition, banks strive to reduce overhead costs, offer new and improved financial services, and improve overall risk management. This results in improved efficiency of financial intermediation, increased investment and economic growth (Kose, Prasad, & Terrones, 2009; Bekaert, Harvey, & Lundblad, 2005).

Third, following financial liberalisation, the competitive culture amongst banks promotes stability of banking systems (Boyd & De Nicoló, 2005). This is achieved through facilitating diversification of bank portfolios, widening of the depositor base and adoption of advanced risk-management standards from new foreign players in the market (Carlson & Mitchener, 2006; Demirgüç-Kunt & Detragiache, 1998). Under this view, the overall stability of banking systems improves through consolidation, as weaker banks are forced out of the system, either through voluntary liquidation or mergers. In addition, efficient banks engage in rigorous screening and monitoring of borrowers, hence incur fewer non-performing loans (Schaeck & Cihák, 2014). Barrell, Karim, and Ventouri (2017) argue that whereas financial repression policies that maintain low-interest rates minimise savings and loanable funds, abolition of interest rate controls provides liquidity buffers critical in times of stress and hence reduce the likelihood of financial crises. However, Jafarov et al. (2019) find empirical evidence that interest rate controls reduce the probability of crisis, although this effect is minimised by the negative effect of controls on economic growth.

In contrast, critiques of financial liberalisation argue that it has led to economic and financial instability. The first rationale provided under this school of thought is that the existence of information asymmetries and moral hazard problems in liberalised markets may limit the efficiency of financial intermediation and propels financial fragility (Stiglitz, 2000). In addition, Boot (2000) argues that information asymmetries may increase as relationship lending is compromised in a competitive banking environment. Bordo and Meissner (2016) show that the frequency of banking crises has increased following the financial liberalisation of the 1980s to reach levels not witnessed since the great depression. Batuo, Mlambo, and Asongu (2018) find empirical evidence that financial liberalisation increases financial instability in a sample of 41 African countries.

The second rationale is that the high levels of financial development following financial liberalisation can lead to erosion of bank profit margins as regulations that previously shielded banks from the competition are relaxed. Reduction in bank franchise value stimulates risk-taking as banks try to minimise costs by reducing screening and monitoring efforts when allocating loans (Cubillas & González, 2014; Hellmann, Murdock, & Stiglitz, 2000). To this end, Kasman and Kasman (2015) find empirical evidence that increased competition negatively impacted bank stability in

[3] This interest rate liberalization theory however contradicts Keynesian theory which models savings and investments as functions of real interest rate. In this theory, there is an inverse relationship between interest rate and investment, i.e., lower interest rate instead promotes savings unlike the argument put forward in the interest rate liberalisation hypothesis.

the Turkish banking industry. Wang and Luo (2019) examined the effect of financial liberalisation on bank risk-taking of Chinese banks from 2000–2014 and provided empirical evidence that bank stability instead increases with the financial liberalisation. Similarly, Moyo and Le Roux (2020) also find evidence that interest rate liberalisation and regulatory quality reduce the likelihood of financial crises in Southern African Development Community (SADC) countries.

In view of the foregoing, it is clear that the effect of financial liberalisation on economic growth as well as financial stability is inconclusive. The reviewed theoretical and empirical literature suggests either positive or negative relationships between financial liberation and economic growth as well as between financial liberalisation and financial sector stability. This study is of the view that perhaps the different empirical results are due to the use of different proxies used to measure the level of financial liberalisation due to lack of comprehensive data, amongst others. The current study provides liberalization indicators critical in the analysis of the role of financial liberalization on financial sector development and stability as well as economic growth of SSA countries.

3. RESEARCH METHODOLOGY

3.1. Sample

We collect and analyse data on financial liberation from a panel of 26 SSA countries over the 1986–2016 period (see Table A.1 in the Appendix for a list of countries in our sample). Data for 14 countries from 1986 to 2005 in the study sample is drawn from Detragiache et al. (2008). These countries include Burkina Faso, Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Senegal, South Africa, Tanzania, Uganda, and Zimbabwe. While Detragiache et al. (2008) provide data on 7 liberalisation policies for these 14 SSA countries for the period from 1973 to 2005, this study extends this dataset in two ways. First, data is compiled on the 14 SSA countries for the years 2006 to 2016. Second, information on liberalisation policies for 12 other SSA countries from 1986 to 2016 is collected. These counties include Botswana, Chad, Gabon, Gambia, Lesotho, Mali, Malawi, Mauritius, Seychelles, Sierra Leone, Swaziland, and Zambia. This brings the study sample to 26 SSA countries. Thus, the liberalisation data tracks the presence of restrictions in seven aspects of the financial system in 26 SSA countries. The sample was determined mainly by data availability and covers a 30 year period from 1986 to 2016. This time frame covers periods before, during and after implementation of financial liberalisation in a majority of the countries.

3.2. Measures of financial liberalisation

The indicators of financial liberalisation which have been identified in the literature include: 1) a dummy variable for the presence of controls on interest rate, 2) a measure of capital account liberalisation, and 3) intermediation measures such as the ratio of liquid assets to gross domestic product (GDP). These measures restrict financial liberalisation to one or few items in a range of liberalisation policies. A review of financial reforms in SSA has highlighted that financial liberalisation involves many policy reform aspects and has progressed at different rates across different countries since the 1980s. This has made it difficult to derive a single precise definition and measure of financial liberalisation. It is therefore important to construct a comprehensive data set that captures all the dynamics of financial liberalisation in SSA.

To account for financial liberalisation indicators relevant for SSA, this study adopts the methodology used by Detragiache et al. (2008). We make use of the questions and the coding rules to construct indices for the seven facets of liberalization. The study uses information from various country and regional IMF and World Bank reports, SADC Committee for Central Bank Governors (CCBG) reports, published papers, as well as central bank reports to assign the codes and the scores.

A score is given for each of the questions that are set for a specific dimension. Next, a final score is given along each dimension. This score ranges between 0 and 3, with 3 corresponding to full liberalisation while 0 indicates a highly repressed financial system. The following example uses capital account liberalisation to illustrate how the coding was done. The first question on capital account liberalisation asks if at time *t* the exchange rate is unified. In this case, the response is coded as 0 if in that year a special exchange rate regime for either capital or current account transaction was in place, and coded as 1 if the exchange rate system in that year was unified. This score is added to scores for questions 2 and 3 under this dimension. The final (total) score is then referred to a graded scale as follows: 3 = fully liberalised, 2 = largely liberalised, 1 = partially repressed, and 0 = fully repressed.

We use this methodology to assign codes to all the 7 aspects of financial liberalisation described below. After assigning scores to the seven financial liberalisation policies, we then derive a matrix *X* of liberalisation, with scores for each dimension being the columns of the matrix. The definitions of the seven dimensions as well as the coding rules adopted from Detragiache et al. (2008) are given below[4].

1. Credit controls and reserve requirements (cr)

The score for this dimension is derived from responses to a set of questions relating to how restrictive reserve requirements are (below or above 20%), the presence of directed lending to specific sectors, directed lending at subsidised rates, and the presence of aggregate credit ceilings. A sum of the scores for this dimension then determines whether the credit controls and reserve requirements are fully liberalised, largely liberalised, partially repressed or fully repressed.

2. Interest rate liberalisation (ir)

For this dimension, deposit and lending rates are separately considered and coded as being government set (code = 0), fluctuating within a band (code = 1) or freely floating (code = 2). Interest rates are thus described as fully liberalised if both deposit and lending rates are freely floating (total of 4 scores), largely liberalised when either of the 2 freely floating but the other floats within a band

[4] A detailed description is provided in the Appendix.

(score of 3), partially repressed (score of 2) or fully repressed when both deposit and lending rates are set by the government (score of 0).

3. Banking sector entry and activity restrictions (ent)

This dimension considers answers to four questions relating to foreign bank entry into a domestic market, entry restrictions on domestic banks, the presence of activity restrictions on branching, and restrictions on other activities that permit banks to operate as universal banks. A sum of the scores for this dimension then determines the extent of entry and activity restrictions on both foreign and domestic banks which determines competition levels in the banking industry.

4. International capital account controls (intk)

The coding and scores for this dimension are determined by whether or not: the exchange rate is unified, a country sets restrictions on capital inflow, or a country sets restrictions on capital outflow, each with scores of either 0 or 1. A sum of these raw scores then determines the level of capital account liberalisation on a scale of 0 to 3 scale.

5. Privatisation (pvt)

The financial sector is coded as fully liberalised if state-owned banks own less than 10% of total bank assets, largely liberalised if the percentage of public bank assets is from 10% to 25%, partially repressed if the percentage of public bank assets is above 25% up to 50%, fully repressed if major banks are all state-owned and/or the percentage of public bank assets is from 50% to 100%.

6. Securities markets (secmkt)

The score for this dimension is derived from questions relating to the extent of development of securities markets and if a country's equity market is open to foreign investors. Some of the codes determine the level of securities markets liberalisation on a scale of 0 to 3 scale.

7. Banking sector supervision (sup)

The codes for this dimension are based on four questions:

- Has a country adopted a capital adequacy ratio based on the Basel standard?
- Is the banking supervisory agency independent from the influence of the executives?
- Does a banking supervisory agency conduct effective supervision through on-site and off-site examinations?
- Does a country's banking supervisory agency cover all financial institutions without exception?

Unlike the other six dimensions, the banking sector regulation dimension is scored as follows: 0 corresponds to unregulated and unsupervised through to 3 which corresponds to strongly regulated and supervised. This coding reflects that the more supervision and prudential regulation of banks in a country the greater the extent of financial reforms.

3.3. Aggregate financial liberalisation index

A good measure of financial liberalisation should capture information on different aspects such as levels and rates of implementation. However, no single measure that captures all the different aspects of financial liberalisation has been identified in the literature. To this effect, we construct aggregate liberalisation indices, firstly by using a simple average of the values of the 7 liberalisation indicators and secondly by using principal component analysis. A couple of previous studies, for instance, Shrestha and Chowdhury (2006), have attempted to construct liberalisation indices using principal component analysis. Following Shrestha and Chowdhury (2006), the aggregate liberalisation index, *finref*, for the 7 liberalisation policy variables can be expressed as follows:

$$finref_{it} = w_1 cr_{it} + w_2 ir_{it} + w_3 ent_{it} + w_4 sup_{it} + w_5 pvt_{it} + w_6 intk_{it} + w_7 secmkt_{it} \quad (1)$$

where, w_i is the weight of the component given by the respective eigenvector of the selected principal components. The PCA analysis is done over the 1986–2016 period for the 26 countries in our sample and it captures the extent to which liberalisation was implemented over time across the countries. The PCA gives an orthogonal summary index for *N* different liberalisation indicators that are highly correlated. This index, therefore, captures all the seven aspects of financial liberalisation discussed above. This study uses Stata 16, to compute the eigenvalues and eigenvectors used in the computation of the *finref* index.

4. RESULTS

4.1. Descriptive statistics

The study collected data from 26 countries in the sub-Saharan Africa region over the period 1986–2016. The summary statistics for the 7 liberalisation indicators as well as the two aggregate indices are presented in Table 1 below.

Table 1. Summary statistics

Variable	*Obs.*	*Mean*	*Std. dev.*	*Min.*	*Max.*
finreform	806	11.75	9.15	0	20
ent	707	3.17	2.09	0	3
ir	743	3.21	2.36	0	3
cr	722	2.41	1.99	0	3
sup	743	1.31	0.98	0	3
pvt	722	2.91	1.97	0	3
intk	722	2.19	1.64	0	3
secmkt	722	1.94	1.64	0	3
finref	806	1.91	0.78	-2.63	4.72

Table 1 shows that in terms of the degree of liberalisation, entry restrictions and interest rate liberalisation are the most advanced dimensions in the sample. On the other hand, regulatory and supervisory reform is the least advanced dimension with an average scale of 1.31, on a scale of 0 (no reform) to 3 (fully liberalised). The aggregate *finreform* index has an average score of 11.75 out of a maximum score of 20. The standard deviations for liberalisation policies give evidence of significant variations across the different dimensions and countries. There is also evidence of differences among countries, as shown by large standard deviations for the aggregate index *finref*.

4.2. Descriptive statistics

Table 2 below presents a simple Pearson's correlation matrix which shows correlations amongst the liberalisation components.

The correlations coefficients reported in Table 2 give evidence of a positive relationship amongst the liberalisation components. As expected, some of the liberalisation components are highly correlated as most countries made efforts to liberalise many aspects of their financial systems at the same time and magnitude. This may also be an indication that countries may have restrictive policies in similar aspects of their financial systems (Detragiache et al., 2008).

Table 2. Correlations among liberalisation components: Levels

	cr	*ir*	*ent*	*sup*	*pvt*	*intk*	*secmkt*
cr	1						
ir	0.565	1					
ent	0.501	0.521	1				
sup	0.410	0.509	0.510	1			
pvt	0.512	0.501	0.560	0.391	1		
intk	0.339	0.381	0.321	0.356	0.360	1	
secmkt	0.3682	0.354	0.351	0.520	0.442	0.514	1

Source: Author's computations.

The highest correlation is observed between interest rate and credit controls. This suggests that many countries made simultaneous efforts to lift controls on interest rates as well as abolishing directed and subsidised lending to specific sectors with the objective of maximizing savings and loanable funds for financial growth and stability. This concurs with observations by Moyo and Le Roux (2020), Akinsola and Odhiambo (2017) and Barrell et al. (2017). There is also a high correlation between bank privatization and the removal of entry and activity restrictions. This could suggest that countries deliberately implemented these two policies concurrently. As countries privatised public banks, they also eased entry restrictions to foreign banks and the same time allowed banks to expand their banking portfolios in order to foster competition and efficiency in the banking industry (Carlson & Mitchener, 2006; Allen & Gale, 2004). Similarly, there is also a high correlation between liberalisation of security markets and international capital flows.

On the other hand, the computed annual changes for each liberalisation policy presented in Table 3 are less correlated. As observed by Detragiache et al. (2008) this could be an indication that different countries implemented liberalisation policies for different dimensions at different times. This also suggests that SSA countries may have taken a gradual approach to ease controls across various policies over time to allow their financial sectors to adapt and avoid banking system instability. Similar to the index presented by Detragiache et al. (2008), we observe that changes in privatization have a very low correlation with other liberalisation indicators.

Table 3. Correlations among liberalisation components: Changes

	cr	*ir*	*ent*	*sup*	*pvt*	*intk*	*secmkt*
cr	1						
ir	-0.0051	1					
ent	0.0045	0.0240	1				
sup	0.2196	0.2910	0.1013	1			
pvt	-0.0107	-0.0263	-0.029	0.0655	1		
intk	-0.1726	0.0595	0.2100	-0.0061	-0.0271	1	
secmkt	-0.0218	-0.0255	-0.0361	-0.0562	-0.1131	0.1106	1

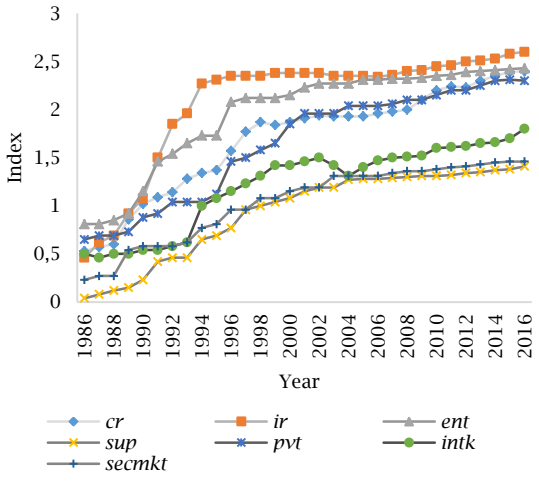
Source: Author's computations.

4.3. Specific liberalisation components

The computed information for individual liberalisation components is presented in Figure 1. As expected and explained above, the different liberalisation components are highly correlated. This signifies that countries with restrictive policies in one area are more likely to have restrictive policies in other areas as well. Figure 1 further confirms that interest rate liberalisation is the most advanced component in the region for each year and by end of period average. Our results confirm why most studies have used interest rate liberalisation as a proxy for financial liberalisation (Jafarov et al., 2019; Demirgüç-Kunt & Detragiache, 1998). Most countries prioritised removing controls on interest rates and hence the data is available across countries and for long periods of time. Most SSA countries including Ghana, Mauritius, Botswana, Côte d'Ivoire, Nigeria, Kenya and South Africa were amongst those that implemented interest rate liberalization policies in full while other countries including Tanzania, Cameroon, Mali, Zambia and Zimbabwe took a phased approach. In most SSA countries interest rates increased in the late 1980s and the 1990s with lending rates increasing faster than deposit rates as evidenced by the high-interest rate spread across all SSA countries following financial liberalisation (Akinsola & Odhiambo, 2017)[5].

Our results indicate that easing of entry and activity restrictions was the second most advanced liberalisation component in SSA. This suggests that most SSA countries prioritised opening up the banking sectors to foster competition from both foreign and domestic firms in the banking industry as well as allowing them to diversify their bank portfolios. Gakunu (2007) confirms that following financial reforms in SSA, there was an increase in the number of banks (mostly foreign banks) and financial institutions. Furthermore, reforms also facilitated the growth of NBFIs, such as leasing companies and building societies.

Figure 1. Financial liberalisation index by component (1986–2016)



Source: Author's computations.

[5] For a detailed analysis of financial and macroeconomic data before and after liberalization see Fowowe (2013).

On the contrary, the least advanced dimensions are international capital controls, security market policies, and bank supervision and prudential regulation, respectively. Results presented in Figure 1 suggest that easing of controls in the international capital markets has been on the rise albeit at very low magnitudes across the SSA region. For instance, countries such as Ghana, Uganda, Zambia, Kenya and Tanzania only began to liberalise their capital accounts in the mid-1990s. Similarly, Cameroon implemented liberalisation of capital flows within the Central African Economic and Monetary Community in 2000 while Malawi implemented liberalisation of the Kwacha in 2012 (Atsin & Okran, 2017).

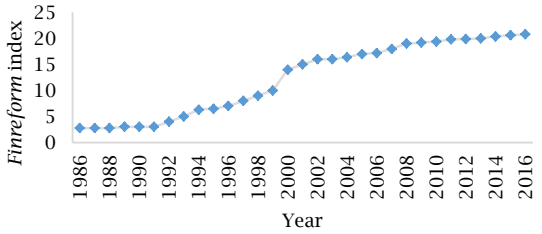
Our results also confirm that abolition of controls on securities markets as one of the least developed aspects of liberalisation in SSA over the 1986–2016 period. Following financial liberalisation, significant strides in the establishment of stock markets in SSA were made between 1988 and 2002 and little effort has been made to liberalise the securities markets across the region since then (Figure 1). Soumaré et al. (2021) confirm that except for South Africa, the region's capital markets remain underdeveloped and composed of mainly of stock exchanges and bond markets.

The results on prudential regulation and supervision were expected. Although reforms facilitated the development of stronger supervisory authorities, compared to periods before liberalisation, this liberalisation aspect is the least developed (Figure 1). Our findings concur with several studies in the literature which have confirmed that not much has been done to upgrade and strengthen regulatory oversight to keep up with the new financial structures and instruments following financial liberalization (Akinsola & Odhiambo, 2017; Fowowe, 2013; Gakunu, 2007; Noy, 2004). Some of these studies attribute the bank fragility that followed financial liberalisation to inadequate bank supervision and prudential regulation. In addition, several studies have recommended against implementing financial liberalisation without concomitant strong prudential regulation as well as improving governance quality through strengthening regulatory frameworks and empowering supervisory agencies to enhance financial development (Abubakar, Mustapha, & Ajiboye, 2020; Akinsola & Odhiambo, 2017).

4.4. Financial liberalisation indices

We make use of the information matrix of the data collected in this study to construct two main indices of financial reform. The first one, *finreform* is a sum of individual components for each country in each year. Since the scale ranges between 0 and 3, the index ranges between 0 and 21. The *finreform* index is presented in Figure 2.

Figure 2. Aggregate financial liberation index (*finreform*) in SSA (1986–2016)



Source: Author's computation.

The second index, *finref*, is constructed using principal component analysis. The computed eigenvalues of the 7 possible components, the proportion, as well as the cumulative proportion of the variation in variables explained by each component, used in the computation of the *finref* index are presented in Table 4.

Table 4. Liberalisation variables and eigenvalues

Component/ variable	*Eigenvalue*	*% of variance explained*	*Cumulative % of variance explained*
1 *cr*	3.789	54	54
2 *ir*	0.858	12	66
3 *ent*	0.635	9	75
4 *sup*	0.531	8	83
5 *pvt*	0.466	7	90
6 *intk*	0.423	6	96
7 *secmkt*	0.299	4	100

Source: Author computations using Stata 16.

The first principal component accounts for over 54% of the total variation while the second and third accounts for 12% and 9% respectively. As such, *finref* is estimated using the eigenvectors of the first principal component (component 1). The computed eigenvectors are reported in Table 5.

Table 5. Liberalisation variables and eigenvectors

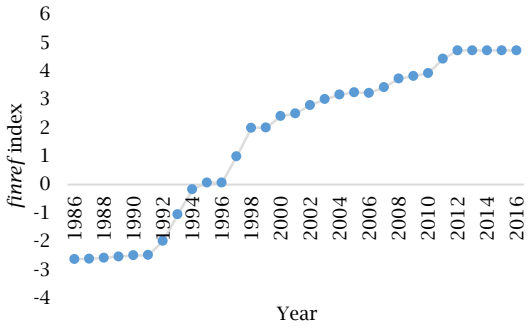
Variable	*Component 1*	*Component 2*	*Component 3*	*Component 4*	*Component 5*	*Component 6*	*Component 7*
cr	0.3966	-0.268	0.081	0.1346	-0.5881	0.6216	0.118
ir	0.3695	-0.1288	0.5848	-0.6347	0.1842	-0.1015	0.2405
ent	0.3955	-0.3424	-0.1243	0.448	0.0123	-0.5545	0.4501
sup	0.4274	-0.1096	-0.2326	-0.2329	-0.2584	-0.3483	-0.7134
pvt	0.4022	-0.1341	-0.1163	0.2169	0.7396	0.3978	-0.2234
intk	0.3019	0.6875	0.4777	0.4156	-0.0788	-0.0964	-0.1406
secmkt	0.338	0.5401	-0.5833	-0.323	-0.0086	0.0834	0.3774

Using the eigenvectors computed and reported in Table 5, *finref* for country i in year t is expressed as follows:

$$finref_{it} = 0.3966cr_{it} + 0.3695ir_{it} + 0.3955ent_{it} + 0.4274sup_{it} + 0.4022pvt_{it} + 0.3019intk_{it} + 0.3380secmkt_{it}$$

The resultant *finreform* index for 26 SSA countries for 1986–2016 is presented in Figure 3.

Figure 3. Aggregate financial liberation index (*finref*) in SSA (1986–2016)



Source: Author's computations.

Both Figure 2 and Figure 3 confirm that total financial liberalisation was less gradual between 1986 and 1992, before accelerating sharply between 1993 and 2004. Thereafter, the liberalisation process slowed down, maybe because most countries had by then liberalised a greater part of their financial sectors (Detragiache et al., 2008). In fact, *finreform* increased fourfold in 2004 from its 1990 level but only increased by about 10% in 2016 from its 1990 level. At a country level, the process was less smooth, with periods of no change in policy as well as policy reversals. For instance, Kenya, Nigeria, Uganda and Zimbabwe experienced policy reversals between 1994 and 2000, whereas Botswana, Zambia and Tanzania had long periods of policy stagnation. Overall, our index concurs with observations of continued liberalisation efforts by SSA countries over time.

5. CONCLUSION

This study addresses critical issues concerning measures of financial liberalisation used in empirical studies. The study constructs a new set of liberalisation indicators using country by country information on the timing of seven liberalisation policies using the framework developed by Detragiache et al. (2008). The study focuses on the following liberalisation policies in 26 sub-Saharan African countries for the period from 1986 to 2016: 1) credit controls and reserve requirement, 2) interest rate controls, 3) entry and activity barriers, 4) state ownership in the banking sector, 5) capital account restrictions, 6) prudential regulation and supervision of the banking sector, and 7) securities market policy. A review of financial reforms in SSA has highlighted that financial liberalisation involves many policy reform aspects and has progressed at different rates across different countries since the 1980s. This study is significant in that it constructs a comprehensive data set that captures most of the dynamics of financial liberalisation in SSA.

The database provided by this study is covers countries in Africa, a region that has not been sufficiently covered by most datasets. Our dataset covers 26 countries over 31 years making it very useful in analyzing the effects of a wide array of liberalisation components on the long-run performance of financial sectors in cross-country and panel studies. The use of this data in empirical investigations is likely to give accurate results specific to a particular liberalisation component unlike the use of a proxy. In addition, the data we provide capture the levels and rates of implementation of policy changes unlike previous variables often used to proxy financial liberalisation in the literature. Thus, the indices we construct provide liberalization indicators critical in guiding policy on effects of liberalisation on financial sector performance and consequently on economic growth given that most SSA continue to implement and modify financial liberalisation policies.

Our data confirm that total financial liberalisation was less gradual between 1986 and about 1992, but accelerated sharply between 1993 and 2004 and slowed down between 2004 and 2016 likely because most countries had by then liberalised a greater part of their financial sectors. The computed individual liberalisation components are correlated as expected signifying that countries with restrictive policies in one area are more likely to have restrictive policies in other areas as well.

The study finds that interest rate liberalisation is the most advanced dimension for each year, in all the 26 countries for each year and by end of period average. This concurs with observations that most SSA countries' first step in liberalisation efforts was the abolition of interest rate and credit controls. Furthermore, most empirical studies that have examined the effects of liberalisation have used interest rate liberalisation as a proxy for financial sector liberalisation due to the availability of panel data on interest rate liberalisation.

Second is liberalisation of bank entry and activity restrictions. This result suggests that most SSA countries prioritised opening up the banking sectors to foster competition from both foreign and domestic firms in the banking industry as well as allowing them to diversify their bank portfolios. This also facilitated the growth of NBFIs, such as leasing companies and building societies in the region. However, these developments have been putting pressure on policymakers and regulators to develop new regulations that address the emerging risks and challenges of the new market participants and financial products.

On the contrary, the least advanced dimensions are security market policies, international capital controls, and bank supervision and prudential regulation, respectively. Our results suggest that easing of controls in the international capital markets has been on the rise albeit at very low magnitudes across the SSA region. This result has implications on SSA countries with poor domestic capital resources and has relied on foreign direct investments for economic growth.

Our results also confirm that abolition of controls on securities markets as one of the least developed aspects of liberalisation in SSA over the 1986–2016 period. Following financial liberalisation, significant strides in the establishment of stock markets in SSA were made between 1988 and 2002 however, with the exception of South Africa, the region's capital markets remain underdeveloped and composed mainly of stock exchanges and bond markets. This result also has implications for SSA given the region's huge financing needs for economic development. The study recommends that SSA countries should put more effort towards

the removal of capital account controls and development of security markets to promote international capital flows and the development of securities markets for their investment and financing needs.

Despite the efforts to facilitate the development of stronger supervisory authorities by SSA as part of the greater financial reforms, our results indicate that the bank supervision and prudential regulation component is the least developed of the seven components. Our findings concur with several studies in the literature which have confirmed that not much has been done to improve governance quality, through strengthening regulatory frameworks and empowering supervisory agencies to keep up with the new financial structures and instruments resulting from liberalised financial markets. Thus, implementing reforms to further develop prudential regulatory and supervisory frameworks in line with good governance is emphasised.

Finally, this study also constructed aggregate indices for the seven liberalisation components. Both indices confirm that financial liberalization in SSA has been advancing over time albeit at a slower pace. This result has policy implications on SSA given the renewed calls for governments to further reform traditional regulation policies and adapt to the financial system transformations of the modern world in the wake of technological improvements and financial innovation in a global world.

While this study provides data on SSA countries on 7 liberalization aspects, it is limited to only 26 of the 48 SSA countries. In addition, the study does not give a comparison of pre- and post-liberalisation indices across countries as well as use the data in relevant empirical analysis, which may be an area of focus for future research.

REFERENCES

1. Abubakar, Y. I., Mustapha, R. A., & Ajiboye, E. S. (2020). Impact of governance on financial development: Evidence from West Africa. *Hasanuddin Economics and Business Review*, *3*(3), 103–111. https://doi.org/10.26487/hebr.v3i3.2055
2. Akinsola, F. A., & Odhiambo, N. M. (2017). The impact of financial liberalization on economic growth in sub-Saharan Africa. *Cogent Economics & Finance*, *5*(1), 1338851. https://doi.org/10.1080/23322039.2017.1338851
3. Alexiou, C., Vogiazas, S., & Nellis, J. G. (2018). Reassessing the relationship between the financial sector and economic growth: Dynamic panel evidence. *International Journal of Finance & Economics*, *23*(2), 155–173. https://doi.org/10.1002/ijfe.1609
4. Allen, F., & Gale, D. (2004). Competition and financial stability. *Journal of Money, Credit, and Banking, 36*(3), 453–480. https://doi.org/10.1353/mcb.2004.0038
5. Allen, F., Otchere, I., & Senbet, L. W. (2011). African financial systems: A review. *Review of Development Finance, 1*(2), 79–113. https://doi.org/10.1016/j.rdf.2011.03.003
6. Ang, J. B., & McKibbin, W. J. (2007). Financial liberalization, financial sector development and growth: Evidence from Malaysia. *Journal of Development Economics, 84*(1), 215–233. https://doi.org/10.1016/j.jdeveco.2006.11.006
7. Ansari, M. I. (2002). Impact of financial development, money, and public sending on Malaysian national income: An econometric study. *Journal of Asian Economics, 13*(1), 72–93. https://doi.org/10.1016/S1049-0078(01)00113-0
8. Arestis, P. (2016). Main and contributory causes of the recent financial crisis and economic policy implications. In P. Arestis, & M. Sawyer (Eds.), *Emerging economies during and after the Great Recession* (pp. 1–36). https://doi.org/10.1057/9781137485557_1
9. Arestis, P., & Caner, A. (2004). *Financial liberalization and poverty: Channels of influence* (Levy Economics Institute Working Paper No. 411). https://doi.org/10.2139/ssrn.569663
10. Atsin, J. A. L., & Ocran, M. K. (2017). *Financial liberalization and the development of stock markets in Sub-Saharan Africa* (MPRA Paper No. 87580). Retrieved from https://mpra.ub.uni-muenchen.de/87580/
11. Bara, A., Mugano, G., & Le Roux, P. (2016). *Financial reforms and the finance-growth relationship in the Southern African Development Community (SADC)* (Economic Research Southern Africa (ERSA) Working Paper No. 615). Retrieved from https://www.econrsa.org/system/files/publications/working_papers/working_paper_615.pdf
12. Barrell, R., Karim, D., & Ventouri, A. (2017). Interest rate liberalization and capital adequacy in models of financial crises. *Journal of Financial Stability*, *33*, 261–272. https://doi.org/10.1016/j.jfs.2016.09.001
13. Batuo, M., Mlambo, K., & Asongu, S. (2018). Linkages between financial development, financial instability, financial liberalisation and economic growth in Africa. *Research in International Business and Finance, 45*, 168–179. https://doi.org/10.1016/j.ribaf.2017.07.148
14. Beck, T. (2015). Cross-border banking and financial deepening: The African experience. *Journal of African Economies*, *24*(suppl_1), i32–i45. https://doi.org/10.1093/jae/eju028
15. Bekaert, G., Harvey, C. R., & Lundblad, C. (2005). Does financial liberalization spur growth? *Journal of Financial Economics, 77*(1), 3–55. https://doi.org/10.1016/j.jfineco.2004.05.007
16. Boot, A. W. A. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation, 9*(1), 7–25. https://doi.org/10.1006/jfin.2000.0282
17. Bordo, M. D., & Meissner, C. M. (2016). Fiscal and financial crises. In *Handbook of macroeconomics* (Vol. 2, pp. 355–412). https://doi.org/10.1016/bs.hesmac.2016.04.001
18. Boyd, J. H., & De Nicoló, G. (2005). The theory of bank risk taking and competition revisited. *The Journal of Finance*, *60*(3), 1329–1343. https://doi.org/10.1111/j.1540-6261.2005.00763.x
19. Carlson, M., & Mitchener, K. J. (2006). Branch banking, bank competition, and financial stability. *Journal of Money, Credit, and Banking, 38*(5), 1293–1328. https://doi.org/10.1353/mcb.2006.0067
20. Cubillas, E., & González, F. (2014). Financial liberalization and bank risk-taking: International evidence. *Journal of Financial Stability*, *11*, 32–48. https://doi.org/10.1016/j.jfs.2013.11.001
21. Demirgüç-Kunt, A., & Detragiache, E. (1998). The determinants of banking crises in developing and developed countries. *IMF Staff Papers, 45*(1), 81–109. Retrieved from http://policydialogue.org/files/publications /Determinants_of_Banking_Crises.pdf

22. Detragiache, E., Abiad, A.d., & Tressel, T. (2008). *A new database of financial reforms* (International Monetary Fund Working Paper WP/08/266). https://doi.org/10.5089/9781451871241.001
23. Fowowe, B. (2013). Financial liberalization in Sub-Saharan Africa: What do we know? *Journal of Economic Surveys, 27*(1), 1–37. https://doi.org/10.1111/j.1467-6419.2011.00689.x
24. Gakunu, P. (2007). Reforming the financial system in Sub-Saharan Africa: The (long) way ahead. *Finance & Bien Commun, 3,* 28–29, 139–146. https://doi.org/10.3917/fbc.028.0139
25. Guru, B. K., & Yadav, I. S. (2019). Financial development and economic growth: Panel evidence from BRICS. *Journal of Economics, Finance and Administrative Science, 24*(47), 113–126. https://doi.org/10.1108/JEFAS-12-2017-0125
26. Hamdaoui, M. (2017). Financial liberalization and systemic banking crises: A meta-analysis. *International Economics*, *152*, 26–54. https://doi.org/10.1016/j.inteco.2017.08.002
27. Hamdaoui, M., Zouari, A., & Maktouf, S. (2016). The effect of financial liberalization on banking sector stability. *International Review of Applied Economics*, *30*(5), 644–667. https://doi.org/10.1080/02692171.2016.1165654
28. Hellmann, T. F., Murdock, K. C., & Stiglitz, J. E. (2000). Liberalization, moral hazard in banking, and prudential regulation: Are capital requirements enough? *American Economic Review*, *90*(1), 147–165. https://doi.org/10.1257/aer.90.1.147
29. Ibrahim, M., & Alagidede, P. (2018). Effect of financial development on economic growth in sub-Saharan Africa. *Journal of Policy Modeling*, *40*(6), 1104–1125. https://doi.org/10.1016/j.jpolmod.2018.08.001
30. Jafarov, E., Maino, R., & Pani, M. (2019). *Financial repression is knocking at the door, again* (International Monetary Fund Working Paper). https://doi.org/10.5089/9781513512488.001
31. Kasman, S., & Kasman, A. (2015). Bank competition, concentration and financial stability in the Turkish banking industry. *Economic Systems*, *39*(3), 502–517. https://doi.org/10.1016/j.ecosys.2014.12.003
32. King, R. G., & Levine, R. (1993a). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics, 108*(3), 717–737. https://doi.org/10.2307/2118406
33. King, R. G., & Levine, R. (1993b). Finance, entrepreneurship, and growth: Theory and evidence. *Journal of Monetary Economics, 32*(3), 513–542. https://doi.org/10.1016/0304-3932(93)90028-E
34. Kose, A. M., Prasad, E. S., & Terrones, M. E. (2009). Does openness to international financial flows raise productivity growth? *Journal of International Money and Finance, 28*(4), 554–580. https://doi.org/10.1016/j.jimonfin.2009.01.005
35. Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, *35*(2), 688–726.Retrieved from https://www.jstor.org/stable/2729790
36. Levine, R. (2005). Finance and growth: Theory and evidence. In *Handbook of economic growth* (Vol. 1, pp. 865–934). https://doi.org/10.1016/S1574-0684(05)01012-9
37. Liu, Z., Wang, P., & Xu, Z. (2021). Interest rate liberalization and capital misallocations. *American Economic Journal: Macroeconomics*, *13*(2), 373–419. https://doi.org/10.1257/mac.20180045
38. Mckinnon, R. I. (1973). *Money and capital in economic development*. Washington, DC: Brooking.
39. Mlachila, M., Cui, L., Jidoud, A., Newiak, M., Radzewicz-Bak, B., Takebe, M., … Zhang, J. (2016). *Financial development in Sub-Saharan Africa: Promoting inclusive and sustainable growth* (International Monetary Fund, African Department, Departmental Paper Series). Retrieved from https://www.imf.org/external/pubs/ft/dp/2016/afr1605.pdf
40. Mlambo, K., Kasekende, L., & Murinde, V. (2012). Comparative overview of bank regulatory experiences and the impact on bank competition and intermediation efficiency in Africa. In V. Murinde (Ed.), *Bank regulatory reforms in Africa*. New York, NY: Palgrave Macmillan.
41. Mottelle, S., & Masengetse, R. (2012). McKinnon-Shaw complementary hypothesis: Evidence from Lesotho. *African Finance Journal*, *14*(1), 102–114. Retrieved from https://journals.co.za/doi/10.10520/EJC33769
42. Moyo, C., & Le Roux, P. (2020). Financial liberalisation, financial development and financial crises in SADC countries. *Journal of Financial Economic Policy, 12*(4), 477–494. https://doi.org/10.1108/JFEP-07-2018-0102
43. Mughogho, T. E., & Alagidede, I. P. (2019). *Capital account liberalization and capital flows to Sub-Saharan Africa: A panel threshold approach* (Economic Research Southern Africa (ERSA) Working Paper No. 802). Retrieved from https://www.econrsa.org/node/1623
44. Noy, I. (2004). Financial liberalization, prudential supervision, and the onset of banking crises. *Emerging Markets Review, 5*(3), 341–359. https://doi.org/10.1016/j.ememar.2004.05.001
45. Park, K. Y. (1993). 'Pouring new wine into fresh wineskins': Defense spending and economic growth in LDCs with application to South Korea. *Journal of Peace Research, 30*(1), 79–93. https://doi.org/10.1177/0022343393030001007
46. Rousseau, P. L., & Wachtel, P. (1998). Financial intermediation and economic performance: Historical evidence from five industrialized countries. *Journal of Money, Credit and Banking*, *30*(4), 657–678. https://doi.org/10.2307/2601123
47. Schaeck, K., & Cihák, M. (2014). Competition, efficiency, and stability in banking. *Financial Management, 43*(1), 215–241. https://doi.org/10.1111/fima.12010
48. Shaw, E. S. (1973). *Financial deepening in economic development*. New York, NY: Oxford University Press.
49. Shrestha, M. B., & Chowdhury, K. (2006). Financial liberalization index for Nepal. *International Journal of Applied Econometrics and Quantitative Studies*, *3*(1), 41–54. Retrieved from https://ro.uow.edu.au/buspapers/440
50. Soumaré, S., Kanga, D., Tyson, J., & Raga, S. (2021). *Capital market development in sub-Saharan Africa: Progress, challenges and innovations* (ODI Working Paper No. 2). Retrieved from https://cdn.odi.org/media/documents/ODI_Working_Paper_2_Capital_markets_development_in_SSA_FINAL_clean.pdf
51. Stiglitz, J. E. (2000). Capital market liberalization, economic growth, and instability. *World Development, 28*(6), 1075–1086. https://doi.org/10.1016/S0305-750X(00)00006-1
52. Tajudeen, E., Olusola, A. T., & Ademola, B. A. G. (2017). Interest rate liberalization, financial development and economic growth in Sub-Saharan African economies. *African Journal of Economic Review*, *5*(2), 109–129. Retrieved from https://www.ajol.info/index.php/ajer/article/view/161697

53. Tan, Y., Ji, Y., & Huang, Y. (2016). Completing China's interest rate liberalization. *China & World Economy*, *24*(2), 1–22. https://doi.org/10.1111/cwe.12148
54. Tornell, A., Westermann, F., & Martinez, L. (2004). *The positive link between financial liberalization, growth and crises* (National Bureau of Economic Research Working Paper No. 10293). https://doi.org/10.3386/w10293
55. Tyson, J. (2021) *Financial-sector development and inclusive and sustainable economic growth in sub-Saharan Africa* (ODI Working Paper No. 2). Retrieved from https://cdn.odi.org/media/documents/ODI_Working_Paper_1_Financial_sector_development_FINAL.pdf
56. Wang, R., & Luo, H. (2019). Does financial liberalization affect bank risk-taking in China? *SAGE Open*, *9*(4). https://doi.org/10.1177/2158244019887948
57. Yartey, C. A., & Adjasi, C. K. (2007). *Stock market development in Sub-Saharan Africa: Critical issues and challenges.* https://doi.org/10.2139/ssrn.1012992

APPENDIX A: COUNTRIES IN SAMPLE

Table A.1. Financial liberalisation in SSA policy start date

Country	*Liberalisation year**	*Credit controls*	*Interest rate*	*Entry controls*	*Bank supervision*	*Privatisation*	*International capital controls*	*Security market controls*
Botswana	1989		1986	1990	1991	1990	1990	1989
Burkina Faso	1989	p1980	1989	p1980	1991	1995	1975	1993
Cameroon	1990	1991	1990	1992	1997	1992	p1980	1996
Chad	1991	1991	1991	1992	1997	1992		0
Côte d'Ivoire	1988	p1980	1990	p1980	1991	p1980	p1980	1976
Ethiopia	1996	1991	1998	1994	1996	0	2001	1997
Gabon	1992		1990	1992	1997	1992		0
Gambia	1986	1987	1985	1980	1985	1985	1988	1995
Ghana	1987	1990	1987	1988	2001	1996	1987	1990
Kenya	1991	p1980	1991	p1980	1997	1978	p1980	p1980
Lesotho	1993		1993	1993	1999		2003	
Madagascar	1994	1986	1983	p1980	1991	1991	P1980	1987
Malawi	1988	1989	1988	1990	1989		1994	1996
Mali	1989	1989	1989		1990	1990		
Mauritius	1981	1981	1988	1986	1988	1995		1989
Mozambique	1991	1991	1994	p1980	1995	1996	1993	1998
Nigeria	1986	p1980	1987	p1980	1991	p1980	1990	p1980
Senegal	1989	p1980	1989	p1980	1988	1989	p1980	1986
Seychelles	1993		1994		1996	1993		1996
Siera Leone	1991	1993	1992	2001	1994	1992		
Swaziland							1997	1997
South Africa	1980	p73	1980	1983	1986	p1980	1993	1982
Tanzania	1991	1993	1991	1991	1995	2000	1994	1994
Uganda	1992	p1980	1992	p1980	1993	1995	1993	1993
Zambia	1992		1992	1991	1994	1995	1992	1994
Zimbabwe	1990	1990	1990	1993	2004	p1980	p1980	1979

*Notes: * Starting date of major steps towards financial liberalisation. p1980 means some form of liberalisation was in place as early as 1980, 0 means no liberalisation yet.*
Sources: Detragiache et al. (2008) updated by the Author using various country Central Bank reports and various SADC Committee for Central Bank Governors reports.

APPENDIX B: CODING RULES FOR FINANCIAL LIBERALISATION POLICIES AND INDICES

To construct indices for the seven facets of liberalisation, the following questions were considered. The questions and the coding rules were adopted from Detragiache et al. (2008). Each dimension has various sub-dimensions. A raw score is assigned according to set rules for each sub-dimension. This raw score is then normalised on a 0 to 3 scale. The scale is as follows: fully liberalised = 3, partially liberalised = 2, partially repressed = 1, and fully repressed = 0.

1. Credit controls and reserve requirements

1) Are reserve requirements restrictive?
- Coded as 0 if reserve requirement is more than 20%.
- Coded as 1 if reserve requirements are reduced to 10–20% or regulations to set reserve requirements are simplified as a step towards reducing reserve requirements.
- Coded as 2 if reserve requirements are less than 10%.

2) Are there minimum amounts of credit that must be channeled to certain sectors?
- Coded as 0 if credit allocations are determined by the central bank or mandatory allocations to certain sectors exist.
- Coded as 1 if mandatory allocations to certain sectors are eliminated or do not exist.

3) Are there any credits supplied to certain sectors at subsidised rates?
- Coded as 0 when banks have to supply credits at subsidised rates to certain sectors.
- Coded as 1 when the mandatory requirement of credit allocation at subsidised rates is eliminated or banks do not have to supply credits at subsidised rates.

4) Aggregate credit ceilings
- Coded as 0 if ceilings on expansion of bank credit are in place. This includes bank-specific credit ceilings imposed by the central bank.
- Coded as 1 if no restrictions exist on the expansion of bank credit.

The scores from these questions are then summed as follows: fully liberalised = 4, largely liberalised = 3, partially repressed = (1, 2), fully repressed = 0.

This is then referred to the normalisation and the final scale is given below:

Sum/raw score	*Normalised scale*
4	3
3	2
1, 2	1
0	0

2. Interest rate liberalisation

Deposit and lending rates are separately considered and coded as being government (code = 0), fluctuating within a band (code = 1) or freely floating (code = 2). The following describes the coding rules used.

1) Fully liberalised (*FL*) = 4 [2, 2]

Both deposit rates and interest rates are market-determined.

2) Largely liberalised (*LL*) = 3 [2, 1]

Either deposit rates or lending rates are freed but the other rates are subject to a band or only a part of interest rates are determined at market rates.

3) Partially repressed (*PR*) = 2/1 [2, 0] [1, 1] [1, 0]

Either a deposit or lending rates are freed but the other interest rates are set by the government or subject to ceiling or floor, or both deposit and lending rates are subject to a band or partially liberalised; or either deposit or lending rates are subject to a band or partially liberalised.

4) Fully repressed (*FR*) = [0, 0]

Both deposit and lending rates are set by the government or subject to a ceiling or floor.

Score	*Normalised scale*
FL = 4	3
LL = 3	2
PR = 2/1	1
FR = 0	0

3. Banking sector entry and activity restrictions

The first question examines the extent of foreign bank entry into the domestic market, branching restrictions on foreign banks, as well as equity ownership of domestic banks by non-residents.

1) To what extent does the government allow foreign banks to enter into a domestic market?
- Coded as 0 when no entry of foreign banks is allowed, or tight restrictions on the opening of new foreign banks are in place.
- Coded as 1 when foreign bank entry is allowed, but nonresidents must hold less than 50% equity share.
- Coded as 2 when the majority of share of equity ownership of domestic banks by non-residents is allowed; or equal treatment is ensured for both foreign banks and domestic banks; or an unlimited number of branching is allowed for foreign banks.

Questions 2 to 4 consider policies to enhance the competition in the domestic banking market.

2) Does the government allow the entry of new domestic banks?
- Coded as zero when the entry of new domestic banks is not allowed or strictly regulated.
- Coded as 1 when the entry of new domestic banks or other financial institutions is allowed into the domestic market.

3) Are there restrictions on branching?
- Coded as 0 when restrictions are in place.
- Coded as 1 when there are no branching restrictions or if restrictions are eased.

4) Does the government allow banks to engage in a wide range of activities?
- Coded as 0 when the range of activities that banks can take consists of only banking activities.
- Coded as 1 when banks are allowed to become universal banks.

The sum of scores from these four questions is then scaled as follows:

Score	*Normalised scale*
FL = 4 or 5	3
LL = 3	2
PR = 1 or 2	1
FR = 0	0

4. International capital account controls

1) Is the exchange rate unified?
- Coded as 0 when a special exchange rate regime for either capital or current account transactions exists.
- Coded as 1 when the exchange rate system is unified.

2) Does the country set restrictions on capital inflow?
- Coded as 0 when significant restrictions exist on capital inflows.
- Coded as 1 when banks are allowed to borrow from abroad freely without restrictions and there are no tight restrictions on other capital inflows.

3) Does a country set restrictions on capital outflow?
- Coded as 0 when restrictions exist on capital outflows.
- Coded as 1 when capital outflows are allowed to flow freely or with minimal approval restrictions.

The sum of these three sub-scores is coded as follows:

Score	*Scale*
FL = 3	3
LL = 2	2
PR = 1	1
FR = 0	0

5. Privatisation

Privatisation is coded as follows.
- Fully liberalised if no state banks exist or state-owned banks do not consist of any significant portion of banks and/ or the percentage of bank assets is less than 10%.
- Largely liberalised if most banks are privately owned and/or the percentage of public bank assets is from 10% to 25%.
- Partially repressed if many banks are privately owned but major banks are still state-owned and/or the percentage of public bank assets is above 25% up to 50%.
- Fully repressed if major banks are all state-owned banks and/ or the percentage of public bank assets is from 50% to 100%.

These are coded as follows:

Score	*Scale*
FL	3
LL	2
PR	1
FR	0

6. Securities markets

1) Has a country taken measures to develop securities markets?
- Coded as 0 if a securities market does not exist.
- Coded as 1 when a securities market is starting to form with the introduction of auctioning of T-bills or the establishment of a security commission.
- Coded as 2 when further measures have been taken to develop securities markets (tax exemptions, the introduction of medium and long-term government bonds in order to build the benchmark of a yield curve, policies to develop a corporate bond and equity markets, or the introduction of a primary dealer system to develop government security markets).
- Coded as 3 when further policy measures have been taken to develop derivative markets or to broaden the institutional investor base by deregulating portfolio investments and pension funds or completing the full deregulation of stock exchanges.

2) Is a country's equity market open to foreign investors?
- Coded as 0 if no foreign equity ownership is allowed.
- Coded as 1 when foreign equity ownership is allowed but there is less than 50 percent foreign ownership.
- Coded as 2 when majority equity share of foreign ownership is allowed.

The sum of these 2 questions is then coded as follows:

Score	*Scale*
FL	4 or 5
LL	3
PR	1, 2
FR	0

If the information on question 2 is not available, the measure is coded using information from question 1, in which case, a 0–3 scale is assigned based on the score on question 1.

7. Banking sector supervision

1) Has a country adopted a capital adequacy ratio based on the Basel standard?

- Coded as 0 if the Basel risk-weighted CAR is not implemented. The date of implementation is important, in terms of passing legislation to enforce the Basel requirement of 8% CAR.
- Coded as 1 when Basel CAR is in force (if the large majority of banks meet the prudential requirement of an 8% risk-weighted CAR, but this is not a mandatory ratio as in Basel, the measure is still classified as 1).
- Prior to 1993, when the Basel regulations were not in place internationally, this measure takes the value of 0.

2) Is the banking supervisory agency independent from the influence of the executives?

- Coded as 0 when the banking supervisory agency does not have an adequate legal framework to promptly intervene in banks' activities; and/ or when there is a lack of legal framework for the independence of the supervisory agency such as the appointment and removal of the head of banking supervisory agency; or the ultimate jurisdiction of the banking supervision is under the ministry of finance; or when a frequent turnover of the head of the supervisory agency is experienced.
- Coded as 1 when the objective of the supervisory agency is clearly defined and an adequate legal framework to resolve banking problems is provided (the revocation and suspension of authorisation of banks, and the removal of banks' executives, etc.) but potential problems remain concerning the independence of the banking supervisory agency (for example, when the ministry of finance may intervene into the banking supervision in such cases as when the board of the banking supervisory agency is chaired by the ministry of finance, although the fixed term of the board is ensured by law); or although clear legal objectives and legal independence are observed, the adequate legal framework for resolving problems is not well articulated.
- Coded as 2 when a legal framework for the objectives and resolution of troubled banks is set up and if the banking supervisory agency is legally independent of the executive branch and actually not interfered with by the executive branch.

3) Does a banking supervisory agency conduct effective supervisions through on-site and off-site examinations (done to monitor balance sheets)?

- Coded as 0 when a country has no legal framework and practices of on-site and off-site examinations is not provided or when no on-site and on-site examinations are conducted.
- Coded as 1 when the legal framework of on-site and on-site examinations is set up and the banking supervisory agency has conducted examinations but in an ineffective or insufficient manner.
- Coded as 2 when the banking supervisory agency conducts effective and sophisticated examinations.

4) Does a country's banking supervisory agency cover all financial institutions without exception?

- Coded as 1 when all banks are under supervision by the supervisory agencies without exception.
- Coded as 0 if some kind of financial institution is not exclusively supervised or is excluded from banking supervisory agency oversights.

These four dimensions are summed up and are assigned a degree of freedom as follows:

Score	*Normalised scale*
Highly regulated = 6	3
Largely regulated = 4–5	2
Less regulated = 2–3	1
Not regulated = 0–1	0