Financial Liberalisation and Financial Sector Development in Cameroon

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The aim of this study is to investigate the effect of financial liberalisation on the development of the financial sector in Cameroon. To achieve this aim, we construct financial liberalisation and financial development indexes for Cameroon before employing the ARDL cointegration approach to analyse annual data for the period 1973 to 2018. The results show that financial liberalisation and macroeconomic stability significantly and positively affect the development of the financial sector in Cameroon. Also, the level of democratisation was found to negatively affect financial development. As the level of democratisation captures the institutional quality of a country, this suggests that the country’s quality of institutions is very weak. These results have far reaching policy implications in that any policy geared at fostering the development of the financial sector in Cameroon should take into consideration factors such as macroeconomic stability, democracy and institutional quality.

Key words: Financial liberalisation; financial sector development; Cameroon; ARDL

INTRODUCTION

The aim of financial liberalisation is to build financial systems capable of mobilising and allocating the resources of a country in the most efficient and productive way. McKinnon (1973) and Shaw (1973) argue that, financial liberalisation policies induce positive real interest rates, thereby giving rise to more savings, increased investments, improved efficiency of capital markets in terms of credit allocation, and ultimately economic development. Though economists agree on the importance of the financial sector in economic development (Jagadish, 2018), they disagree on which financial sector policy would enhance its efficiency. The Keynesians proposed the policy of financial repression which refers to a state where the financial sector is highly regulated and distorted by the government through various measures; interest rate ceilings on bank deposits and loans, directed credit schemes, high reserve requirements, and various types of prohibition on international financial transactions. In such a repressed state, real deposit rates of interest are often negative, and foreign exchange rates also become highly uncertain.
The rationale underlying financial repression is that most developing countries’ fiscal deficits are significant and persistent and they lack efficient taxation systems. Therefore, in order to finance their fiscal deficits, governments may choose to repress the financial sector because it delivers them easy inflationary revenue known as seignorage (Roubini and Sala-i-Martin 1992). Seigniorage is a much easier way of raising revenue as it can also be accomplished by imposing large reserve requirements on commercial banks. These reserve requirements force commercial banks to hold government liabilities such as currency or government bonds beyond the point they would otherwise consider optimal (Espinosa and Hunter 1994). Another reason behind financial repression is that of imposing the anti-usury law to intervene in the free determination of interest rates in order to protect the public from exploitation. Similarly, the allocation of subsidized credit to favoured sectors is another ground for financial repression. Such directed credit programmes are carried out due to the government’s belief that commercial banks allocate credit in a largely speculative and socially undesirable fashion, and that they knew better than markets what the optimal allocation of savings was, or what kind of investments were more or less desirable (Roubini and Sala-i-Martin 1992). It is also argued that a strict control and regulation of the banking system under financial repression would give the monetary authorities a better control over the money supply. Similarly, financial repression is associated with interest rates below market rates, which reduces the costs of servicing government debts.

The Keynesians were criticized by McKinnon (1973) and Shaw (1973). McKinnon argues that, investment is self-financed and requires sufficient prior savings. Shaw, on his part, postulates that financial intermediaries boost economic growth through investments. McKinnon (1973) analysed a small economy without a financial sector. He argues that, to finance lumpy projects, investors need to accumulate savings until they have enough resources. As such, deposits are a conduit for capital formation, hence the complementarity between deposits and capital. This is in contrast with the neo-classical and Keynesian theory, where the two assets are substitutes.

Shaw (1973) stressed the importance of positive real interest rates to induce savings in financially repressed economies. However, unlike McKinnon, Shaw hypothesized that external finance was a constraint to capital formation. Focusing on deposits, Shaw argues that high deposit rates stimulate investment by aligning credit supply to financial needs.

From the foregoing, the Shaw and McKinnon hypothesis is based on the assumption that savings are positively affected by real interest rates. Their framework advocates that economies should implement financial liberalization policies to promote economic development by enhancing efficient domestic savings mobilization and allocation. Other financial liberalization policies include: the adoption of measures to enhance security markets development; reserve requirement reduction; privatization of financial institutions; removal of entry barriers into banking; elimination of directed credit schemes; capital accounts liberalization and implementation of prudential norms (Levine, 2001).

Many countries, influenced by dominant economic theories, applied different financial sector policies to ensure the efficiency of financial intermediation. Kasekende and Atingi-Ego (2008) observed that, for the period 1970 to mid-80s, the financial sector policy adopted by most developing countries was that of financial repression. McKinnon (1973) and Shaw (1973) argue
that, the underdevelopment of LDCs was due to financial repression which, according to them, hampers financial development and intermediation. They hold that when interest rates are controlled, the mobilization and allocation of savings are not efficient. This discourages capital investments, making the economy to stagnate. Interest rates therefore need to be attractive to mobilize more savings for productive and profitable investments. The expected benefits of financial reforms, therefore, include among others; an increase in the size of domestic savings channelled through the formal financial sector, increased efficiency of financial intermediation and the effectiveness of monetary policy (Levine 1997). There is, therefore, need to adopt financial sector policies that enhance the role of the financial sector in economic development.

A large number of Sub-Saharan African (SSA) Countries adopted Structural Adjustment Programs (SAPs) given their deteriorating economies in the mid-80s (World Bank, 1994). SAPs were basically meant to encourage governments to undertake economic reforms to remove restrictions in the financial sector, improve resource mobilization, productivity and operational efficiency which undermined economic development (Aryeetey, Hettige, Nissanke, and Steel, 1997). One of the reform policies within the SAP framework was that of financial liberalisation aimed at allowing market forces to determine who receives or makes credit and what price. Financial reform measures encompassed interest rate liberalisation; elimination or reduction of directed credit control; allowing free entry into the banking sector; privatisation of banks; and liberalizing international capital flows (Odhiambo, 2009).

Cameroon reformed its financial sector within the SAPs adopted in 1988, with the aim of developing the financial sector and increasing its role in enhancing economic growth and development. Although the SAPs were adopted in 1988, it is by 1990 that financial sector reforms were undertaken. This was to ensure that the preconditions of success of financial liberalisation were fulfilled. However, the Cameroonian financial sector has remained relatively underdeveloped. Financial development statistics in terms of liquid liabilities to GDP indicate that Cameroon scores 17.17% in 2006 which is far below the African average of 32% (World Bank, 2006). Similarly, the share of private credit to GDP stood at 10.20% in 2017 below the Sub-Saharan African average of 17.5% (Neba and Ebo’oh, 2019). Considering that financial repression hinders the progress of financial intermediation, we hypothesise and test the financial development implication of the possible causal relationship between financial liberalisation and financial development in Cameroon using time series econometric techniques.

This study, therefore, contributes to the literature by providing an updated country specific study of Cameroon as previous ones were either too early to evaluate the performance of the reform measures and did not take into consideration the multidimensional nature of the reform measures (Tabi, 1999; Tabi et al., 2011). Particularly, following Abiad et al. (2008), the analysis relies on composite proxies for financial liberalisation and financial development which help identify changes in financial market policies and quantify the extent to which they contribute to liberalising financial markets. It also allows controlling for periods in which governments decide to re-control markets (for instance during or after periods of severe financial and/or economic crisis); therefore improving the accuracy in determining the magnitude and timing of changes in various dimensions of financial market policies. Similarly, to circumvent the issues of over-
parameterization and/or multicollinearity associated with the traditional proxies of financial development, we make use of a composite index obtained from the principal component analysis.

The rest of the paper is organized as follows: Section two reviews the literature financial liberalization and financial development. Section three presents the methodology while section four discusses the empirical findings. Concluding remarks are then provided in the last section.

**LITERATURE REVIEW**

**Theoretical Framework**

The positive relationship between financial liberalisation and financial development as hypothesised by McKinnon and Shaw can be illustrated by considering the case of interest rate liberalisation. In theory, financial liberalisation is hypothesised to encourage savings mobilisation; thereby easing liquidity constraints for firm’s investments. This view follows classical economics where interest rates are seen as providing a return for the choice between consumption and saving. Put simply, a rise in interest rate decreases the incentive to borrow and lowers the utility of consumption raising thriftiness and lowering excess demand for savings (Bayoumi, 1993). When interest rates are set artificially low, the result is shallow financing. According to Shaw (1973), financial deepening implies that interest rates must accurately report the opportunities that exist for the substitution of investment for current consumption and the disinclination of consumers to wait. Real interest rates are high where finance is deepening. Also, McKinnon (1973) postulates that “if financial policy including inflation reduces real rates of interest and makes savings appear cheap, so cheap that they must be rigorously rationed, the result will be excess demand for savings. If the real return on holding money increases so will self-financed investment over a significant range of investment opportunities.” The financial conduit for capital accumulation is thereby enlarged.

Figure 1 is a simple illustration of the foregoing orthodox view of financial liberalisation. Under a financially repressed regime, interest rates may be officially held at $r_1$, which means there will be a resource gap (a savings-investment gap) represented by the distance between $s_1$ and $I_1$. Where possible, this resource gap may be covered through dependence on foreign sources of finance.
Figure 1: Financial liberalisation and financial development

Source: Authors

However, implementing financial liberalisation policies means that the interest rate will be allowed to move from the officially controlled to the equilibrium level; and, supply of savings will increase from $s_1$ to $s_2$, and the savings investment gap disappears. Consequently, any inefficient projects, which might have been profitable at the government-managed rate of interest $r_1$, but not at the new rate $r_2$, will naturally close down and exit the market. Ultimately, the quality of the entire investment portfolio will increase. All these will lead to increased economic growth which, in due course, will bring down the savings supply curve and the equilibrium interest rate.

In addition, high reserve requirements restrict the supply of bank lending, since banks are statutorily required to maintain a high ratio of their loanable funds at zero-rate of interest with the central bank. Directed credit programmes are also found to have a negative effect on the efficiency of credit allocation of banks. This effect occurs because banks are forced to channel some of their loanable funds to state-owned firms or to government-favoured borrowers at subsidised interest rates. It seems that marginal productivity and return of firms diminish when banks are forced to allocate their loanable funds because of political pressure. Such policy will limit the loan supply to the private sector. As such, financial repression polices undermine both financial development and economic growth. In this regard, financial liberalisation is proposed in order to rebuild an efficient and sound financial system than can spur economic growth.

**Empirical Studies**

Works related to whether financial liberalisation affects financial development are rare and inconclusive.

Among the early empirical studies, Cho and Khatkhate (1989) examined the experience of five Asian countries, namely South Korea, Malaysia and Sri Lanka, Philippines and Indonesia, with respect to financial liberalisation along six dimensions: the level and structure of interest rates; growth of the financial sector; competitiveness, profitability and efficiency of financial institutions; availability of long-term credit; integration of domestic interest rates with foreign
interest rates; quality of banks’ loan portfolios; and the corporate sector’s financial structure. They find that after liberalisation, interest rates moved in the expected direction though the margins also widened, financial depth increased in some of the countries while competitiveness of the banking system increased in all the countries but at varying degrees. One of the main conclusions from their study is that price stability and more broadly, macroeconomic stability, is key to successful liberalisation and if financial liberalisation is not properly designed, it may cause instability in the financial system.

Demetriades and Luintel (1997) estimate the effects of financial repression in India on financial development. In their model, the dependent variable is financial depth measured by the ratio of bank deposits to nominal GDP and among the regressors is the logarithm of real GDP per capita, the real rate of interest, the population density of bank branches and an index of financial repression which is derived using the principal component analysis. They find evidence that suggests that financial repression has substantial negative effects on financial development, independently of its well-known influence through the level of the real interest rate. The financial policies play an important role in determining not only the long-run but also the short-run behaviour of financial development. The real rate of interest, however, falls short of being an important explanatory variable for the dynamic behaviour of financial development. On the contrary, Arestis and Demetriades (1999) using similar variables find that financial repression has a positive effect on financial development in South Korea. They attribute the contradicting outcomes of the two studies to the differences in the effectiveness of government institutions in the two countries.

Contrary to the financial liberalisation thesis, most of the empirical studies do not find results that support the hypothesis that financial liberalisation positively affect financial development. Using a sample of 28 SSA countries for the period 1970-1998, Reinhart and Tokatlidis (2003), comparing the before and after liberalisation periods, concluded that financial liberalisation has not raised savings, deepened intermediation or raised investment in SSA. They find that a small group of middle income and less indebted countries in SSA enjoyed financial deepening as measured by the credit and monetary aggregates. On the other hand, countries with less advanced financial sectors experienced the surge in real lending rates as well as an increase in the spreads between the lending and deposit rates.

The minimal impact of financial liberalisation on the development of the financial system has been attributed to the inadequate sequencing and speed of reforms. Pill and Pradhan (1997) point out that most countries in SSA carried out financial liberalisation in an environment of high inflation. They emphasise the need for macroeconomic stability and a sound banking system as preconditions for successful financial liberalisation. They find that African countries which liberalised their financial sector and competition among banks in the liberalised financial sector remained weak, liberalisation has resulted in little financial deepening since attractiveness of bank deposits to domestic savers has reduced. Instead, the monopolistic banks have taken advantage of the opportunity created by the abolition of interest rate controls to widen the margins between their deposit and lending rates to increase profits.
Soyibo (1997) argues that executing financial liberalisation in an inflationary environment will send out inappropriate signals, resulting in adverse consequences. Therefore, factors causing macroeconomic instability like fiscal deficits, rapidly depreciating exchange rate, and high inflation need to be checked before embarking on financial liberalisation. Caprio and Levine (1994) suggest that in general full liberalisation of interest rates should be considered when: (a) macroeconomic conditions are stable; (b) the financial condition of banks and their borrowers is sound; and (c) financial markets are sufficiently competitive or stable.

It has been shown that where the implementation of financial liberalisation programmes has been done in an environment of weak macroeconomic stability and institutions, it created many more problems than it has solved. Colombia, Uruguay and Venezuela in the early 1970s, Malaysia in the late 1970s, Argentina, Brazil, Chile and Mexico in the mid- to late-1970s, and Turkey, Israel, the Philippines, and Indonesia in the early 1980s all implemented financial reforms. Their experience was catastrophic: interest rates exceeded 20%, a number of bad debts and waves of bank failures and other bankruptcies ensued, extreme asset volatility and the whole financial system reached a near collapse stage (Arestis and Demetriades, 1999). Banks increased deposit and lending rates to compensate for losses attributable to loan defaults. High real interest rates completely failed to increase saving or boost investment, which actually fell as a proportion of GNP over the period. The only type of saving that did increase was foreign saving (that is, external debt). This, however, made the "liberalised" economies more vulnerable to oscillations in the international economy, increasing the debt/asset ratio, and thus service obligations, and promoting the debt crises experienced in the recent past. Financial liberalisation meant international markets displaced domestic markets. Kaminsky and Reinhart (1999) provide further evidence that banking crises are often preceded by financial liberalisation and liberalisation helps to predict a crisis. Stiglitz (2000) further argues that it is no accident that the two large developing countries that survived the 1998 financial crisis and continued with remarkably strong growth in spite of a difficult global economic environment were India and China, both of which had strong controls on capital flows.

Recent studies have emphasised the role of institutions, such as legal institutions and information or credit bureaus, in explaining why financial liberalisation has had minimal impact on financial development in some countries. Those subscribing to this view argue that what determines how much private credit a financial system will extend to firms and individuals depends on the power of creditors and the information they have about borrowers. In the first instance, financial institutions are more willing to extend credit to firms and individuals if they can more easily force repayment, grab collateral or even gain control of the firm and if they know more about borrowers, their credit history, or other lenders to the firm (La Porta et al., 1997; Djankov, McLiesh & Schleifer, 2007).

Beck, Demirguc-Kunt, and Levine (2003) assess empirically two theories of why legal origin (that is, the political channel and the adaptability channel) influences financial development. They use historical comparisons and cross-country regressions to assess the validity of these two channels. They find that legal origin matters for financial development because legal traditions differ in their ability to adapt efficiently to evolving economic conditions.
Djankov et al., (2007) investigate cross country determinants of private credit, using new data on legal creditor rights and private and public credit registries in 129 countries over 25 years. They find that both creditor protection through the legal system and information sharing institutions are associated with higher ratios of private credit to GDP, but the former is relatively more important in the richer countries. An analysis of legal reforms also shows that improvements in creditor rights and in information sharing precede faster credit growth.

McDonald and Schumacher (2007) investigate the role of creditor rights and information sharing in explaining why some financial markets in SSA have remained shallow. Using panel data for 37 SSA countries, they find that financial development is positively correlated with financial liberalisation index but negatively correlated with inflation. However, for countries with similar financial liberalisation efforts, those with stronger legal institutions and information sharing have deeper financial development implying that while financial liberalisation and macroeconomic stability promote financial development, they are not enough on their own. These findings are corroborated by Sacerdoti (2005) who concludes that reducing public deficits and restoring macroeconomic stability is a necessary step to promote bank intermediation but not a sufficient condition for its expansion. The improvement of information, legal and judicial environment are essential in order to create conducive environment for credit expansion.

Law and Habibullah (2009) using data from 27 economies (the G-7, Europe, East Asia and Latin America) during 1980-2001, find that real income per capita and institutional quality are significant determinants of banking sector development and capital market development while financial liberalisation is found to have a weak statistical impact on financial development. They use the private sector credit provided by the banking sector as a measure of financial development and exclude real interest rates from the list of regressors.

Tressel and Detriagache (2008), in a study covering 91 developed and developing countries, find that banking reforms have a positive effect on financial development only in countries with institutions that place checks and balances on political power. They do not find much evidence that other institutional dimensions, such as contractual rights or prudential regulation and supervision, affect the impact of banking sector reforms.

Recent studies have highlighted the role of political stability in financial development. Using various measures of political instability, Roe and Siegel (2009) find that the effect of political instability on financial development is strong and statistically significant.

On the basis of the above review of the literature, we reach at the same conclusion like Arestis et al. (2002) that financial liberalisation is a complex process with ambiguous effects on the development of the financial sector. While some studies failed to find a strong positive relationship between financial liberalisation and financial development (Arestis and Demetriades, 1999; Reinhart and Tokatlidis, 2001; Law and Habibullah, 2009), others found a positive relationship between financial liberalisation and financial development (McDonald and Schumacher, 2007; Tressel and Detriagache, 2008).

However, the general consensus emerging out of this literature review is that the speed and sequencing of financial reforms affects their outcomes. The theoretical literature provides
support to the view that countries which ensure macroeconomic stability and have strong institutions register positive outcome from financial liberalisation. At the same time, the presence of imperfect and oligopolistic money and credit markets negates the effects of financial liberalisation. Therefore, the success of financial liberalisation depends largely on the initial conditions including the presence of macroeconomic stability, strong institutions and regulatory framework that is able to enforce prudential guidelines and the level of competition in the financial sector.

**METHODOLOGY**

The concept of cointegration is associated with the long-run equilibrium relationship between two or more variables. The economic interpretation of cointegration is that if two or more variables are linked to form an equilibrium relationship spanning the long run, they will move closer together in the long run equilibrium. There are several methods available for conducting the cointegration test. The most widely used methods include the residual based Engle-Granger (1987) test, and maximum likelihood based Johansen (1991; 1995) and Johansen-Juselius (1990) test. Due to the low power and other problems associated with these test methods, the autoregressive distributed lag (ARDL) bound testing approach to cointegration has become popular in recent years. The ARDL modelling approach pioneered by Charemza and Deadman (1992), Pesaran and Pesaran (1997), Pesaran and Smith (1998), Pesaran and Shin (1999), and Pesaran, Shin and Smith (2001) has numerous advantages. The main advantage of this approach lies in the fact that it can be applied irrespective of whether the regressors are I(0) or I(1) (Pesaran et al. 2001). Another advantage of this approach is that the model takes sufficient numbers of lags to capture the data generating process in a general-to-specific modelling framework hence avoiding specification errors and taking care of possible endogeneity problems (Laurenceson and Chai 2003). Moreover, a dynamic error correction model (ECM) can be derived from ARDL through a simple linear transformation (Banerjee et al. 1993). The ECM integrates the short run dynamics with the long run equilibrium without losing long run information. It is also argued that using the ARDL approach avoids problems resulting from non-stationary time series data (Laurenceson and Chai 2003). Slight changes in assumptions or specification may affect the result of a unit root test, and as a consequence, a stationary time series may be found to be a non-stationary series and vice versa. For these reasons, even when the stationary statuses of the time series are ascertained by unit root tests, there is still some risk of misspecification.

**Modelling financial development: An Autoregressive Distributed Lag (ARDL) approach**

Following Pesaran et al. (2001), we specify the vector autoregression (VAR) of order p, denoted VAR (p), for the following financial development function:

\[
Z_t = \mu + \sum_{i=1}^{p} \beta_i Z_{t-i} + \varepsilon_t
\]

(1)
where Zt is the vector of both Xt and Yt; where Yt is the dependent variable defined as financial development index (FDI), Xt is the vector matrix which represents a set of explanatory variables including financial liberalisation Index (FLI), political institutions (Polity), macroeconomic stability captured by inflation (INF), Economic Growth (EG), and t is a time or trend indices. According to Pesaran et al. (2001), Yt must be an I(1) variable, but the regressor Xt can be either I(0) or I(1). We further specify the following vector error correction model (VECM):

\[
\Delta Z_t = \mu + \alpha t + \lambda \Delta Z_{t-1} + \sum_{i=1}^{p} \gamma_i \Delta Y_{t-i} + \sum_{i=0}^{p} \gamma_i \Delta X_{t-i} + \epsilon_t
\]  

(2)

Where, \( \Delta \) is the first-difference operator.

The long-run multiplier matrix \( \lambda \) as:

\[
\lambda = \begin{bmatrix}
\lambda_{YY} & \lambda_{YX} \\
\lambda_{XY} & \lambda_{XX}
\end{bmatrix}
\]

The diagonal elements of the matrix are unrestricted, so the selected series can be either I(0) or I(1). If \( \lambda_{yy} = 0 \), then Y is I (1); In contrast, if \( \lambda_{yy} < 0 \), then Y is I(0).

The VECM procedures described above are imperative in the testing of at most one cointegrating vector between dependent variable \( Y_t \) and a set of regressors \( X_t \). To derive the model, we followed the postulations made by Pesaran et al. (2001) in Case III, that is, unrestricted intercepts and no trends. After imposing the restrictions \( \lambda_{yy} = 0 \), \( \mu \neq 0 \) and \( \alpha = 0 \), the cointegration hypothesis function can be stated as the following unrestricted error correction model (UECM):

\[
\Delta(FDI)_t = \beta_0 + \beta_1(FDI)_{t-1} + \beta_2(FLI)_{t-1} + \beta_3(EG)_{t-1} + \beta_4(IQ)_{t-1} + \\
\beta_5(INF)_{t-1} + \beta_6(POLITY)_{t-1} + \sum_{i=0}^{p} \beta_7 \Delta(FDI)_{t-i} + \sum_{i=0}^{q} \beta_8 \Delta(FLI)_{t-i}
\]

(3)

\[+
\sum_{i=0}^{r} \beta_9 \Delta(EG)_{t-i} + \sum_{i=0}^{s} \beta_{10} \Delta(INF)_{t-i} + \sum_{i=0}^{t} \beta_{11} \Delta(POLITY)_{t-i} + \sum_{i=0}^{u} \beta_{12} \Delta(IQ)_{t-i} + \mu_t
\]

Where, \( \Delta \) is the first-difference operator and ut is a white-noise disturbance term. Equation (3) can also be viewed as an ARDL of order (p, q, r, s, u, v). Equation (3) indicates that financial development tends to be influenced and explained by its past values. The structural lags are established by using minimum Akaike’s information criteria (AIC).

After regressing Equation (3), the Wald test (F-statistic) is used to test the existence of a long-run relationship between the variables. The Wald test is carried out by imposing restrictions on the estimated long-run coefficients. The null and alternative hypotheses are as follows:
\( H_o : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0 \) (no long-run relationship)

Against the alternative hypothesis

\( H_1 : \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq 0 \) (a long-run relationship exists)

The computed F-statistic value should normally be compared with the critical values tabulated in Table CI (iii) of Pesaran et al. (2001). However, Narayan (2004) showed that the critical values varied with the sample size. They therefore proposed critical value tables for small sample sizes which are more suitable for this study.

The lower bound critical values assumed that the explanatory variables \( X_t \) are integrated of order zero, or I(0), while the upper bound critical values assumed that \( X_t \) are integrated of order one, or I(1). Therefore, if the computed F-statistic is smaller than the lower bound value, then the null hypothesis is not rejected and we conclude that there is no long-run relationship between financial development and its determinants. Conversely, if the computed F-statistic is greater than the upper bound value, financial development and its determinants share a long-run level relationship. On the other hand, if the computed F-statistic falls between the lower and upper bound values, then the results are inconclusive.

Given that a long-run relationship exists, the following two-step procedure to estimate the model is undertaken.

The long run coefficients of equation (1) are estimated using the following specification:

\[
FDI_t = \alpha_0 + \alpha_1 FLI + \alpha_2 EG + \alpha_3 INF + \alpha_4 POLITY + \alpha_5 IQ + \omega
\]  

(4)

In the presence of cointegration, short-run elasticities can also be derived by constructing an error correction model of the following form:

\[
\Delta(FDI) = \alpha_0 + \sum_{i=1}^{n} \alpha_i \Delta(FDI)_{t-i} + \sum_{i=0}^{d} \alpha_2 \Delta(FLI)_{t-i} + \sum_{i=0}^{d} \alpha_3 \Delta(EG)_{t-i} \\
+ \sum_{i=0}^{d} \alpha_4 \Delta(INF)_{t-i} + \sum_{i=0}^{d} \alpha_5 \Delta(POLITY)_{t-i} + \sum_{i=0}^{d} \alpha_6 \Delta(IQ)_{t-i} + \psi ECM_{t-1} + \delta_t
\]  

(5)

Where \( ECM_t \) is the error correction term, defined as;(3.6)

\[
ECM_t = FDI_t - \alpha_0 - \alpha_1 FLI_t - \alpha_2 EG_t - \alpha_3 INF_t - \alpha_4 POLITY_t - \alpha_5 IQ_t
\]  

(6)

Here \( \Delta \) is the first difference operator; \( \alpha \) are the coefficients relating to the short-run dynamics of the model’s convergence to equilibrium, and \( \psi \) measures the speed of adjustment.
DATA SOURCES AND DEFINITION OF VARIABLES

Financial Liberalization Index

Financial liberalisation is a process that involves the implementation of a number of policies as discussed above. In order to show the degree or the level of financial liberalisation at a particular time, a financial liberalisation index (FLI) is constructed based on the method proposed by Abiad et al. (2008)\(^1\); lower FLI corresponding to higher financial repression and an index of 1 implying full liberalisation. The FLI aggregates seven different dimensions of financial sector policies including: Credit controls and excessively high reserve requirements; Interest rate controls; Entry barriers; Securities market policy; State ownership in the banking sector; Restrictions on international financial transactions and Prudential regulations and supervision of the banking sector.

Figure 2 depicts the evolution of the process of financial liberalisation in Cameroon. It emerges that before 1990, the Cameroonian financial sector was highly repressed with an index of 2/21. In 1990, reforms started and has since then been growing. In 2013, the score for Cameroon stands at the level of 15/21 due mainly to restrictions in the domain of international capital mobility and weaknesses in prudential regulations. Though considerable efforts have been made in the domain of prudential regulation, the COBAC\(^2\) regulatory system is still to meet international best practices set by the BASEL II codes. This figure also displays no episodes of reversals in Cameroon. Since the process started in 1990, it has been continually moving towards a more liberalised system. Thus, generally, the Cameroon financial system is still under liberalised.

Figure 2: Evolution of financial liberalisation index in Cameroon

Source: authors

\(^1\) The index is computed by aggregating the scores obtained on each of the seven dimensions of financial liberalisation considered and normalizing the value to 1 by dividing by 21.

\(^2\) French acronym of the banking commission of central African states
Financial Development Index

The selection of key variables to represent the level of financial services produced in an economy and how to measure the extent and efficiency of financial intermediation is an extremely difficult task due to the diversity of financial services catered for in the financial systems. In addition, there is a diverse array of agents and institutions involved in the financial intermediation activities. The extent of financial development is best measured by the intermediaries’ ability to reduce information and transaction costs, mobilise savings, manage risks and facilitate transactions. The idea is very simple but there is no valid and reliable data available. Despite all efforts made by researchers to refine and improve the existing measures, the financial proxies used are still far from satisfactory.

Traditionally, easily available monetary aggregates such as M2 or M3 as a ratio of nominal GDP were widely used in measuring financial development. However, these were not very good proxies for financial development since they reflect the extent of transaction services provided by the financial system rather than the ability of the financial system to channel funds from depositors to investment opportunities. The availability of foreign funds in the financial system also renders this an inadequate measure of financial development. As an alternative measure, bank credit to private sector is often argued to be a more superior measure of financial development. Since the private sector is able to utilise funds in a more efficient and productive manner as compared to the public sector, the exclusion of credit to public sector better reflects the extent of efficient resource allocation. Developed by King and Levine (1993), another commonly used variable is the ratio of commercial bank assets divided by commercial bank plus central bank assets which measures the relative importance of a specific type of financial institution i.e. the commercial banks in the financial system. The basic idea underlying this measure is that commercial banks are more likely to identify profitable investment opportunities and therefore make more efficient use of funds than central banks.

In most cases, these variables are highly correlated and yet there is no uniform argument as to which proxies are most appropriate for measuring financial development. This justifies the need to construct an index as a single measure that represents the overall development in the financial sector by taking the relevant financial proxies into account. We use logarithm of liquid liabilities (M2) to nominal GDP (LLI), logarithm of commercial bank assets to commercial bank assets plus central bank assets (LBA), and logarithm of domestic credit to private sectors divided by nominal GDP (LCP) as the proxies for financial development. Using these three variables, we develop an index using principal component analysis that sufficiently deals with the problems of multicollinearity and over-parameterisation as an overall indicator of the level of financial development.
Table 1: Correlation Matrix between various financial development indicators

<table>
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<th>variables</th>
<th>LLI</th>
<th>LCP</th>
<th>LBA</th>
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<tbody>
<tr>
<td>LLI</td>
<td>1.000</td>
<td>0.725</td>
<td>0.708</td>
</tr>
<tr>
<td>LCP</td>
<td>0.725</td>
<td>1.000</td>
<td>0.806</td>
</tr>
<tr>
<td>LBA</td>
<td>0.708</td>
<td>0.806</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Source: authors

From Table 1, we observe that the three measures of financial development are highly correlated and as such we use the principal component analysis to reduce the three financial proxies into one principal component. Principal component analysis has traditionally been used to reduce a large set of correlated variables into a smaller set of uncorrelated variables, known as principal components (Ang and Mckibbin, 2007). This technique allows different measures of financial development to be expressed in terms of a single index. Theoretically, this new proxy for financial development (denoted FDI) is able to capture most of the information from the original dataset which consists of three financial development measures. Table 2 summarises the results obtained from the principal component analysis.

Table 2: Principal component analysis results

<table>
<thead>
<tr>
<th>Principal component</th>
<th>Eigenvalues</th>
<th>% of variance</th>
<th>cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.298</td>
<td>76.585</td>
<td>76.585</td>
</tr>
<tr>
<td>2</td>
<td>0.494</td>
<td>16.468</td>
<td>96.053</td>
</tr>
<tr>
<td>3</td>
<td>0.208</td>
<td>6.947</td>
<td>100.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Factor loading</th>
<th>communalities</th>
<th>Factor scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLI</td>
<td>-0.14</td>
<td>0.406</td>
<td>0.356</td>
</tr>
<tr>
<td>LPC</td>
<td>-0.21</td>
<td>0.370</td>
<td>0.324</td>
</tr>
<tr>
<td>LBA</td>
<td>-0.02</td>
<td>0.366</td>
<td>0.320</td>
</tr>
</tbody>
</table>

Source: Authors computation using SPSS.

The first Eigen values indicate that the first principal component explains about 76.59% of the standardized variance, the second principal component explains another 16.47% and the last principal component accounts for only 6.95% of the variation. The first eigenvector reveals that all variables are negatively correlated with the first principal component. The factor scores suggest that the individual contributions of LLI, LPC, and LBA to the standardised variance of the first principal component are 35.6%, 32.4% and 32 % respectively. We use these as the basis of weighting to construct a financial development index denoted FDI. The graph below shows the evolution of this index in Cameroon from 1973 to 2018.
Figure 2: Evolution of financial development index in Cameroon

Source: Authors

The graph indicates that the Cameroonian financial sector was more developed before the 1986 crisis that led to the reform of the sector. The crisis actually deteriorated the progresses registered in financial development. However, long after reforms were undertaken to render the sector more efficient in the collection and allocation of financial resources, and with the regain of the growth path by 1995, the financial development indicators regained upward trends though they have not yet met their levels of before the crisis.

Other variables

The other control variables considered in the analysis include: the quality of political institutions (Polity) captured by the polity variable of the polity IV database published by the World Bank. Macroeconomic stability is captured by Inflation measured by the GDP deflator and Economic growth by the growth rate of real GDP. These variables are obtained from the World Bank’s World Development Indicators.

RESULTS AND DISCUSSIONS

The Augmented Dickey Fuller test results for unit roots are first presented. These results are important as they have to determine whether the conditions for the use of the ARDL methodology are respected, that is, if the variables are not integrated of an order more than one and if the dependent variable is integrated of order one. If these conditions are not met, then another method should be used for the analysis. If the conditions are met then equation (3) is estimated using least squares and the results used to test for the existence of a long run relationship between the variables using the Wald test. If the long run relationship is ascertained, then the long and short run coefficients can now be estimated using equations (4) and (5). Specification or diagnosis tests
are then carried out for all the regressions using the CUSUM- Squared tests. This ascertains the stability of the models throughout the study period.

**Unit root test**

The unit root test results using the ADF test on the variables at levels and first difference are shown in the table 3:

**Table 3: ADF unit root test results**

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF test statistics</th>
<th>ADF test statistics</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Variables at levels</td>
<td>Variables at first difference</td>
<td></td>
</tr>
<tr>
<td>FDI</td>
<td>-0.159887</td>
<td>-2.201859**</td>
<td>I(1)</td>
</tr>
<tr>
<td>FLI</td>
<td>-1.667612</td>
<td>-2.172748**</td>
<td>I(1)</td>
</tr>
<tr>
<td>EG</td>
<td>-3.960945***</td>
<td>—</td>
<td>I(0)</td>
</tr>
<tr>
<td>INF</td>
<td>-4.424950***</td>
<td>—</td>
<td>I(0)</td>
</tr>
<tr>
<td>Polity</td>
<td>-1.135051</td>
<td>-6.591667***</td>
<td>I(1)</td>
</tr>
</tbody>
</table>

Note: *, **, *** indicate significance at 10%, 5%, and 1% respectively.

Source: Authors calculations using Eviews 8.0

The ADF test above shows that the variables are a mixture of I(0) and I(1) variables. This justifies the appropriateness of the ARDL approach in analysing the long and short run relationship between them. Also, the dependent variable is integrated of order one, this means that all the conditions for the application of this methodology are satisfied. We can now proceed to test for the existence of a cointegration relationship between the variables.

**Wald ARDL cointegration test**

The results of the estimation of equation (3) are first presented in table 4 before verifying the existence of the long run relationship through the Wald restriction test in table 5.
Table 4: Estimation Results of the Unrestricted Error Correction Model (Equation 3)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficients</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI(-1)</td>
<td>0.817468</td>
<td>20.14447</td>
</tr>
<tr>
<td></td>
<td>(0.040580)</td>
<td></td>
</tr>
<tr>
<td>FLI(-1)</td>
<td>0.011434</td>
<td>5.733242</td>
</tr>
<tr>
<td></td>
<td>(0.001994)</td>
<td></td>
</tr>
<tr>
<td>EG(-1)</td>
<td>-0.021861</td>
<td>-0.523933</td>
</tr>
<tr>
<td></td>
<td>(0.041726)</td>
<td></td>
</tr>
<tr>
<td>INF(-1)</td>
<td>0.002685</td>
<td>3.904441</td>
</tr>
<tr>
<td></td>
<td>(0.000688)</td>
<td></td>
</tr>
<tr>
<td>Polity(-1)</td>
<td>-0.034228</td>
<td>-8.294441</td>
</tr>
<tr>
<td></td>
<td>(0.004127)</td>
<td></td>
</tr>
<tr>
<td>∆FDI</td>
<td>0.000493</td>
<td>0.887318</td>
</tr>
<tr>
<td></td>
<td>(0.000556)</td>
<td></td>
</tr>
<tr>
<td>∆FLI</td>
<td>0.007468</td>
<td>1.869990</td>
</tr>
<tr>
<td></td>
<td>(0.003993)</td>
<td></td>
</tr>
<tr>
<td>∆EG</td>
<td>0.079179</td>
<td>0.419025</td>
</tr>
<tr>
<td></td>
<td>(0.188960)</td>
<td></td>
</tr>
<tr>
<td>∆INF</td>
<td>0.002644</td>
<td>5.930221</td>
</tr>
<tr>
<td></td>
<td>(0.000446)</td>
<td></td>
</tr>
<tr>
<td>∆POLITY</td>
<td>-0.013568</td>
<td>-3.108399</td>
</tr>
<tr>
<td></td>
<td>(0.004365)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>-0.085383</td>
<td>-0.765275</td>
</tr>
<tr>
<td></td>
<td>(0.111572)</td>
<td></td>
</tr>
</tbody>
</table>

Adjusted $R^2 = 0.984205$

F-stat = 198.3226

Prob F-Stat = 0.000000

Note: values in parentheses ( ) and brackets [ ] represent standard errors and t-statistics of the coefficients respectively.

Source: Authors calculations using Eviews 8.0

In Table 4, the probability of the F-statistics indicates that the model is globally significant. Also, Pesaran and Pesaran (1997) propose the use of the Cusum- squared (CUSUMQ) test to verify the stability of the cointegration relationship. The result of the test indicates that the model is stable.
throughout the period. The test of cointegration between the variables using the Wald test can therefore be performed on the model.

Table 5: Wald cointegration test results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower Bound Value</td>
<td>Upper Bound Value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I(0)</td>
<td>I(1)</td>
<td>I(0)</td>
</tr>
<tr>
<td>195.9***</td>
<td>6</td>
<td>1%</td>
<td>3.15</td>
<td>4.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5%</td>
<td>2.45</td>
<td>3.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10%</td>
<td>2.12</td>
<td>3.23</td>
</tr>
</tbody>
</table>

Note: *, **, *** indicate significance at 10%, 5%, and 1% respectively

Source: Authors using Eviews 8

The value of the test statistics (195.9) is far above the upper bound values at the 1% level of significance. This indicates the existence of a long run cointegration relationship between the variables. As the existence of the long run relationship has been ascertained we can now proceed to determine the short and long run coefficients of the relationship that exist between the variables.

Long-run coefficients

The long run coefficients of the variables are presented below.
Table 6: long-run coefficients

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.080331 (0.106632) [-0.753343]</td>
</tr>
<tr>
<td>FLI</td>
<td>0.394108** (0.172668) [2.282459]</td>
</tr>
<tr>
<td>EG</td>
<td>0.001188 (0.035209) [0.033748]</td>
</tr>
<tr>
<td>INF</td>
<td>0.406125** (0.177693) [2.285546]</td>
</tr>
<tr>
<td>POLITY</td>
<td>-0.018658*** (0.004453) [-4.190284]</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.982027</td>
</tr>
<tr>
<td>F-Statistics</td>
<td>305.4201***</td>
</tr>
</tbody>
</table>

Note: values in parentheses () and brackets [] represent standard errors and t-statistics of the coefficients respectively. *, **, *** indicate significance at 10%, 5%, and 1% respectively.

Source: Authors calculations using Eviews 8.0

From the Table 6, we observe that the model is globally significant at the 1% level of significance using the F-test. The model also has a good explanatory power as portrayed by an adjusted R-squared of 98.2%. Also, the CUSUMQ test indicates stability of the model throughout the study period.

Financial development is found to be significantly and positively affected by financial liberalisation and inflation; and significantly and negatively by polity. The coefficients associated with these variables are significant at the 5% level of significance for financial liberalisation and inflation and the 1% level for polity.

As concerns the effects of financial liberalisation and inflation which captured macroeconomic stability, the results are as predicted by theory. For polity which captures the democratisation process as well as the level of freedoms in the country, the result is contradictory to expectations but can be explained by the fact that the country had independence only in 1960 years and has so far known only two presidential regimes, indicating that things have not change much in the direction of democratisation and the respect of human rights. This is portrayed in its value on the polity2 scale which has remained negative. This means that, the system prevailing in the country is more autocratic than democratic and as such should normally be expected to adversely affect the development of the financial sector.
Short-run coefficient of ARDL

The short run coefficients are reported in table 6.

Table 6: Short-run coefficients

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dependent variable:</strong> ∆FDI</td>
<td></td>
</tr>
<tr>
<td><strong>Independent Variables</strong>:</td>
<td><strong>Coefficients</strong></td>
</tr>
<tr>
<td>C</td>
<td>0.002659 (0.002386) [1.114112]</td>
</tr>
<tr>
<td>∆FDI(-1)</td>
<td>0.791264*** (0.120870) [6.546388]</td>
</tr>
<tr>
<td>∆FLI</td>
<td>0.006837** (0.003255) [2.100421]</td>
</tr>
<tr>
<td>∆EG</td>
<td>0.039874 (0.086967) [0.458498]</td>
</tr>
<tr>
<td>∆INF</td>
<td>0.002502*** (0.000341) [7.328015]</td>
</tr>
<tr>
<td>∆POLITY</td>
<td>-0.010819*** (0.003424) [-3.159644]</td>
</tr>
<tr>
<td>∆POLITY (-1)</td>
<td>-0.022300*** (0.003356) [-6.643808]</td>
</tr>
<tr>
<td>ECT(-1)</td>
<td>-0.702271*** (0.191458) [-3.668018]</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.861110</td>
</tr>
<tr>
<td>F-Statistics</td>
<td>23.24971***</td>
</tr>
</tbody>
</table>

Note: values in parentheses ( ) and brackets [ ] represent standard errors and t-statistics of the coefficients respectively. *, **, *** indicate significance at 10%, 5%, and 1% respectively.

Source: Authors calculations using Eviews 8.0

The model is globally significant at the 1% level of significance. It also has a good explanatory power of 86% and is stable throughout the study period as ascertained by the CUSUM Squared test.

The coefficient of the error correction term (ECT) is negative, less than one and significant. This indicates the existence of an error correction mechanism which absorbs 70% of a shock or disturbance during the next period. It is this mechanism that ensures that in the long run the variables will converge to an equilibrium captured by the cointegration relationship. This is further proof of the existence of the long run relationship. In the short run, financial development
in Cameroon is still significantly and positively influenced by its past values, financial liberalisation and macroeconomic stability as captured by inflation. Also, polity and its lagged value negatively and significantly affect financial development in the short run.

CONCLUSIONS

The aim of this study was to investigate the effect of financial liberalisation on the development of the financial sector in Cameroon. To achieve this aim, we constructed a financial development index for Cameroon before employing the ARDL cointegration approach to analyse annual data for the period 1973 to 2018.

The results show that financial liberalisation and macroeconomic stability significantly and positively affect the development of the financial sector in Cameroon. Also, the level of democratisation was found to negatively affect financial development. As the level of democratisation captures the institutional quality of a country, this suggests that the country’s quality of institutions is very weak.

These results have far reaching policy implications in that any policy geared at fostering the development of the financial sector in Cameroon should take into consideration factors such as macroeconomic stability, democracy and institutional quality. Based on these, it is therefore recommended that in order to enhance the financial development benefits of financial liberalisation policies in Cameroon, measures should be taken to maintain a stable macroeconomic environment, build strong economic, legal and financial institutions as well as foster the democratisation process of the country.

REFERENCES


Narayan, P. K. (2004) Reformulating critical values for the bounds $F$ -statistics approach to cointegration: an application to the tourism demand model for Fiji, Department of Economics Discussion Papers No. 02/04, Monash University, Melbourne, Australia


