

Foreign Bank Entry and Economic Growth: Implication for Ethiopia from Sub-Saharan African Countries

Fetene Bogale¹ and Adem Feto^{2*}

¹Adama Science and Technology University, ²Arsi University, Ethiopia.

Abstract

The study provides a general overview of the banking environment and direct and indirect links between foreign bank entry and economic growth in Sub-Saharan African countries using descriptive statistics and Generalized Method of Moments dynamic panel system estimator. The descriptive evidence suggests that opened countries have better banking service access, depth and competition than restricted countries. Similarly, Ethiopia as one restricted country, performed very low in bank penetration, depth, efficiency and competitiveness as compared to banks opened in Sub-Saharan African countries. The two sets of regression equations are estimated for: (a) direct effect of foreign banks and (b) indirect effect of foreign banks on economic growth. A system Generalized Method of Moments estimation result for direct effect of foreign bank asset share shows that in each case, the sign of the foreign bank asset share is positive and statistically significant. These results are important to show that foreign banks play a significant role in improving economic growth and also foreign banks asset share indirectly increases economic growth through improving efficiency. However, the foreign banks asset share has showed negative sign on Z-score indicating that foreign bank share reduces economic growth indirectly through increasing banking instability in Sub-Saharan African countries such as Ethiopia. Thus, the results may suggest the policymakers to remove liberalization restrictions on foreign banks and to regulate them to be disciplined.

Keywords: Ethiopia, SSA, Foreign Bank Entry, Economic Growth, Efficiency, Stability, GMM estimator

1. Introduction

In recent decades, developed and developing countries increasingly have allowed banks to be foreign-owned. However, many African countries, to list a few: Ethiopia, Chad, Central Africa, Equatorial Guinea, Gabon, Liberia, Sierra Leone are

reluctant to open the banking sector to foreign investors. The role of foreign banks in developing countries has been hotly debated in the banking industry. International Monetary Fund and the World Trade Organization believe that banking sector integration spurs economic growth in developing countries. Various researchers also argue that foreign banks may have positive direct and indirect effects on economic growth of hosting countries both via direct effect and or the indirect effects on domestic banking sector (Claessens et al., 2001; Gelos and Roldos, 2004; Micco et al., 2004; Martinez-Peria and Mody, 2004; Bayraktar and Wang, 2006; Lehner and Schnitzer, 2008).

In a well opened economy, banks can be owned by foreign investors. Banks are defined as foreign-owned, if at least 51 percent of their shares are in the hands of foreigners. (Wu et al, 2010). Foreign banks, in fact, may influence long run economic growth directly and indirectly. By bringing additional capital, and facilitating risk management, foreign banks may directly boost capital accumulation and the efficiency of resource allocation in ways that accelerate long run economic growth. Foreign banks may also spur growth indirectly by intensifying competition. By increasing competition, foreign banks raise the overall level of banking sector efficiency. Increasing competition from foreign banks forces the domestic banks to push up their screening skills to the same level as the foreign competitors, which obviously leads domestic financial intermediaries to provide better services in risk sharing, information, and liquidity.

On the other hand, foreign banks may facilitate international capital flow, spur excessive borrowing, and overwhelm the capabilities of domestic regulators. In these ways, foreign banks would destabilize domestic economy and impede long-run economic growth. An important concern of foreign bank presence is the hit and run strategies of foreign banks; in other words, the tendency of foreign banks to leave foreign markets instantly in case of economic crises (Blomstrom and Kokko, 1997, Peek and Rosengren, 1997, 2000). Especially after the 2008s financial crisis,

concerns have been raised that foreign banks can be a source of contagion. When faced with capital or funding shocks at home, foreign banks might withdraw from cross-border banking activities to redirect lending at home. This can translate in a reduction of capital that parents lend to their foreign affiliates, which, in turn, can have a negative impact on the supply of credit by these affiliates in the host market.

In Sub-Saharan African (SSA) countries, the literature on the effect of foreign bank entry on economic growth is very small and with no clear-cut results. Such neglect is unfortunate because there are no clear-cut results on the effect of globalization of the banking sector on economic growth. Although acutely relevant for pending policy initiatives, there exists, surprisingly, little rigorous, methodological gap and inclusive results on cross-country empirical evidence on the relationship between foreign bank ownership and economic performance in SSA countries. Generally, given the reluctance of some African countries to open the bank sector, inconclusive results on the effect of opening the bank sector on economic growth, small volume literature and methodological gaps motivated an inquiry into the direct and indirect effects associated with opening the banking sector to economic growth of host countries in SSA.

In light of existing debates regarding the efficiency of liberalizing restrictions on foreign bank activity, this paper offers empirical evidence on the direct effect of foreign bank entry on economic growth, on banking sector efficiency, and on banking stability. It also investigates the indirect effect of foreign bank on economic growth, and draw implications to Ethiopia from the experience of foreign bank entry in SSA countries.

2. Materials and Methods

2.1. Data

The data set includes 30 SSA countries that opened the banking sector and 13 SSA countries that did otherwise. The 30 SSA countries that opened the banking sector include: Angola, Benin, Botswana, Burkina Faso, Burundi, Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Republic of the Congo, Ghana, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia. The 13 SSA countries that restricted the banking sector: Cape Verde, C.A. Republic, Chad, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Guinea -Bissau, Lesotho, Liberia, Sierra Leone and Somalia (Bankscope, 2018).

The BANKSCOPE database is the main source for bank-level variables such as net interest margin, total assets, overhead costs, and before tax income. Moreover, Bankscope contains detailed financial information of approximately 30,000 public and private banks in Europe, North America, Japan, and Russia (Bankscope, 2018). Other macroeconomic data are collected from World Development Indicators and International Monetary Fund (WB: WDI 2018 and IMF, 2018).

As has been mentioned earlier, banks are defined as foreign-owned if at least 51 percent of their shares are owned by foreign entities. In addition, their asset shares in total assets in the banking sector measure the share of foreign banks at the country level. The asset share of foreign banks and the number of banks included in each country are presented in Table 1. Our data set covers the years from 2000 to 2015. Since BANKSCOPE reports banking sector variables only for the most recent years,

it is not possible to conduct longer-term growth analysis. Thus, the focus, in the following sections is on the short-term economic growth.

2.2. Description of the Variables

The main variables used in this study as per the definition given by Mankiw (2013), Dornbusch et al., (2011) and Romer (2012) are listed as follows:

Real Gross Domestic Product (GDP): is a macroeconomic measure of the value of economic output adjusted for price changes (i.e. inflation or deflation).

Per capita GDP: A country's GDP per person. $\text{Per Capita GDP} = \frac{\text{GDP}}{\text{Population}}$,

where GDP is country's GDP for a particular period and population represent average population for the year.

Inflation: is a sustainable increase in the general or average price level of goods and service over a period of time.

Inflation Rate = $\frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} * 100$, where, CPI_t is this year consumer price index and CPI_{t-1} is previous year CPI.

Real interest rate: is the rate of interest an investor, saver or lender receives (or expects to receive) after allowing for inflation. It can be described by the Fisher equation: $r = i - \pi$, where, r denotes the real interest rate, i denotes the nominal interest rate, and let π denote the inflation rate (Fisher I. 1930).

Banking efficiency indicators: include net interest margin, before tax income (total assets), and overhead cost.

2.3. Model Specification

The aim of this paper is to investigate direct and indirect links between foreign bank entry and economic growth. GMM instrumental variable estimation method was applied in order to control endogeneity omitted variable bias, measurement error and

unobserved potential heterogeneity (Caselli et al., 1996 and Bond et al, 2001). In particular, a system GMM, developed by Arellano and Bover (1995), Blundell and Bond (1998) was found to reduce a small sample bias that characterizes the first-differenced GMM. Blundell and Bond (1997) show that this methodology improves both efficiency and consistency in Monte Carlo simulations. Hence, Bond et al., (2001) recommend system GMM estimators for consideration in empirical growth research. This econometric technique has been recently used in the growth literature as an alternative to cross-sectional estimators (Levine et al.,2000, Easterly and Levine, 1997, Chang et al., 2005). Thus, a system GMM approach was used in the study and the relevant results were considered as the most appropriate in the empirical work. The method estimated a system of equations, combining the regression equation in levels and in the first differences in order to reduce possible biases associated with estimating the regression equation in differences only. It was also noted that following the relevant literature, the following two criteria for model specification tests were used: First, the Sargan test of over-identification, and second, the test for second-order serial correlation AR (2) in the first-differences that detect autocorrelation in levels.

2.3.1. Direct Effect of Foreign Banks on Economic Growth

The GMM estimates used in this study was in line with Hansen, L. P. (1982). The direct effects of foreign banks on the economic growth are new, and they embrace better management techniques, technology, and services. They may also improve access to international markets, and help the development of ancillary institutions by improving the flow of information about borrowers. Thus, foreign banks may directly reduce firms' cost of borrowing, and increase the level of investment and the efficiency of the combination of labor and capital in production, and, in turn, the level of economic growth. However, these positive effects can be influenced by high inflation environment, risky economic and political society, and low investment.

Thus, the control variables are chosen according to their significance in determining growth and their potential effects on growth. They are macroeconomic stability, public infrastructure, bank efficiency, and banks stability variables. To apply GMM method, the following system of equations estimated:

$$Y_{it} - Y_{i,t-1} = \varphi_0 Y_{i,t-1} + \varphi_1 FBS_{i,t} + \varphi_n X_{i,t} + T_{i,t} + F_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$\Delta(Y_{it} - Y_{i,t-1}) = \varphi_0 \Delta Y_{i,t-1} + \varphi_1 \Delta FBS_{i,t} + \varphi_n \Delta X_{i,t} + T_{i,t} + F_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where i is the country index and t are is year index. T is the time dummies and F is the country dummies, and ε is the error term. The economic growth is measured as the log difference of GDP per capita growth in real terms $Y_{i,t} - Y_{i,t-1}$. The initial level of GDP per capita is introduced as the first explanatory variable to control for initial conditions. $FBS_{i,t}$ is the over-time asset share of foreign banks in each country. $X_{i,t}$ stands for control variables for other determinants of growth. These control variables include GDP per capita, initial GDP per capita, inflation, real interest rate, domestic credit provided by banking sector (% of GDP), mobile subscribers per (100,000 people) and banking efficiency indicators (margin net interest, pre-tax return, overhead costs).

2.3.2. Indirect Effect on Economic Growth: Efficiency and Stability

To investigate the indirect link between liberalization of the banking sector and economic growth, a hypothesis that the competition from foreign banks forces the domestic banks to cut their costs, improve their efficiency and increase stability, which, in turn, will promote economic growth was set. The model links banking sector openness and banking efficiency. Three different variables are used in controlling the efficiency of banking sector openness (Bayraktar and Wang, 2005, Unpublished Data). These are ratio of profits to total assets (before tax), overhead costs to total assets, and net interest margin. Thus, higher levels of these measures are interpreted as representing lower levels of efficiency. Holding other factors

constant, high profits and net interest margin may reflect an absence of rigorous competition; and large overhead costs may reflect a less efficient management and organization system. In addition, based on Demirgüç-Kunt and Derragiacen (1998), ratio of nonperforming assets to total banking system is used as proxy to banking stability. The effects of foreign bank share on bank efficiency and stability are estimated in the following equations, respectively.

Foreign Banks and Banking Efficiency

$$BEF_{i,t} = \gamma_0 FBS_{i,t} + \gamma_1 CV_{i,t} + T_{i,t} + F_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$\Delta(Y_{i,t} - Y_{i,t-1}) = \varphi_0 \Delta Y_{i,t-1} + \varphi_1 \Delta BEF_{i,t} + \varphi_2 BEF_{i,t} + \varphi_3 \Delta X_{i,t} + \Delta T_{i,t} + \Delta F_{i,t} + \Delta \varepsilon_{i,t} \quad (4)$$

Where equation (3) estimates the link between the asset share of foreign banks and efficiency of banking sector. $BEF_{i,t}$ includes the efficiency indicators -all in percent of total assets. $x_{i,t}$ are the control variables for macroeconomic and banking sector variables. The bank variables are non-interest earning assets, customer and short-term funding, tax in percentage of pre-tax profits and foreign bank share. The macroeconomic indicators are the initial level of GDP per capita, the growth rate of real GDP per capita, the inflation rate, the real interest rate, and the share of domestic credits by banking sector in percent of GDP.

Foreign Banks and Bank Stability

$$S_{i,t} = \gamma_0 FBS_{i,t} + \gamma_1 CV_{i,t} + T_{i,t} + F_{i,t} + \varepsilon_{i,t} \quad (5)$$

$$\Delta(Y_{i,t} - Y_{i,t-1}) = \varphi_0 \Delta Y_{i,t-1} + \varphi_1 \Delta S_{i,t} + \varphi_2 S_{i,t} + \varphi_3 \Delta X_{i,t} + \Delta T_{i,t} + \Delta F_{i,t} + \Delta \varepsilon_{i,t} \quad (6)$$

Where equation (5) estimates the link between the asset share of foreign banks and stability in banking sector. $S_{i,t}$ includes the stability indicator. Control variables are chosen based on theory of banking crises. The first group of control variables captures macroeconomic and international factors such as rate of inflation, growth rate of real GDP, the level of GDP per capita, trade balance and real short-term interest rate. The second set of control variables includes characteristics of banking system, such as vulnerability to sudden capital outflows (measured as M2 divided by

foreign exchange reserves, (Calvo, 1996), liquidity (measured by the ratio of loans to bank assets), exposure to the private sector (measured by the ratio of bank cash and reserves to bank assets), and credit.

To check the validity of the instruments used in estimating the equations, two specification tests have been introduced by Arellano and Bond (1991), and Arellano and Bover (1995). The first one is a Sargan test for over identifying restrictions. It tests the overall validity of instruments. The rejection of the null hypothesis means that instruments are not valid. The second test is for the null hypothesis that the differenced error term is not second-order serially correlated. The instruments are assumed to be valid if the null hypothesis is not rejected.

3. Results and Discussion

3.1. Descriptive Analysis: The Banking System in Opened and Restricted SSA

Our estimation of the foreign bank penetration level, based on total assets, varies among the sample countries. Table 1 shows the percentage of foreign banks among total banks and percentage of foreign bank asset among total bank assets in 30 selected SSA countries. On average, during our sample period (2000-2015), the lowest three countries are Mauritania, Nigeria and, Sudan (only 6%, 12% and 12%, respectively). While Madagascar, Mozambique, Benin and Cote d'Ivoire are shown to have the highest average foreign bank penetration level (100%, 98%, 93% and 93%, respectively).

Table 1: The mean Foreign Bank share and Foreign Bank Asset Share

Country	Foreign Bank share (%)	Foreign Bank Asset Share (%)	Country	Foreign Bank share (%)	Foreign Bank Asset Share (%)
Angola	48	52	Mauritius	66	60
Benin	83	93	Mozambique	88	98
Botswana	59	87	Namibia	44	56
Burkina Faso	93	89	Niger	83	71

Burundi	32	58	Nigeria	16	12
Cote d'Ivoire	71	93	Rwanda	35	35
Cameroon	65	76	Senegal	74	81
Congo, D. R.	66	60	Seychelles	37	61
Congo, R.	71	59	South Africa	20	23
Ghana	52	64	Sudan	17	12
Kenya	28	39	Swaziland	71	83
Madagascar	100	100	Tanzania	61	61
Malawi	30	32	Togo	16	31
Mali	50	41	Uganda	76	88
Mauritania	25	6	Zambia	77	89
Total				55	60

Source: authors' computation based on bank scope and GFID, 2018

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

3.1.1. Access to Bank Service

Bank penetration has remained low in Africa with less than a quarter of sub-Saharan Africa's population having access to a formal bank. This indicates that (i) there is less financial inclusion, particularly in low-income communities, and (ii) the degree to which private individuals can access financial services is limited. With only about 21% of the adult population having a bank account, SSA has the lowest level of financial penetrations. In other developing regions, such as Latin America and the Caribbean, the share is 34%; whereas in OECD countries the average is 90% (AfDB,

2015). Access to bank service in SSA countries has improved in recent years. Account penetration in these countries has recorded a remarkable increase of almost 20 percent between 2011 and 2014, although from a low base (20.5 percent of adult population).

Based on this research descriptive analysis (shown in Table 2), opened SSA countries have better banking service access than restricted SSA countries. In bank-opened countries, during 2000-2015, on average, 21% adults' have access to banks; on the other hand, in restricted countries only 12% adults have access to bank. Ethiopia, as a restricted country, registered very low performance in bank penetration during the said period- only 9% adults have access to a bank. Moreover, in restricted countries, only 3.4 ATMs provide banking service for 100,000 adults. However, in opened countries, about 12 ATMs provide banking service for 100,000 adults. Disappointingly, the provision of ATMs per 100,000 adults is only 0.2 for Ethiopia. Moreover, in bank opened countries, more firms (16%) have access to banks to finance their investment than firms in restricted countries (11%). As a restricted country, only 13% of firms in Ethiopia can access banks to finance their investment.

From the descriptive statistics, it can be understand that opening the door to foreign banks improves penetration of bank industry in the country. This might be because foreign banks come with financial innovation such as mobile banking, which provides an opportunity to reach consumers in remote areas where efficient transport infrastructure is lacking. Table 2 shows that in all proxies of bank access, opened countries have better bank access performance than restricted countries. The standard deviations of all indicators of bank access are higher between Ethiopia and opened SSA than Ethiopia and restricted SSA.

Table 2: Bank Access (2000-2015)

Country	ATMs per 100,000 adults	Firms using banks to finance investments (%)	Bank accounts per 1,000 adults	Bank branches per 100,000 adults	Small firms with a bank loan (%)
Restricted SSA	3.4	11.1	123.4	4.4	20.0
Ethiopia	0.2	13.5	93.9	1.4	21.4
Opened SSA	11.9	16.1	212.6	5.9	17.8
SD (Ethiopia VS Restricted SSA)	2.3	1.7	20.9	2.1	1.0
SD (Ethiopia VS opened SSA)	8.3	1.8	83.9	3.2	2.5
SD (Opened VS Restricted SSA)	6.01	3.54	63.07	1.06	1.56

Source: authors' computation based on bank scope and GFID, 2018

3.1.2. Bank Depth and Efficiency

The depth of financial development, an indicator of the extent to which agents are able to use financial markets for savings and investment decisions has a strong link with long-term economic growth as it enhances firms and businesses' ability to invest in long-term and risky initiatives. A common indicator of financial deepening is domestic credit to the private sector as a percentage of GDP. It captures claims on the private sector by deposit taking financial institutions related to economic activity and hence, reflects the role played by financial intermediaries in channeling savings to private sector investors. Higher domestic credit to the private sector is, therefore, indicative of the provision of productivity enhancing financial services (King and Levine, 1993). The banking sector in SSA has expanded steadily over the past decade. Helped by reform efforts (Kasekende et al, 2010), the depth and coverage of financial systems is measured by all the standard indicators of financial development, such as the ratios of private sector credit to GDP. AfDB (2015), however, shows that, on average, SSA countries continue to have a shallower

financial system than those in other developing regions of the world. When compared to many emerging market countries, SSA is characterized by a much lower level of financial deepening.

When we compare opened countries with restricted countries, the former performs far better than the latter. In opened countries, domestic credit to private sector to GDP is 23 percent. On the other hand, in restricted SSA countries the share of domestic credit to private sector to GDP is only 16 percent. In Ethiopia the share of domestic credit to private sector to GDP is 21 percent which is between opened and restricted SSA countries. Table 3 shows that in all proxies of bank depth, opened countries have better bank depth performance than restricted countries. This evidence reflects, in particular, the performance of bank opened SSA countries, recording an average ratio of private credit by deposit money banks to GDP as 19%; domestic credit to private sector to GDP is 23%; and ratio of bank deposits to GDP is 24%. The standard deviations of all indicators of bank access are higher between Ethiopia and opened SSA than Ethiopia and restricted SSA, except in one proxy that is liquid liabilities to GDP.

Table 3: Bank Depth (2000-2015)

Country	Private credit by deposit money banks to GDP (%)	Liquid liabilities to GDP (%)	Domestic credit to private sector of GDP (%)	Bank deposits to GDP (%)
Restricted SSA	10.02	31.89	15.82	18.93
Ethiopia	17.47	39.79	20.81	30.73
Opened SSA	19.20	29.05	22.48	24.41

SD (Restricted SSA VS Ethiopia)	5.27	5.59	3.53	8.34
SD (Opened SSA VS Ethiopia)	1.22	7.59	1.18	4.47
SD (Opened SSA VS Restricted)	6.49	2.01	4.71	3.87

Source: authors' computation based on bank scope and GFID, 2018

Three major indicators of efficiency: ratio of bank net interest margin, overhead costs to total assets, and return on assets before tax are higher in restricted SSA countries (6.83%, 5.79%, and 2.91%), respectively than bank opened countries (7.43%, 6.9%, and 3.54%) respectively. In Ethiopia net interest margin, overhead costs to total assets, and return on assets before tax are (4.08%, 2.16% and 3.55%), respectively. These results show that operational efficiency remains relatively low in restricted SSA countries, including Ethiopia, than opened SSA countries. As indicated by their high net margin, restricted SSA countries' banks may pass their high overhead costs on to their customers. The standard deviations of all indicators of bank efficiency variables are lower between Ethiopia and bank opened SSA than Ethiopia and restricted SSA. This evidence reflects, in particular, the performance of opened SSA countries, recording higher bank efficiencies than restricted SSA countries.

Table 4: Bank Efficiency (2000-2015)

Country	Bank net interest margin (%)	Bank overhead costs to total assets (%)	Bank return on assets (% , after tax)	Bank return on assets (% , before tax)
Restricted SSA	7.43	6.97	3.23	3.54
Ethiopia	4.08	2.16	2.62	3.55
Opened SSA	6.83	5.79	2.18	2.91
SD (Restricted SSA vs Ethiopia)	2.36	3.40	0.43	0.01
SD (Opened SSA vs Ethiopia)	1.94	2.57	0.31	0.45
SD (Opened vs restricted SSA)	0.42	0.83	0.74	0.45

Source: authors' computation based on bank scope and GFID, 2018

3.1.3. Banking competition

Banking systems in most SSA countries are characterized by high concentration, as measured by the share of banking assets held by the five largest banks (Gulde et al., 2006). Bank restructuring, privatization, and new entries reduced concentration ratios slightly from the late 1990s to 2005–11, but these remain high when compared with other developing countries.

Table 5 provides an overview of the competitiveness and ownership structure in the banking industries in bank opened SSA compared with restricted SSA countries. The Lerner index, Boone indicator, 5-bank asset concentration, bank credit to bank deposits (%) that captures bank competition are used. As shown in column 2 of Table 4, bank opened SSA's banking environment is more competitive than that of restricted countries. Bank opened countries have 0.28 Lerner index while restricted countries have 0.39 Lerner index which is far higher than the former. Ethiopia's banking environment is much less competitive than that of bank opened and restricted SSA countries. This is partly due to its closed policy to foreign investors and very late privatization of banking industry. Restricted SSA countries and Ethiopia have higher Lerner indices (0.30 and 0.50), signaling low competitive banking environment. Foreign banks in those regions also have zero share of total banking assets. In addition, bank opened SSA countries have lowest degree of asset concentration among the top 5 banks (86%). However, restricted countries, including Ethiopia, have a relatively low competition recorded high asset concentration among the top 5 banks (96%). From this, it can be concluded that foreign bank presence increases competition in the banking sector in SSA countries. But caution need to be taken here: perhaps, there are other regional differences (e.g., general development, and regulations) influencing the effect of foreign presence and assets concentration on competitiveness and efficiency, as hinted by Claessens and Horen (2014).

Table 5: Bank Monopoly (2000-2015).

Country	Lerner index	Boone indicator	5-bank asset concentration	Concentration (%)	Bank credit to bank Dep. (%)
Non-Opened SSA	0.39	-0.06	95.79	92.95	58.29
Ethiopia	0.50	-0.04	95.93	88.66	57.41
Opened SSA	0.28	-0.08	86.11	74.18	75.96
SD (Restricted SSA vs Ethiopia)	0.08	0.02	0.10	3.03	0.62
SD (Opened vs Ethiopia)	0.16	0.03	6.94	10.24	13.12
SD (Opened vs Restricted)	0.08	0.01	6.84	13.27	12.49

Source: authors' computation based on bank scope and GFID, 2018

3.1.4. Bank Soundness (Stability)

Table 6 shows data on bank stability of restricted bank and opened bank countries. From the data, can be observed that restricted countries have better financial soundness than bank opened countries in three indicators. However, opened countries have less non-performing loans (about 10%) than restricted countries (about 16%). Also, banking crises probability in opened countries is 0.01 which is far less than restricted countries banking crises probability (0.93).

Table 6: Banking Soundness

Country	Bank regulatory capital to risk-weighted assets (%)	Banking crisis dummy (1=banking crisis, 0=none)	Bank Z-score	Bank nonperforming loans to gross loans (%)	Bank capital to assets ratio (%)
Restricted SSA	20.75	0.93	13.69	15.6	12.56
Ethiopia	.	0.00	9.63	.	.
Opened SSA	17.60	0.01	10.3	9.98	10.59

			9		
SD (Restricted SSA Vs Ethiopia)	.	0.66	2.87	16.33	.
SD (Opened Vs Ethiopia)	.	0.01	0.53	15.40	.
SD (Opened Vs Restricted)	2.23	0.53	2.16	12.97	1.40

Source: authors' computation based on bank scope and GFID, 2018

3.2. Econometric Analysis

The two sets of regression equations are estimated for: (a) direct effect of foreign banks on economic growth, as specified in equation (1 and 2); indirect effect of foreign banks on economic growth, as specified in equations (3-6). A system GMM instrumental variable estimator is used in estimating coefficients.

3.2.1. Estimation of Direct Effect of Foreign Bank Entry on Economic Growth

In order to estimate the direct effect of foreign bank entry on economic growth, bank-specific data and data on foreign bank presence, and country specific variables are used to supplement the panel data set for this study. To control the macroeconomic environment, the growth rate of GDP per capita, and inflation are used as control variables. These variables are taken from the World Development Indicators of the World Bank.

Table 7: The Direct Effect of Foreign Bank Asset Share on GDP Per Capita Growth

Independent Variables	EFFICIENCY				STABILITY
	Only Foreign Bank	Bank net interest margin	Bank return on assets before tax	Bank overhead costs to total assets	Z-Score
Foreign bank assets to total bank assets (log)	0.33*** (0.003)	0.17** (0.049)	0.13 (0.657)	0.17* (0.096)	0.11 (0.307)
Macroeconomic variables					
L. Growth of real	-0.14***	-0.15***	-0.16***	-0.12***	-0.17***

GDP per capita (Log)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Initial GDP per capita (Log)	-6.58***	-5.49***	-6.31***	-7.48***	-6.63***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inflation (dev. from 1, in logs)	-0.35***	-0.28***	-0.29***	-0.29***	-0.27***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Mobil subscribers per 100000 (Log)	3.18***	2.72***	3.46***	3.83***	2.85***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Banking sector indicators					
Bank net interest margin (dev. from 1, in logs)		-0.34*			
		(0.077)			
Bank return on assets before tax (dev. from 1, in logs)			0.41***		
			(0.001)		
Bank overhead costs to total assets dev. from 1, in logs)				0.03	
				(0.878)	
Z-score (log)					2.67
					(0.283)
Number of instruments	34	35	35	35	35
Number of observations	446	429	429	429	431
Number of countries	30	30	30	30	30
Sargan Test- chi2	25.32596	22.87064	23.92747	23.23497	21.74243
	(0.5562)	(0.6919)	(0.6343)	(0.6723)	(0.7503)
AR(2)-Z	-1.3125	-1.3236	-1.3514	-1.0015	-1.3455
	(0.1894)	(0.1856)	(0.1766)	(0.3166)	(0.1785)

Source: authors' computation, 2018. *P-values* in parentheses: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The results for the direct link are given in Table 7. Five different regression equations are estimated in this group. The results are given in columns. In the second

column, the results without any efficiency indicator are reported. In the subsequent columns, three different types of efficiency indicators (net interest margin, before tax profits, overhead costs of domestic banks) and stability indicator results are given.

As the level of efficiency indicators increase, it is expected that the efficiency of the banking sector drops; this, in turn, slows down economic growth because capital accumulation would be restricted with a higher cost of borrowing. The coefficient of net interest margin has an expected negative sign, implying that the higher the level of net interest margin, the lower the level of growth. A one percent increase in net interest income as percentage of total assets reduces GDP per capita by 0.34 percent.

On the other hand, coefficient of banks' profit ratio and cost has an unexpected sign but cost coefficient is not statistically significant. But positive sign for banks' profit ratio may be expected if we take higher profits as an indicator of higher level of financial activities. In this case, higher growth means higher level of financial activity; consequently, higher profits for banks. Thus, the relationship between profits and growth can be positive. This result is consistent with Bayraktar and Wang (2006). Similarly, Z score has positive effect on GDP per capita growth of SSA countries, but it is not statistically significant.

In each case, the sign of the foreign bank asset share is positive and statistically significant (except when the Z-score is the stability indicator) after the efficiency level of banking sector and other macroeconomic variables are controlled. A one percent increase in foreign bank asset share to total banking assets increases GDP per capita growth by 0.33 percent if we do not control banking efficiency and stability indicators. If we control net interest margin or bank overhead costs, a one percent increase in foreign bank asset share to total banking assets increases GDP per capita growth by 0.17 percent. However, when we control bank return

(efficiency indicator) and Z-score (stability indicator), the effect of foreign bank asset share to total bank assets is not statistically significant.

These results are important to show that foreign banks play a statistically and economically significant direct role in improving the growth rate which emanates from raising efficiency of domestic banking sector. These direct effects can be derived from foreign banks' better expertise, know-how and experiences to identify potentially better borrowers and industry sectors, monitor loans more effectively, and establish corporate governance for efficient loan decisions (Demirguc Kunt et al., 1998)

The estimated coefficients of initial GDP per capita are negative and statistically significant. The sign of the indicator of public infrastructure, and mobile phone per 100,000 subscribers, has an expected positive sign, indicating a positive effect infrastructure on GDP per capita growth. The inflation rate, one of the most commonly used indicators of macroeconomic stability, is a negative and statistically significant determinant of growth, indicating a negative effect of price instability on growth. A one increase in inflation reduces GDP per capita growth by 0.35 if banking efficiency and stability indicators are controlled. If we control both efficiency and stability proxy variables, the result is consistent but a little bit less than the former result.

Finally, both test statistics support the model since the null hypothesis is not rejected in each case. The Sargan test indicates that the instruments are not correlated with error term, and the second order test, AR (2) shows that the error terms in the first difference regression equation do not exhibit any second-order serial correlation.

3.2.2. Estimation of Indirect Effect of Foreign Bank Entry on Economic Growth

i. Efficiency and Foreign Bank Entry in SSA

Applying the same econometric model and estimation method as Bayraktar and Wang (2006) did, the indirect link between the banking openness and economic growth is estimated. Indirect link between bank openness and GDP per capita growth works through improving the efficiency of banking sector and improving bank stability. To capture the link between foreign bank entry and growth through efficiency, two regression equations (3) and (4) are estimated: (3) the effect of foreign bank entry on the efficiency of SSA countries' banks, and (4) the effect of banking efficiency on economic growth of SSA countries. The estimated coefficients for regression equation (3) are given in Table 8. In column (2-4), a different efficiency indicator is taken as a dependent variable. Foreign bank entry is expected to improve the efficiency level of domestic banks by reducing costs, profits, and net interest margins and is also expected to improve stability.

Table 8: The Effect of Foreign Bank on Efficiency

Independent variables	Bank net interest margin	Bank return on assets before tax	Bank overhead costs to total assets
L. Bank net interest margin (dev. from 1, in logs)	0.37*** (0.000)		
L. Bank return on assets before tax (dev. from 1, in logs)		0.24*** (0.000)	
L. Bank overhead cost (dev. from 1, in logs)			0.53*** (0.000)
Foreign bank assets among total bank (log)	-0.03* (0.065)	-0.11*** (0.001)	0.12*** (0.000)

Bank cost to income ratio (dev from 1, log)	-0.49*** (0.000)	-0.58*** (0.000)	0.42*** (0.008)
Tax rate percent of profit	-0.06 (0.661)	-1.29*** (0.000)	-0.16*** (0.002)
Inflation (dev. from 1, in logs)	0.03*** (0.000)	0.03* (0.092)	0.03 (0.155)
Initial real GDP per capita (Log)	-0.60** (0.020)	0.52 (0.314)	-0.25** (0.018)
Domestic credit to private sector	-0.78*** (0.000)	-1.01 (0.125)	-0.71*** (0.000)
Real interest rate (dev. from, log)	0.04*** (0.000)	0.02 (0.238)	0.02 (0.117)
GDP per capita growth	-0.00 (0.154)	0.01*** (0.001)	-0.01*** (0.003)
Number of instruments	30	30	30
Number of observations	286	286	286
Number of countries	29	29	29
Sargan Test- chi2	18.90566 (0.5280)	18.72366 (0.5398)	19.93883 (0.4618)
AR(2)-Z	1.2723 (0.2033)	-1.236 (0.2165)	.14521 (0.8845)

Source: authors' computation, 2018. *P-values* in parentheses: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The test statistics supports the empirical model and instrumental variables used in the estimation process since the null hypothesis is not rejected in each case. Table 8 shows that the net margin and return on bank assets are negatively related to foreign bank assets share as expected, indicating that the efficiency rises with a higher asset share of foreign banks. If foreign banks' asset share goes up by one percent, the net margin of SSA banks falls by 0.03 percent. Similarly, as foreign banks' asset share goes up by one percent, return on assets before tax falls by 0.11 percent.

However, the results in Table 8 suggest that in SSA countries, banks' costs are positively associated with foreign bank entry. If foreign banks' asset share goes up by one percent, the overhead costs of SSA banks increases by 0.12 percent. The result is consistent with Claessens and Lee (2003), and Bayraktar and Wang (2006). This is due to increase in domestic banks' costs as they invest in modern banking techniques and practices – as long as the number of foreign bank share increases (Claessens and Lee, 2003). In addition, as the competitive pressure increases among more foreign banks with higher market shares, domestic banks lose their market power, and they have to reduce their costs to become more efficient in keeping market shares. It also puts pressure on wages, thereby reducing their costs (Demirguc Kunt et al., 1998).

The estimated coefficients of initial GDP per capita are negative and statistically significant in all efficiency variables (except return before tax). This sign is expected because a decreasing GDP growth indicates a poorer credit quality and loan defaults, and may reduce the efficiency of banks (Flamini et al. 2009). The result suggests a negative relationship between growth and net margin. The availability of domestic credits and a measure of financial depth improves the efficiency of domestic banks. If private sector access to domestic credit from banks goes up by one percent, the net margin, bank return on assets before tax and overhead costs to total assets of SSA banks falls by 0.78, 1.01, and 0.71 percent, respectively. This shows that as domestic credit to private firms increases, efficiency of SSA the banking sector improves. If inflation goes up by one percent, the net margin, bank return on assets before tax, and overhead costs to total assets of SSA banks increases by 0.03 percent. This indicates that inflation increases, efficiency of SSA banking sector falls by 0.03 percent. Similarly, if real interest rate rises by 1 percent, the net margin, bank return on assets before tax, and overhead costs to total assets of SSA banks

increases by 0.04, 0.02 and 0.02 percent, respectively. This confirms that increase in inflation and real interest rate, drops the efficiency of the bank in SSA countries.

ii. Foreign Bank Entry and Stability

Table 9: The Effect of Foreign Bank on Stability

Independent variables	Only Z-score	Bank net interest margin	Bank return on assets before tax	Bank overhead costs to total assets
L. log z-score	0.81*** (0.000)	0.41 (0.379)	0.38 (0.389)	0.81* (0.082)
Inflation (dev. from 1, in logs)	0.02** (0.037)	0.02** (0.023)	0.02** (0.025)	0.02** (0.020)
Foreign bank assets among total banks	-0.02*** (0.003)	-0.01** (0.024)	-0.03*** (0.000)	-0.03*** (0.000)
GDP per capita growth	-0.00 (0.612)	-0.00 (0.429)	-0.00 (0.547)	-0.00 (0.206)
Trade balance (dev. from 1, log)	0.04*** (0.000)	0.02* (0.053)	0.02 (0.154)	0.03** (0.047)
Log Liquid assets to deposits and short-term fund	0.09 (0.378)	0.10 (0.355)	0.00 (0.999)	0.12 (0.372)
Log broad money to total reserves ratio	0.02 (0.266)	0.16 (0.110)	0.03* (0.057)	0.03** (0.016)
Real interest rate (dev. from 1 log)	0.01 (0.183)	0.00 (0.604)	0.01 (0.233)	0.01 (0.217)
Mobile cellular subscription sper100, 000	0.13*** (0.001)	0.13** (0.012)	0.17** (0.030)	0.19** (0.020)
Bank net interest margin dev from 1, log		0.11** (0.017)		
Bank return on assets before tax (dev from 1, log)			0.04*** (0.001)	
Bank overhead costs to total assets (dev. from 1, log)				0.03 (0.133)

Number of instruments	38	39	40	30
Number of observations	284	284	284	286
Number of countries	22	22	22	29
Sargan Test- chi2		12.49842 (0.9921)	13.45781 (0.9860)	12.9376 (0.9896)
AR(2)-Z	-1.1321 (0.2576)	-1.2332 (0.2175)	-1.2985 (0.1941)	-1.1321 (0.2576)

Source: authors' computation, 2018. *P-values* in parentheses: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The role of foreign banks with respect to banking stability has been a huge topic on the policy and research agenda since the beginning of the global financial crisis. The effect of foreign banks has no clear-cut result. Table 9 shows that the foreign banks asset share has negative sign on Z-score without controlling efficiency indicators and with controlling efficiency indicators, indicating that the stability falls with a higher asset share of foreign banks. If foreign banks asset share goes up by one percent, banking Z-score falls by 0.02 percent. Similarly, if foreign bank asset share rises by 1 percent the banking Z-score of SSA countries, (controlling net margin only, bank return on assets before tax only, and overhead costs to total assets only) falls by 0.01, 0.03 and 0.03 percent, respectively. This confirms that increase in foreign bank asset share increases instability in the banking sector in SSA countries.

On the other hand, high inflation, and high real interest rate as macroeconomic instability signals have expected positive sign on banking Z-score. If inflation goes up by one percent, the banking Z-score increases by 0.02 percent. This implies that as inflation increases, stability of SSA banking sector falls by 0.02 percent. When banking efficiency variables are controlled, as foreign bank asset share rises by 1 percent, the banking Z-score of SSA countries rises by 0.02 percent in all alternatives. This explains that as inflation increases, stability of SSA banking

sector falls by 0.02 percent when banking efficiency variables are controlled. Similarly, if real interest rate rises by 1 percent banking Z-score raises by 0.01 percent in SSA countries with and without controlling efficiency variables. This confirms that an increase in inflation and real interest rate reduces banking stability of SSA countries.

iii. Bank Efficiency, Stability and GDP Per Capita Growth

In the second step, the link between efficiency and stability variables and growth is estimated. The results are given in Table 10. The estimated coefficients are consistent with the results in Table. Thus, the findings show that the results are solid. It is an expected result given the fact that the only missing explanatory variable in Table 10 is the share of foreign banks in the banking sector. The net interest margin has a negative effect on growth, indicating that a higher efficiency may improve GDP per capita growth. SSA banks' costs are positively associated with GDP per capita growth. This may be explained by the spillover effects between foreign and domestic banks. As the domestic banks may invest in new practices and technologies, their costs increase in the short term. In turn, the investment on new technologies, staff training, improving the operation of the bank will improve the GDP per capita growth. As was the case in Table 7, higher profits indicate higher economic growth. This would be an expected sign if higher profits are taken as evidence of more financial activity.

The test statistics also supports the empirical model since the null hypothesis is not rejected. Overall, the results support the presence of an indirect link between foreign bank entry and growth.

Table 10: The indirect effect foreign bank asset share on economic growth

Independent Variables	EFFICIENCY			STABILITY
	Bank net interest margin	Bank return on assets before tax	Bank overhead costs to total assets	Z-Score stability proxy
L.GDP Per capita growth	-0.14*** (0.000)	-0.14*** (0.000)	-0.16*** (0.000)	-0.17*** (0.000)
Initial GDP per capita (Log)	-6.08*** (0.000)	-6.12*** (0.000)	-6.23*** (0.000)	-7.61*** (0.000)
Inflation (dev. from 1, in logs)	-0.25*** (0.001)	-0.26*** (0.001)	-0.29*** (0.000)	-0.26*** (0.000)
Mobil subscribers per 10000 (Log)	3.65*** (0.000)	3.65*** (0.000)	3.63*** (0.000)	3.74*** (0.000)
Bank net interest margin (dev. from 1, in logs)	-0.33* (0.075)			
Bank return on assets before tax (dev. from 1, in logs)		0.12 (0.360)		
Bank overhead costs to total assets (dev. from 1, in logs)			0.39*** (0.000)	
Log z-score				4.40** (0.013)
Number of observations	429	429	429	431
Number of countries	30	30	30	30
Number of instruments	34	34	34	33
Sargan Test- chi2	25.33142 (0.5559)	25.73376 (0.5334)	25.04087 (0.5722)	25.78638 (0.5305)
AR(2)-Z	-1.2945 (0.1955)	-1.2149 (0.2244)	-1.3862 (0.1657)	1.3899 (0.1646)

Source: authors' computation, 2018. *p*-values in parentheses: * *p*<0.1, ** *p*<0.05, *** *p*<0.01.

4. Conclusion

This study provides an overview of the banking environment using descriptive statistics. GMM dynamic panel system estimator was employed to investigate the direct and indirect links between foreign bank entry and economic growth in SSA countries. The descriptive evidence suggests that bank opened SSA countries have better banking service access, depth, stability and competition than bank restricted SSA countries. Disappointingly, Ethiopia as a bank restricted country showed very low performance in bank penetration, depth, efficiency and competitiveness as compared to bank opened SSA countries.

A system GMM instrumental variable estimator provides two sets of regression equations which are direct and indirect effect of foreign banks on economic growth. A system GMM estimation result for direct effect of foreign bank asset share shows that in each case, the sign of the foreign bank asset share is positive and statistically significant (except the stability indicator) after the efficiency level of banking sector and other macroeconomic variables are controlled. These results are important to show that foreign banks play a statistically and economically significant direct role in improving the growth rate through raising efficiency.

Similarly, indirect estimation has two steps to investigate the effect of foreign bank asset share on economic growth. The first step is estimation of foreign asset share on efficiency and stability variables; and the results shows that the net margin and return on bank assets are negatively related to foreign bank assets share as expected, indicating that the efficiency rises with a higher asset share of foreign banks. However, bank costs are positively associated with foreign bank entry. This is due to increase in domestic banks' costs as they invest in modern banking techniques and practices, and as long as the number of foreign bank shares increases. In addition, as

the competitive pressure increases against more foreign banks with higher market shares, domestic banks lose their market power and they have to reduce their costs to become more efficient in keeping market shares. It also puts pressure on wages, thereby, reducing their costs. The availability of domestic credits and financial depth, improves the efficiency of banks. The foreign banks asset share has negative sign on Z-score without controlling efficiency indicators; while with controlling the indicators, stability falls with a higher asset share of foreign banks. Therefore, increase in foreign bank asset share reduces banking sector stability in SSA countries.

In the second step, the link between efficiency and stability variables, and growth is estimated. Here also, the findings show that the results are unequivocal. The net interest margin has a negative effect on growth, indicating that a higher efficiency may improve GDP per capita growth. However, SSA banks' costs are positively associated with GDP per capita growth. This is due to domestic banks' investment in new practices and technologies. As a result of the investment on new technologies, staff training, and improving the operation of the bank will improve the GDP per capita growth. Similarly, higher profits indicate higher economic growth. This would be an expected sign if higher profits are taken as evidence of more financial activity.

Generally, descriptive and econometric regression results show the importance of opening banking sector in Ethiopia and other SSA countries. The empirical results support the issue that greater foreign bank improves economic growth directly and indirectly through improving efficiency. However, foreign bank entry will reduce economic growth indirectly via increasing bank fragility. Thus, the results may suggest that policy makers remove liberalization restrictions on foreign banks and regulate them to be disciplined.

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