Liberalizing Financial Sector in Ethiopia: Constraints, Consequences and Policy Issues[1]

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Abstract

This paper was instigated to examine the constraints, consequences, and policy issues of the intended financial sector liberalization process in Ethiopia. Primary data from financial sector operators and secondary data from National Bank of Ethiopia, IMF and the WB were employed to achieve the objectives of the study. Descriptive and econometric approaches were used to analyse the data and the results revealed that Ethiopian financial sector performance is not satisfactory. The liberalization process can be effective if implemented sequentially within a stable macroeconomy; in both the long run and the short run. The policy will also improve economic growth directly and indirectly by improving efficiency. However, it may reduce economic growth indirectly by increasing bank fragility. In nut shell, the intended financial sector's liberalization is expected to bring both benefits and costs to individual firms and the country as a whole. The benefits may include speeding up foreign direct investment, reducing the population to financial sector ratio; lowering lending interest rates; economies of scale; improving consumer and mortgage credit; and ensuring a more stable source of credit. While the negative consequences of liberalization may include a loss of macroeconomic stability and biased credit provision, causing small businesses to face credit shortages, less mobilizing of domestic capital, capital flow volatility. Therefore, the government should design strong prudential regulations, and strengthen institutional capacity to implement sequential financial sector reform.

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1.   Introduction

It is widely believed that financial liberalization is an essential part of the financial sector's development process, particularly in developing countries. The argument supporting financial liberalization goes back to McKinnon's (1973) and Shaw's (1973) paradigms. They argue that government intervention in the financial sector distorts the financial market, depresses savings, and leads to inefficient investment. The World Bank and IMF have endorsed this paradigm and prescribed for most developing countries as part of structural adjustment programs. Since the 1980s, many developing countries have begun to implement financial liberalization schemes.

Even though Ethiopia also adopted the structural adjustment program (SAPS) and achieved rapid financial sector growth, the sector is still underdeveloped and characterized by low competition, high concentration, and low inclusion (WB, 2019). The performance of Ethiopia's financial sector on many financial metrics, including the number of banking branches, percent of adults who have an account with formal financial institutions, ATMs per 100,000 adults, depositors and creditors for 1,000 adults and mobile banking, is substantially behind the average Sub-Saharan African countries and neighbouring countries. In 2014, only 34.8% percent of adults had an account with formal financial institutions, less than the SSA average of 42.6% (Global Findex, 2017). In the same year, 82% of adults have an account in Kenya, while account ownership stands at 50% in Rwanda. In 2016, mobile banking per 100,000 adults in SSA, Kenya and Rwanda was 24, 57, and 13 percent, respectively, compared to only 1 percent in Ethiopia (WB, 2017). The insurance and Microfinance penetration rate also remains low in Ethiopia, at around 0.4% and 4%, respectively (WB, 2017).

There is also a huge investment-saving gap. According to the National Bank of Ethiopia (2019/20) report, investment as a percentage of GDP was 30.4% during 2019/20, while the growth in the domestic saving rate was only 20.9%. Due to this huge investment saving gap, public investment has been financed by tapping external financing, keeping government consumption low, and deploying heterodox mechanisms such as controlled interest rates and financial repression (World Bank, 2019).

Even though a series of financial sector reforms have been introduced since 1994, Ethiopia's financial sectors remain closed to foreign ownership and have no capital market. Over the past decades, it has been operating under a financial repression framework used by the government to manage its monetary and foreign

exchange policy and finance large infrastructure projects and state-owned enterprises. Although one can observe a strong growth and revival of the private sector since partial liberalization in 1994; yet, the state-owned banks seem to dominate the industry.

Currently, the Ethiopian government is considering liberalizing its financial sector as part of its financial development strategy. It is unquestionable that the move by the government of Ethiopia to liberalize its financial sector is a critical policy decision that needs to be supported by empirical pieces of evidence, but little has been known as to the possible impacts of opening up the financial sector. Therefore, this research aims at providing research evidence to policymakers and scholars by examining constraints, consequences, and policy issues associated with Ethiopia's financial sector liberalization.

2. Empirical Review

There are many empirical studies in support of this argument. For instance, Demirgüç-Kunt et al. (1998) and Akinsola and Odhiambo (2017) concluded that foreign bank entry accelerated the domestic banking sector's efficiency. Morgan and Yoshino (2017) indicate that opening the financial sector to foreign ownership leads to greater financial inclusion. Romānova et al.'s (2018) study also suggest that opening the financial sector promotes competitiveness, innovation, and new product development. Private ownership participation will increase operational efficiency (Dong et al., 2014).

Moreover, the presence of foreign banks improves domestic banks' risk management capabilities (Lensink & Hermes, 2004). Levine et al. (2000) revealed that greater financial intermediation development positively affected economic growth. Porta et al., 2002 investigated the ownership structure of banks in 92 countries and found that higher government ownership of banks resulted in lower per capita GDP growth. They also found that higher government ownership of banks was associated with slower subsequent financial sector development and lower productivity growth.

In contrast, researchers have found a negative correlation between foreign bank participation and banking sector outreach (Detragiache et al., 2008; Bech et al., 2007; Cull & Peria, 2010). Detragiache et al. (2008) found a negative correlation between foreign bank participation and banking sector outreach using cross-sectional data from 2003 to 2008 for 18 countries. They argue that a decline is observed in loans, deposits, and several branches due to the greater presence of foreign banks in

a country. Studies by Bruno and Hauswald (2014) and Beck et al. (2018) found that foreign banks' credit is skewed to large firms so the entry will harm financial inclusion.

3.   Data and Research Methodology
3.1.   Population of the study

The entire financial institutions of Ethiopia, which were well established and started operations before 2018, are the population of this study. At the end of 2018/2020, there were 18 banks (16 private and 2 public), 18 insurance companies (one public and 17 private), and 41 microfinance institutions registered (only 30 are operational) at the National Bank of Ethiopia (with 11 public, 13 private, and 17 NGOs). Thus, out of 30, we have considered 19 MFIs (2 public, 1 NGO, and 16 private microfinance institutions) whose head offices are operating in Addis Ababa.

3.2.   Data collection method

The primary data was collected from the head offices of financial institutions through a structured questionnaire .In addition, we used unstructured questionnaires to collect primary data from National Bank senior managers. Secondary data were also used to supplement the primary data. It covers from 1994 -2020 for the banking sector, 1996-2020 for the insurance sector, and 2010-2020 for the microfinance sector. The main sources of the data were the NBE, IMF and WB.

3.3.   Methods of data analyses

Quantitative and qualitative data analysis methods were adopted to enable a more complete and comprehensive analysis. The qualitative analysis helps investigate operators' perception about the existing financial market performance and policy, expected competition, benefits and losses of opening the financial sector to foreign operators. Descriptive statistics (frequency, percentage and the mean) were used to explore the relative position of domestic financial institutions. Finally, econometric approach has been used to examine the expected effects of financial

liberalization in Ethiopia. Total factor productivity can be examined with the following model[5]

$$Y_t = AK_t^{\alpha} \tag{1}$$

Where at time t, Y_t denotes the aggregate, K_t is the investment, while A denotes total factor productivity growth (TFP). Given that TFP is endogenously determined, the endogenous growth literature argues that financial development and bank competition affect growth through capital accumulation and the TFP channel. This channel suggests that an efficient financial system affects growth by facilitating the adoption of modern technology to boost the development of knowledge and technology intensive industries.

$$A = F \text{ (Gcf, HCI, FStab, Fc, FLI, Inf, Ef, FivMob)} \tag{2}$$

By substituting equation (2) in to equation (1), we obtain

$$Y_t = Gcf_t^{\alpha_1} HCI_t^{\alpha_2} FStab_t^{\alpha_3} FC_t^{\alpha_4} FLI_t^{\alpha_5} Inf_t^{\alpha_6} Ef_t^{\alpha_7} Fivmob_t^{\alpha_8} \tag{3}$$

By log transformation of equation (3), we obtain:

$$
\begin{aligned}
LnY_t = {} & \alpha_0 + \alpha_1 LnGcf_t + \alpha_2 LnHCI_t + \alpha_3 LnFStab_t + \alpha_4 LnFC_t + \\
& \alpha_5 LnFLI_t + \alpha_6 LnInf_t + \alpha_7 LnEf_t + \alpha_8 LnFivmob_t + F_{i,t} + T_{i,t} + \varepsilon_t
\end{aligned} \tag{4}
$$

The coefficients α_1-α_8 are elasticities of their respective variables, α_0 is the constant component, t denotes time, ε is the error term and $T_{i,t}$ is a time-fixed effect. Where, Y, Gcf, HCI, FStab, FC, FLI, Inf, Ef, and Fivmob represent real gross domestic product per capita, a ratio of gross capital formation to GDP, human capital index, financial stability, financial competition, financial liberalization index (proxied by the deposit interest rate), inflation rate, financial efficiency index and financial innovations which mobile subscribers represent. Financial stability (Z score=k+μ/σ, where k is equity capital and reserve as a percent of total assets, μ is

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[5] Based Bayraktar and Wang (2008) model specifications and including other more relevant variables for Ethiopia.

average net income as a percent of total assets, and σ is the standard deviation of return on assets as an indicator of return volatility) respectively.

4. Discussion and Analysis[6]
4.1. The relative position of Ethiopia's financial institution

This section assessed available financial development indicators in Ethiopia and two other countries from the three continents (Africa, Asia, and Latin America).We considered the economic diversity (low income and high income) and the financial sector's globalization. Indicators of financial sector development, such as access, depth, efficiency, profitability, competition, and stability were considered.

4.1.1. *Access to financial institutions in Ethiopia*

We used different indicators to investigate the relative position of Ethiopia's financial access to other countries such as ATMs per 100,000 adults, small firms with a bank loan, etc. Except for a few indicators, Ethiopia's access to financial products and services remains below the SSA average. For example, ATMs per 100,000 adults (0.17-Ethiopia, 10.69- SSA and 7.58-Kenya and electronic payments in percent (5.27-Ethiopia, 21.55-SSA and 71.32- Kenya).

Table 1 shows that bank globalized SSA have better banking service access than non-globalized SSA. For instance, on average (from 2005-to 2019), 21 percent of adults have access to bank accounts in countries that open their banking sectors to foreign investors. In contrast, only 12 percent of adults have access to bank accounts in SSA countries, which blocked foreign investors' entry into the banking sector. More people made digital payments in bank-globalized SSA countries (26.62%) than that did not open (14.47%).

Overall, Table 1 shows that allowing foreign banks entry into the domestic banking sector might improve the penetration of the banking industry in the country. This might be because foreign banks come with financial innovations especially for the unbanked society.

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[6] A summary of data used for econometric analysis was attached in the appendix section.

Table 1: Financial access

Country	Bank branches per 100,000 adults	Firms with a bank loan or line of credit (%)	Small firms with a bank loan or line of credit (%)	Saved at a financial institution (% age 15+)	Received wages: into a financial institution account (% age 15+)	Credit card ownership (% age 15+)	Made digital payments in the past year (% age 15	Paid utility bills: using a mobile phone (% age 15+)	ATMs per 100,000 adults	Loans requiring collateral (%)
Ethiopia	1.46	24.30	16.75	19.96	2.65	0.33	5.27	0.05	0.17	85.55
Botswana	8.67	38.60	30.80	20.34	17.00	9.28	35.92	6.70	31.07	73.75
Kenya	4.58	31.63	25.10	26.75	14.97	5.46	71.32	27.83	7.58	80.50
Indonesia	12.65	22.80	20.90	21.13	7.73	1.51	21.58	1.83	32.35	82.00
South Korea	17.27	.	.	51.65	43.34	58.70	87.04	7.97	260.64	.
Argentina	13.26	43.70	32.00	5.02	16.58	24.16	31.58	1.59	31.62	57.80
Chile	16.18	74.35	68.55	16.18	30.37	26.93	51.72	5.18	54.59	49.00
SSA- G	6.65	22.26	16.76	12.62	8.54	4.03	26.62	5.10	14.03	83.23
SSA –NG	6.16	16.28	12.81	8.83	4.02	2.25	16.47	4.63	7.34	80.98
SSA	6.41	19.27	14.79	10.73	6.28	3.14	21.55	4.87	10.69	82.11
High Income	33.20	47.30	42.51	42.27	46.17	41.99	79.27	8.24	87.41	70.46
Middle income	14.85	34.68	28.58	13.38	14.63	8.28	28.02	3.05	29.80	78.24
Low Income	2.66	18.73	14.24	7.32	3.52	1.70	15.03	3.06	2.68	85.42

Source: Authors' calculations from World Bank global financial development database, 2022

Note*: SSAG represents bank globalized Sub-Saharan African countries, and SSANG is: Non-bank globalized Sub-Saharan African country.*

4.1.2. *Depth of financial institutions in Ethiopia*

A common indicator of financial deepening is domestic credit to the private sector as a percentage of GDP. Other indicators used to measure the depth of the financial sector in the economy are listed in Table 2.

Table 2: Financial depth

Country	Deposit money banks' assets to GDP (%)	Nonbank financial institutions' assets to GDP (%)	Financial system deposits to GDP (%)	Life insurance premium volume to GDP (%)	Nonlife insurance premium volume to GDP (%)	Insurance company assets to GDP (%)	Domestic credit to private sector (% of GDP)	Stock market capitalization to GDP (%)
Ethiopia	**28.42**	**3.80**	**31.84**	**0.03**	**0.46**	**0.81**	**18.89**	**-**
Botswana	30.56	4.48	42.00	2.14	0.89	16.71	28.53	-
Kenya	42.65		36.25	0.90	1.20	6.63	30.55	33.31
Indonesia	35.80	4.83	34.68	1.04	0.42	3.74	34.97	41.98
South Korea	118.41	7.22	91.36	6.51	3.96	51.30	132.76	84.86
Argentina	22.38	0.45	19.69	0.45	1.78	3.47	13.53	13.11
Chile	77.06	36.65	49.30	2.46	1.28	19.23	102.23	103.04
SSAG	32.21	23.37	29.65	0.98	0.76	7.53	24.41	63.99
SSNG	44.20	1.35	34.33	0.32	0.54	2.81	14.90	-
SSA	38.205	12.36	31.99	0.65	0.65	5.17	19.655	63.99
High Income	33.20	47.30	42.51	42.27	46.17	41.99	79.27	8.24
Middle income	14.85	34.68	28.58	13.38	14.63	8.28	28.02	3.05
Low Income	2.66	18.73	14.24	7.32	3.52	1.70	15.03	3.06

Source: Authors' calculations from World Bank global financial development database, 2022

As Table 2 shows, the financial depth in Ethiopia from 2005-2020 was very poor. For instance, on average, from 2005-2020, domestic credit to the private sector (percentage of GDP) was about 18.89 percent, which is less than the SSA's average (21.17%) and high-income countries (79.27%). The descriptive evidence for SSA countries shows that countries that open their banking sector to foreign ownership have higher bank service depth (24.41 percent) than countries that block their banking sector to foreign ownership (14.90 percent).

4.1.3. *Efficiency of a financial institution in Ethiopia*

The financial efficiency ratio is a quick and easy measure of a bank's ability to turn resources into revenue. The lower (higher) the ratio, the better, and an increase in the efficiency (inefficiency) ratio indicates either increasing costs or decreasing

revenues. Table 3 shows indicators of bank efficiency, such as bank net interest margin (%) and bank overhead costs to total assets (%). These indicators are lower in the Ethiopian banking sector than in SSA countries. The result shows operational efficiency remains relatively satisfactory compared to SSA's average.

Table 3: Efficiency

Country	Bank net interest margin (%)	Bank lending-deposit spread	Bank overhead costs to total assets (%)
Ethiopia	**5.08**	**3.42**	**3.53**
Botswana	5.22	6.29	3.53
Kenya	8.21	7.78	5.64
Indonesia	5.76	5.02	3.27
South Korea	2.07	1.68	1.68
Argentina	6.58	6.76	6.13
Chile	4.06	3.27	2.45
SSA-G	6.35	10.33	5.44
SSA-NG	7.20	11.16	5.75
SSA	6.78	10.75	5.60
High Income	2.43	4.39	1.92
Middle income	5.35	7.79	4.05
Low Income	6.95	14.22	5.83

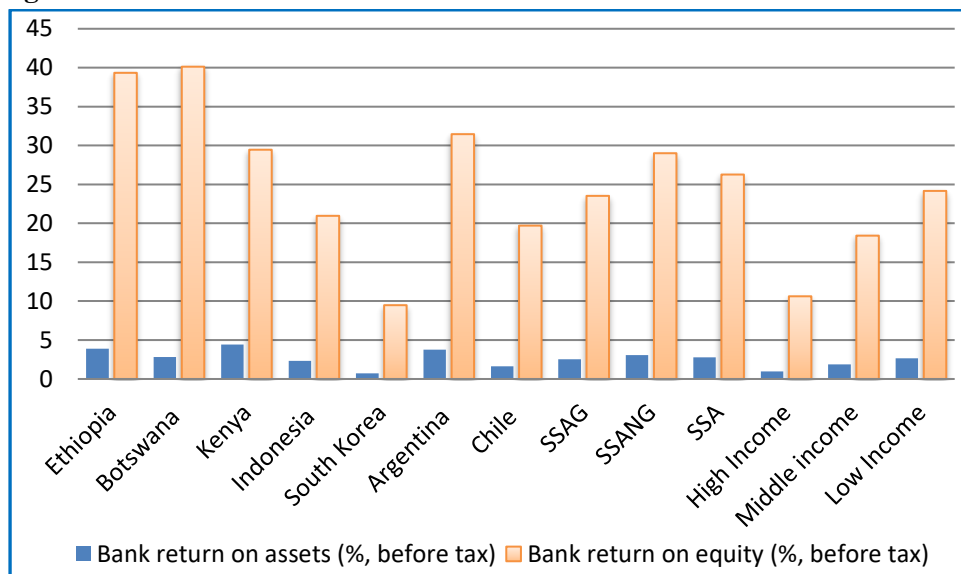Source: Authors' calculations from World Bank global financial development database, 2022

Table 3 also shows that all indicators are higher in non-bank globalized SSA countries than in bank-globalized SSA from 2005-2020. The result is consistent with empirical evidences (Bayraktar and Wang, 2004 and Hunegnaw and Adem, 2021). However, Hermes and Nhung (2010) revealed that the gains from liberalization were highest for countries that liberalized their stock markets first and the weakest relationship between the performance indicators and the foreign bank is obtained for the countries which liberalized their capital account first.

4.1.4. *Profitability of financial institutions*

Bank profitability is proxied by return on assets (ROA) and return on equity (ROE). Figure 1 shows that the Ethiopian banking sector profitability is higher than the SSA average. This study also shows that non-bank globalized SSA countries' profitability is higher than bank-globalized SSA countries. Figure 1 also shows that Ethiopia's rate of return (ROA and ROE) is higher than higher-income countries' average, which has the potential to come and invest in Ethiopia if our banking system

is liberalized. This shows that the opening up of the financial sector will attract many financial institutions to Ethiopia to come and enjoy this higher return.

Figure 1: Rate of return

Source: Authors' calculations from World Bank global financial development database, 2022

4.1.5. *Stability of financial institutions in Ethiopia*

The Z-score measures the probability of bank insolvency (bank stability). Table 4 indicates that Ethiopia has better financial soundness (bank Z-score) than the SSA average and the SSA countries that open their banking sector to foreign investors have better financial soundness than those that do not allow foreign ownership of their banking sector. However, this descriptive result is inconsistent with empirical evidences (Demirgüç-Kunt and Detragiache, 2000; De Haas and Van Lelyveld, 2014 and Dwumfour, 2017).

Table 4: Financial sector stability

	Bank Z-score	Bank nonperforming loans to gross loans (%)	Bank regulatory capital to risk-weighted assets	Liquid assets to deposits and short term funding (%)	Provisions to nonperforming loans (%)	Banking crisis dummy (1=banking crisis, 0=none)
Ethiopia	11.98	-		38.83	-	0.00
Botswana	6.73	4.23	19.56	26.13	57.60	0.00
Kenya	20.06	7.45	19.32	24.05	38.81	0.00
Indonesia	4.09	3.13	19.83	26.75	54.34	0.00
South Korea	11.26	0.58	13.95	13.58	70.59	0.00
Argentina	7.35	2.74	16.16	33.09	130.78	0.00
Chile	8.79	1.81	13.26	18.22	133.21	0.00
SSAG	14.39	8.43	18.34	34.64	58.14	0.01
SSNG	14.68	13.02	20.64	49.45	68.93	0.02
SSA	14.54	10.73	19.49	42.05	63.54	0.02
High Income	16.51	4.54	16.26	33.45	58.22	0.08
Middle income	16.97	6.84	17.77	34.78	78.57	0.01
Low Income	13.02	11.65	20.83	45.11	64.80	0.01

Source: Authors' calculations from World Bank global financial development database, 2022

4.1.6. *Banking competition*

Table 5 provides an overview of the competitiveness and in the banking industries in Ethiopia and shows that banking environment is more competitive than the SSA countries on average. However, Ethiopia's banking environment is less competitive than SSA countries that open banking sector to foreign investors. This might be due to its close-door policy to foreign investors.

Table 5: Bank competition

Country	3-Bank concentration (%)	5-bank assets concentration
Ethiopia	72.28	86.10
Botswana	79.65	96.09
Kenya	50.95	66.96
Indonesia	36.40	48.59
South Korea	67.67	81.99
Argentina	51.04	64.32
Chile	68.92	85.41
SSA	80.44	88.35
SSG	70.96	83.94
SSNG	86.93	92.33
High Income	75.30	84.78
Middle income	67.26	77.64
Low Income	78.05	88.28

Source: Authors' calculations from World Bank global financial development database, 2022

Table 5 shows that bank-globalized SSA countries (83.94%) have lower asset concentration among the top 5 banks than the non-globalized SSA countries (92.33%). From this result, we can conclude that foreign bank presence increases bank competition in the SSA countries' banking sector, but we need to take caution here. Perhaps, other regional differences (for example, general development and regulations) influence the effect of foreign presence and asset concentration on competitiveness and efficiency, as hinted by Claessens and Horen (2014).

Table 5 shows that the overall performance of Ethiopia's financial sector was not satisfactory during the 2005-2020 periods, at least compared to the African average. The result is worst compared to advanced markets. Moreover, bank-globalized SSA countries' overall financial performance was better than non-bank globalized ones.

Table 6: Overall financial sector development

Country	FD Index	FI Access	FI Depth	FI Efficiency	FI Index	FM Access	FM Depth	FM Efficiency	FM Index
Ethiopia	**0.11**	**0.02**	**0.05**	**0.73**	**0.21**	**0.00**	**0.02**		**0.01**
LIC	0.12	0.11	0.07	0.51	0.21	0.01	0.04	0.01	0.02
Adv. Markets	0.59	0.63	0.58	0.63	0.67	0.47	0.49	0.49	0.49
SSAG	0.17	0.12	0.14	0.56	0.26	0.15	0.09	0.14	0.07
SSNG	0.10	0.10	0.06	0.46	0.18	0.00	0.04		0.01

Source: Authors' calculations from World Bank global financial development database, 2022.

4.2. Consequences of financial sector liberalization in Ethiopia

Hence, Ethiopia does not open the financial sector to foreign operators; we can use proxies for liberalization such as interest rate liberalization, efficiency, stability, and competitiveness. We used interest liberalization as a direct proxy for liberalization and other variables, such as efficiency and stability, as an indirect proxy for financial liberation. To control for the macroeconomic variables, the GDP per capita, gross capital formation, human capital index, and inflation rate were used as control variables. The estimation was made for the short-run and long-run effects of financial liberalization. Before estimating the long-run effect, the long-run relationship among variables was checked using the ARDL bound procedure. Table 7 shows the computed F-statistics and critical values at 5 percent. If the statistic lies between the bounds, the test is inconclusive. The null hypothesis of no level effect is rejected if it is above the upper bound. If it is below the lower bound, the null hypothesis of no level effect cannot be rejected. In this estimation, F statistics fall above the upper bounds of critical values at the 5 percent significance level. This result indicates the existence of cointegration among variables.

i. *Long-run effect*

Table 7 shows that financial liberalization (deposit interest rate) positively affects gross domestic product per capita in the long run. A 1 percent increase in the financial liberation rate (deposit interest rate) increases GDP per capita growth by 0.048 percent but it is not statistically significant. Table 7 shows that the inefficiency variable (EFR) is negatively related to gross domestic product per capita (GDPPC), indicating that when the inefficiency of the banking sector increases by 1 percent, the gross domestic product reduces by 0.044 percent. Many empirical studies (Claessens et al., 2001; Bayraktar and Wang, 2005 and Hunegnaw and Adem, 2021) showed that an increase in foreign bank share reduces domestic banking inefficiency

by reducing costs and net interest margins. This result shows that opening the banking sector to the global market may improve economic growth indirectly by reducing banking sector inefficiency.

Another variable of interest, the Z-score as a stability indicator, positively affects the GDP per capita growth. Table 7 shows that as banking stability (the Bank-Z score) increases by 1 percent, the gross domestic product increases by 0.117 percent in the long run, which is statistically significant. Many theoretical and empirical studies agree that when foreign banks' asset share increases in the banking sector, instability increases (Kasman and Kasman, 2015; Mulyaningsih et al., 2015; Demirgüç-Kunt and Detragiache, 2001; De Haas and Van Lelyveld (2014; 2017; and Dwumfour, 2017) .The result may imply that when the banking sector is opened to global operators, banking instability may increase, and gross domestic product per capita will be harmed. Thus, opening the banking sector to foreign owners will indirectly reduce stability and GDP growth through this channel.

Table 7: Estimated long run coefficients

ARDL(1,0,1,0,0,1,0,0,1) selected based on Schwarz Bayesian Criterion
Dependent variable is GDPPC
29 observations were used for estimation from 1991 to 2019

Regressors[7]	Coefficient	Standard Error	Prob
GCFGDP	.219	.057	.001
STAB	.117	.042	.013
HC	.507	.099	.000
FC	-.610	.098	.000
INF	-.037	.009	.001
FLI	.048	.039	.241
EFR	-.044	.012	.002
FIVMOB	.046	.011	.001
INPT	8.991	.568	.000

Testing for the existence of a level relationship among the variables in the ARDL model

F-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
5.9249	2.8474	4.4581	2.3323	3.7400

Source: Authors' calculation based on World Bank development indicators and financial
development indicators and IMF Data, 2022

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[7] Where GDDPC is gross domestic product per capita (constant 2015 US$); GCFGDP is the share of gross capital formation (% of GDP); STAB is the Bank Z-score proxy for bank stability, HC is the human capital index; Fc represents bank deposits to GDP ratio as a proxy to competition, INF represent inflation rate; FLI represents deposit interest rate; EFR represents efficiency ratio, FIVMOB represents Mobile subscriber per 100 adults.

In the long run, coefficients of control variables such as mobile bank subscription (FIVMOB), inflation rate (INF), human capital (HC), and gross capital formation to GDP ratio (GCFGDP) were found to be statistically significant. As expected, the gross capital formation to GDP ratio (GCFGDP) coefficient is positive and statistically significant and a 1-percentage point increase in gross capital formation ratio to GDP might increase GDP per capita by approximately 0.219 percent. Similarly, human capital index (HC) has an expected positive sign, indicating that a 1 percent increase in the human capital increases GDP per capita by 0.507 percent. The indicator of financial innovation (mobile phone subscribers) also has positive sign.

On the other hand, high inflation rates as signals of macroeconomic instability have an expected negative impact on Ethiopia's gross domestic product per capita (GDPPC). If inflation goes up by one percent, the GDPPC of Ethiopia falls by 0.037.

ii.   *Short-run effect*

Table 8 shows the short-run coefficient and coefficient on ECT. Our error correction system is well-behaved and has a robust long-term relationship. The negative sign of the coefficient on ECT ensures that the series is non-explosive so that long-run equilibrium can be attained.

Table 8: Error correction representation

ARDL (1,0,1,0,0,1,0,0,1) selected based on Schwarz Bayesian Criterion

The dependent variable is Dgdppc

29 observations used for estimation from 1991 to 2019

Regressor	Coefficient	Standard Error	Prob
dGCFGDP	.114	.031	.001
dSTAB	.007	.016	.654
dHC	.264	.061	.000
dFC	-.317	.061	.000
dINF	-.010	.004	.010
dFLI	.025	.019	.206
dEFR	-.023	.008	.007
dFIVMOB	.014	.008	.081
ecm(-1)	-.520	.058	.000

Source: Authors' calculation based on World Bank development indicators and financial development indicators and IMF Data, 2022

The ECT coefficient is −0.520. The value shows a deviation of GDP per capita from long-run equilibrium because the shock from last year is corrected by approximately 52% in the current year. The finding indicates a relatively slow pace of adjustment or convergence to equilibrium.

The short-run elasticities of efficiency and the indirect proxies of financial liberalization to GDPPC, were statistically significant, but the direct proxy for financial liberalization (deposit interest) is not statistically significant. Thus, financial liberalization may improve GDPPC through increased efficiency in the short run. It may reduce GDPPC by reducing financial stability, such as banking fragility, but it is not statistically significant.

Generally, the empirical results in this research support that opening the financial sector to the global market may have both costs and benefits for the Ethiopian economy in both short run and long run. Foreign operators' entry into the financial sector may improve economic growth directly and indirectly by improving efficiency. However, the entry will reduce economic growth indirectly via increasing bank fragility.

Table 9 shows diagnostic test results. The $R2$ and R2 are goodness of fit measures, which reasonably suggest a good fit and for heteroscedasticity test, Breusch-Pagan test was employed. The test result shows that we cannot reject the null hypothesis: "the nonexistence of heteroscedasticity. Finally, Breusch-Godfrey serial correlation LM($X2H$) test results show the absence of serial correlation problem at a 5% significance level". The model also passed the normality Jarque Bera test at 5 percent significance.

Table 9: Diagnostic Tests

Test Statistics	LM Version	F Version
A: Serial Correlation	CHSQ(1)=5.8440[.016]	F(1,15)=3.7856[.071]
B: Functional Form	CHSQ(1)=1.0541[.305]	F(1,15)=.56577[.464]
C: Normality	CHSQ (2)=1.9086[.385]	Not applicable
D: Heteroscedasticity	CHSQ(1)=2.0296[.154]	F(1,27)=2.0318[.165]

A: Lagrange multiplier test of residual serial correlation

B: Ramsey's RESET test using the square of the fitted values

C: Based on a test of skewness and kurtosis of residuals

D: Based on the regression of squared residuals on squared fitted values

Source: Authors' calculation based on World Bank development indicators and financial development indicators and IMF Data, 2022
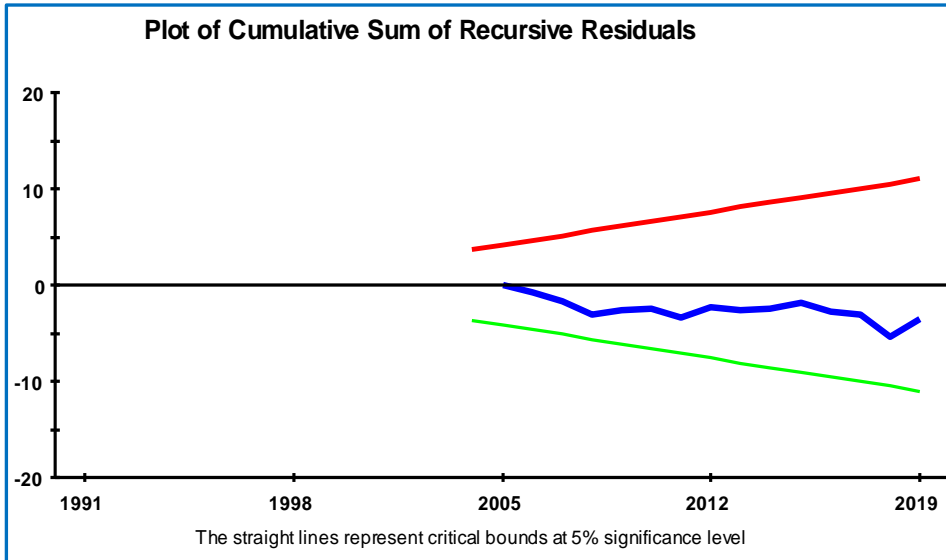
Figure 2: Model Stability Test

Plot of Cumulative Sum of Recursive Residuals

The straight lines represent critical bounds at 5% significance level

Figure 2 shows the straight lines representing critical bonds at a 5 percent significance level. The CUSUM plot does not cross the critical bounds, shows the model is stable.

4.3.   Operators' perceptions on financial sector performance and policy

4.3.1.   The Background of financial institutions

We surveyed 51 firms in the financial industry in Ethiopia, of which 16 were banks, 16 were insurance companies, and 19 were microfinance institutions. Forty five (90%) of these firms are privately owned, while the remaining belong to the public (6%), NGO (2%), and public-private partnership (2%) ownership. The average age of financial institutions is 20 years[8].

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[8] With regard to individual respondents representing financial institutions, 98% of the individual respondents have attained minimum bachelor's degree. The average age of the individual respondents was 42 years. In addition, the individual respondents have been working in the financial industry for 14 years on average.

Table 10: Background of financial institutions

Backgrounds		N	%
	Bank	16	31.4
	Insurance	16	31.4
Type of Financial Sector	Micro Finance	19	37.3
	Total	51	100.0
	Public	3	6.0
	Private	45	90.0
Ownership type	NGO	1	2.0
	Public-Private Partnership	1	2.0
	Total	50	100.0
Average Year of Establishment		20	20

Source: Authors' calculation based on primary data survey, 2022

4.3.2. *Financial operators' perceptions on performance*

As can be seen in Table 11, financial operators generally perceive the current status of the Ethiopian financial sector as inefficient, less competitive, unstable, less innovative, undiversified, not inclusive, and poorly capable. Scholars believe if the financial sector performs poorly in above indicators, the cost of liberalization would be higher than its benefits for domestic firms. In other words, this result implies that the firms in the financial sector are not yet ready to welcome the liberalization policy.

Table 11: Operators' perceptions of Ethiopia's financial sector and policy

	Mean	St. Deviation	N	Max	Min
Efficiency	2.55	.76	51	4.75	1.00
Competition	2.65	.58	51	4.00	1.00
Stability	2.65	.77	51	5.00	1.50
Innovation and diversification	3.07	.73	51	4.50	1.00
Inclusiveness	2.36	1.06	51	5.00	1.00
Capability	2.79	.87	51	5.00	1.00

Source: Authors' calculation based on primary data survey, 2022.

4.3.3. *Financial sector operators' perception on policy*

As can be seen from Table 12, only 39 percent of respondents either strongly disagreed or disagreed that the National Bank of Ethiopia has the capability required

to supervise the financial system, while about 24 percent of them were indifferent. This implies that many respondents perceive that NBE Ethiopia lacks the supervision capability that the financial system demands. Similarly, about 50 percent of the respondents perceived that NBE's operations are not free from political interventions, while only 20 percent perceived the opposite. It is believed that the autonomy of the regulatory body is vital for efficient and effective financial system management.

Table 12: Operators' perceptions on financial sector policy

No		Scale	N	Percent
1	Currently, National bank of Ethiopia has a required capability to supervise the Ethiopian Financial system	Strongly Disagree	5	9.8
		Disagree	15	29.4
		Neutral	12	23.5
		Agree	18	35.3
		Strongly Agree	1	2.0
		Total	51	100.0
2	Ethiopian Financial system regulation should be relaxed	Strongly Disagree	2	3.9
		Disagree	9	17.6
		Neutral	9	17.6
		Agree	23	45.1
		Strongly Agree	8	15.7
		Total	51	100.0
3	The national bank of Ethiopia operates free from political interventions	Strongly Disagree	8	16.0
		Disagree	17	34.0
		Neutral	13	26.0
		Agree	7	14.0
		Strongly Agree	5	10.0
		Total	50	100.0
4	Share of Private ownership should be increased in Ethiopia's financial sector	Strongly Disagree	0	0.0
		Disagree	2	3.9

			Neutral	10	19.6
			Agree	22	43.1
			Strongly Agree	17	33.3
			Total	51	100.0
5	It is better if foreign owners participate in the Ethiopian financial sector with limited share		Strongly Disagree	2	3.9
			Disagree	3	5.9
			Neutral	4	7.8
			Agree	29	56.9
			Strongly Agree	13	25.5
			Total	51	100.0
6	It is better if foreign owners participate in the Ethiopian financial sector without any limitation		Strongly Disagree	16	31.4
			Disagree	22	43.1
			Neutral	3	5.9
			Agree	6	11.8
			Strongly Agree	4	7.8
			Total	51	100.0

Source: Authors' calculation based on primary data survey, 2022

Furthermore, 76 percent of respondents believed that the share of private firms in Ethiopia's current financial sector should be increased. Similarly, about 82% perceived that the share of foreign banks in the current financial sector, if ever allowed, should be limited. Finally, about 75 percent of participants perceived that foreign participation in Ethiopia's financial sector should not be without restrictions. The findings suggest that the current policy guiding the financial sector needs to be revised; the National Bank of Ethiopia lacks political independence, the share of private ownership should be increased; the share of foreign ownership in the financial sector should be to a limited extent, and there should be some restrictions in allowing foreigners to operate in the country's financial systems.

Finally, we asked our respondents to rate their perception on the importance of strict supervision and regulation for the current financial system. About 74 percent of the respondents agreed that strict supervision and regulation are essential for the current financial system. The survey shows that banks and microfinance institutions prefer more strict supervision and regulation than the insurance sector.

Table 13: Regulation and supervision of the financial sector

			N	Percent
	Bank	No	4	25.0
		Yes	12	75.0
	Insurance	No	8	50.0
		Yes	8	50.0
Sector	Micro Finance	No	1	5.6
		Yes	17	94.4
	Total	No	13	26.0
		Yes	37	74.0

Source: Authors' calculation based on primary data survey, 2022

Respondents also identified the following major challenges in the process of regulation and supervision; regulatory body has limited capability to closely supervise and regulate financial system; government hampers fair competition; increasing incidence of corrupt and unethical behaviors in the financial sector; no or little participation of financial actors in process of designing policies, regulations, and directives that govern the financial sector; poor and inconsistent implementation of existing directives and regulations across board; seldom use of appropriate technology in the process of supervision and regulation; politically motivated and frequent changes in directives of the NBE, which make the regulatory environment

unpredictable; directives, regulations and supervision are not up to the global standard; supervisory efforts focus on operational issues instead of focusing on strategic issues and many directives are more prohibitive than enabling business activities in the sector.

4.3.4. *Inclusiveness, diversification and innovations of financial sector*

We asked our respondents to rate the inclusiveness of Ethiopia's financial sector and 68 percent of the respondents rated the inclusiveness of Ethiopia's financial sector as low or very low. More specifically, of those who reported low or very low, about 21 percent were banks, about 21 percent were insurance companies, and 26 percent were from microfinance institutions.

Table 14: Inclusiveness of Ethiopian financial sector

	How do you rate the inclusiveness of Ethiopian Financial Sector?									
	Very-Low		**Low**		**Medium**		**High**		**Very-High**	
	N	**Percent**	**N**	**Percent**	**N**	**Percent**	**N**	**Percent**	**N**	**Percent**
Bank	3	6.4	7	14.9	5	10.6	1	2.1	0	0.0
Insurance	6	12.8	4	8.5	3	6.4	1	2.1	0	0.0
Micro Finance	5	10.6	7	14.9	5	10.6	0	0.0	0	0.0
Total	14	29.8	18	38.3	13	27.7	2	4.3	0	0.0

Source: Authors' calculation based on primary data survey, 2022

The provision of customer-based, diversified and innovative financial products is crucial to competing in the post-liberalization era, which is expected to be much more competitive. To this end, we asked banks, insurance companies, and microfinance institutions to list the financial products and innovations they currently provide to their respective customers. The result shows that Ethiopian financial institutions' products are currently limited to basic financial products and do not adopt innovations (e-commerce, e-marketing, biometric identifications and remote data processing)[9]. Finally, understanding the major challenges hindering the inclusiveness, innovations and diversification practices of financial institutions in Ethiopia has been identified by respondents, absence of competition, highly scattered rural population, poor infrastructures (internet, power, and roads), low income and

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[9] See details in Annex 2-4

high level of inflation, insecurity in remote areas of the country, limited capacity of the financial institutions (technology and expertise), poor strategic leadership, low financial literacy and awareness, collateral-based credit provision, unattractive saving rate and unpredictable directives and restrictive regulations of the government (National Bank of Ethiopia).

4.3.5. *Sequences of the liberalization process*

To know in what order activities should be done to effectively liberalize the financial sector, we identified five major activities related to the liberalization process and asked our respondents to rank the order of these activities. Table 15 shows as opening up the secondary financial market was ranked first, followed by the liberalization of capital accounts. This finding is in line with the government's steps because the government plans to open the stock market before liberalizing the financial sector to foreign operators.

Table 15: Sequences of the liberalization process

No.	Activities	Mean	Rank
1	Opening of capital market	4.0	1st
2	Liberalization of capital account (offshore borrowing and multiple exchange rate market)	3.0	2nd
3	Liberalization of regulations on reserve ratio and interest rate	2.8	3rd
4	Liberalization of domestic financial sector to foreign investors	2.7	4th
5	Privatization of existing public financial institution	2.6	5th

Source: Authors' calculation based on primary data survey, 2022
Note: (weight: first=5; second=4; third =3; fourth=2; fifth=1)

Similarly, experience of successful economies (South Korea, Indonesia, Botswana and others) and failure economies (Argentina, Chile other South American Countries) in liberalization process tells us, maintaining macroeconomic stability, strengthening capability (NBE, financial institutions), strengthening supervision, and following an appropriate sequence of the financial sector as precondition for liberalization. Based on successful economies experiences, there is no uniformity sequence of liberalization across the board; rather, depending on the context. However, according to Patabendige & Senarath (2014) and Mohammed (2017), the optimal sequence of financial sector liberalization would follow the following order.

Table 16: Optimal sequence of liberalization

Sequence	Sequence 01 ⟹	Sequence 02 ⟹	Sequence 03
	Liberalizing of the real sector	Liberalization of the domestic financial sector	Liberalization of the external financial sector
Instruments	• Fiscal discipline (stability) • Elimination of implicit and explicit taxes and subsidy • Privatization	• Privatization of the domestic financial system • Creation/reactivation of the money market	• Liberalization of capital account • Creation of foreign currency exchange market and currency convertibility • elimination of control on capital movement

4.3.6. The consequence of financial sector liberalization

To identify the potential benefits and costs of the liberalization policy, we surveyed banks, insurance companies, and MFIs operating in Ethiopia. Accordingly, 98 percent of the respondents agreed that liberalization of the Ethiopian financial sector would benefit by bringing new skills, technology, innovations, and systems; 94 percent of the respondents agreed that financial liberalization improves the sector's service quality; 93 percent of the respondents agreed that financial liberalization may benefit from improving the financial system's infrastructure and 90 percent of the respondents agreed that liberalization makes the financial sector more competitive

Liberalization of the financial system also has costs. As can be seen from the Table 18, about 80 percent agreed that financial liberalization would lead to a fall in the market share of the domestic financial sector; 68 percent agreed that financial liberalization would weaken the local financial institutions; ; about 58 percent agreed that financial liberalization would cause sudden capital outflow; 57 percent agreed that biased credit provision to big firms, 42 percent agreed that financial sector liberalization would trigger supervisory difficulty and about 41 percent agreed that foreign financial firms would promote home country exports instead of domestic exports.

Table 17: Potential benefits of financial sector liberalization

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Bring new skills, technology, innovations and system	0	0.0	0	0.0	1	2.0	17	34.0	32	64.0
Improve financial supervision and regulation	3	6.0	6	12.0	9	18.0	23	46.0	9	18.0
Development of financial markets	1	2.0	2	4.0	9	18.0	20	40.0	18	36.0
Improvement of the financial system's infrastructure	0	0.0	1	2.0	3	6.1	26	53.1	19	38.8
Enhance the overall stability	1	2.0	3	6.1	21	42.9	17	34.7	7	14.3
Competition will be enhanced	0	0.0	2	4.1	3	6.1	23	46.9	21	42.9
Improve quality service	0	0.0	0	0.0	3	6.0	23	46	24	48.0
More credit supply can be offered	0	0.0	3	6.1	11	22.4	20	40.8	15	30.6
Transfer of good institutions practice	0	0.0	1	2.0	12	24.0	24	48.0	13	26.0
Introduce new product and service	0	0.0	1	2.0	5	10.0	21	42.0	23	46.0

Source: Authors calculation based on primary data survey, 2022

Table 18: Potential costs of financial liberalization

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Weakening of domestic financial sector (infant industry argument)	1	2.0	5	10.0	11	22.0	22	44.0	11	22.0
Foreign financial firm entry may increase operating costs	4	8.0	8	16.0	15	30.0	18	36.0	5	10.0
Sudden capital outflow (foreign shortage)	1	2.1	6	12.5	13	27.1	21	43.8	7	14.6
Domestic misallocation of capital flows	1	2.1	4	8.5	19	40.4	19	40.4	4	8.5
Biased credit provision to big firms	3	6.1	8	16.3	10	20.4	22	44.9	6	12.2
Fall of market share of domestic financial sector	1	2.0	4	8.0	5	10.0	27	54.0	13	26.0
Foreign financial firm will promote home country export instead of domestic export	2	4.1	6	12.2	20	40.8	15	30.6	6	12.2
Financial sector liberalization trigger instability	3	6.0	10	20.0	22	44.0	12	24.0	3	6.0
Trigger supervisory difficulty	4	8.0	6	12.0	19	38.0	14	28.0	7	14.0

Source: Authors calculation based on primary data survey, 2022

4.3.7. *Financial operators' and supervisory readiness*

The level of readiness of the financial sector to compete with foreign financial operators is very essential to minimize post-liberalization costs. In order to overcome the stiff competition expected from foreign operators, local financial operators need to enhance their competitiveness levels ahead of time. To do so, our respondents suggest: allowing a stock market; digitalization of financial institutions; build up global capabilities in technologies, knowledge and skills; enhancing their efficiencies; hold adequate capital; increase their foreign currency access and reserve; increase research and development budget, focus on continuous improvement; offshore borrowing; being innovative and customer focused; adopt merger and acquisition strategies and enhancing their cyber security system.

Similarly, during interview with key informants (vice presidents of the NBE), they indicated that government is committed and taking the following steps to cop up potential costs of liberalization. These are raising of paid-up capital to 5 billion, allowing banks to borrow from foreign institutions, reducing of surrender requirement except for remittances and exports, set up institutions for training and consultancy, priority of foreign currency is given to import technology, introduction of Basel III, increasing in autonomy of NBE, opening up of interest rate and introducing know your customer system.

5.   Conclusion and Policy Implications
5.1.   Conclusion

We conducted an in-depth analysis of Ethiopia's financial sector in view of the government's plan to open up the domestic financial sector to foreign operators and the following conclusion are drawn from the findings.

- The current status of financial industry can be characterized as less competitive, less innovative, less diversified, non-inclusive, poorly capacitated and monopolistic competition in nature.
- In both long run and short run, liberalizing the financial sector may improve economic growth directly and indirectly by improving efficiency. However, it may reduce economic growth indirectly by increasing bank instability.
- The current policy framework guiding the financial system needs to be customized to meet the emerging needs of the financial sector in the country; and NBE shall reduce its political dependence.
- Ethiopia's financial sector is characterized by low diversification and innovative products, and no inclusiveness because of population settlement, infrastructure

(road, power, and internet), leadership, technology, financial literacy and awareness.

- Liberalization of the financial sector shall follow a gradual approach with a stable macro economy and strong financial sector as a pre-condition.

5.2. Policy implications

5.2.1. *Regulatory and supervisory framework*

Before opening up financial sectors to foreign operators, NBE shall articulate prudent but less bureaucratic policies and regulatory mechanisms to ensure the required supervision and leadership capacity to properly manage liberalization. Thus, NBE may revise its directives (foreign currency surrender, extent of share of foreign banks, capital flight, extent of reinvestment) and ensure the merit-based appointment of management. In the pre-liberalization stage, NBE shall also closely supervise and work in supporting domestic financial institutions to build up their management and organizational capabilities. Similarly, in post-liberalization, NBE shall strictly supervise and monitor to ensure the effective implementation of policies and directives in the right sequence and strict regulations on nonperforming loans, reserve ratio, interest rate spread, and capital adequacy.

5.2.2. *Capacity building*

Capacity development (staff, cyber security, technology and finance) should be a priority task for both the incumbent firms and the supervisory body to reap the benefits and minimize the costs associated with financial liberalization. Hence, the concerned bodies shall work to upgrade their human capital and boost their investment in research and development activities.

5.2.3. *Sequence matters*

As an African proverb goes on "*Only a fool can test the depth of the water with both feet*". The lessons from successful countries and opinions from local financial operators show that the liberalization of the financial sector shall follow a gradual approach (1st liberalizing of the real sector, 2^{ndly} liberalization of the domestic financial sector and 3rdly liberalization of the external financial sector). Moreover, a stable economy needs to be a pre-condition to open up the financial sector, and it should not be considered a solution to macroeconomic instability.

References

Akinsola, F. A., & Odhiambo, N. M. (2017). The impact of financial liberalization on economic growth in sub-Saharan Africa", *Cogent Economics & Finance*: *5*(1), 1338851.

Batuo, M., Mlambo, K., & Asongu, S. (2018). "Linkages between financial development, financial instability, financial liberalization and economic growth in Africa", Research in International Business and Finance: 45, 168-179.

Bayraktar, N., & Wang, Y. (2004). "Foreign bank entry, performance of domestic banks, and sequence of financial liberalization", *Performance of Domestic Banks, and Sequence of Financial Liberalization (August 8, 2004).*

_____. (2008). "Banking sector openness and economic growth", *The Journal of Applied Economic Research*: 2(2), 145-175

Beck, T., Ioannidou, V., and Schäfer, L. (2018). "Foreigners vs. Natives: Bank lending technologies and loan pricing", Management Science:64(8): 3792-3820

Bruno, V., & Hauswald, R. (2014). "The real effect of foreign banks", Review of Finance: 18(5), 1683-1716.

Claessens, S., & Van Horen, N. (2014). "Foreign banks: Trends and impact", *Journal of Money, Credit and Banking*: *46*(s1), 295-326

Claessens, S., Demirgüç-Kunt, A., & Huizinga, H. (2001). "How does foreign entry affect domestic banking markets?", *Journal of banking & finance*: *25*(5), 891-911

De Haas, R., & Van Lelyveld, I. (2014). "Multinational banks and the global financial crisis: Weathering the perfect storm?", *Journal of Money, Credit and Banking*: *46*(s1), 333-364

Demirgüç-Kunt, A., & Detragiache, E. (2005). "Cross-country empirical studies of systemic bank distress: a survey", *National Institute Economic Review*: *192*, 68-83

Demirgüç-Kunt, A., Levine, R., & Min, H. G. (1998). "Opening to foreign banks: Issues of stability, efficiency, and growth", The implications of globalization of world financial markets: 83-115

Dong, Y., Hamilton, R., & Tippett, M. (2014). "Cost efficiency of the Chinese banking sector: A comparison of stochastic frontier analysis and data envelopment analysis", *Economic Modelling*: *36*, 298-308

Dwumfour, R. A. (2017). "Explaining banking stability in sub-Saharan Africa", Research in International Business and Finance: 41, 260-279

Hermes, N., & Nhung, V. T. H. (2010). "The impact of financial liberalization on bank efficiency: evidence from Latin America and Asia", *Applied Economics*: *42*(26), 3351-3365

Hunegnaw, F. B., & Bedhaso, A. F. (2021). "A dynamic analysis on foreign bank entry Nexus economic growth in Sub-Sahara African countries", *Cogent Economics & Finance*: *9*(1), 1991084

Kasman, S., & Kasman, A. (2015), "Bank competition, concentration and financial stability in the Turkish banking industry", *Economic Systems*: *39*(3), 502-517

Lensink, R., & Hermes, N. (2004), "The short-term effects of foreign bank entry on domestic bank behaviour: Does economic development matter?", *Journal of Banking & Finance*: *28*(3), 553-568

Levine, R., Loayza, N., & Beck, T. (2000). "Financial intermediation and growth: Causality and causes", *Journal of monetary Economics*: 46(1), 31-77.

McKinnon, R. I. (1973). "Money and Capital in Economic Development", Washington DC: Brookings Institute

Morgan, P. J. and Yoshino, N. (2017). "Overview of financial inclusion, regulation, and education", *Financial Inclusion, Regulation, and Education*, *1*

Mulyaningsih, T., Daly, A. & Miranti, R. (2015). "Foreign participation and banking competition: Evidence from the Indonesian banking industry", *Journal of Financial Stability*: *19*, 70-82.

Park, W. A. (1996). "Financial liberalization: the Korean experience", *Financial deregulation and integration in East Asia: 5*, 247-276.

Romanova, T. F., Maksimov, A. V., Andreeva, O. V., & Otrishko, M. O. (2018). "Contemporary challenges of state's financial policy in the social sphere", European Research Studies: 21, 387

Shaw, E., (1973). "*Financial Deepening in Economic Development*". New York, Oxford University Press

Stiglitz, J. E. (2000). "Capital market liberalization, economic growth, and instability", World Development: 28, 1075-1086

World Bank. (2017). The Global Findex Database. Washington, DC: World Bank, Available online: http://documentsworldbank.org/curated/en/332881525873182837/ The-Global-FindexDatabase-2017-Measuring Financial Inclusion and- the Fintech-Revolution

_____. (2019). Ethiopia Financial Sector Development: The Path to an Efficient Stable and Inclusive Financial Sector

Wu, J., Chen, M., Jeon, B. N., & Wang, R. (2017). "Does foreign bank penetration affect the risk of domestic banks? Evidence from emerging economies", *Journal of Financial Stability*: 31, 45-61

Yin, H. (2019), "Bank globalization and financial stability: International evidence", Research in International Business and Finance: 49, 207-224

Annexes

Annex 1: Summary of Macroeconomic variables related to cost benefit Model

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP per capita (constant 2015 US$)	31	410.016	193.779	218.102	826.950
Share of Gross capital formation (% of GDP)	31	1.140	5.497	0.038	30.752
Bank Z-score(Stab)	23	10.941	2.427	6.206	14.465
Human capital index	30	1.241	0.109	1.074	1.455
Bank deposits to GDP FC	31	14.540	0.354	14.436	15.976
Inflation rate	31	0.104	0.093	-0.058	0.335
Deposit interest rate(FLI)	31	6.054	2.292	2.875	11.500
Efficiency Ratio	31	122.915	76.558	11.508	287.645
Mobile subscriber per 100)FIVMOB	22	17.579	19.773	0.010	49.442

Annex 2: Innovations adopted by banks in Ethiopia

		N	Percent
ATMS	No	0	0
	Yes	16	100
Mobile Banking	No	0	0
	Yes	16	100
Internet Banking	No	2	12.5
	Yes	14	87.5
Electronics payment	No	3	18.8
	Yes	13	81.3
Electronics Transfer	No	2	12.5
	Yes	14	87.5
Remittance technology	No	3	20.0
	Yes	12	80.0
Agency banking	No	5	33.3
	Yes	10	66.7
E-commerce	No	6	40.0
	Yes	9	60.0

Source: Authors calculation based on primary data survey, 2022

Annex 3: Innovations adopted by insurance companies

	No		Yes	
	N	**Percent**	**N**	**Percent**
Claim Automation	7	43.8	9	56.3
online insurance	13	81.3	3	18.8
mobile insurance application	11	68.8	5	31.3
E-marketing	14	87.5	2	12.5
Biometrics	13	81.3	3	18.8
ATMS	19	90.5	2	9.5
mobile banking	14	66.7	7	33.3
Network systems automation	9	42.9	12	57.1
remote data processing	14	66.7	7	33.3
Biometrics identification	**18**	**90.0**	**2**	**10.0**

Source: Authors calculation based on primary data survey, 2022

Annex 4: Innovations adopted by Micro finance institutions

	No		Yes	
	N	**Percent**	**N**	**Percent**
ATMS	19	100	0	0.00
mobile banking	14	73.68	5	26.32
Network systems automation	8	42.10	11	57.90
remote data processing	13	68.42	6	31.58
Biometrics identification	18	94.74	1	5.26%

Source: Authors calculation based on primary data survey, 2022