ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MBA PROGRAM

THE EFFECT OF FINANCIAL SECTOR DEVELOPMENT ON DOMESTIC INVESTMENT IN ETHIOPIA:

AN EMPIRICAL INVESTIGATION

BY

Haregewoyn Deyu

A thesis submitted to the Department of Management, College of Business and Economics Presented in Partial fulfilment of the requirements for the degree of Master of Business Administration

Advisor

(Amare Abawa, PhD)

Jun, 2023

Addis Ababa, Ethiopia

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STATEMENT OF DECLERATION

I, Haregewoyn Deyu, prepared this research work titled " The Effect of Financial Sector Development on Domestic Investment in Ethiopia: An Empirical Investigation" is my own work with the advice and help of my research adviser for the partial fulfilment of the requirements for the degree of Master of Business Administration. I hereby declare that the work on this research is entirely original to me and has not been submitted to any other university or institution for the purpose of receiving a degree.

Submitted by:

Full Name: Haregewoyn Deyu Signature: _____Date: _____

Approved by: _____

This Thesis has been submitted for examination with my approval as adviser. Name of

Advisor_____Signature_____Date_____

APPROVAL

The undersigned certify that they have read and hereby recommend to Addis Ababa University to accept the Thesis submitted by Haregewoyn Deyu entitled "The Effect of Financial Sector Development on Domestic Investment in Ethiopia: An Empirical Investigation", in partial fulfilment of the requirements for the degree of Master of Business Administration.

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ACKNOWLEDGEMENTS

First and foremost, I want to express my sincere gratitude to Jesus Christie and his mother for pointing the way, providing me with the resources I needed, and giving me the willpower to make this happen. Without the tremendous help I received from many people, mainly from Mr. Fikru Degefe and Mr. Desalegn Beki, I would not have been able to complete my thesis work. Most importantly, I want to thank my advisor Amare Abawa (PhD) for his quick response, unending support, encouragement of my ideas and guidance. I want to express my gratitude to him for his valuable comments, which helped me to raise the calibre of my work.

I also, like to express my sincere gratitude to my wife Mrs. Mitikie Anbesie, for her support and encouragement during my study time and thesis work. Finally, I would want to express my gratitude to every one of my family members who helped me finish my education through direct or indirect contributions.

Thanks everybody!!!

ABSTRACT

It is widely agreeable that investment is the engine for growth. Similarly, financial institutions play a critical role to stimulate economic growth by mobilizing financial resources and availing it to investors. The study examined how domestic investment is affected by the development of financial sector in Ethiopia for the years 2000-2022. "Broad money supply" as a measure of "Financial Depth", "Bank Credit to Bank Deposit" as a measure of Banks' Intermediation Efficiency, and "domestic credit to the private sector" representing "Financial Activity" were used to measure "financial sector development". The study employed an Autoregressive Distributed Lag (ARDL) model. It applied all relevant pre and post estimation tests to ensure that the model is well specified and free from anticipated time-serious problems. The results of the study justified that the effect of "financial sector development" on "domestic investment" in Ethiopia depends up on the measurement of financial sector development used. In this regard, "Financial Activity" has a positive and significant effect on domestic investment in the long run. However, it has a negative and significant effect in the short run. Conversely, both "Financial Depth" and intermediation efficiency has a negative and significant effect on domestic investment in the long run. Similarly, "Financial Depth" has a negative and significant effect on domestic investment in the long run. The researcher recommended that government should monitor the supply of money so that inflation will be controlled and domestic investment will be enhanced. Besides, banks should intensify credit to the private sector by intensifying their resource mobilization endeavour so that domestic investment will be enhanced in the long run. However, decision makers should exercise caution when selecting financial sector development metrics as a tool for promoting domestic investment.

Key words: *Financial Depth, banks intermediation efficiency, Financial Activity*

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CHAPTER ONE
INTRODUCTION

Under this chapter, the background of the study, statement of the problem, objective of the study, the hypothesis, significance of the study, scope and limitations of the study, and organization of the study are covered which can be baselines for the entire research.

1.1.Background of the Study

Every economy's ability to expand and flourish depends on how well its diverse sectors operate. One of such vital sectors that play an intermediary function in an economy's overall success is the Financial Sector. This argument can be evidenced by ample studies about the effects of financial sector development in economic growth. In this case, one can state studies made by (Puatwoe & Piabuo, 2017), which confirms the existence of a positive and long-term impact of all the three indicators used to measure financial sector development, "broad money supply", deposit per GDP, and "domestic credit to the private sector" on economic growth in Cameron. Besides, study conducted by (Levine, Loayza, & Beck, 2000) signify that an improved financial intermediaries enhance economic growth by mobilizing savings, facilitating trade, exercising corporate control, and controlling risks. Similarly, (Tadesse, 2015) emphasizes the positive and significant contribution of financial sector development into economic growth in Ethiopia.

Ideally, the manifestation of a well-structured and robust financial sector could have an immense contribution to investment by way of mobilizing resources, availing the required finance, and playing an expediter role. Investment as well, is an essential element contributing to the growth and development of a country. This is because, by higher investment means higher employment rate, higher level of production output and higher trade balance by boosting the volume of export and import substitutes. It is widely agreeable that investment is the engine for growth. Similarly, financial institutions play a critical role as a financial intermediary to stimulate economic growth by mobilizing financial resources and availing it to investors (Hussien, 2014).

The financial Sector in Ethiopia consists of banks, microfinance institutions, insurance companies, and saving and credit cooperatives. Besides, informal financial sectors such as Idir and Eqib are also playing a role in the sector. Since recently, the financial sector has not been opened for foreign players. However, the government recently, is on the verge of introducing a capital market and allow the involvement of foreign banks to play their role in

the countries financial sector. However, the sector is still dominated by the existence of banks, as they are the major contributor to investment though a liquidity constraint has become a recent phenomenon. Apart from other formal and informal financial institution in the country, the numbers of domestic banks are increasing through time and reach as large as twenty-four recently. Hence, it can also be possible to say that a financial sector is the engine for investment. However, the vast majority of studies investigated the effects of "financial sector development" to "economic growth". Nevertheless, researches conducted on the effects of "financial sector development" to "domestic investment", especially in Ethiopia are very limited. Yet, studies conducted by authors such as (Iheonu, Asongu, Odo, & Ojiem, 2020), (Nabamita & Sanjukta, 2009), and (Simplice A., 2014) concluded that the effects of financial sector development to domestic investment varies as the type of proxy variable used to measure financial sector development. However, other studies such as (Muyambiri & Odhiambo, 2018), using "Liquid liabilities as a ratio of GDP (M3)", "domestic credit to private sector as a ratio of GDP", and "claims on central government as a ratio of GDP" to calculate the composite bank-based financial development index and using "total value of stocks traded as a percentage of GDP"; "market capitalization of listed companies as a ratio of GDP"; and "turnover ratio" to calculate the composite market-based financial development index, concluded that both "bank-based financial development" and "market-based financial development" have an accelerator enhancing effect on investment. Similarly, (Luca & Spatafora, 2012) suggests that the development of financial sector and domestic investment are positively related.

To summarize, studies conducted about the relationship between domestic investment and financial sector development is uncommon in Ethiopia and yet studies conducted in the area in other countries are used various proxies to represent financial sector development and reached into different conclusion. Therefore, understanding the contribution of investment to economic growth in the one hand and the role of financial sector development to investment on the other, it is essential to thoroughly study how the financial sector development in Ethiopia is moving with domestic investment. Moreover, examining the connection between "domestic investment" and Ethiopia's "financial sector development" is equally important to answer the question do all financial sector development measurements have the same effect to domestic investment in the country.

1.2.Statement of the Problem

The Ethiopian financial sector is highly dominated by the presence of increasing number of commercial banks and insurances. Until June 2022, there exist 18 insurance companies and 30 commercial banks in the country (NBE, 2022). One can notice that, since liberalization was in place, the level of domestic investment in the country has also been showing an improvement through time. Concurrently, there is an acute scarcity of finance manifested by an average 97% loan to deposit ratio from 2018–2022 by banks in the country. Due to this, banks are tending to lend to only high credit worthy investors and limited investments. Moreover, lending rates are now becoming very high. With these facts at hand, the contribution of financial sector development in Ethiopia to domestic investment is not well studied. Rather, the vast majority of academic researchers such as (Olusegun, Ganiyu, & Oluseyi, 2013), (Tessema, 2016), (Ahmed & Malik, 2009), (Al-Jarrah, Al-Zu'bi, Jaara, & Alshurideh, 2012) conducted an investigation on how financial sector development affects economic growth. However, a positive and significant contribution of financial sector development in a nation's economic growth does not necessarily mean that financial sector development has a significant and positive impact on domestic investment. Still, studies conducted on the determinants of "domestic private investment" or effects of financial sector development on economic growth uses various proxies to measure financial sector development some of them uses "domestic credit to the private sector", other use broad money supply, some others use domestic saving, or else, a combination of different variables to measure financial sector development. However, this research tries to investigate how domestic investment in the one hand is affected by financial sector development measured by different proxies without merely relying on a unique measurement. In this case, one can answer the question that is all proxies for financial sector development give similar response to domestic investment? Or the response to domestic investment depends up on the variable one used to measure financial sector development?

1.3.Research Objectives

The general objective of this study is to find out the effect of "financial sector development", as measured by various proxies, on "domestic investment" in Ethiopia. It specifically attempts to:

i) Ascertain the effect of "Financial Depth" or "broad money supply" on "Domestic Investment" in Ethiopia;

ii) Scrutinize the effects of "Financial Activity" or "domestic credit to the private sector" on "domestic investment" in Ethiopia,
iii) Examine effects of Banking Intermediation Efficiency or "Bank credit to Bank Deposit" on "domestic investment" in Ethiopia? and
iv) Investigates on whether "financial sector development" indicators granger causes "domestic investment" or the other way round.

1.4.Research Questions

The key question in this research is how financial sector development in Ethiopia affects domestic investment. Specifically, the research answered the following questions:

i) How is "domestic investment" affected by "Financial Depth" or "broad money supply" in Ethiopia?
ii) How is "domestic investment" affected by "Financial Activity" or "domestic credit to the private sector" in Ethiopia"?
iii) How is "domestic investment" affected by "Banking Intermediation Efficiency" or "Bank Credit to Bank Deposit" in Ethiopia? and
iv) Which variable, "financial sector development" indicators or "domestic investment" granger causes the other?

1.5. Significance of the Study

As indicated before, investment is an engine for economic growth and financial sector development is one of the essential factors leading to growth. Policy makers cannot realize their effort in attaining economic growth and development unless evidences support their effort is on the right track. In this regard, examining the connection between "domestic investment" and Ethiopia's "financial sector development" is essential. Both private and public sector investments have to be amplified to reach into an overall economic growth.

Therefore, the researcher believes that this study gives an insight to policy makers about the effect of "Financial Activity" or "domestic credit to the private sector", "Financial Depth" or "broad money supply", and "financial sector intermediation efficiency" or "bank credit to bank deposit" on "domestic private investment". It can answer the question is all measurements of financial sector development give a similar result and leads to a similar conclusion and urge policy makers to become cautious to the measurement of financial sector development before they are going to make any intervention. The study could also be complimentary to related researches and a reference for supplementary research in the area.

1.6.Scope of the Study

The research uses twenty three years' time serious data collected from the National Bank of Ethiopia (NBE). It investigates various literatures in the area to find out which are the key variables affecting domestic investment. It prioritizes variables for investigation based on the availability of adequate time serious data. Moreover, this research is conducted only in the context of the Ethiopian economy and does not include other country apart from Ethiopia or compare results of the investigation with other countries. Likewise, though the research incorporates various variables who possibly determine domestic investment to balance the model; it is not the central purpose of this study to make a detail investigation among variables except financial sector development and domestic investment. It is also understood that investment is determined by not only economic factors but also other factors such as political factors, institutional factors, socio-cultural factors, geographic factors, and etc. However, this study is merely intended to concentrates on macroeconomic variables in investigating whether financial sector development has an effect on domestic investment. By financial sector, this study only concentrates on the formal financial sector and it is not the essence of this paper to give an emphasis to the informal sector in Ethiopia.

1.7. Limitation of the Study

Though the DESA variable which measures "Financial Depth", "Financial Intermediation Efficiency", "Financial Size", and "Financial Activity" are all used commonly as a measure of financial sector development, this research merely uses "Domestic Credit to the Private Sector" to represent "Financial Activity", "Broad Money Supply" to represent "Financial Depth" and "Bank Credit to Bank Deposit" to represent "Financial Sector Intermediation Efficiency" owing to the limitation on data availability on "Financial Size" which is measured by "Deposit Banks Assets to Total Asset".

1.8.Organisation of the Study

The research is composed of six chapters. The first chapter entails the introduction section, which incorporates background of the research, statement of the problem, objectives of the research, research questions, and significance of the study. Scope and limitation of the research are also included in this chapter.

Chapter two deal with an overview of financial sector in Ethiopia. Chapter three, on the other hand, covered review of related literatures. Under this chapter, both theoretical and empirical literatures are documented. This chapter also includes temporary conclusion regarding the research questions (hypothesis).

Chapter four discussed the methodology and model specification. Subsequently, chapter five describes the empirical findings and discusses the implications of the findings. In this chapter, results of the statistical software are chronologically analysed and interpreted.

The last chapter, Chapter six discusses the summary, conclusion and recommendation. In this chapter, key findings of the research are summarized followed by key way forwards.

CHAPTER TWO
OVERVIEW OF FINANCIAL SECTOR IN ETHIOPIA

2.1. Introduction

Under this section, the financial sector in Ethiopia is reviewed using empirical data collected from the National Bank of Ethiopia.

2.2. Financial Sector in Ethiopia

2.2.1. Brief Historical Review of the Formal Financial Sector in Ethiopia

Banks and Insurances are the common formal financial sectors engaging in Ethiopia. Bank of Abyssinia, which was founded in 1905 and was controlled by the Ethiopian government in collaboration with the National Bank of Egypt, which was then governed by the British, was the first bank to operate in Ethiopia. Yet, after the Italian expulsion, a well-organized banking system began to develop in the 1940s. The State Bank of Ethiopia, a government-owned bank, was founded in 1942. Before 1976, when they were nationalized and combined into a single government-owned mono-bank, many foreign bank branches and private banks operated in opposition to the government-owned commercial bank. The command system that ruled from 1974 to 1991 prevented the competitive financial environment that had begun to flourish in the 1960s and 1974 from taking hold (Aderaw & Manjit, 2016). The financial market was deregulated after the 1991 change in government and the actions made to liberalize and realign the economy towards a system of economy based on commercial principles. In order to de-regulate and liberalize the financial sector, proclamation number 84/94 was issued. As a result, several private banks and insurance firms were founded. The liberalization is further deepened by directives issued in the years that follow, especially those that gradually liberalize interest rates, the determination of foreign exchange, etc.

As of June 2021/22, 30 commercial banks, one development bank, 18 insurance companies, one re-insurance company, 43 microfinance institutions, six Capital goods Finance/Lease companies, and eight payment instrument issuers/system operators are operating in Ethiopia (NBE, 2022).

2.2.2. Formal Financial Sectors Development in Ethiopia

As of June, 2022, the total number of bank branches distributed throughout the nation has become me 8,944 where, about 32.7 percent of the total bank branches were located in Addis Ababa. As a result, the population to bank branch ratio in the country reached 12 thousand

people per branch. During the same period, the total capital of the banking industry reached into Birr 199 billion.

Table 1: Branches and Capital base of the Major Ethiopian Banks

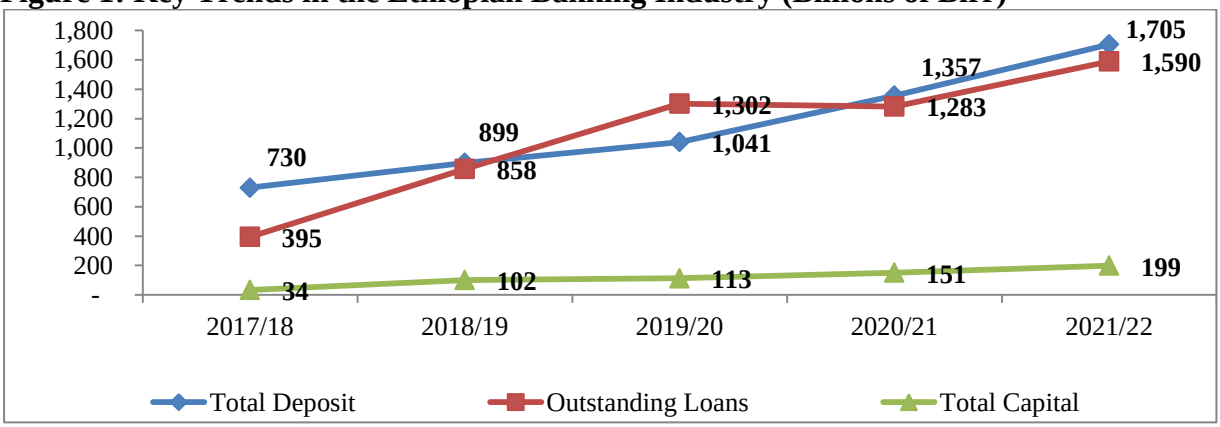
Banks	Branch Network (in number)				Capital (Mill of Birr)	
	Regions	Addis Ababa	Total	% Share	Total Capital	% Share
State Owned Banks						
CBE	1,597	460	2057	**23**	52,387.80	**26.3**
DBE	77	6	83	0.9	30,115.90	15.1
Total State Owned	**1,674**	**466**	**2140**	**23.9**	**82,503.70**	**41.5**
Private Banks						
Awash Bank	489	261	750	8.4	14,036	7.1
Dashen Bank	512	209	721	8.1	9,677	4.9
Bank of Abyssinia	530	273	803	9	9,899	5
Wegagen Bank	271	149	420	4.7	5,253	2.6
Hibret Bank	223	206	429	4.8	5,772	2.9
Nib International Bank	214	223	437	4.9	6,484	3.3
Cooperative Bank of Oromiya	466	136	602	6.7	9,226	4.6
Lion International Bank	204	88	292	3.3	3,333	1.7
Oromia Bank	274	142	416	4.7	5,448	2.7
Zemen Bank	29	53	82	0.9	4,740	2.4
Buna International Bank	215	159	374	4.2	3,969	2
Berhan Bank	195	154	349	3.9	3,844	1.9
Abay Bank	284	127	411	4.6	4,693	2.4
Addis International Bank	49	70	119	1.3	1,712	0.9
Debub Global Bank	62	73	135	1.5	1,840	0.9
Enat Bank	54	52	106	1.2	2,261	1.1
Hijra Bank S.C	32	12	44	0.5	980	0.5
Zamzam Bank S.S	22	23	45	0.5	1,462	0.7
Goh Betoch Bank S.C	1	3	4	0	780	0.4
Siinqee Bank	132	2	134	1.5	7,125	3.6
Tseday Bank	10	20	30	0.3	7,950	4
Shebele Bank			0	0	526	0.3
Amhara Bank	73	28	101	1.1	5,526	2.8
Total Private Banks	**4,341**	**2,463**	**6,804**	**76.1**	**116,535**	**58.5**
Total Bank Branches	**6,015**	**2,929**	**8,944**	**100**	**199,038.90**	**100**

Source: NBE, June, 2022

As indicated in the table above, banking industry in Ethiopia is highly dominated by the state owned commercial Bank of Ethiopia and Development Bank of Ethiopia which has got 23.9% of the total bank branches in the country and 41.5 % of the total capital registered by the whole banking industry. However, the total summation of shares of the private banking branches and capital is higher than that of the two state owned banks. On the other hand, the

number of insurance companies remained at 18 with their branch network increasing to 690 where, about 55.4 percent of the branches were operating in Addis Ababa and 86.8 percent of the total branches were private. The total capital of the insurance sector reached into Birr 13.4 billion. As a measurement of how the banking industry is growing, one can see the following Figure. All the three key measurements showed that the banking sector is growing through time not only in its number of branches but also in terms of deposit mobilized, capital, and loans and advances provided to investors.

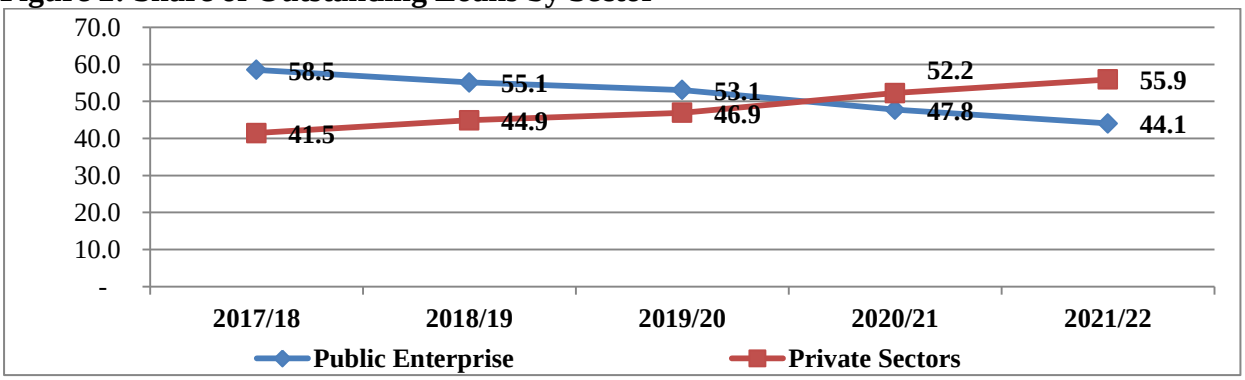
Figure 1: Key Trends in the Ethiopian Banking Industry (Billions of Birr)



Source: NBE Annual Reports (2017/18-2021/22)

However, the significant share of all the above measurement variables are dominated by state owned banks. In this regard, Annual Report of the NBE further signifies that in the year 2020/21 about 66.4% of the outstanding loan was disbursed by state banks though this number decreased into 59.5% in 2021 and into 50.8% in 2022/23 first quarter according to the same source. On the other hand, outstanding loan channelled to the private sector which is commonly used to measure the development of a financial sector in an economy, is showing an improvement as compared to the public sector since 2020/21 probably owing to the fact that public investment is decreasing since then.

Figure 2: Share of Outstanding Loans by Sector



Source: NBE Annual Reports (2017/18-2021/22)

The Ethiopian government is about to allow foreign companies into the domestic banking industry, which will probably contribute the opening of secondary market in the country. Yet, until this study is conducted, although the NBE periodically issued government bonds to pay public expenditures and remove surplus liquidity from the banking system, there is no secondary market in Ethiopia. However, treasury bills and corporate bonds are common phenomenon in the financial sector. The following Table shows the intensity of treasury bills and corporate bonds market in Ethiopia for five consecutive years.

Table 2: Trends in Treasury Bills and Corporate Bond Market in Millions of Birr

Particulars	*2017/18*	*2018/19*	2019/20	2020/21	2021/22
Treasury Bills Market					
Amount Demanded	323,991	422,634	243,155	284,784	599,479
Amount Supplied	286,494	397,958	231,487	330,673	858,469
Amount Sold	323,991	422,634	234,839	238,800	582,269
Outstanding Corporate Bonds	291,425	338,580	405,235	448,872	502,578

Source: NBE (2017/18-2021/22)

As of the financial year 2022, the number of Micro- Finance Institutions (MFIs) reached 43 with a total capital and total asset of Birr 15.5 billion and Birr 58.9 billion, respectively. On the other hand, the outstanding deposit and outstanding credit of these institutions reached Birr 28.3 billion and Birr 36.9, respectively.

Table 3: Branches Nos. & Capital Base of the Major Ethiopian Insurance as of June 2022

No.	Insurance Companies	Branches in number				Capital in Millions of Birr	
		Addis Ababa	Regions	Total	% Share	2022	% Share
1	Ethiopian Insurance Corp.	25	66	91	13.19	3,376	25.24
2	Awash Insurance Company	30	26	56	8.12	1,898	14.19
3	Africa Insurance Company	18	14	32	4.64	410	3.06
4	National Insurance Corp.	22	17	39	5.65	296	2.21
5	United Insurance Company	30	13	43	6.23	797	5.96
6	Global Insurance Company	12	8	20	2.90	280	2.09
7	Nile Insurance Company	33	24	57	8.26	940	7.03
8	Nyala Insurance Company	18	18	36	5.22	1,260	9.42
9	Nib Insurance company	30	15	45	6.52	844	6.31
10	Lion Insurance Company	19	22	41	5.94	346	2.59
11	Ethio-Life & General Ins.	20	6	26	3.77	228	1.70
12	Oromia Insurance Co.	25	25	50	7.25	972	7.27
13	Abay Insurance S.C	16	15	31	4.49	516	3.86
14	Berhan Insurance S.C	15	8	23	3.33	266	1.99
15	Tsehay Insurance S.C	22	10	32	4.64	378	2.83
16	Lucy Insurance	18	6	24	3.48	162	1.21
17	Bunna Insurance S.C.	17	12	29	4.20	255	1.91
18	Zemen Insurance S.C.	12	3	15	2.17	154	1.15

No.	Insurance Companies	Branches in number				Capital in Millions of Birr	
		Addis Ababa	Regions	Total	% Share	2022	% Share
	Total	**382**	**308**	**690**	100	**13,378**	100

Source: BE, (2017/18-2021/22)

2.3. Investment Performance in Ethiopia

Investment is one of the basic elements of a country's gross domestic product and it is a backbone for every nation. It is an essential gear to realize job creation and enhance purchasing power to curve unemployment and improve trade balance by improving exportable and substituting imports.

Each year, new investment projects have been operational in Ethiopia. However, looking at the trend since 2017/18, the number, capital and job created through those operational investment projects was not as high as the one registered during the 2017/18 fiscal year. Whereas, foreign investment, both in terms of number, job creation, as well as capital registered was not as big as that of "domestic private investment" in the country. Table Four depicts the number, capital registered, and permanent and temporary jobs created by investment projects being operational in Ethiopia for five consecutive years.

Table 4: Number of Investment Projects in Ethiopia (Capital in Million Birr)

Components		2017/18	2018/19	2019/20	2020/21	2021/22
Total Investment	Number	1,550	976	84	785	112
	Capital	25,876	8,952	1,320	34,073	2,183.80
	Permanenet Workers	332,003	22,631	3,211	11,768	12,914
	Temporary Workers	36,214	10,541	1,634	6,132	3,452
Private Investment	Number	1,550	976	84	785	112
	Capital	25,876	8,952	1,320	34,073	2,183.80
	Permanenet Workers	332,003	22,631	3,211	11,768	12,914
	Temporary Workers	36,214	10,541	1,634	6,132	3,452
"domestic private investment"	Number	1,496	913	47	752	67
	Capital	20,698	7,836	676	31,106	862
	Permanent Workers	233,115	12,692	110	8,578	1,973
	Temporary Workers	14,044	6,896	272	5,013	228
Foreign Private Investment	Number	54	63	37	33	45
	Capital	5,178	1,115	645	2,968	1,321.80
	Permanent Workers	98,888	9,939	3,101	3,190	10,941
	Temporary Workers	22,170	3,645	1,362	1,119	3,224

Source:NBE (2017/18-2021/22)

2.3.1. Distribution of Operational Investment Projects by Sector

The distributions of those operational projects are largely dominated by three sectors namely Manufacturing, Construction and Real Estate, and renting and Business activities. During the 2021/22 FY only, these sectors contribute about 60%, 22 %, and 6% of the total operational projects, respectively. Apart from the other sectors, these sectors are known by their capability of creating large employment to the non professionals. However, the yearly operational investment projects in some sectors were very low which can be evidenced by the insignificant investment made on whole sale, retail trade and repair service, mining and quarrying, electricity, gas, steam and water supply investment sectors throughout the periods under consideration. Data from the NBE revealed that even, the three major investment projects indicated above were hugely declined during the 2021/22 fiscal year.

Table 5: Operational Investment Projects in Ethiopia by Sector (Capital in Million Birr)

Sectors	2017/18		2018/19		2019/20		2020/21		2021/22	
	No. of Projects	Investment Capital	No. of Projects	Investment Capital	No. of Projects	Investment Capital	No. of Projects	Investment Capital	No. of Projects	Investment Capital
Manufacturing	578	14,494.8	337	4,647.00	42	710.1	242	12,097.00	26	1,308.00
Agriculture, hunting and forestry	42	322.8	27	297.7	1	10.5	6	114.5		
Real estate, renting and Business activities	496	7,204.8	404	1,909.30	15	98.3	238	10,426.50	23	130.70
Hotel and restaurants	5	57.8	7	39.5	3	307.9	18	5,887.40	1	105.40
Education	7	67.8	6	68.2	1	2.5	2	13	1	20.60
Health and social work	15	276.4	5	25.3	3	18	9	864.1	1	7.00
Construction	344	3,002.1	176	1,745.70	15	135.5	224	1,799.10	47	482.00
Tour operation, transport and communication	5	11.4	5	20	2	17.9	34	669.2	8	62.50
Whole sale, retail trade and repair service	1	2	-	-	-	-	3	381.5		1.70
Mining and quarrying	7	81	4	38.2	-	-	-	-		
Electricity, gas, steam and water supply	1	100								
Other community, social and personal service activities	46	245.8	2	82	-	-	1	5		
Others	3	9.5	3	78.8	2	19.6	8	1,816.10	4	65.70
Grand Total	**1,550.00**	**25,876.20**	**976**	**8,951.70**	**84**	**1,320.30**	**785**	**34,073.40**	**112.00**	**2,183.90**

Source: NBE (2017/18-2021/22)

CHAPTER THREE
REVIEW OF RELATED LITRATURES

3.1. Introduction

Under this section, theories and researches conducted in the area are examined which can be a ground for the whole research. Sources used are various articles, journals, unpublished researches, internets, books, and etc.

3.2. Financial Sector Development and Theory of Investment

Finance is a crucial resource that determines the investment level of a nation. According to (Demirgüç & Levine, 2008), as cited on (Estrada, Park, & Ramayandi, 2020), the main goal of a financial system is to lower the costs of information and transactions that hinder economic activity. It has been noted that the fundamental duties of a financial system are to mobilize savings, produce ex-ante information on possible investments and allocate capital, monitor investments and provide corporate governance after the provision of finance, and facilitate trading, risk diversification, and risk management.

Basically, majority of literatures quoted the accelerator theory of investment (Simple and Flexible), the financial theory of investment, the "Tobin q theory of investment", and the "neoclassical theory of investment" when they are dealing with the theory of investment and their implications. In this section the above selected theory of investments are examined as discuss on (Yemisirach, 2022).

According to the "Simple Accelerator theory of investment", a firm's capital stock must be appropriately increased to increase its rate of output. The major conclusion of this model is that changes in aggregate demand are what cause changes in capital stock. The primary flaw in this theory is that it does not take other things like interest rate into account and can only account for the defined factors. On the other hand, the "Flexible Accelerator theory of Investment" is an improved version of the accelerator theory that takes into account the shortcomings of the Simple Accelerator theory. The basic idea behind this model is that if the gap between the existing capital stock and the desired capital stock is large, the firm's investment will always be larger. In both "simple" and "flexible accelerator" theories of investment behaviour, desired capital is proportional to output. The main implication of the model is that investment expenditure of an investing firm is proportional to its output while the output is a function of demand.

The most recent theory of investment, the Financial Theory, states that desired capital stock or investment depends on the degree of profit, which is the profit that the business is expected to generate in the future. Investors can obtain a fund either internally, through retained earnings, or externally, through loans, issuance of bonds or stock.

One of the more modern models, the "Tobin-Q Theory of investment", often known as the "Tobin's Q ratio", equals the market value of a corporation divided by the cost of its assets. So, equilibrium is reached when market value and replacement cost are equal. This theory proposed the Expected Profits model in investment expenditure, which is related to the market value to replacement value ratio of business capital assets (the acquisition cost of the firm). According to this hypothesis, the main factor influencing investment is the "Q ratio", or the market value to replacement cost ratio of the existing capital stock. In other words, businesses are interested in investing when the market value of an extra unit increases above its cost of replacement.

One of the accelerated theory models, the "Neoclassical theory of investment" holds that the optimal stock of capital is determined by production and the cost of capital services in relation to the cost of output. Chirinko (1993: 1878) as cited on (Patrick, 2006) indicated that in the neoclassical approach, the desired or optimal capital stock is proportional to output and the user cost of capital (which in turn depends on the price of capital goods, the real rate of interest, the rate of depreciation and the tax structure). It is crucial to remember that a firm operating under the assumptions of the neoclassical model is presumptively subject to perfectly competitive product and factor markets, which presupposes, among other things, the absence of liquidity constraints (to adjust capital stock) and a situation of general equilibrium with full employment.

All the above investment theories did not exclusively elucidate how a financial sector development in a nation affects its investment. However, the theories independently indicated for instant how loan, interest rate, and other variables affect an investment. Hence, this study attempts to add other variables that are supposed to have strong association with investment so that how financial sector development affects investment in the Ethiopian Economy.

3.3. Empirical Literatures

There are merely limited number of researches which investigates the relationship between financial sector development and Investment. Even, those researchers are mainly focused on private investment than using domestic investment. The vast majority of researches related to

financial sector developments have concerted to investigate how it affects the economic growth of once country. In this section, effort was exerted to review empirical results of various studies conducted by different authors in different periods.

A research on "Financial Development, Savings and Investment in South Africa: A Dynamic Causality Test" during the period from 1976 to 2014 and Using the ARDL bounds testing approach to co integration and the ECM-based Granger-causality test by (Muyambiri & Odhiambo, 2017) was conducted. The study finds out a unidirectional causal flow from investment to financial development, but only in the short run. In the long run, however, the study could not establish any linkage between investment and financial development irrespective of whether bank-based or market-based financial development is used as a proxy for financial sector development.

Using a panel of 124 developed and developing countries data over a period of 24 years (1980-2003), (Nabamita & Sanjukta, 2009) undertook a study on "The Impact of Financial Development on Domestic Investment: A Quintile Regression Approach." The results of the study indicated that the maximum need for financial development is in countries with low levels of domestic investment and the marginal benefit derived out of financial sector development falls as countries move from low investment to high investment group. It is also concluded that how the response of domestic investment varies for various proxies of financial development.

In their study in titled, "Finance, Investment, and Growth: Time Series Evidence from 10 Asian Economies", (Rousseau & Vuthipadadorn, 2005) using a period of over 1950–2000 and Vector Autoregressive Models (VARs) and Vector Error Correction Models (VECMs) concluded that finance did, on the whole, act as a driving force behind investment.

In his article with a title "Financial development, investment, and economic growth" and using multivariate vector-autoregressive (VAR) approach in 41 countries between 1960 and 1993, (Xu, 2007) study results reject the hypothesis that financial development simply follows economic growth and has very little effect on it. Instead, there is strong evidence that financial development is important to growth and that investment is an important channel through which financial development affects growth.

(Woldemariam, 2018) , in his study on "The Determinants of private Investment in Ethiopia", using OLS regressions model concluded that public investment, real GDP, external debt servicing , and access to bank credit have significant positive effect on private investment,

while lending interest rate and foreign direct investment have significant negative effect on performance of private investment under the study period.

In their study with the title "Determinants of Investment in Muslim Developing Countries: An Empirical Investigation", (Mohammed, Rabul, & Syed, 2009), using a Fixed Effect Estimator concluded that lagged investment, growth rate of per capita real GDP, domestic savings, trade openness and institutional development have positive significant effect on investment. In addition, foreign aid and private sector credit are found to have significant positive impact on investment but not robust. Foreign debt servicing has consistent negative effect on investment. Other variables such as, inflation rate, lending rate, human capital and population growth have been found to have no significant effect on investment.

In his paper "Financial Determinants of Domestic Investment in Sub-Saharan Africa: Evidence from Panel Data", (Leonce, 2000) used 30 sub-Saharan African nations as a sample and revealed a positive association between domestic investment and several financial development indicators. The study also revealed that a higher level of financial development is associated with higher levels of investment in the future, suggesting a significant long-term impact of financial development on domestic investment.

3.3.1. Private Sector Credit to Investment

In their effort to answer the question "Does Private Sector Credit Impact on Private Sector Investment in Nigeria?"(Okorie & Chikwendu, 2019), concluded that private sector credit has positive and significant impact on private sector investment in the short run, but in the long run, it has positive and insignificant impact on private sector investment in Nigeria. Similarly,(Asante, 2000) comes into a conclusion from his study of "Determinants of Private Investment Behaviour in Ghana", that the growth of real credit to the private sector had a positive and statistically significant effect on private investment. From a study on "Determinants of Domestic Investment in Nigeria: An Autoregressive Distributive Lag Approach" the authors (Ojong, Ogar, & Arikpo, 2018) comes into a conclusion that credit to the private sector has no long run causality with domestic investment in Nigeria.

With a title, "Financial development and private investment in Sub-Saharan Africa", (Misati & Nyamongo, 2011) conducted a study using panel data covering a period from 1991 to 2004 from 18 countries in Africa. The results of their study indicate a negative relationship between interest rate and private investment and both the credit to the private sector and turnover ratio used as a proxy for financial sector development; have significant relationships

with private investment. However, the effect of turnover ratio on investment is insignificant. It is also found that the informal sector is large and has positive effects on private investment and that institutional variables play a key role in determining the level of private investment in Africa.

In 2022, (Yemisirach, 2022), in her study on the Determinants of "domestic private investment" in Ethiopia by means of an ARDL model approach and secondary data between 1992-2020 using "domestic credit to the private sector" as a independent variable and other six independent variables concluded that in the short run, interest rate and federal reserve money affect "domestic private investment" positively, however exchange rate and "domestic credit to the private sector" affects "domestic private investment" negatively. Besides, there exists a long run positive relationship among exchange rate, nominal gross domestic product, and "domestic credit to the private sector".

(khatib, Altaleb, & Alokor, Economical Determinants of Domestic Investment, 2012), using Error correction model based on an ARDL approach came to a conclusion that domestic investment in Jordan is boosted by real GDP growth as well as an increase in exports of goods and services in their study on the economic determinants of domestic investment throughout the period (1980-2010). Long-term domestic investment stimulation also depends on how well the banking sector and human capital have developed. Yet, the increased access to domestic credit will boost domestic investment in the short term.(Ndikumana, 2000), investigates the financial determinates of Domestic investment in Sub-Saharan Africa using dynamic serial-correlation investment model based on a sample of 30 sub-Saharan African countries. The study indicated a positive relationship between domestic investment and various indicators of financial sector development. Accordingly, the author concludes that a higher financial sector development leads to higher future level of investment, implying a potential long run effect of financial development on domestic investment. Eventually, the author concluded that financial sector development can stimulate economic growth through capital accumulation. A study conducted by (Brian & Nicholas, 2018) to investigate the causal relationship between both bank based (using measurements such as "domestic credit to the private sector" and domestic credit provided by the financial sector) and market based (using stock market trends) financial development and investment in Mauritius for the period of 1976-2014 using an autoregressive distributed lag bounds testing approach. The study concluded that both bank-based and market-based financial development Granger-cause investment, both in the short run and in the long run.

Authors of a research (Assa & Abdi-khalil, 2012) examined the empirical relationships among macroeconomic factors that could affect short- and long-term private investment decisions in Malawi using a time series data from 1979 to 2009. The result demonstrated that real interest rates, bank credit to the private sector, and governmental investment all seemed to have an impact on investment decisions in the short run.

3.3.2. Broad Money Supply to Investment

Studies which found out the relationship between "broad money supply" and domestic investment are very scarce however following are some of the empirical evidences in the area.

A positive and statistically significant effect of Money supply on private investments was proved by (Gedion, 2021) in his study entitled "Effects of Monetary Policy on Private Investments in Ethiopia". Similarly, the argument on which private investment is positively affected by "broad money supply", domestic credit and interest rate channels is evidenced by a study conducted by(Dang, Pham, & Tran, 2020).The same conclusion was reached by (Abdulahi, 2022); in his study on "Monetary Policy Impact on Private Sector Performance in Nigeria "using Autoregressive Distributive Lag (ARDL) method that "broad money supply" has a significant positive impact on private sector performance both in the short run and long run., using an ordinary least squares (OLS) estimates (Brima & Brima, 2017), in his study on "Monetary Policy Effects on Private Sector Investment: Evidence from Sierra Leone" suggests that money supply exerts positive and statistically significant effect on private sector investments in Sierra Leone. Similar studies conducted in Pakistan by (Chaudhry, Iqbal, Umar, & Faheem, 2021) with a title "Impact of Monetary Policy on Inflation and Investment in Pakistan: A Time Series Analysis" using an Autoregressive distributed lag model comes into suggest the long-run positive and significant impact of money supply on investment. Negative long run relationship between "broad money supply" and Domestic investment was identified by (Iheonu, Asongu, Odo, & Ojiem, 2020). In studying the Monetary Policy and "domestic private investment" in Nigeria,(Ebisine & Oki, 2021) revealed the negative and significant effect of money supply on "domestic private investment" the long run in Nigeria.

During the investigation they made about "Does Financial Development Drive Private Investment in Ghana", (Daniel, Micheal, & Mustapha, 2016), based on the ARDL bounds testing approach to co integration for the years 1970–2014 and using five proxy measures of financial sector development, namely, private sector credit to GDP, "broad money supply" to GDP, deposit money bank assets to GDP, financial system deposit to GDP. The study

concluded that in the long run, all indicators of financial development: private sector credit, “broad money supply” to GDP, deposit money banks’ assets to GDP, and financial system deposits exerted no significant influence on private investment. In the short run, however, “broad money supply” and index of all FD indicators had an important effect on private investment. In the end, the authors came to the conclusion that, while in the short term, the effect of “financial sector development” on private investment various on how “financial sector development” is defined, it has not been a significant driver of “private investment “over the long run.

3.3.3. Bank Efficiency and Investment

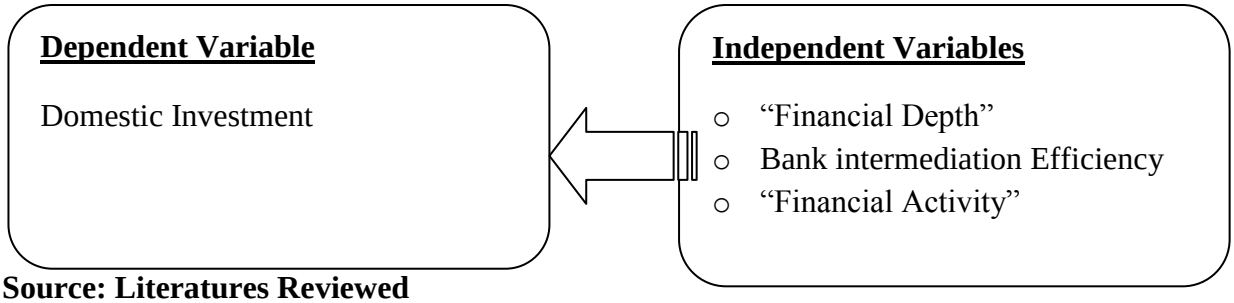
In their study, with a title “Financial sector development and Investment in selected countries of the Economic Community of West African States”, (Iheonu, Asongu, Odo, & Ojiem, 2020), using 33 years data and augmented mean group (AMG) procedure, find out that depending on the “financial sector development” metric used, the effect of “financial sector development” on “domestic investment” varies. In this case, “domestic credit to the private sector” has a positive, albeit small, impact on “domestic investment” in ECOWAS, whereas, “banking intermediation efficiency” (i.e., the ability of the banks to convert deposits into credit), and “broad money supply” have a negative, but significant, impact on “domestic investment” The study also found that in the selected ECOWAS countries, there are cross countries variations in the effect of “financial sector development” on “domestic investment”. The study also comes to a conclusion that “domestic credit to the private sector” in ECOWAS granger cause “domestic investment”.

A study conducted by (SimpliceA, 2014) with a title “Linkages between investment flows and financial development: Causality evidence from selected African countries” – Vector autoregressive models in the perspectives of Vector Error Correction Model and short-run Granger causality using 16 African Countries using four different measures of Financial Sector Developments what he noted as DESA variables which are “Financial Depth” (D=“broad money supply”: GDP), Bank Efficiency (E=Bank Credit: Bank Deposit), Size (S= “deposit bank assets” to “total assets” (deposit banks assets on “central bank assets plus deposit bank assets”) and “Financial Activity”, which is “the ability of banks to grant credit to economic operators and measured by the ratio of private credit by domestic banks on GDP” concluded that financial efficiency, which is “the ability to banks to fulfil their fundamental role of transforming mobilized deposits into credit for economic operators” appears to impact “investment” more than “Financial Depth (M2)”.

3.4. Conceptual Framework

Based on the empirical literatures reviewed, the conceptual framework of the study is crafted as indicated in the figure below. The conceptual framework is designed on what are the factors that determine the progress of domestic investment which will be the base for this study.

Figure 3: Conceptual Framework on Factors Affecting Domestic Investment[1]



Source: Literatures Reviewed

Domestic Investment can be affected by various financial and macro-economic variables. However, the very essence of this particular study is merely to find out how financial sector development as measured by various indicators determines domestic investment while it uses other control variables from the macroeconomic determinants.

3.5. Research Hypothesis

Using the findings of various studies and literatures in the area, the following null hypothesises are going to be verified in this research:

H_1: There is a significance relationship between "Financial Depth" or "broad money supply" and "domestic investment" in Ethiopia;

H_2: There is a significance relationship between "Financial Activity", "domestic credit to the private sector" and "domestic investment" in Ethiopia;

H_3: There is a significance relationship between Banking Intermediation Efficiency or "Bank credit to Bank Deposit" and "domestic investment" in Ethiopia; and

H4: "Domestic Investment" granger cause "Financial Sector Development" measured by all the three proxy variables.

[1] In this research:
- "Financial Depth" is measured by "broad money supply";
- Bank intermediation Efficiency is measured by bank credit to bank deposit; and
- "Financial Activity" is measured by "domestic credit to the private sector"

CHAPTER FOUR
METHODOLOGY

4.1. Introduction

Since research methodologies might vary from problem to problem, it is essential for researches to develop methods specific to their own problems (Kotari, 2004). Target population, source of data, data collection methods, research design, and data analysis techniques are all covered under this section.

4.2. Research Design and Source of Data

In this research, a time series analysis was applied in conjunction with an explanatory research design. Secondary data was collected from National Bank of Ethiopia (NBE). A 23 years data from 2000 GC to 2022 GC was used to run a time serious model and answer the basic questions of the research. This research used a deductive research technique based up on the underlined theories and various related literatures. It employed an Autoregressive Distributive Lag Model (ARDL). It applied various necessary pre-estimation and post estimation procedures to ensure the model is perfect, adequate to rely on, and forwarded policy recommendations are applicable.

4.3. Methods of Data Analysis

To execute the model, statistical software called STATA-15 is used. Data gathered from various sources are passed through pre-estimation procedures. A combination of stationary testing and lag length selection techniques are used in this regard. Various post-estimation tests, including autocorrelation, stability, normality, and hetroscedasticity tests were carried out. The applied model is used to investigate the central query of this study called "Does financial sector development affect domestic investment in Ethiopia and does this work for alternative measures of financial sector development? Besides, tables, figures, and graphs are also used to elaborate results taken out from the model.

4.4. Model Specification

The study used an Autoregressive Distributive Lag (ARDL) model to find out the relationship between the variables under consideration. Among the many advantages this model has, it allows the measurements of both short term and long run effects. Besides, it can work with a mixed stationary condition of I_0 and I_1 (Kelvin, 2016).

The functional form of the model is depicted as:

$\mathbf{lngcfmn_t = \alpha_0 + \alpha_1 lndcpsmn_t + \alpha_2 lnbmsgdp_t + \alpha_3 lnbcbd_t + \alpha_4 lntogdp_t + \alpha_5 lnginf_t + \alpha_6 lndsmn_t + \varepsilon t}$ **……..Where,**

gcfnmn= "Gross capital formation in million", to measure "Domestic Investment"

dcpsmn= ""domestic credit to the private sector" in million", to measure "Financial Activity";

bmsgdp= ""broad money supply" as a percentage of GDP", to measure ""Financial Depth"";

bcbd= "Bank Credit to Bank Deposit" as a measure of "Financial intermediation Efficiency";

togdp= "Trade Openness as a percentage of GDP";

ginf= "General Inflation: ; and

dsmn= "External Debt Servicing in Million"; and **Ln**= lan

The research used a logarithm form of the given variables, since it minimizes the problem of Hetroscedasticity, makes highly skewed distributions to less skewed, and remove serial correlation from the model. In time serious data analysis, verification of stationarity is a prerequisite before proceeding into other details. Therefore, this research applied an Augmented Dicky-Fuller (ADF) test to ensure the stationarity of the variables under study.

In this study, the researcher's primary objective is to look at pressing questions. Do Ethiopia's financial sector developments have an effect on domestic investment in the nation? The second query concerns whether the relationships between Ethiopia's financial sector development and domestic investment are consistent across alternative financial sector development measures, which include "domestic credit to the private sector", "broad money supply", and bank credit to bank deposits. Below are the expected signs from the model:

Table 6: Summary of Variables and Expected Signs

Independent Variables	Description	Expected Sign
"domestic credit to the private sector"	Refers to credit provided to the private sector by financial sectors through loans, advances, etc	+
"Broad Money Supply"	Refers to the total amount of money in circulation, including both highly liquid "narrow money" and less liquid forms.	+/-
"Bank Credit to Bank Deposit"	Refers to bank credits provided to the various sectors as a share of total deposits.	+/-

CHAPTER FIVE
RESULTS AND DISCUSSIONS

This chapter presented the results obtained from the econometric analysis and the respective interpretations. In addition, all relevant pre and post estimation test results are presented and discussed.

5.1. Lag Length Selection

Basically, information criteria such as Akaike information criterion (AIK), Bayesian Information Criterion (BIC), Hannan-Quinn Information Criterion (HQIC), and Shewarz Baysian Information Criterion (SBIC) are commonly used to specify the lag length of a model though each lag length criteria has its advantages and disadvantages. Choosing few lags will lead to "omission of relevant variable bias,'' which has very serious consequences. On the other hand, choosing a higher number of lag lengths will lead to the "inclusion of irrelevant variable bias,'' (Gujarati & Porter, 2009). Hence, too long a lag length will distort the data and lead to a decrease in power of explaining the dynamic behaviour of the variables and hence the researcher opted to rely on the SBIC criteria since it has the ability to reach into a correct model with a small lag length, Annex (1).

Table 9: Selected Lag Length Using Various Criteria

Variables	FPE	AIC	HQIC	SBIC
lngcfmn	1	1	1	1
lndcpsmn	1	1	1	1
lnbcbd	3	3	3	1
lnbmsgdp	4	4	4	1
lntogdp	2	2	2	1
lnginf	0	0	0	0
lndsmn	2	2	1	1

Source: STATA Output

Similarly, using the "matrix list e (lags)" command, the STATA-15 automatically produced the following result which confirms the selection of a maximum lag length of one in applying an ARDL.

```
e(lags)[1,7]
     lngcfmn  lndcpsmn    lnbcbd  lnbmsgdp   lntogdp    lnginf    lndsmn
r1         1         1         0         1         0         1         0
```

5.2. Stationary Test

Numerous time serious data are regarded as non-stationary, (Wasserfallen, 1986). It is not possible to generalize for other time periods and a non-stationary time serious data may be of

little practical value for the purpose of forecasting (ibid ,741). The study uses the Augmented Dicky-Fuller test to decide on whether the variables under consideration are stationary of order zero I (0) or I (1), or neither. The H_0(Null hypothesis) of the Augmented Dicky-Fuller test is that the time series under consideration includes a unit root and hence it is non-stationary.Table8depicted the stationary test results of all the variables under consideration. As indicated in the table, all the variables, except **lnbcbd (**stands for bank credit to bank deposit**)** and **lnginf**(stands for general inflation) are stationary at first difference or I (1) which is evidenced by the significance of all the p-values are at least at 5% except lndcpsmn which is significant at 10% which suggested to reject the null hypothesis. Being some of the variables are stationary at level and some others are stationary at first difference; the researcherhas opted to apply an Autoregressive Distributive Lag (ARDL) Model.

Table 7: Results of Stationary Test Using ADF-Test

Variables	Level	Prob	1st Diff.	Prob
lngcfmn	Non Stationary	0.9606	Stationary	0.000
lndcpsmn	Non Stationary	0.9926	Stationary	0.0975**
lnbcbd	Stationary	0.0072		
lnbmsgdp	Non Stationary	0.6649	Stationary	0.0258
lntogdp	Non Stationary	0.9181	Stationary	0.0363
lnginf	Stationary	0.001		
lndsmn	Non Stationary	0.9884	Stationary	0.0303

Source:

5.3. ARDL Bound Test for Long Run Relationship

The existence of long-run /co-integrating relationship in ARDL can be tested by Pesaran, Shin, and Smith (PSS) bounds test.

```
Pesaran, Shin, and Smith (2001) bounds test

H0: no level relationship                                          F =     4.550
Case 3                                                             t =    -3.900

Finite sample (6 variables, 22 observations, 3 short-run coefficients)

Kripfganz and Schneider (2020) critical values and approximate p-values

   |  10%              |  5%               |  1%               |  p-value
   |     I(0)     I(1) |     I(0)     I(1) |     I(0)     I(1) |     I(0)     I(1)
---+-------------------+-------------------+-------------------+-------------------
 F |    2.722    4.276 |    3.453    5.317 |    5.472    8.149 |    0.020    0.083
 t |   -2.490   -3.940 |   -2.932   -4.513 |   -3.893   -5.775 |    0.010    0.105

do not reject H0 if
    either F or t are closer to zero than critical values for I(0) variables
      (if either p-value  > desired level for I(0) variables)
reject H0 if
    both F and t are more extreme than critical values for I(1) variables
      (if both   p-values < desired level for I(1) variables)
```

The null hypothesis in this test is, H_o: No level relationship. Where, a model has said to have a co-integrating relationship and we reject the null hypothesis if the F-statistics value is greater than the I_1 serious. Based on the ARDL bound test as indicated above, it can be asserted that the value of the F statistics is greater than the lower bound of the critical values. Hence, the researcher rejects the null hypothesis and concluded the existence of long run relationship in the model.

5.4. Goodness of Fit Statistics

The goodness of fit statistics illustrates how well a statistical model fits to a set of observed data. These statistics provide measures of how closely the observed data match the expected data according to the model being tested. The $R^2$and adjusted R^2 in this model are 85% and 72%, respectively. Adjusted R-squared (R^2) is considered better than R-squared because it penalizes the addition of irrelevant variables to a statistical model. R-squared always increases when additional variables are added to the model, whether or not they are important for the prediction of the dependent variable. Adjusted R-squared, on the other hand, increases only when the addition of a new variable to the model improves the prediction beyond what would be expected by chance. Therefore, it provides a more accurate reflection of the model's goodness of fit, and it is a better indicator of the model's predictive power. Using the adjusted R^2 of 72%, one can conclude that other things remains the same, about 72% of the variations in the dependent variable which is domestic investment is explained by variations in the independent variables used in the model.

```
Sample: 2001 - 2022                             Number of obs      =        22
                                                R-squared          =    0.8534
                                                Adj R-squared      =    0.7201
Log likelihood =  35.995783                     Root MSE           =    0.0666
```

5.5. Test for Omitted Variables

The Ramsey Reset Test is a statistical test used to determine whether a regression model that has been used to analyze a dataset has omitted important variables. The test helps to ensure that the model is correctly specified and can be used to make reliable predictions. The null hypothesis of this test is that “the model has no omitted variables”. Looking at the test result, the p-value at any significance level (1%, 5% and 10%) is insignificant and hence the researcher failed to reject the null hypothesis and conclude that the model has no omitted variables.

```
Ramsey RESET test using powers of the fitted values of D.lngcfmn
       Ho:  model has no omitted variables
                   F(3, 8) =      1.42
                 Prob > F =      0.3075
```

5.6. Test for Multicollinearity

In order to check the presence of multicollinearity in the model, a pair wise correlation has been conducted. In this case, (Gujarati & Porter, 2009) indicated that if the pair-wise or zero-order correlation coefficient between two regressors is high (in excess of 0.8), then multicollinearity is suspected. Accordingly, all the correlation coefficients of the independent variables are well below 0.8 so that the researcher deduced the absence of multicolliniality in the model.

	lnbcbd	lndcpsmn	lnbmsgdp	lnginf	lntogdp	lndsgdp
lnbcbd	1.0000					
lndcpsmn	-0.2088	1.0000				
lnbmsgdp	0.0096	-0.4364	1.0000			
lnginf	-0.1722	0.3571	-0.4436	1.0000		
lntogdp	-0.2845	-0.6775	-0.0264	-0.0748	1.0000	
lndsgdp	0.2196	0.1523	0.5557	-0.2052	-0.4487	1.0000

5.7. Heteroscedasticity Test

The study used Breush-Pagan/Cook-Weisberg to test for the existence of Heteroscedasticity. The null hypothesis of this particular test is homosedasticity/constant variance. However, given the p value is more than any significance level (1%, 5% and 10%), the researcher failed to reject the null hypothesis and concluded the absence of Hetroscedasticity.

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of D.lngcfmn

         chi2(1)      =     0.55
         Prob > chi2  =   0.4580
```

5.8. Autocorrelation Test

The study used the Breusch-Godefrey LM test to prove on whether there exists an Autocorrelation in the model or not. The null hypothesis in this test is absence of serial

correlation and decision rule is to reject the null hypotheses whenever the p-value test is less than the level of significance ($p < \alpha$). However, since the p-value is greater than the level of significance ($p > \alpha$), the researcher failed to reject the null hypothesis and prove the absence of serial correlation.

Breusch-Godfrey LM test for autocorrelation

lags(*p*)	chi2	df	Prob > chi2
1	1.233	1	0.2669

H0: no serial correlation

5.9. Residual Normality Test

The residual normality test is a statistical method used to test if the residuals (i.e. the differences between the observed values and the predicted values) from a regression or other statistical model are normally distributed. The null hypothesis for this test is that the residuals are normally distributed. Given an insignificant p-value at any significance level (1%, 5% and 10%), the researcher failed to reject the null hypothesis and prove that the residuals are normally distributed.

```
. swilk residual

                    Shapiro-Wilk W test for normal data

    Variable |        Obs       W           V         z       Prob>z
-------------+-------------------------------------------------------
    residual |         22    0.95712       1.086     0.168    0.43342
```

5.10. Granger Causality Wald Test

Granger causality test is commonly used to study cause-and-effect relationships between variables over time. It was the researcher's intent to find out the granger causality among the dependent variable and all major variables representing financial sector development. The results of the granger causality test justified that domestic investment as measured by gross capital formation granger-cause all the variables to measure financial sector development, which are "domestic credit to the private sector", "bank credit to bank deposit", and "broad money supply". However, all the three independent variables which represent financial sector development do not granger-cause "domestic investment" at 5% significance level. This

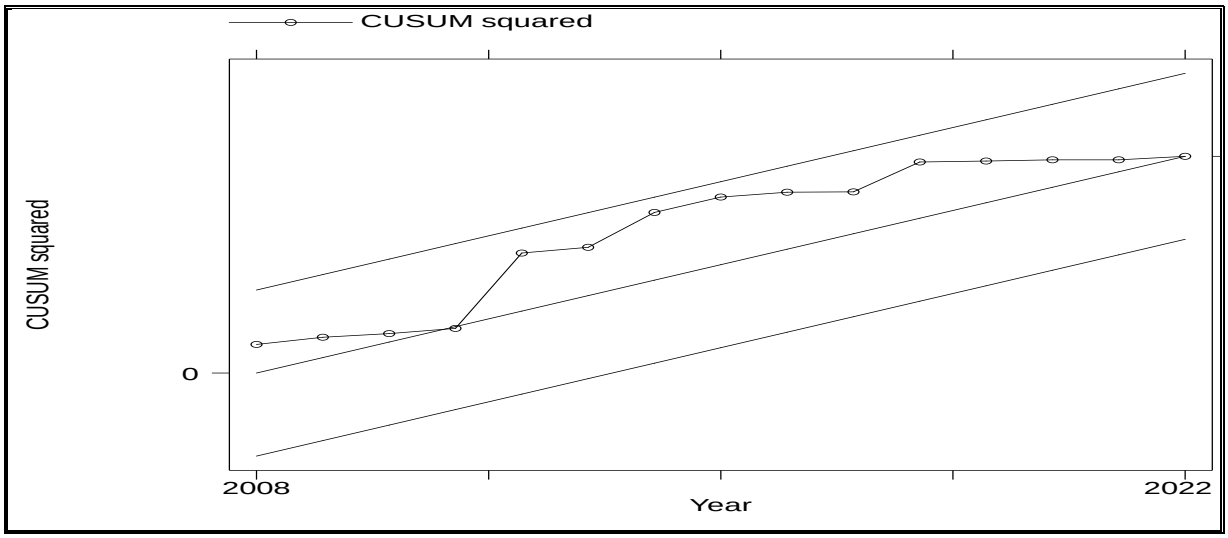
supports the researcher's expectation in that domestic investment granger-cause financial sector development.

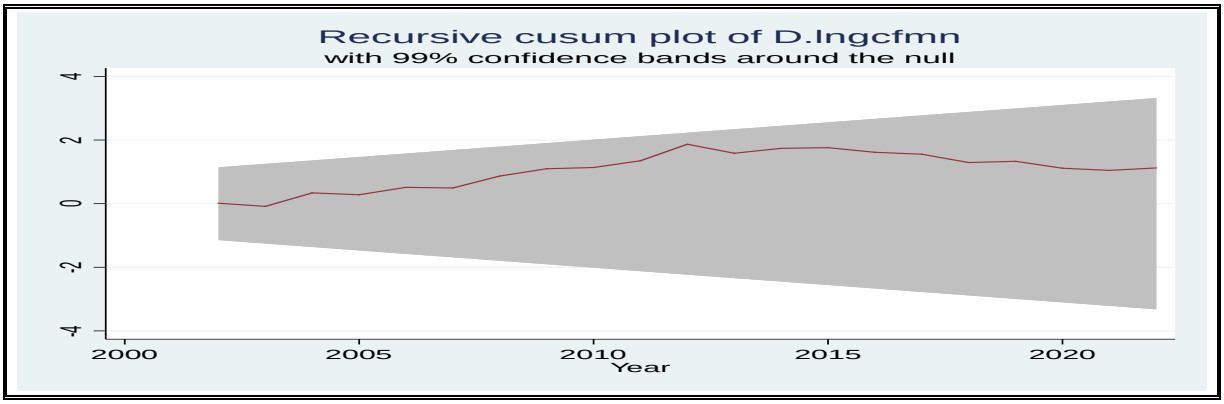
Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
lngcfmn	lndcpsmn	21.325	1	0.000
lngcfmn	lnbcbd	36.59	1	0.000
lngcfmn	lnbmsgdp	25.199	1	0.000
lngcfmn	ALL	42.494	3	0.000
lndcpsmn	lngcfmn	.31463	1	0.575
lndcpsmn	lnbcbd	9.4271	1	0.002
lndcpsmn	lnbmsgdp	4.2933	1	0.038
lndcpsmn	ALL	32.726	3	0.000
lnbcbd	lngcfmn	3.627	1	0.057
lnbcbd	lndcpsmn	3.9101	1	0.048
lnbcbd	lnbmsgdp	.09622	1	0.756
lnbcbd	ALL	5.4765	3	0.140
lnbmsgdp	lngcfmn	3.3282	1	0.068
lnbmsgdp	lndcpsmn	3.3097	1	0.069
lnbmsgdp	lnbcbd	5.6596	1	0.017
lnbmsgdp	ALL	5.8925	3	0.117

5.11. Stability (CUSUM) Test

CUSUM (Cumulative Sum) and CUSUMSQ (Cumulative Sum of Squares) tests are commonly used in Auto-Regressive Distributed Lag (ARDL) modelling to examine the stability of the coefficients in the long-run relationship between variables. As can be seen from the two diagrams below the graphs remains within the control limits and ensures model stability.





5.12. The Long Run and Short Run Dynamics Equilibrium

Once the existence of long run relationship in the model is asserted by Pesaran, Shin, and Smith (PSS) bounds test, it is now possible to run the ARDL model and see the long run and short run dynamics equilibrium using the following output.

Sample: 2001 - 2022 — Number of obs = 22
R-squared = 0.8534
Adj R-squared = 0.7201
Log likelihood = 35.995783 — Root MSE = 0.0666

D.lngcfmn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ADJ						
lngcfmn L1.	-.974627	.2498978	-3.90	0.002	-1.524648	-.4246055
LR						
lndcpsmn	.8397805	.0601383	13.96	0.000	.7074169	.9721441
lnbcbd	-.9856282	.3922483	-2.51	0.029	-1.848961	-.1222956
lnbmsgdp	-.5435155	.2744028	-1.98	0.073	-1.147472	.060441
lntogdp	.5067577	.2250113	2.25	0.046	.0115111	1.002004
lnginf	.0217213	.0197114	1.10	0.294	-.0216631	.0651057
lndsmn	.0798889	.0424198	1.88	0.086	-.0134764	.1732543
SR						
lndcpsmn D1.	-.5961391	.2638849	-2.26	0.045	-1.176946	-.0153325
lnbmsgdp D1.	-.6025679	.2733675	-2.20	0.050	-1.204246	-.00089
lnginf D1.	-.0212445	.0120038	-1.77	0.104	-.0476647	.0051757
_cons	5.517681	2.929866	1.88	0.086	-.9309109	11.96627

5.12.1. The Long Run Relationship

As can be seen from the STATA output depicted above, all the most important variables in the model are significant. However, there exit a different directional relationship among those variables used to measure financial sector development.

Based on the depicted STATA output above, the functional form of the long run relationship in the model looks like:

DI=	5.52+	0.84DCPS-	0.54*BMS-	0.99*BCBD+	0.51*TO+	0.02*GINF+	0.08*DS
P-values	(0.086)	(0.0000)	(0.073)	(0.029)	(0.046)	(0.294)	(0.086)

To start with, "Financial Activity" which is one of the major of financial sector development in terms of "domestic credit to the private sector as a percentage of GDP" has a positive and significant relationship with the dependent variable "domestic investment" in the long run. More specifically, it can be concluded that other things remains the same, a percentage increase in the "Financial Activity" as measured by "domestic credit to the private sector", likely leads to a 0.84%increase in domestic investment in the long run. This result is consistent with the research results of (khatib, Altaleb, & Alokor, Economical Determinants of Domestic Investment, 2012), (Ndikumana, 2000), and (Misati & Nyamongo, 2011), and is consistent with the researchers expectation.

Looking at the other major of financial sector development, that is "bank credit to bank deposit" which measures "banking sector intermediation efficiency" or "the ability of banks to make over deposits into credit", one can conclude that other things remains constant, a percentage change in a banking intermediation efficiency will lead to a 0.99 percentage decrease in domestic investment in the long run. A similar finding was obtained by (Iheonu, Asongu, Odo, & Ojiem, 2020).As to this author, the major reason for this negative long run relationship is owing to the failure of banks to convert mobilised deposits into lending big investors and investments. Generally, it can be argued that higher intermediation efficiency will lead to higher lending rates since banks tend to get a higher return from their limited deposits. This can increase the cost of borrowing for businesses and deter investors, which ultimately lowers the level of capital formation. In addition, more efficient banks in intermediating funds may prefer to lend to already established businesses over start-ups or engage in less important enterprises, which could reduce the overall amount of capital available for long-term investment. Furthermore, banks' increased emphasis on short-term earnings at the expense of long-term investments in the economy could impede the expansion of capital creation.

In a similar vein, there exists a significant negative long run relationship between "broad money supply", which is the other measure of financial sector development and used in this research as a measure of "Financial Depth" at 10% significance level. More specifically, in

the long run, other things remains the same, a percentage increase in the "Financial Depth" measured by "broad money supply", will lead to a 0.5 percentage decrease in domestic investment. The result is consistent with (Iheonu, Asongu, Odo, & Ojiem, 2020) and (Ebisine &, 2021). Few possible reasons for why "broad money supply" may have a negative and significant relationship with domestic investment can be when money supply increases over time; it can lead to inflation, which means that the value of money decreases over time. This makes it more expensive to invest in new projects and can reduce the return on investment, which may discourage investors from investing domestically. Controlling the supply of money has a paramount importance to control inflation and aggregate demand, (Friedman, 1959), as cited on (Kabir, 2002).

Trade openness is found to have a significant and positive long run relationship with domestic Investment and a percentage increase in trade openness will lead to a 0.5% increase in domestic investment, other things remains the same. Regarding external debt servicing, the STATA output justified a significant positive long run relationship between external debt servicing and domestic investment at 10% significance level. Specifically, in the long run, a percentage increase in debt servicing will lead to a 0.08% increase in domestic investment, other things remains the same it can be deduced that, when a country properly services its external debt obligations, it signals to investors and creditors that the country is creditworthy and can be trusted to repay its debts. This can lead to increased investment in the domestic economy, as debtors are more willing to lend money to the country.

5.12.2. Short Run Relationship

Apart from the long run relationship, the short term relationship among the variables under consideration is discussed here. As can be seen in the table above, the coefficient of the error correction term or the speed of adjustment is significant and negative at 1% level of significance indicating that the variables have a long run relationship. The speed of adjustment implies the speed at which domestic investment moves back to its equilibrium if there exists any shocks in other variables. Explicitly, whenever there exists a percentage shock in any variable in the short run, domestic investment will respond by moving back towards its long run equilibrium level by 97% which asserted the quick adjustment to restore long-run equilibrium.

Looking at the coefficients in the short run, both "domestic credit to the private sector" and "broad money supply" has a significant negative relationship with that of domestic investment. More specifically, other things being constant, a percentage increase in "domestic

credit to the private sector" will lead to a 0.6% decrease in domestic investment in the short run. A similar short term relationship does exist between "broad money supply" and domestic investment where a percentage increase in "broad money supply" will lead to a 0.6% decrease in domestic investment.

Table 8: Table of Hypothesis

Explanatory Variables	Researcher's Hypothesis	p-value of the coefficients	Level of significance	Accept/Reject the hypothesis
"Financial Activity"	Has significant relationship with Domestic investment	0.000	Significant at 1%	Accept
"Financial Depth"	Has significant relationship with Domestic investment	0.073	Significant at 10%	Accept
Banks' intermediation Efficiency	Has significant relationship with Domestic investment	0.029	Significant at 5%	Accept
	Domestic investment Granger cause financial sector development	0.000	Significant at 1%	Accept

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1. Summary

An ARDL regression model was employed to conduct this study. To determine whether the variables were stationary, the Augmented Dickey Fuller (ADF) test was run. In order to confirm that a long-term association existed, the Pesaran, Shin, and Smith (PSS) test was performed. Following that, the ARDL model was run to determine the long- and short-term relationships between domestic investment and all other independent variables. To confirm the absence of multicollinearity, pair wise correlation tests were performed. In addition, tests for hetroscedasticity using the Breusch-Pagan/Cook-Weisberg, tests for autocorrelation using the Breusch-Godefrey's LM test, residual normality test using the Shapiro-Wilk's W test, omitted variable testing using the Ramsey Reset tests, and stability test using the cusum and cusum sq tests were conducted. The results of the entire diagnostic tests showed that the model is well specified and free from all anticipated time-serious problems. In light of this, "the effect of financial sector development on domestic investment" has been determined as the results of which is summarized below.

Table 9: Summary of Results

Explanatory Variables	Is Significant In Short run?	Coefficient	Is Significant in Long run?	Coefficient
"domestic credit to the private sector"	Yes	-0.59	Yes	0.84
"broad money supply"	Yes	-0.60	Yes	-0.54
Bank Credit to Bank Deposit	No	-	Yes	-0.99

Source: STATA output

6.2. Conclusions

Both "broad money supply" and "domestic credit to the private sector" have an adverse effect in the short term on domestic investment. Particularly, a 1% increase in the amount of "broad money supply" resulted in a 0.6% decline in domestic investment. Similarly, (Yemisirach, 2022) find out a negative short run relationship between "Financial Activity" and "domestic private investment". Likewise, for every percentage point rise in "domestic credit to the private sector", "domestic investment" will decline by 0.59 percent. On the other hand, domestic investment increases by 0.84% over the long run for every percentage increase in "domestic credit to the private sector". However, a one percent rise in "broad money supply" and the "ratio of bank credit to bank deposit" will cause "domestic investment" to fall by

0.54% and 0.98%, respectively. Besides, the speed of adjustment to restore equilibrium following a disturbance was statistically significant at 1% with a speed of adjustment of 0.974 and negative which signifies that adjustment to restore long-run equilibrium is reasonably high.

To start with, “Financial Activity” which is one of the major of financial sector development in terms of “domestic credit to the private sector as a percentage of GDP” has a positive and significant relationship with the dependent variable domestic investment in the long run. More specifically, it can be concluded that other things remains the same, a percentage increase in the “Financial Activity” as measured by “domestic credit to the private sector”, likely leads to a 0.84% increase in domestic investment in the long run. This result is consistent with the research results of (khatib, Altaleb, & Alokor, Economic Determinants of Domestic Investment, 2012), (Ndikumana, 2000), and (Misati & Nyamongo, 2011), and is consistent with the researchers expectation.

Looking at the other major of financial sector development, that is “bank credit to bank deposit” which measures “banking sector intermediation efficiency” or the “ability of banks to make over deposits into credit”, one can conclude that other things remains constant, a percentage change in a “banking intermediation efficiency” will lead to a 0.99 percentage decrease in the long run in “domestic investment”. A similar finding was obtained by (Iheonu, Asongu, Odo, & Ojiem, 2020). Generally, it can be argued that higher intermediation efficiency will lead to higher lending rates since banks tend to get a higher return from their limited deposits. This can increase the cost of borrowing for businesses and deter investors, which ultimately lowers the level of capital formation. In addition, more efficient banks in intermediating funds may prefer to lend to already established businesses over start-ups or engage in less important enterprises, which could reduce the overall amount of capital available for long-term investment. Furthermore, banks' increased emphasis on short-term earnings at the expense of long-term investments in the economy could impede the expansion of capital creation.

In a similar vein, there exists a significant negative long run relationship between “broad money supply”, which is the other measure of financial sector development and used in this research as a measure of “Financial Depth” at 10% significance level. More specifically, in the long run, other things remains the same, a percentage increase in the “Financial Depth” measured by “broad money supply”, will lead to a 0.5 percentage decrease in domestic

investment. The result is consistent with (Iheonu, Asongu, Odo, & Ojiem, 2020). Few possible reasons for why "broad money supply" may have a negative and significant relationship with domestic investment can be when money supply increases over time; it can lead to inflation, which means that the value of money decreases over time. This makes it more expensive to invest in new projects and can reduce the return on investment, which may discourage investors from investing domestically. Controlling the supply of money has a paramount importance in order to control inflation and aggregate demand, (Friedman, 1959), as cited on (Kabir, 2002).

"Financial Activity" or "domestic credit to the private sector" has positive and significant effect on "Domestic Investment". This effect is simple to understand and can be attributed to the fact that when investors have access to credit they can invest in variety of long term projects that leads to boost economic growth. However, investors might not able to invest long term projects immediately and may use the credit obtained from banks to finance their short term working capital needs and this misallocation of resources may result in a negative relationship in the short run. Besides, in the context of credit availability, investors may become hesitant to invest in the short term due to uncertainties of different kind such us inflation and public unrest.

With regard to banks intermediation efficiency (Bank credit to Bank Deposit), a higher intermediation efficiency will lead to higher lending rates since banks tend to get a higher return from their limited deposits. This can increase the cost of borrowing for businesses and deter investors, which ultimately lowers the level of capital formation. In addition, more efficient banks in intermediating funds may prefer to lend to already established businesses over start-ups or engage in less important enterprises, which could reduce the overall amount of capital available for long-term investment. Furthermore, banks' increased emphasis on short-term earnings at the expense of long-term investments in the economy could impede the expansion of capital creation.

Majority of authors justified the positive and significant long run relationship between domestic investments and "Financial Depth" or "broad money supply". However, some others such as (Iheonu, Asongu, Odo, & Ojiem, 2020)and (Ebisine & Oki, Monetary Policy and Domestic Private Investment in Nigeria, 2021) found out a negative long run relationship between "Financial Depth" and domestic investment. It can be argued that when money supply increases over time, it can lead to inflation, which means that the value of money

decreases over time. This makes it more expensive to invest in new projects and can reduce the return on investment, which may discourage investors from investing domestically.

The granger causality test entails that domestic investment granger cause financial sector development calling the government to intensively work on domestic investment and encourage private investors so that its domestic financial sector will develop.

In general, this study concluded that the effect of financial sector development depends up on the variables used to measure financial sector development. Therefore, the researcher believes that careful consideration is required in measuring “financial sector development" before utilizing it as a policy tool to promote “domestic investment”.

6.3. Recommendations

In general, based on the findings of the study, the following key recommendations can be drawn:

i) Apart from lending activities, domestic banks should intensively work on domestic resource mobilization so that the speed of credit provision and resource mobilization matched and hence it confiscate their tendency to demand a higher return from limited resources since economics of scale is take place;
ii) The government should control the supply of money so that inflation will be controlled and investors will be encouraged expecting a positive and adequate return on their investment hence domestic investment will ultimately be enhanced;
iii) Given the results of the study, decision makers should exercise caution when selecting financial sector development metrics as a tool for promoting domestic investment. This is because, different measures of financial sector development will lead to different conclusions and then to different policy intervention; and
iv) The Ethiopian government should promote domestic investment by applying various applicable tax incentives, developing enabling infrastructures, reducing the bureaucracy hurdles to execute investment in the country so that domestic investment will be improved which leads to the development of the domestic financial sector. This is because; an increase in investment can attract more investors and boost the overall growth of the economy which can in turn lead to an increase in demand for domestic financial services.

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ANNEXES:

Annex 1: Summary of Empirical Literatures

S/No.	Author/s and year	Dependent Variables	Independent Variables	Methods Employed	Key Findings
1.	(Iheonu, Asongu, Odo, & Ojiem, 2020)	Domestic Investment (measured by Gross fixed Capital Formation)	"domestic credit to the private sector", Banking intermediation efficiency or "bank credit to bank deposit", and "broad money supply" as a measure of FSD, GDP per capita,- personal remittance	Augmented mean group (AMG) procedure	1. The impact of "financial sector development" on "domestic investment" depends on the measure of financial sector development utilised; 2. "domestic credit to the private sector" has a positive but insignificant impact on "domestic investment" in ECOWAS, 3. "Banking intermediation efficiency" and "broad money supply" negative and significant influence "domestic investment"
2.	(Simplice A., 2014)	"Domestic investment", "foreign investment", "portfolio investment" and "total investment"	DESA variables, "Financial Depth", financial efficiency, "financial size", and "Financial Activity".	Vector Error Correction Model and short-run Granger causality	"Financial efficiency" appears to impact investment more than "Financial Depth" (M2).
3.	(Ndikumana, 2000)	Domestic Investment	• Interest rate fluctuations • Exchange rate fluctuations • The escalation of external indebtedness • Inefficiency of the banking system	Dynamic serial-correlation investment model	• Positive relationship between domestic investment and various indicators of financial sector development; • Long run effect of financial development on domestic investment • Financial sector development can stimulate economic growth through capital accumulation
4	(Daniel, Micheal, & Mustapha, 2016)	Private Investment	Private sector credit to GDP, "broad money supply" to GDP, deposit money bank assets to GDP, financial system deposit to GDP	ARDL bounds testing approach to co integration	• In the long run, all indicators of financial development: private sector credit, "broad money supply" to GDP, deposit money banks' assets to GDP, and financial system deposits exerted no significant influence on private investment;

S/No.	Author/s and year	Dependent Variables	Independent Variables	Methods Employed	Key Findings
					• In the short run, however, "broad money supply" and index of all FD indicators had an important effect on private investment
5	(Brian & Nicholas, 2018)	Gross Fixed Capital Formation (a measure of Investment)	"domestic credit to the private sector", domestic credit provided by the financial sector, stock market trends	Autoregressive distributed lag bounds testing approach	Both "bank-based" and "market-based" financial development Granger-cause investment, both in the short run and in the long run.
6	(Muyambiri & Odhiambo, 2017)			ARDL bounds testing approach to co-integration and the ECM-based Granger-causality test	• A unidirectional causal flow from investment to financial development, but only in the short run; • In the long run, the study fails to find any causal relationship between financial development and investment
7	(Nabamita & Sanjukta, 2009)	"Gross domestic capital formation as percentage of gross domestic product (GDP)"	"domestic credit to the private sector", real GDP growth, GDP per capita, real interest rate, trade openness, government expenditure as a percentage of GDP,	Quintile Regression Approach	• The response of "domestic investment" varies for various proxies of financial development.
8	(Yemisirach, 2022)	"domestic private investment"	Exchange rate, federal reserve money, interest rate, inflation rate, credit to the private sector, nominal GDP	ARDL model approach	• In the short run, interest rate and federal reserve money affect "domestic private investment" positively, however exchange rate and "domestic credit to the private sector" affects "domestic private investment" negatively; • There exists a long run positive relationship among exchange rate, nominal gross domestic product, and "domestic credit to the private sector".
9	Assa & Abdi-khalil, 2012	Private investment	GDP growth (GDPGR), real interest rates (RINT), public investment (Ig), credit to the private sector (PCRED), trade liberalisation (TRADELIB), real exchange rate (RER) and annual inflation (INF)	ECM.	• Investment decisions seem to be determined by public investment, bank credit to the private sector and the real interest rate in the short run. Besides, there is evidence of a crowding-out effect of public investment. In the long run, the capital accumulation path

S/No.	Author/s and year	Dependent Variables	Independent Variables	Methods Employed	Key Findings
					seems to be closely dependent on both GDP growth and real exchange rates.
10	Woldemariam, 2018	Private Investment (	Lending interest rate, credit to the private sector, inflation rate, GDP at constant price, FDI, Public investment, national reserve, external debt	OLS	• Public investment, real GDP, external debt servicing , and access to bank credit have significant positive effect on private investment; • Lending interest rate and foreign direct investment have significant negative effect on performance of private investment under the study period
11	Mohammed, Rabul, & Syed, 2009	Gross domestic investment to GDP	Per capita real GDP, domestic savings, trade openness, institutional development, foreign aid and private sector credit, foreign debt servicing, Inflation rate, lending rate, human capital, and population growth.	Dynamic panel estimator	• Lagged investment, growth rate of per capita real GDP, domestic savings, trade openness and institutional development have positive significant effect on investment; • Foreign aid and private sector credit are found to have significant positive impact on investment but not robust; • Foreign debt servicing has consistent negative effect on investment; • Inflation rate, lending rate, human capital, and population growth have been found to have no significant effect on investment
12	(khatib, Altaleb, & Alokor, Economical Determinants of Domestic Investment, 2012)	Domestic investment	Growth rate of real GDP, foreign direct investment as a ratio of GDP, exports of goods and services as a ratio of GDP, financial intermediation as calculated by M2 as a ratio of GDP, human capital proxied by secondary school enrolment ratio, domestic credit availability as a ratio of GDP,	Error correction Model using ARDL	• Domestic investment in Jordan is boosted by real GDP growth as well as an increase in exports of goods and services • Long-term domestic investment stimulation also depends on how well the banking sector and human capital have developed; • The increased access to domestic finance will boost domestic investment in the short term.
13	(Mohammed, Rabul, & Syed, 2009)	Domestic investment	lagged investment, growth rate of per capita real GDP, domestic	Fixed Effect Estimator	• lagged investment, growth rate of per capita real GDP, domestic savings,

S/No.	Author/s and year	Dependent Variables	Independent Variables	Methods Employed	Key Findings
			savings, trade openness, institutional development ,foreign aid, private sector credit, Foreign debt servicing, inflation rate, lending rate, human capital and population growth		trade openness and institutional development have positive significant effect on investment; • foreign aid and private sector credit are found to have significant positive impact on investment but not robust; • Foreign debt servicing has consistent negative effect on investment; • inflation rate, lending rate, human capital and population growth have been found to have no significant effect on investment

Annex-2: Selected Lag length

```
. varsoc lngcfmn

   Selection-order criteria
   Sample:  2004 - 2022                              Number of obs      =        19

+---------------------------------------------------------------------------+
| lag |      LL      LR      df     p      FPE       AIC      HQIC      SBIC |
|-----+---------------------------------------------------------------------|
|   0 | -31.7544                        1.84052    3.44783   3.45624   3.49753|
|   1 |  14.9708   93.45*    1  0.000  .0149595* -1.36534* -1.34852* -1.26593*|
|   2 |  15.8321   1.7226    1  0.189   .015208  -1.35074   -1.3255  -1.20162|
|   3 |  16.2657    .86729   1  0.352   .016202  -1.29113  -1.25748   -1.0923|
|   4 |  17.9377    3.344    1  0.067   .015191  -1.36186   -1.3198  -1.11332|
+---------------------------------------------------------------------------+
   Endogenous:  lngcfmn
    Exogenous:  _cons

. varsoc lndcpsmn

   Selection-order criteria
   Sample:  2004 - 2022                              Number of obs      =        19

+---------------------------------------------------------------------------+
| lag |      LL      LR      df     p      FPE       AIC      HQIC      SBIC |
|-----+---------------------------------------------------------------------|
|   0 | -34.4767                        2.45127    3.73439    3.7428   3.78409|
|   1 |  19.4932   107.94*    1  0.000  .0092293* -1.84139* -1.82456* -1.74197*|
|   2 |  20.4018   1.8172     1  0.178   .009401  -1.83176  -1.80653  -1.68264|
|   3 |  20.4385   .07345     1  0.786   .010443  -1.73037  -1.69672  -1.53154|
|   4 |  21.7669   2.6568     1  0.103   .010152  -1.76493  -1.72287   -1.5164|
+---------------------------------------------------------------------------+
   Endogenous:  lndcpsmn
    Exogenous:  _cons

. varsoc lnbcbd

   Selection-order criteria
   Sample:  2004 - 2022                              Number of obs      =        19

+---------------------------------------------------------------------------+
| lag |      LL      LR      df     p      FPE       AIC      HQIC      SBIC |
|-----+---------------------------------------------------------------------|
|   0 |  28.2306                        .003332  -2.86638  -2.85797  -2.81667*|
|   1 |   29.409   2.3568     1  0.125   .003272  -2.88516  -2.86833  -2.78574|
|   2 |  30.3629   1.9078     1  0.167   .003294   -2.8803  -2.85507  -2.73118|
|   3 |  32.6345   4.5432*    1  0.033  .0028892* -3.01416* -2.98051* -2.81533|
|   4 |  32.6346   .00019     1  0.989   .003234   -2.9089  -2.86684  -2.66037|
+---------------------------------------------------------------------------+
   Endogenous:  lnbcbd
    Exogenous:  _cons

. varsoc lnbmsgdp

   Selection-order criteria
   Sample:  2004 - 2022                              Number of obs      =        19

+---------------------------------------------------------------------------+
| lag |      LL      LR      df     p      FPE       AIC      HQIC      SBIC |
|-----+---------------------------------------------------------------------|
|   0 |   12.49                         .01747  -1.20947  -1.20106  -1.15976|
|   1 |  23.6621   22.344     1  0.000  .005992  -2.28022  -2.26339   -2.1808*|
|   2 |  24.8352   2.3463     1  0.126  .005895  -2.29844  -2.27321  -2.14932|
|   3 |  24.8352   3.0e-05    1  0.996  .006574  -2.19318  -2.15953  -1.99435|
|   4 |  27.7976   5.9248*    1  0.015 .0053381* -2.39975* -2.35769* -2.15121|
+---------------------------------------------------------------------------+
   Endogenous:  lnbmsgdp
    Exogenous:  _cons

. varsoc lntogdp

   Selection-order criteria
   Sample:  2004 - 2022                              Number of obs      =        19

+---------------------------------------------------------------------------+
| lag |      LL      LR      df     p      FPE       AIC      HQIC      SBIC |
|-----+---------------------------------------------------------------------|
|   0 |  1.32416                        .056591  -.034122   -.02571   .015585|
|   1 |  18.8013   34.954*    1  0.000  .009995  -1.76856  -1.75173  -1.66914*|
|   2 |  20.2623    2.922     1  0.087   .00954* -1.81708* -1.79185* -1.66796|
|   3 |  20.4263   .32808     1  0.567  .010456  -1.72909  -1.69544  -1.53026|
|   4 |  20.4362   .01977     1  0.888  .011678  -1.62487   -1.5828  -1.37633|
+---------------------------------------------------------------------------+
   Endogenous:  lntogdp
    Exogenous:  _cons

. varsoc lnginf

   Selection-order criteria
   Sample:  2004 - 2022                              Number of obs      =        19

+---------------------------------------------------------------------------+
| lag |      LL      LR      df     p      FPE       AIC      HQIC      SBIC |
|-----+---------------------------------------------------------------------|
|   0 | -7.03903                        .136481*  .846213*  .854626*  .895921*|
|   1 |  -6.6244   .82925     1  0.362  .145255   .907832   .924657   1.00725|
|   2 | -6.31919   .61043     1  0.435  .156571   .980968    1.0062   1.13009|
|   3 | -5.66586   1.3067     1  0.253  .162996   1.01746   1.05111   1.21629|
|   4 | -5.58388   .16394     1  0.686  .180666   1.11409   1.15616   1.36263|
+---------------------------------------------------------------------------+
   Endogenous:  lnginf
    Exogenous:  _cons

. varsoc lndsmn

   Selection-order criteria
   Sample:  2004 - 2022                              Number of obs      =        19

+---------------------------------------------------------------------------+
| lag |      LL      LR      df     p      FPE       AIC      HQIC      SBIC |
|-----+---------------------------------------------------------------------|
|   0 | -37.8635                        3.50122   4.09089    4.0993    4.1406|
|   1 | -10.2453   55.236*    1  0.000  .212649   1.28898  1.30581*   1.3884*|
|   2 | -9.17111   2.1484     1  0.143 .2113392*  1.28117*  1.30641   1.43029|
|   3 |  -9.0381   .26603     1  0.606  .232456   1.37243   1.40608   1.57126|
|   4 | -9.02947   .01724     1  0.896  .259653   1.47679   1.51885   1.72532|
+---------------------------------------------------------------------------+
   Endogenous:  lndsmn
    Exogenous:  _cons

.
```

Annex: 3 Row Data Collected from NBE

Years	Gross Capital Formation (Mn)	Exports of Goods and Services	Imports of Goods and Services	GDP at Current Market Prices	"domestic credit to the private sector"	"broad money supply" (Mn)	General inflation	Debt Servicing (Mn)	Out Standing Lending[2]	Total Bank Deposit
2000	17,044.92	8,009.76	15,952.77	68,920.05	11,860.30	22,177.80	5.36	2,227.70	15,101.79	20,384.09
2001	18,468.05	8,146.11	16,108.35	70,345.51	12,677.70	24,516.20	- 0.35	1,680.60	15,968.37	23,148.39
2002	20,242.75	8,388.84	17,706.84	68,825.24	12,113.86	26,292.06	- 10.57	1,177.00	15,747.99	25,030.88
2003	20,561.43	9,779.48	20,131.25	75,935.17	11,459.67	29,060.16	10.92	1,373.60	15,543.44	27,977.28
2004	28,978.01	12,913.62	27,366.78	89,614.80	12,453.80	33,625.97	7.35	1,584.40	17,750.02	32,677.89
2005	31,895.72	16,076.89	37,776.28	110,101.89	19,199.68	40,211.75	6.13	1,570.00	21,749.04	38,530.33
2006	41,836.64	18,205.43	48,092.41	136,128.47	24,032.25	46,377.38	10.58	981.40	26,751.13	44,458.91
2007	47,975.67	21,853.70	55,087.81	177,851.42	31,509.23	56,651.89	15.82	523.80	31,102.62	53,865.20
2008	70,003.46	28,317.45	76,564.26	256,766.11	45,399.42	68,182.14	25.30	747.30	41,339.77	62,956.30
2009	96,074.57	35,233.17	96,285.32	346,823.93	56,419.39	82,509.75	36.40	510.20	46,004.73	78,151.99
2010	119,166.57	52,168.41	126,319.42	395,991.17	71,403.09	104,432.40	2.80	1,298.50	54,692.06	98,633.34
2011	164,525.71	85,950.40	162,487.10	528,579.82	106,906.91	145,376.97	18.10	3,898.60	73,971.38	140,531.76
2012	275,811.34	102,886.60	236,383.90	766,915.48	167,564.65	189,398.78	34.10	7,109.90	110,200.56	187,290.65
2013	293,930.70	108,227.07	251,300.58	889,644.89	211,440.83	235,313.59	13.50	10,321.90	135,829.89	237,201.34
2014	400,841.24	123,495.98	308,691.30	1,088,631.82	273,098.87	297,732.01	8.10	12,718.70	168,355.06	292,847.89
2015	508,975.86	121,532.16	393,188.50	1,331,983.71	362,704.51	371,328.91	7.70	19,954.53	217,368.22	367,395.43
2016	585,665.00	122,500.75	424,749.91	1,568,097.45	442,706.02	445,266.25	9.69	23,934.70	263,901.63	438,152.72
2017	704,596.00	139,830.11	430,233.21	1,832,553.68	545,650.92	573,384.05	7.40	28,870.60	323,007.35	568,818.74
2018	751,626.21	184,282.12	502,112.90	2,202,372.70	682,618.92	740,572.88	14.60	33,975.90	394,555.53	730,257.74
2019	948,866.00	213,437.00	561,512.00	2,696,223.00	853,900.73	886,752.53	12.60	58,195.80	502,403.11	899,628.42
2020	1,031,962.81	240,524.96	569,620.65	3,374,746.94	1,039,843.77	1,037,646.33	19.90	64,035.10	626,967.63	1,041,410.27
2021	1,216,585.00	331,294.00	725,530.00	4,341,024.00	1,267,575.27	1,348,266.15	20.20	73,138.20	838,412.07	1,356,822.30
2022	1,560,325.00	507,692.00	1,128,171.00	6,157,538.00	1,507,757.78	1,715,310.03	33.80	105,225.50	1,087,784.46	1,705,029.50

Source: Annually Published Reports retrieved from the NBE website (https://nbe.gov.et/annual-report/)

[2] Excluding Outstanding Bonds by Clients