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Department of Economics and Finance

THE EFFECT OF FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH IN DEVELOPING COUNTRIES

Master Thesis

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DECLARATION

I hereby declare that in the preparation of this thesis, scientific ethical rules have been followed, the works of other persons have been referenced in accordance with the scientific norms if used, there is no falsification in the used data, any part of the thesis has not been submitted to this university or any other university as another thesis.

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SUMMARY

It is an accepted assumption in the scientific world that financial development and the factors that are associated with financial development have an important role for economic growth. In line with the stated importance, this thesis study investigated the effect of financial development on economic growth. In the study, which takes into account the period 2010-2021, 10 developing country economies were selected as a sample. After all the tests, regression analysis was performed with the Driscoll-Kraay Estimator. According to the analysis results, where the latest global pandemic, Covid-19, was added as a dummy variable, financial development positively affected economic growth within the scope of the study. 1% increase in financial development supported economic growth by 0.42%. Among the evidence, it was found that the Covid-19 pandemic did not have a statistically significant impact on economic growth in the reference period. According to the findings, it was confirmed that the financial structure had an important role in ensuring economic growth. In this context, effective use of financial instruments is recommended for the sustainable growth goal. In addition, creating of economic policies to eliminate the negative effects of crisis periods is another suggestion of the study.

Key Words: Financial Development, Economic Growth, Developing Countries, Panel Data Analysis.

ÖZET

Finansal gelişim ve finansal gelişime kaynaklık eden olguların ekonomik büyüme için önemli bir role sahip olduğu bilim dünyasında kabul gören bir varsayımdır. Belirtilen önem doğrultusunda, bu tez çalışması finansal gelişimin ekonomik büyüme üzerindeki etkisini araştırmıştır. 2010-2021 dönemini dikkate alan çalışmada 10 gelişmekte olan ülke ekonomisi örneklem olarak seçilmiştir. Yapılan tüm testlerinin ardından Driscoll-Kraay Tahmincisi ile regresyon analizi yapılmıştır. En sonki küresel salgın olan Covid-19'un da kukla değişken olarak eklendiği analiz sonuçlarına göre, çalışmanın kapsamı dahilinde finansal gelişim ekonomik büyümeyi pozitif etkilemektedir. Finansal gelişimdeki %1'lik artış ekonomik büyümeyi %0.42 düzeyinde desteklemiştir. Kanıtlar arasında, Covid-19 salgınının referans dönemde ekonomik büyüme üzerinde istatistiksel olarak anlamlı bir etki göstermediği tespit edilmiştir. Ulaşılan bulgular doğrultusunda, ekonomik büyümenin sağlanmasına finansal yapının önemli rolü olduğu doğrulanmıştır. Bu çerçevede sürdürülebilir büyüme hedefi için finansal araçların etkin kullanımı önerilmektedir. Ayrıca kriz dönemlerinin olumsuz etkilerini ortadan kaldırabilmek için iktisat politikalarınn oluşturulması da çalışmanın bir diğer önerisidir.

Anahtar kelimeler: Finansal Gelişim, Ekonomik Büyüme, Gelişmekte Olan Ülkeler, Panel Veri Analizi.

TABLE OF CONTENTS

SUMMARY ..... **i**
ÖZET ..... **ii**
TABLE OF CONTENTS ..... **iii**
ABBREDIVATIONS ..... **v**
LIST OF TABLES ..... **vi**
PREFACE ..... **vii**
INTRODUCTION **1**

CHAPTER ONE
INTRODUCTION

1.1. Background of the study 2
1.1.1. Financial Development 3
1.1.2. Economic Growth in Developing Countries 4
1.1.3. Financial Development on Economic Growth in Developing Countries 5
1.2. Objectives of the Study 6
1.3. Research Questions 6
1.4. Problem Statement 6
1.5. Significance of the Study 8
1.6. Research Gap 9

CHAPTER TWO
LITERATURE REVIEW

2.1. Theoretical Literature 10
2.1.1. Endogenous Growth Theory 10
2.1.2. The Supply-Led Growth 11
2.1.3. The Demand-Led Growth 11
2.1.4. Financial Liberalization Theory 11
2.1.5. The Financial Development and Economic Growth Causality Theory 12
2.1.6. Financial Deepening Theory 13
2.1.7. Financial Services Theory 13
2.1.8. Financial Liberalization Theory 14
2.2. Emperical Literature 14
2.3. Brief Discussion For Theoretical and Empirical Literature 22
2.3.1. Theoretical Literature 22
2.3.2. Empirical Literature 23
2.3.2.1. Regional variations emerge across studies: 23
2.3.2.2. Several studies highlight conditions affecting the financial development-growth relationship: 24

2.3.2.3. Gap in Empirical Literature 24

CHAPTER THREE
AN EMPIRICAL ANALYSIS FOR DEVELOPING COUNTRIES

3.1. Reference Model and Research Method 26
3.1.1. Explaination 28
3.1.2. Why Choose this Period 28
3.1.3. Justification Why choose Developing Countries 30
3.2. Empirical Procedure and Methodology 31
3.2.1. Classical Model Feature and Pooled Ordinary Least Squares 31
3.2.2. Classical Model Validity 31
3.2.3. Fixed Effect Model 32
3.2.4. Random Effects Model 32
3.2.5. Hausman Test 33
3.2.6. Diagnostic Tests in Panel Data Models 33
3.2.7. Normality Test 34
3.2.8. Variance Inflation Factor (VIF) 34
3.2.9. Driscoll-Kraay Standard Error Estimator 35
3.3. Empirical Findings and Evaluation of Results 35

CONCLUSION AND DISCUSSION 39
REFERENCES 43
RESUME 44

ABBREDIVATIONS

GDP **:** Gross Domestic Product

LIST OF TABLES

Table 1. List that Support Positive Relation.....25
Table 2. Details for the Variables in the Empirical Model 26
Table 3. Reference Countries in Empirical Analysis (World Bank**)**.....27
Table 4. Diagnostic Tests 34
Table 5. Test for Validity of Classical Model.....35
Table 6. Choice Between Fixed and Random Effects Model 36
Table 7. Diagnostic Test Results (Model A).....36
Table 8. Regression Results by Driscoll-Kraay Estimator 37

PREFACE

All praise is due to Allah, the Most Gracious, the Most Merciful. It is by His divine will guidance, and endless mercy that I was able to begin, continue, and finally complete this academic journey. Every step of this thesis was made possible through His blessings and favor.

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May this work contribute meaningfully to the academic field and serve as a foundation for future research.

INTRODUCTION

The relationship between financial development and economic growth has long been a topic of interest among economists and policymakers, particularly in the context of developing countries. A well-functioning financial system is essential for mobilizing savings, facilitating investments, and promoting efficient resource allocation—all of which are vital for sustainable economic growth.

Developing countries often face challenges in achieving consistent growth due to structural weaknesses in their financial systems. Understanding how financial development influences economic performance can help governments create better policies aimed at long-term economic stability and progress. This study explores the effect of financial development on economic growth across a selected group of developing countries from 2010 to 2021, using panel data analysis.

The aim is to contribute to the ongoing debate in the literature by providing empirical evidence on whether financial development positively, negatively, or insignificantly affects economic growth in these economies. The findings of this research are expected to offer insights that can support future policy decisions and economic reforms in the developing world.

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Economic growth which is among key economic indicators is one of the fundamental issues of each economy and must be achieved with a sustainable process. In this direction, sources and/or factors promoting economic growth need to be determinated.

With this context, significance of the relationship between economic growth and financial development has been widely acknowledged and has garnered considerable attention in the academic literature (Nayak, 2020). Increasing significance of stock markets globally has recently prompted a new area of research examining the relationship between financial development and economic growth, with particular emphasis on the impact of stock market advancement (Arestis et al., 2001). Thus, financial development has been regarded as a key element for growth of all economies. Similarly, the reason why financial systems are highly valued socities, as they are the main factor in the allocation of resources efficiently, the provision of investment and the mobilization of savings (Guru and Yadav, 2019). Nevertheless, the connection between financial development and economic growth is intricate and has different aspects, as it different according to countries because of the differences in institutional framework, economic structure and the policy environment.

In high-income countries, where the financial systems are usually more mature and complex, the relation between monetary policiy and economic stability is especially important. The paper written by (Ikhsan, 2023) explores this complex relationship by asking the question of the influence of financial development on economic growth in high-income countries. High-income countries frequently have powerful financial infrastructures, which are marked by the presence of well-developed banking systems, developed capital markets and effective regulatory frameworks.

On the other hand, several key findings highlight the ways in which financial development influences economic growth. First, financial development can impact growth through the savings rate, which subsequently leads to increased investment and

capital accumulation. Second, it affects growth via resource allocation channels, where improved financial development enhances the efficiency of investment allocations, thereby boosting productivity (Nayak, 2022). Therefore, looking at the effect of financial development in these cases is of great importance because it helps researchers to understand how the financial systems affect economic performance of the countries.The connection between the financial stracture and the economic growth in developingcountries is of the highest priority because of the following reasons (Botevand Jawadi, 2019): Firstly, developed countries are the models of the successful economic development and financial development can be analyzed in relation to the conditions of prosperity and stability within these countries. Moreover, the relations between financial development and economic growth in developing countries can be used by the policymakers and practitioners to design their own financial systems and hence to boost up their own economies.

1.1.1. Financial Development

The financial sector plays a vital role in promoting economic growth, irrespective of the level of development of a country (Fengju and Wubishet, 2024). The report by The World Bank (Group, 2017) is a crucial source for understanding the dynamics of global economic growth, financial market evolution, and the factors influencing financial stability across world economies.

Financial development can be addressed as a complex concept which includes many areas of financial systems and represents the main factor for economic growth, reduction of poverty and the promotion of overall prosperity (Wang, 2019). Given the fact that the world is now more interconnected, the effectiveness of financial systems in mobilizing savings, allocating capital efficiently, and managing risks has significant increasingly. This detailed report points out intricacies of financial development, in which it looks at the patterns, problems, and possibilities of different economies as (World Bank Group. 2017). The report is based on the examination of such indicators as access to finance, depth of financial markets, and regulatory frameworks which gives the insight into the state of financial systems around the world. Besides, it investigates the consequences of the progress of technology and inventions like fetch and digital banking on the financial inclusion and stability as (World Bank Group 2023).

On the issue of globalization and the fast development of technology, the knowledge of the financial development is very important for the policymakers, professionals, and researchers. This report is a compass for the stakeholders, helping them to sail through the changing scenario of financial services and creating the policies which will boost the inclusive and sustainable development. By studying the case and giving solid advice based on the data, it results in the creation of the financial systems that can be more resilient and hence support the economic growth and improve the life of people and communities around the world. In this direction, it can be stated that financial development involves includes the functions provided by the financial systems. They are (i) pooling of savings; (ii) allocating capital to efficient investments; (iii) monitoring mentioned investments; (iv) risk management and (v) ease exchange of goods and services (Levine, 2004).

1.1.2. Economic Growth in Developing Countries

Economic growth and financial development nexus means a crucial subject to be studied which deals with the aspirations, challenges and opportunities of the countries that are trying to develop and prosper such as developing countries. There is a big complexity in the factors that form the basis of the speed and direction of economic growth in areas where resources are limited, institutions are in early stages, and socio-economic inequalities are high.

Economic growth in developing countries is the pursuit of the sustainable enhancement of the living standards, income levels, and overall well-being of their people. It covers a wide range of factors, such as industrialization, technological innovation, human capital development, infrastructure investment, and policy reform, all of which are interconnected and dependent on each other. These nations usually face the challenge of at the same time addressing the urgent socio-economic needs and at the same time the groundwork for the long-term sustainable growth is being laid (Kuznets, 2019). In order to provide economic growth in developing countries, it can be accepted that education, labor markets, and institutional quality has great roles. Through the explanation of the empirical relations between education, workforce productivity and the economic performance, formulated policies based on the evidence which aims to release the potential of the developing economies are necessary. Besides, it is necessary to use a comprehensive approach that takes into account the

many difficulties and opportunities that these countries experience. Through the creation of inclusive growth strategies, the promotion of innovation, and the strengthening of institutional capacity, stakeholders can ensure that a fair and sustainable future for all is achieved

As pointed out by Eric, (2013), achieving fair and sustainable futures entails effort in various sectors. As pointed out by many scholars inclusive growth policies are basic planning models that guarantee that nobody leaves behind on the gains accrued to the society, especially, the vulnerable groups. These are in sync with innovation promotion that helps in developing new solutions to existing social and environment-related issues for business benefits (Surya et al. 2021). This is backed by capacity developed in Micro, Mezzo and Macro institutions, in a bid to achieve efficient policies that can be implemented to support the intentions and goals of the inclusion of the needy of the society.

All these complements when harmonized by such elements as inclusive growth strategies, innovation promotion, and building institutional capacities to build the harsh mechanism of addressing inequality holistically as well as promote environmentalism. This comprehensive approach acknowledges the fact that sustainability interventions cannot be made in isolation of other spheres of development but through convergence of economic, social and governance structures for the creation of balanced prosperity for contemporaneous and successive generations.

1.1.3. Financial Development on Economic Growth in Developing Countries

Economic development is the enhancement of the size and complexity of a country's economy over time, usually defined in terms of growth of Gross Domestic Product (GDP). It measures up advancements in a nation's economic well-being, the overall rising quality of life due to factors such as capital, labour, technology and efficiency (Azmeh and Chadi 2021), explores a crucial nexus of economic development: Financial development and economic growth are interrelated in the developing countries. This nexus is very important since these countries are trying to boost their economic development and the living standards of their people at the same time. The development of the financial systems, which entails the depth, efficiency,

and stability of those systems, is considered as the main factor of economic growth in this case (Bist, 2018).

The Asian Asian development bank report Adbheadhoncho (2025) consists of the exploration of the ways through which financial development affects economic growth in the developing countries. Financial intermediation, the provision of credit for investment, and the ease of access to finance are the topics of research of the study. In addition, the research investigates the factors of institutions, regulations, and policies which are the cause of the connection between financial development and economic growth. The knowledge of this correlation is the most important for those who are trying to create policies and to apply the strategies that will be helpful for the sustainable development in the developing countries. Thus, the investigation discloses the influence of financial development on economic growth and as a result, it provides the policy makers with the hints on how to make the financial system more resilient and inclusive. Besides, it adds to the broad discussion on the development economics by giving the feeling of the complicated connection between the financial elements and the economic results in the case of the developing countries (Sarwar et al 2020).

1.2. Objectives of the Study

The main Objective of the study is,

• To investigate the impact of financial development on economic growth by considering theoretical background and previous studies in empirical literature.

1.3. Research Questions

The main question of the study is;

• Isfinancial development a significant factor on economic growth in reference developing countries in the period of 2010-2021?

1.4. Problem Statement

The link between financial development and economic growth has been a topic under immense emphasis amongst scholars in the field of economics, more especially as relates to the developing world (Botevet al., 2019). The economic growth can be defined by the different changes of the financial systems like banking systems, stock markets etc., which are potent bases for mobilizing the savings, investment and

efficient utilization of the resources. Including MC/GDP among other indicators has been used to compared market capitalization in regards to the argument that bigger financial systems are in a better position to boost growth. Nevertheless, there is a studious controversy about the critical role of financial development in framing economic advancement.

Some scholars use the depth of financial markets for external balance, economic resilience, efficiency, and innovation improvement; others argue that this assumed advantage may be overestimated while relying on institutional deficiencies or limited access to financial services for broader social welfare improvement. This situation poses a puzzle for policy makers in developing countries where fiscal resources to support further economic liberalization are limited (Comin and Nanda, 2019). If financial development is considered as a factor that counters growth, which is still questionable, elevation of status of financial markets could enrich the process of development. On the other hand, where the effect is said to be low or conditional, policy makers might have to shift their attention elsewhere. For this reason, this study aims at assessing the relationship between financial development and economic growth; more so to developing countries (Čižo, Edmunds et al 2020).

Financial development describe the improvement of financial institutions and markets toward increased size along with improved efficiency and stability which leads to better resource management through efficient allocation and savings mobilization and risk mitigation (Gonzalez-Vega, C. 2019). The correct understanding of this financial relationship remains essential for developing nations that have underdeveloped systems along with multiple structural limitations. Economic growth acceleration in such conditions can be driven through financial development by enabling entrepreneurship support and enhancing investments and innovation creation (Sutrisno et al., 2023).

Developed financial systems create more opportunities for loan access for people and companies which in turn boosts spending and productive activities. Financial development's impact on economic growth shows different levels of intensity because it depends on three variables: institutional quality, regulatory frameworks and economic development level. Financial instability occurs when organizations maintain insufficient financial governance measures or employ too much external capital flow

support which results in growth problems (Zakirova, A., et al 2020). The purpose of this research is to evaluate the intricate financial development-growth linkage specifically within developing countries since strategic sector reforms hold the potential to improve economic outcomes and ensure sustainable growth.

1.5. Significance of the Study

The significance of the study examining the effects of financial development as an input in the processes of economic growth is to understand what it means for policies on sustainable economics (Sobiech, 2018). Financial development examines the depth and sophistication in the supply of financial institutions, markets and services which are vital for mobilization of savings, sequencing capital, bearing risks and financing economic activities. Potential benefits that flows from the financial development as the economy develops includes; Financial development promotes investment, increases business productivity and originates employment hence higher economic growth. Knowledge of this sign brings insight to policy makers since they will be in a position to recognize plans that are useful in strengthening financial sectors for growth targets (He et al., 2019).

By reviewing the effects of financial development, this work identifies the channels through which financial structures affect other areas of economic performance, in particular the formation of incomes, poverty, and financial risks. For emerging economy, the finding of this study could provide information on the form of financial reforms that could enhance the growth process and reduce development disparities. Moreover, this research would be useful to such stakeholders as investors, financial firms, and international development banks and funds to provide an empirical support of the positive effects of financial sector developments. The findings might be useful in investment decisions and foster international support of the financial sector improvements. On the other hand, this study includes a reference period which contains the effect of outbreak called as Covid-19 that affected all economies especially developing countries.Conclusively, this study will forward knowledge of growth in the financial system on the advancement of the economies to archetypical queries on the part of finance as a way of sustainable development and solutions for the economies intending to employ the development of money as a means to emulate the way of economic progress.

1.6. Research Gap

Even though there are many studies investigating the link between financial development and economic growth in the developing countries, a clear research gap is still present in the assessment of the impact of financial inclusion on economic growth within this group of countries(Van et al., 2019).Although many studies have looked into the financial structure and it dynamics, to be specific, to answer the question of how financial development supports economic output, literature still needs more research due to dynamics structure of economic growth. Particularly, it is expected that reassessment of this relationship for a specific period/Covid-19 and a group of countries in the reference model will contribute the empirical literature. The filling of this research gap is very important for providing the evidence that will be used to form the policies that will promote the inclusive and sustainable economic growth in extraordinary terms and will test the potential benefits of financial development for economy and indirectly for societies that it will be the contribution to the achievement of the development objectives.

Despite the extensive research on the relationship between economic growth and financial development in developing countries, there is still a large research gap regarding the extent to which the particular factor of financial inclusion contributes to this relationship (Van et al., 2019). Future studies are important to consider how the availability of financial services to underserved groups affects economic performance but much of the focus of this earlier work has been on macro-level financial structures. Additionally, due to the evolutionary characteristic of global economies, in particular, after the Covid-19 pandemic, it is necessary to reconsider this relationship again based on renewed and post-pandemic statistics. This will aid in testing the resilience and inclusivity of the financial systems in times of crises. The approach used can also be expanded based on more detailed financial variables, the use of household or firm/micro-level data, as well as examining regional variations in the effectiveness of financial development. Such strategies would make the policies more relevant and would help in building towards inclusive and sustainable growth.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Literature

Prior to other theoretical frameworks, Schumpeter, (1912), in his work The Theory of Economic Development, emphasized that economic development is driven by innovation within financial intermediaries. Furthermore, Schumpeter, (1912) emphasizedthepivotal role of banks in fostering innovation, as they identify and support enterprises in the implementation of new innovations Mollaahmetoğluand YaşarAkçalı (2019).

Research about developing countries shows multiple ways financial systems impact economic results through financial development. These growth theories show how economic development through finance helps money flow better to raise productivity and make new concepts work. According to Khan et al. (2021), financial development supports economic growth while the growth results in better financial systems. A healthy financial system helps governments and businesses gain better credit and investment outcomes which benefit developing countries the most since they lack robust markets. As general composition of this section, more theoretical discussions will be included in this chapter.

2.1.1. Endogenous Growth Theory

According to Endogenous Growth Theory internal elements such as human capital and research investments explain economic growth better Acs and Sanders,

(2021). Financial development benefits economic growth when it supports research projects to expand human skills and makes businesses more successful (Yang et al., (2021).

Financial growth in developing nations helps businesses get funds and access new technology which leads to natural economic growth (Howitt, P. 2010). This view demonstrates that when nations support financial development alongside innovation and education improvements the result boosts their economic growth. National development benefits from when governments prioritize funds in these specific areas

to ignite their own future growth. This framework gives us helpful advice about what our leaders should do to generate solid economic expansion.

2.1.2. The Supply-Led Growth

According to financial development theory a nation grows economically better when it gets more capital available. When financial markets operate better financial development helps companies find more investment capital and achieve increased economic growth (Nell, 2012). When businesses get financial services they can take out loans and work better to grow more as economic growth results. Limited financial support stands as a major obstacle to business development in developing countries that needs solutions. When more people gain access to financial services the financing gap eases while driving better economic performance and lowering poverty rates. This method shows us how financial development supports economic growth (Ngoasong and Kimbu, 2018).

2.1.3. The Demand-Led Growth

Under the Demand-Led Growth Hypothesis economic growth comes from people's desire to purchase products rather than from production resources. According to this perspective when a growing financial system boosts consumer spending this brings about national economic expansion. When consumers get better loan options from financial development they buy more products that help boost overall economic performance (Smith, 2012). Developed and developing countries need enhanced credit options to help more people afford products which then expands their economies and fights poverty. Financial development provides an essential tool for boosting demand which helps nations grow economically (Shahbaz et al., 2021).

2.1.4. Financial Liberalization Theory

According to McKinnon and Shaw, (1973) financial market restrictions need removal to distribute capital better which boosts economic growth. The theory shows how freeing financial rules boosts resource effectiveness by freeing up interest rates and letting multiple banking groups compete for investment funds (Orji et al., 2015). When countries take off restrictions on finance they help people save more while investing more to grow their economies faster. When developing countries adapt their banking laws they will draw in both local and international investors to expand their

economy Klapper and Lusardi, (2019). The theory explains how financial liberalization with banking sector changes leads to growth benefits for developing countries. According to financial liberalization theory, lowering banking industry regulations such capital flow limitations, loan ceilings, and interest rate controls can boost economic growth in developing nations Bekaert and Harvey, (2001). Liberalization makes it possible for banks to deploy money more efficiently, which increases investment and production by promoting efficiency and competitiveness. Innovation, enhanced risk management, and better financial services are also brought about by more foreign involvement in domestic banking markets. However, institutional strength, macroeconomic stability, and regulatory frameworks all affect how much of these advantages are realized Angkinand et al. (2010). Liberalization might cause crises, expose banks to outside shocks, and raise financial volatility if it is not properly supervised. Financial liberalization can therefore stimulate economic growth, but in order to reduce risks and guarantee sustainable development, it must be coupled with strong regulatory measures Akinsola et al., (2017).

2.1.5. The Financial Development and Economic Growth Causality Theory

Theory shows that economic growth depends on financial development while financial progress depends on economic growth. Financial development in developing nations helps boost economic progress by giving people better credit options and runs their money more effectively while saving more Dritsakis and Adamopoulos, (2004). When an economy expands it creates more demand for financial services that push financial institutions to innovate while getting stronger themselves. As this cycle continues to operate both financial resources and economic progress promote better outcomes together. Developing nations experience better financial development when they grow which boosts their prospects for future economic growth through this mutual growth cycle. A mutually reinforcing cycle is a common description of the link between financial development and economic growth. The need for financial services rises with economies, which pushes financial institutions to develop, innovate, and fortify their business models Dritsakis and Adamopoulos, (2001). This further accelerates economic development by improving capital allocation, facilitating productive investments, and expanding credit availability. Dritsakis and Adamopoulos

(2004) stress that effective financial intermediation, saving, and capital allocation are all ways that financial development promotes economic growth. Strong financial instiutions in emerging countries encourage industrialization, entrepreneurship, and infrastructural growth, raising living standards and generating job opportunities Sharma and Dhakal, (1994). Financial inclusion also promotes sustainable economic growth and lessens income inequality.

2.1.6. Financial Deepening Theory

Financial Deepening Theory postulated by King, (1993) affirms that the growth of instruments, markets and intermediaries in relation to economic activity in several ways (Zhuk & Mingjun, 2021). In its development and as it becomes more elaborate, financial system enhances efficiency in allocation of resources, manages risk, monitors corporate governance, and promotes technology. The theory explains that Financial development in the form of the financial asset or Gross domestic product (GDP) serves a proxies for economic growth rates Ahmad, M., & Wu, (2022). Financial deepening, in most developing countries, first extend to banking service before extending to more advanced capital market; each stage of going ahead possibly helping to spur the economy by correctly directing credit resources to their most fruitful-utilization.

2.1.7. Financial Services Theory

Financial Services Theory, which is related to Levine (1997) and Merton, (1995), it is possible to stress on functions rather than on structures of the financial systems Cave et al., (2019). They encompass areas in facilitating transactions, mobilization of savings, disbursement of funds, management of risks, and exercising corporate governance. Contrary to the belief that merely raising the numbers of such services or establishing more powerful or complex structural entities is important for changing the economic development, the theory emphasises on the effectiveness of the services provided Bongomin et al., (2018). Hence, delivery mechanisms in developing nations enable former inhabitants to overcome existing obstacles to financial inclusion and quicken economic advance by offering efficient and plausible financial solutions to the unserved or undeserved population hence increasing totality of consumption possibility in the economy.

2.1.8. Financial Liberalization Theory

The Financial Liberalization Theory which was developed by McKinnon (1973) and Shaw, (1973) argues that the openness of the financial sector will bring about a high level of savers, enhanced allocation of capital and increased economic growth Kirikkaleli and Sowah, (2021). This theory asserts that liberalization of interest rates also brought an end to financial repression and made market forces to prevail as to setting of interest rates Moyo and Roux, (2020). This helps in boosting mobilization of domestic savings, enhances access to credit by the productive sectors in the developing countries and also enhances efficiency of investments. However, some argue that without right sequencing and regulation apropos, liberalizations can result to instabilities and crisis as observed on some developing countries in the digest of nineteen nineties.

2.2. Emperical Literature

This section of the study presents a review of prior research on the topic. The empirical literature review includes details such as the author, the reference country and time period, as well as the key findings of each study. Moreover, literature review will be presented by a Table briefly using a table including similar contents.

One of the studies in the empirical literature, (Dawson's 2008) study, aimed to examine the link between financial development and economic growth in developing countries Ezeibekwe, O. F. (2020). The variables in question are the indicators of financial development and economic growth that are probably evaluated through the depth, efficiency, and stability of the financial markets, and the GDP growth rates Bouman and Hospes, (2019).

The range of the research probably includes the developing countries around the world to give a detailed study. The consequences of the research might be useful in understanding the essentiality of the development of the financial sector for the economic growth in these contexts. Methodologically, Dawson probably uses the econometric techniques to process the data and panel data analysis to eliminate the country-specific effects. The study results could shed some light on the causal relationship between the financial development and economic growth in the developing countries, thus, paving the way for the policymakers and economists to

know about the possible benefits of the financial sector development for the whole economic advancement.

The author Zahonogo and Pam (2017) in their analysis, breaks down the complexities of the relationship between trade and economic growth in the African continent, Sub-Saharan Africa to be specific. Their careful analysis is capable to be the tool for the policymakers, providing statistical evidence which is very important for taking the right decisions Brueckner and Lederman (2015). Through the study, the managers analyze the variables like trade openness, GDP growth, and foreign direct investment (FDI) which are the main points of the economic development. The panoramic scope of the paper, covering all Sub-Saharan African countries during a certain period of time, guarantees a comprehensive understanding of the regional trends and the disparities. The methodology is very strong, the use of panel data analysis techniques, supported by data from various international sources, has made the results more reliable. To sum up, the main thing to remember here is that the trade policies and the attraction of FDI are the most important factors that help in the region's sustainable economic development. This information is a signal to the politicians and the stakeholders that they should do everything to create a trade and investment friendly environment for the forever lasting prosperity of Sub-Saharan Africa.

The research of Sadorsky (2010) looked into the connection between the development of the financial sector and the energy consumption in the emerging economies. The objective of the paper is to examine how the financial development influences the energy consumption in these economies. The variables that will be analyzed are financial development (like banking sector development and stock market development) and energy indicators. The range of the study covers all the new economies, thus, giving a general view on the problem. The results of the study prove that financial development indeed affects the energy consumption in emerging countries, and the higher the financial development, the higher the energy consumption levels are. This means that the policies that are created to boost financial development in these situations may unavoidably be the cause of the increased energy demand, thus, it would be the reason why there is a necessity to have the strategy that will help minimize the negative affects that will result from it. In short, the research exposes the intricate relationship between financial development and energy consumption in the

emerging economies, thus, highlighting the necessity of other socioeconomic aspects being taken into account when creating energy policies.

In their research, Raza (2012) try to find out the connection between foreign capital inflows, economic growth and stock market capitalization of the Asian countries by using an ARDL Bound Testing Approach. The aims of the project are to evaluate the effect of the inflow of foreign capital on the economic growth and the stock market capitalization, and also to investigate the long-term and short-term dynamics of these variables. They track foreign capital inflows in terms of the GDP, economic growth as the real GDP growth rate, and the stock market capitalization as a percentage of GDP. The scope of the research involves a number of Asian countries during a certain period of time. Using the ARDL Bound Testing Method, the researchers perform the co integration and causality tests to explore the connections between the variables. The results show significant long-term relationships between foreign capital inflows, economic growth and stock market capitalization in the Asian area, thus, the foreign capital inflows are positively related to both economic growth and stock market capitalization.

Financial development and economic growth has been a topic researched by Choong, (2011) embarked on a systematic literature analysis to establish and understand the relationship between the two variables. Cited in the African Journal of Business Management, the current study aimed at comparing and analyzing results of various empirical researches using meta-analysis technique. In this work, the authors explore the advanced financial development trying to resolve questions of how it has an impact on economic growth of countries and regions, including banking sector, stock market, and, generally, the financial liberalization. The results revealed that, in most of the cases, the extent of financial development and the level of economic growth tend to move in the same direction, which was, however, subjected to variation according to the level of financial development and the nature of specific financial nexus involved. The review pointed out positive affect of sound financial system in the process of economic growth but at the same stressed on the need of right ‘gears’ to control the adverse side effect of financial liberalization.

Şen and Pehlivan (2019) conducted a study that aims at evaluating the extent of the connection between financial development and economic growth in Turkiye. By

synthesize primary data collected from the period of 1980-2017, the authors used econometric analysis technique like the Autoregressive Distributed Lag (ARDL) method and the Granger causality test. The study shows that there exists a long run cointegrating relationship between financial development and economic growth pattern and thus the enhancement of the financial markets decidedly augments the growth path of Turkey's economy. Similarly, there was a bi-directional causality relationship between financial development and economic growth, implying that while financial development triggers economic growth, economic growth generates further development in more finances.

Nazir et al. (2020) examined the effects of financial sector improvements on economic growth for China, India, and Pakistan. The research analyzes panel data from 1980 to 2016. It uses both fixed-effects methods and dynamic panel data analysis to study how these indicators influence development outcomes. The analysis tracks financial innovation through private credit and money supply while measuring GDP growth rate as economic performance. This study analyzes how financial innovation influences economic growth in South Asia's emerging economies by showing results across diverse regional systems. The results show that financial innovation supports economic growth in these nations although China shows stronger effects because of its well-developed financial system. Policymakers should work to promote finance-sector innovations that benefit long-term economic performance. The research shows that financial innovation supports economic progression yet needs targeted policy measures based on specific conditions.

Bist (2018) studied the role of financial development in economic growth using 16 low-income countries from Africa and other global regions over 1995 to 2014. Our research goal is to determine if financial system evolution supports economic growth in these selected regions. The study analyzes the relationship by examining a financial data series from 1995 through 2014. It uses panel cointegration and Granger causality tests. Financial development uses domestic credit to private sector and broad money GDP percentages to measure itself next to real GDP per capita growth for economic growth assessment. The research examines low-income countries to reveal how financial development affects growth in resource-restricted economic spaces. Our results show financial development plays a substantial role in long-term growth by demonstrating the value of policies that develop financial markets and credit

availability in particular regions. This research demonstrates that economic sector reforms promote better growth in countries with low incomes.

Arestis (2001) analyzed how Financial development affects growth using Stock Markets. Our research analyzes if financial market growth generates more national income through investment channels and whether banking institutions and other intermediaries contribute. To examine economic relationships the authors test data from multiple nations using cointegration tests and vector error correction models over time. Researchers use three financial development indicators - stock market capitalization, market turnover ratios and private sector credit - alongside GDP growth as the outcome to test their relationship. This research project focuses only on advanced economies to understand how their stock markets and banking systems affect growth compared to each other. The research shows stock markets and banking systems support financial growth but their effects differ between nations and through time. The findings show policymakers must promote equal growth for banking and financial sectors to support long-term economic growth. The authors show that stock markets help grow economies but their impact grows larger when nations advance.

Ikhsan (2023) they looked at how financial development helps economic growth in high-income nations to see if better banking systems promote better economic performance. The research uses 30 years of panel data from high-income nations to analyze financial development's influence on economic growth. Financial development shows up through private sector credit ratios financial depth and operating efficiency while economic growth comes from GDP increases. This study only analyzes data from high-income nations and examines their link between financial infrastructure features and economic development. Results showed that economic development rises when financial systems develop and how well they work including domestic credit. High-income government leaders should enhance financial sector performance to support long-term national growth. The study demonstrates that strong financial systems help keep and boost economic progress in developed economies.

Sanchez, (2011) concentrated on financial development and economic growth links across OIC countries. Our research aims to explore how financial growth supports economic development in Islamic nations (Okuyan, 2022). The research team

analyzes data from twenty-two OIC member countries over multiple decades using panel data tecniques. Their research uses both economic growth indicators like GDP growth rates and financial development ratios like liquid liabilities and private credit as percentages of GDP. This research examines how special financial systems in Islamic economies affect their growth path. Our research shows that increased financial systems help nations grow their economy but produce different results based on the strength of their institutions and leadership. The research results show development experts need to boost financial management standards to support growth from financial development across the OIC region. The researchers show that Islamic economies should build financial systems that respond to their specific requirements to achieve higher economic development.

Mollaahmetoğlu and Akçalı (2019) research links financial development with economic growth while showing that financial innovation provides essential benefits that prior studies overlooked. This research project evaluates how financial innovation helps boost economic growth and supports financial system evoluation. Through their review of published research and analysis of data the authors examine what earlier studies have discovered. The study tracks financial development progress and economic growth rates together with financial Innovation elements including technology developments and their popularization among financial institutions. This research focuses on global financial systems with specific examples from different countries. These results show why governments must support financial innovation to reach long-term growth targets while ensuring productive policy frameworks. The researchers show financial innovation helps make financial systems operate better while promoting economic growth yet recommend stronger regulatory controls to prevent risks.

Hassan et al. (2010) investigated how economic growth links with financial development across many nations through panel data methods. Our study examines how financial growth affects financial issues and economic development based on institutional and macroeconomic measurements (Purewa, & Haini, 2021). Their research uses panel cointegration methods and GMM estimators to analyze financial data from 168 countries over 27 years from 1980 to 2007. They studies economic development trends by analyzing private credits to GDP growth and stock market performance with our findings linked to national output growth over 28 years. This

research considers both rich and poor countries to discover growth patterns between income levels and geographical areas. The research shows financial development increases economic growth yet produces better results in nations with better institutional standards. Governments should strengthen financial sector development along with improving institutional standards to boost economy growth. Financial development stands as a top growth motivator but its effectiveness depends on the quality of institutions and regional markets.

The authors Aydi (2017) studied financial development impacts on economic growth for Southern Mediterranean nations. This research uses data to determine how financial development helps growth in these specific jurisdictions. The authors study 1990 to 2014 data employing panel data methods with Generalized Method of Moments (GMM) and advanced econometric modeling. Our analysis examines how financial indicators and private sector credit growth help countries develop their economies. The research project focuses on Southern Mediterranean nations and studies them in their specific economic and financial settings. The research clearly shows that better financial systems help economies grow faster so regional governments must improve these systems through targeted reforms. The researchers find that good financial systems power economic development in countries that are developing.

Al-Zubi et al. (2006) and collaborators studied how financial development affected MENA country economic growth between 1989 and 2001. Using empirical procedures they perform panel data tests to confirm how specific financial measures impact economic growth. Our analysis studies GDP growth outcomes through statistical tests examining multiple financial development measurements. Our study concentrates on MENA countries because their distinct economic and institutional factors shape our research. Our analysis confirms that financial sector development helps grow economies effectively. By investing in financial sector development MENA nations will achieve better economic performance. Financial development plays a key role in supporting economsic growth throughout the region yet institutions and governance must improve to make the most of this growth structure.

Abbas et al. (2022), studied how financial growth affects economic development and wealth distribution across middle-income states. The research objective is to

evaluate whether financial sector development assists economic expansion while producing unequally distributed income across these countries. Through this empirical analysis using panel data regression the authors test how financial development affects both economic growth and income distribution. Our analysis tracks financial development through private credit amounts, banking sector efficiency levels and market size while examining economic growth through GDP increases and distributing wealth through the Gini index. Research covers lower-middle and upper-middle income groups of countries across a defined time period. Our analysis shows finance growth boosts general economic growth yet distribution changes depending on how advanced the financial system becomes and country circumstances. Our research reveals that financial reforms help these nations grow their economies but require addressing income distribution problems. This research shows that nations need financial policies that grow their economy without hurting income equality.

In order to investigate the connection between financial development and economic growth in OIC nations, Hassan, (2011) carried out a research by using financial development indices, GDP growth rates, and investment levels as metrics, the study examines important factors such financial depth, banking sector development, and economic growth indicators. The authors employ panel data analysis to examine data from OIC countries over a given time span using econometric models, such as the Generalized Method of Moments (GMM). The results indicate that financial development has a favorable impact on economic growth, however the effect differs from nation to nation depending on financial regulations, governance, and institutional quality. The study comes to the conclusion that reforms and well-structured financial institutions are necessary for OIC countries to have sustained economic growth.

By Ecem Turgut et al. (2023) compared the finances available in five fragile countries to their economic growth. Applying more sophisticated econometric tools, such as panel causality tests, the authors could not find themselves that there was any significant causal relationship between financial development and economic growth. Particularly they amplified that, “no relationship exists between economic growth and financial development index.” This evidence refutes the classical notion that financial development tends to contribute to economic development universally. In unstable economies, the research points out that structural deficiencies and instability of

institutions can do away with the benefits of financial systems in terms of the benefit to economic development in the long run.

In a study, Nawaz, et al. (2021) determined the role of financial development on impacting economic growth in a diverse sample of nations by using a dynamic panel data analysis. The findings showed a statistically and all the time negative relationship between financial development variables and economic growth. The authors of the study came to the conclusion that excess and poorly regulated financial growth may turn into a hindrance and not an aid to economic performance, particularly within an economy with weak institutions or in practice with an ineffective financial system. Their findings object the established positive finance-growth nexus, and show the necessity of context-specific financial reforms.

Tariq et al. (2020) examined the connection between the economic growth and financial development in Pakistan based on the threshold model. Using the data of 1980 to 2017, the researchers showed that the influence of financial development on economic growth is not linear. In particular, the financial development has a negative impact on economic growth below a given point meaning that early or inefficient development of the financial sector may be detrimental. But after passing the threshold, they become positive. These results stress that it is necessary to achieve an adequate stage of financial maturity before an organization can expect growing rewards.

2.3. Brief Discussion For Theoretical and Empirical Literature

2.3.1. Theoretical Literature

Several explanations from the theoretical standpoint examine the link between financial development and economic growth. Schumpeter, (1912) first established that financial intermediary institutions drive economic development by introducing innovative methods in his work. Financial development aids sustainable economic expansion by enabling internal elements such as human capital development and research investments according to the Endogenous Growth Theory. Theoretical literaturealso included:

• The Supply-Led Growth Theory demonstrates how better financial markets enable businesses to obtain investment capital which fuels economic expansion.

• The Demand-Led Growth Theory believes economic growth starts from customer desires for product purchase and financial development enhances purchasing power.

• According to (McKinnon and Shaw's 1973) Financial Liberalization Theory proper supervision serves as essential to prevent financial crises when financial market restrictions are eliminated to improve capital distribution and economic growth.

• The Financial Development and Economic Growth Causality Theory demonstrates a two-way connection because financial system development both drives economic growth and economic expansion requires additional financial services.

• King and Levine (1993) established Financial Deepening Theory to demonstrate how financial system deepening improves resource allocation efficiency together with risk management and technological advancement.

• Financial Services Theory concentrates on financial system operations rather than organizational designs to evaluate service quality in transaction processing and portfolio capital mobilization.

2.3.2. Empirical Literature

• Dawson, (2008) and Şen and Pehlivan, (2019) independently demonstrated that financial development creates positive economic growth within developing countries and Turkey respectively. The latter finding bidirectional causality between the variables.

2.3.2.1. Regional variations emerge across studies:

• The research by Raza (2012) established that Asian economies experienced positive connections between foreign capital inflows, economic growth, and stock market capitalization.

• Hassan et al. (2010, 2011) explored how financial development drives economic growth in 168 nations with stronger outcomes found in institutional environments with high standards among OIC nations.

• Research byBist (2018) reveals that financial development plays a main role in fostering long-term growth within sixteen low-income nations.

2.3.2.2. Several studies highlight conditions affecting the financial development-growth relationship:

• The authors Mollaahmetoğlu and Akçalı (2019) explained how financial innovation drives economic growth.

• Al-Zubi, (2006) verified that MENA economic growth benefits from financial sector development although better institutions remain necessary.

• According to Fengju, (2024) East African economies benefit from enhanced economic growth through financial development when governance is effective.

• According to Abbas, (2022) middle-income countries experience financial growth that enhances economic development even though its distributional effects depend on their financial system evolution.

Financial development creates positive impacts on economic growth according to empirical studies however institutional quality and governance alongside country-specific factors influence the degree of effectiveness. Research evidence shows support for theoretical underpinning but confirms that institutions and proper regulation are essential for achieving maximal financial development gains.

2.3.2.3. Gap in Empirical Literature

Current empirical studies in the literature explained how financial development affects economic growth across many different areas at different times. Scholars face a problem because research studies provide both supportive and conditional outcomes when studying financial development's effects on economic growth. With this study, a new analysis will be conducted with the most updated data for financial development and economic growth nexus. In addition, the contribution of this study to the literature is that it includes the period of the Covid-19 crisis, which is the biggest economic issue of recent years. In order to measure the impact of the pandemic, a dummy variable will be used in the empirical research and the effects of the pandemic that occurred in the relevant period on financial development will be measured. Finally, in the creation of the reference empirical model, control variables will also be used in analysis.

Although many studies support a positive link between financial development and economic growth, several scholars have found insignificant or even negative outcomes. For example, Asteriou and Spanos (2018) reported no strong evidence of a

significant relationship in various EU countries. Similarly, Sobiech (2019) highlighted that financial development might exacerbate income inequality, which could reduce its overall impact on growth. In addition, Rioja and Valev (2004) argued that in low-income countries, financial development may harm growth if the financial sector is underdeveloped or lacks proper regulation.

Table 1. List that Support Positive Relation

Auther	**Year**
Ecem Turgut et al 2023	2023
Nawaz, et al 2021	2021
Tariq, et al 2020	2020

CHAPTER THREE

AN EMPIRICAL ANALYSIS FOR DEVELOPING COUNTRIES

In this part of the thesis, existence of significant relationship between financial development and economic growth will be tested in the direction of main research purpose whose empirical and theoretical background has been discussed. Within the framework of this investigation, firstly, the model structure of the thesis will be introduced. Secondly, the methodological structure of the research methods and finally findings will be conveyed and presented.

3.1. Reference Model and Research Method

To measure the impact of financial development on economic growth in selected countries, a reference model was created and reference period was stemmed from 2010 to 2021 in the direction of the research. Variables being included by this model are financial development, economic growth and Covid-19 dummy variable. Moreover to provide a comprehensive model, export variable was included in the extended model. In the Table 2 and 3, respectively, information for the variables and reference countries in empirical analysis are shown:

Table 2. Details for the Variables in the Empirical Model

Variable	Explanation	Data Source
LY	"Gross Domestic Product (GDP) at purchaser's prices represents the total value of goods and services produced by all resident producers in a country." (Current $)	World Bank
LFD	"The dataset includes nine indices that provide a summary of the development of financial institutions and markets, focusing on their depth, accessibility, and efficiency. These indices are combined into a single overall index of financial development." (Index)	International Monetary Fund

Table 2 (cont.). Details for the Variables in the Empirical Model

Variable	Explanation	Data Source
CVD	Dummy variable to include the effect of Covid-19 crisis after 2020. (Value)	Author compilation
LEXP	"Total value for exports in goods and services which market provides to sell to other countries." (Current $)	World Bank

As following of description of variables, in Table 3, reference countries are introduced:

Table 3. Reference Countries in Empirical Analysis (World Bank**)**

Developing Countries	
1- Brazil	2- China
3- Colombia	4- Hungary
5- Indonesia	6- Mexico
7- Poland	8- Romania
9- Türkiye	10- South Africa

The selection of these ten countries—Brazil, China, Colombia, Hungary, Indonesia, Mexico, Poland, Romania, Türkiye, and South Africa—was based on several important criteria. First, these countries are classified as developing economies by the World Bank during the study period, ensuring consistency in terms of their development status. Second, they represent a balanced geographical distribution, covering different regions including Asia, Latin America, and Eastern Europe. Third, these countries have active financial systems and consistent, reliable data availability on key indicators such as financial development, GDP, and trade. Lastly, their inclusion adds originality to the study, as this specific group has not been commonly analyzed together in recent empirical literature.

The time period of 2010 to 2021 was also carefully selected. It captures a full economic cycle following the 2008–2009 global financial crisis, as well as the unprecedented Covid-19 pandemic in the final years. This period allows the study to reflect both recovery phases and crisis conditions, providing valuable insight into how financial development performs under varying macroeconomic environments.

3.1.1. Explaination

The 21 countries that are presented in Table 3 were sampled because they have been categorized by the World Bank as being developing economies, and also play major parts in the dynamics of reading societies and the world economy. These emerging markets are countries which are diversely represented and include Brazil, China, South Africa, and T-Turkiye among others, all representing Latin America, Asian, Central and Eastern Europe and African. Their addition enables them to be more balanced and participatory in their analysis of the impact of financial development on economic growth amid institutional, regulatory, and macroeconomic environments.

In the undertaken empirical analysis, some of the major levels of financial development (including levels of private sector credit and broad money expressed as a percentage of GDP) and those of economic growth (GDP per capita or real GDP growth rate) are utilized. These variables have been adopted since they are commonly accepted in their respective literature as valid sources of measurement to test the depth, access and efficiency of financial systems and economic performance.

The entire study data were obtained through the World Bank World Development Indicators (WDI) database, and the data used are standardized, current, and comparably international across countries. This increases the empirical results credibility, consistency and validity.

3.1.2. Why Choose this Period

The remarkable point was that the time series of 2010 and 2021 was selected so purposely because it covers major financial economic stages in the world which are raising much concern in examining correlation between financial development and economic growth. To start with, it is the context of the recovery witnessed after the 2008 global financial crisis, and when most developing nations had commenced the

processes of financial reforms and economic boom. This will enable the study of how financial development helped in economic strength and growth. Second, it is a deeper inclusion of Covid-19 pandemic years (20202021), and it creates a one-of-a-kind opportunity to compare financial system performance under a global shock that started in 2020 and continued in 2021 unexpectedly. This timeframe helps to analyze the role of financial development in economic development more thoroughly, both in terms of sustaining and hampering economic growth in cases of diverse macroeconomic conditions: during periods of growth, during the periods of crisis. It also coincides with the new data rates and reflects on the modern aspects of global finance.

In order to carry out the empirical analysis, panel data, one of the popular method in the scientific literature was used. In the context of this thesis, using the panel data is compulsroy because analysis includes both cross section data and time series fatures. Moreover panel data provides many advantages in the empirical analysis and they can be sorted as (Baltagi, 2005):

1. Panel data takes individual variability into account, which helps manage differences across entities. In contrast, time series and cross-sectional data that overlook this diversity can produce skewed results.
2. It allows for a more thorough examination of changes and adaptations occurring over time.
3. Panel data is better suited for detecting influences that are hard to observe using only time-series or cross-sectional approaches.
4. It supports the formulation and evaluation of more intricate behavioral models.

Furthermore, panel data generally increases the degrees of freedom by offering researchers a greater number of observations, which enhances the accuracy of econometric estimates and helps minimize multicollinearity among the independent variables (Hsiao, 2003). As shown in the panel data model equation below, Y stands for the dependent variable, the Xs represent the independent variables, α is the intercept term, and the βs are the coefficients linked to the explanatory variables. The subscripts i and t reflect that the model incorporates both individual (cross-sectional) and temporal (time-series) dimensions (Baltagi, 2005).

In the direction of panel data analysis, lastest form of reference model for empirical analysis can be presented as follows:

Based on the Driscoll-Kraay estimation, two models were constructed to examine the relationship between financial development and economic growth:

Model 1 (Baseline Model)

$$LYit=\alpha+\beta1LFDit+\beta2CVDit+\beta3LEXPit+uit \quad (1)$$

In this model, export (LEXP) is added as a control variable to evaluate its contribution to economic growth.

Where:

- LYLYLY: Log of GDP (economic growth)
- LFDLFDLFD: Log of financial development index
- CVDCVDCVD: Covid-19 dummy variable (1 for 2020–2021, 0 otherwise)
- LEXPLEXPLEXP: Log of exports
- uuu: Error term

Model:

$$LYit = \alpha + \beta1it\ LFD1it + \beta2it\ CVD2it + \beta3itLEXP3it\ uit. \quad (2)$$

i = 1, 2, … , 10

t = 2010, 2011, ….. , 2022

3.1.3. Justification Why choose Developing Countries

This study selected developing countries due to the provision of a dynamic environment in which, to some extent, financial development can significantly influence the economic results. Developing countries have not yet fully developed its financial systems like developed countries; thus banking institutions are still in its developing phases. This is what makes them a perfect instrument in examining the effects of enhancement of financial depth, efficiency, and accessibility on economic growth. Furthermore, lack of access to credit, poor levels of savings and ineffective regulatory systems are structural challenges experienced in many developing countries. It is through the attention to these countries that the paper is going to be able to estimate whether financial development is a growth stimulator or it is a risk when

the institutions are weak. The findings can inform the policymakers with practical evidence on where to make specific financial reforms, so as to promote sustainable economic growth that is aligned to the specific needs in developing economies.

3.2. Empirical Procedure and Methodology

In econometric analysis, recognizing the specific properties of a model is crucial. Failing to do so can lead to serious concerns regarding the accuracy and dependability of the results. To address this, various tests are applied to uncover the defining features of the reference model and to select the most appropriate—and, if needed, robust—model. The theoretical foundation and the necessary steps for conducting these tests are presented.

3.2.1. Classical Model Feature and Pooled Ordinary Least Squares

Classical model, also referred Pooled Ordinary Least Squares assumes that both the intercept and slope coefficients remain constant across all observations. When there are no individual (unit) or time-specific effects, the pooled least squares method is appropriate for estimation (Yaffee, 2003). The equation for the Pooled Least Squares model is presented below:

$$yit = a + b' xit + it, ait = a, bit = b \quad (3)$$

3.2.2. Classical Model Validity

In panel data analysis, selecting the appropriate model requires evaluating whether the reference model includes individual (unit) and/or time-specific effects. If no such effects are present, the Classical Model is suitable; otherwise, either a fixed effects or random effects model should be applied (Çelik et al., 2024). Several statistical tests are employed to assess the validity of the Classical Model. In this study, we applied the Likelihood Ratio (LR) test. The LR test compares two models: a restricted model, which corresponds to the Classical Model, and an unrestricted model, which may include unit effects, time effects, or both. All versions of the model are outlined as follows (YerdelenTatoğlu, 2020):

$$Yit = \beta 0 + \beta 1X1it + \ldots + \beta kXkit + (\mu i + \lambda t + uit)$$

$$i = 1, \ldots, N;\ t = 1, \ldots, T$$

$$Yit = \beta 0 + \beta 1X1it + \ldots + \beta kXkit + (\mu i + uit)$$

$$i = 1, \ldots, N;\ t = 1, \ldots, T$$

$$Yit = \beta 0 + \beta 1X1it + \ldots + \beta kXkit + (\lambda t + uit)$$

$$i = 1, \ldots, N;\ t = 1, \ldots, T$$

$$If\ there\ is\ no\ any\ effect\ in\ the\ model, reference\ model\ is,$$

$$Yit = \beta 0 + \beta 1X1it + \ldots \beta kXkit + uit$$

$$i = 1, \ldots, N;\ t = 1, \ldots, T \qquad (4)$$

3.2.3. Fixed Effect Model

Fixed Effects Model is applied when the unobserved effects are believed to be correlated with the independent variables. The general econometric specification of the model is presented as follows (Park, 2011):

$$Yit = (a + ui) + X'it\beta + vit. \qquad (5)$$

A fixed effects model assumes that the slope coefficients remain constant across all cross-sectional units, while the intercepts vary between them. In panel data models that account only for unit-specific effects, the intercept differs across units, but the slope coefficients stay consistent over both time and units. In models that incorporate both unit and time effects, the intercept can vary across both dimensions (Bölükbaşı, 2018).

3.2.4. Random Effects Model

Panel data models that consider unobserved unit and/or time effects as random are known as random effects models. In such models, the unobserved effects are treated as random variables, similar to the error term (Hsiao, 2003). The structure of the error term, depending on the specific model, is presented below (YerdelenTatoğlu, 2020):

$$vit = uit + \mu i \qquad (6)$$

Equation for the model which is shownby a separate variable (ui) is defined as follows (Park, 2011):

$$Yit = (a + ui) + X'it\beta + (ui + vit) \qquad (10)$$

The fixed-effects model involves numerous parameters, which leads to a reduction in degrees of freedom. In contrast, the random-effects model helps avoid this loss of degrees of freedom. In the random-effects model, a sample of N individuals is randomly selected from a larger population, ensuring that the sample accurately represents the entire population (Baltagi, 2005).

The effects in the random-effects model may be limited to either unit or time effects, similar to the fixed-effects model, but it can also represent a situation where both unit and time effects coexist. In the random-effects model, units are randomly selected, and the differences between them are assumed to be random. However, if there is no correlation between unit effects and the explanatory variables, the random-effects model becomes preferable, as the fixed-effects model's utility diminishes due to variation in the cross-sectional dimension. Therefore, when unit effects are uncorrelated with explanatory variables, the random-effects model should be applied (Tatoğlu, 2016).

3.2.5. Hausman Test

The Hausman test helps to compare random and fixed effects models (Park, 2011). The suitability of the models can be checkedwithHausman test, based on the correlation between unit and time effects and the independent variables. The fundamental hypothesis of the Hausman test is,

$$H0 : E\ (\mu iXijt)\ =\ E\ (\gamma jXijt)\ =\ E\ (\lambda t, Xijt)\ =\ 0 \qquad (11)$$

Test statistic and critical values from the χ^2 distribution table, based on the degrees of freedom are considered derived. If the null hypothesis (H_0) is not rejected, it indicates that both the fixed and random effects estimators are consistent, but the random effects estimator is more efficient. If, however, the null hypothesis is rejected, the Fixed Effects Model is considered consistent, while the random effects estimator is deemed inconsistent due to endogeneity (YerdelenTatoğlu, 2016).

3.2.6. Diagnostic Tests in Panel Data Models

Diagnostic tests symbolize other types of detection for empirical model. They allows to see whether reference model is suitable and conducted properly with many aspects such as heteroscedasticity, autocorrelation and cross-sectional depencence test. They are introduced in Table 4.

Table 4. Diagnostic Tests

Test	Explanation	Assumption
Levene, Brown and Forsythe	Heteroscedasticity Test	No heteroscedasticity in the model.
Bhargava, Franzini and Narendranathan	Autocorrelation Test	If statistics is higher than 2, there is no autocorrealtion.
Friedman, Pesaran and Frees	Correlation Test	There is no correlation between the units in the model.

Source: YerdelenTatoğlu (2020)

3.2.7. Normality Test

One of the assumptions underlying the least squares estimation method is the normality of the distribution. While normal distribution of the error terms is not required for obtaining point estimates, it is necessary for performing interval estimates and conducting hypothesis testing, which rely on the assumption of normally distributed errors (YerdelenTatoğlu, 2020). In the normality test developed by D'Agostino, Belanger, and D'Agostino, the following testing procedures are recommended to assess skewness and kurtosis both separately and together (D'Agostino et al., 1990):

H_0 : S = 0 (skewness is zero)

H_0 : K = 3 (kurtosis is three)

H_0 : S = 0, K = 3 (error terms are normally distributed)

3.2.8. Variance Inflation Factor (VIF)

In regression models, the absence of a linear relationship among the explanatory variables is crucial for ensuring unbiased estimates. There are several techniques for detecting multicollinearity, with the variance inflation factor (VIF) being the most commonly used. The VIF is calculated using the R^2 value from auxiliary regression models, where each explanatory variable is treated as the dependent variable, while

the other explanatory variables serve as independent variables. If the VIF is below 5, multicollinearity is not an issue in the model (YerdelenTatoğlu, 2020).

3.2.9. Driscoll-Kraay Standard Error Estimator

Driscoll-Kraay applies a Newey-West-style correction to the series of cross-sectional averages. The standard error estimates obtained through this method ensure that the covariance matrix estimators remain consistent, even as N approaches infinity, irrespective of the cross-sectional dimension N. The Driscoll-Kraay estimator provides consistent standard errors in the presence of both spatial and periodic correlations and is robust to heteroscedasticity, even when T and N are large (YerdelenTatoğlu, 2020).

If the estimated data model exhibits heteroscedasticity, autocorrelation andcross-sectional dependence, it is important to adjust the standard errors without altering the parameter estimates, or to use appropriate methods if available. The Driscoll-Kraay estimator serves as an alternative to the Parks-Kmenta method, which produces weak matrix estimators when the cross-sectional size is large and is only consistent for large T (Dücan and Akal 2017; Tatoğlu 2012).

3.3. Empirical Findings and Evaluation of Results

This section presented the empirical findings obtained through the investigation. At the beginning, an evaluation of the reference model was provided and firstly LR test results were shown in Table 5.

Table 5. Test for Validity of Classical Model

Hypothesis	**Test Statistics**	**Result**
No unit and/or time effects.	Statistics: 398.42 Prob.: 0.0000***	Rejected
No unit effects.	Statistics: 391.52 Prob.: 0.0000***	Rejected
No time effects.	Statistics: 2.3e-13 Prob.: 1.0000	Unrejectable

Source: Author compilation. Note: *** shows the significance at %1 critical value.

LR test results proved that reference model had no classical model features. For this reason, validity of fixed effects or random effects models must be tested and analysis must proceed in the direciton of this information. Table 6 represented the results under fixed and random effects models as well as Rhausman test results.

Table 6. Choice Between Fixed and Random Effects Model

Name of the Model	**Statistics**	**Result**
Fixed Effects Model	0.0000***	Rejected
	0.9741	Unrejectable
Random Effects Model	0.0000***	Rejected
	1.0000	Unrejectable
Rhausman indicates that random effects model is effective.		
Rhausman statistics: 0.8390 – Result: Unrejectable		

Source: Author compilation. Note: *** shows the significance at %1 critical value.

According to results, the reference models included only time effects. Both fixed and random effects models were found as consistent and Rhausman tests informed that random effects model was effective. Therefore, investigation moved forward under random effects assumption and in Table 7, diagnostics test result were placed.

Table 7. Diagnostic Test Results (Model A)

Assumption	**Test Statistics**	**Result**
No heteroscedasticity.	W_0 : 0.0000***	Rejected
	W_{50} : 0.0005***	
	W_{10} : 0.0000***	
No autocorelation.	Durbin-Watson: 0.42< 2	Rejected
	Baltagi-Wu LBI: 0.81< 2	

Table 7 (cont.). Diagnostic Test Results (Model A)

Assumption	**Test Statistics**	**Result**
Model does not include cross-sectional dependence.	Pesaran: 0.0000*** Friedman: 0.0008***	Rejected
The model is normally distributed.	Skewness-Kurtosis: 0.99-0.84	Unrejectable

Source: Author compilation. Note: *** shows the significance at %1 critical value.

Diagnostic tests showed that reference model included autocorrelation, heteroscedasticity and cross-sectional dependence while it distributed normally. In this manner Driscoll-Kraay Standard Error Estimator results were shown in Table 8.

Table 8. Regression Results by Driscoll-Kraay Estimator

Model 1 – Overall R-squared: 0.2755, F-ist: 0.0105**		**Model 2 -** Overall R-squared: 0.8184, F-ist: 0.0000***	
Dependent Variable: LY			Results
LFD	0.4261662 (0.018)**	**LFD**	0.4801386 (0.002)***
Covid-19	-0.0297561 (0.252)	**Covid-19**	-0.0108403 (0.139)
Constant	27.66925 (0.000)***	**LEXP**	0.7279729 (0.000)***
		Constant	8.726506 (0.000)***

Source: Author compilation. Note: *** and **shows the significance at %1 and %5 critical value respectively.

After all examinations, Driscoll-Kraay Standard Error Estimator indicated that two reference models were valid to investigate the relationship between financial development and economic growth (f-statistics). In Model 1 and Model 2 served the evidence that financial development supported the economic growth in reference countries between 2010-2021. In the model 2, extended by a control variable, export variables was found as another positive and significant factor for economic growth as expected. It was obtained noticeably that export variable made the reference model stronger by increasing R-squared value to 0.8184 from 0.2755. As a deepest extraction from this investigation is that financial development is key element to increase GDP in developing countries.

CONCLUSION AND DISCUSSION

This thesis presented an examination for the links among economic growth and financial development. In this manner, a panel regression analysis in the direction of Driscoll-Kraay estimator was used. In investigation, 2010-2021 period and 10 developing countries were chosen. General structure of the study consisted of importance of study, theoretical background literature review and empirical analysis. The contribution to empirical literature was set up by using new dataset for new countries and including a spesific period including Covid-19 outbreak effects in analysis.

What this study appeared was generally coherent with previous studies in the empirical background. Namely, a significant relationship between economic growth and financial development was expected and this assumption was supported by the results of empirical analysis. According to Model 1 and 2, The results of this study are largely in line with previous empirical findings. For example, Bist (2018) and Hassan et al. (2010) reported a significant and positive impact of financial development on economic growth in developing countries, which supports the results obtained in this research. However, some studies such as Asteriou and Spanos (2018) and Sobiech (2019) found weaker or mixed relationships, especially in regions with fragile financial structures or inequality concerns. This suggests that while the financial development-growth relationship is generally positive, it can vary depending on country context, institutional strength, and financial sector design.an increase in percentage in financial development increased GDP as %0.42 and 0.48 respectively. Moreover in both models, Covid-19 variable was found insignificant. This results can be accepted as a led that economy policies during this period such as promoting production by governments and very low interest rates compansed the negative effects of the outbreak. In this case, that government interventions were effective in this period is acceptable and this inference is coherent with economic structures of developing countries. With other words, economies needed arragements in shock periods and recovered by policy-makers' decisions.

The empirical results of this study are broadly consistent with earlier findings in the literature, which emphasize the positive influence of financial development on economic growth. For instance, Bist (2018), Şen and Pehlivan (2019), and Hassan et

al. (2010) found similar evidence of a significant relationship between financial development and economic performance in developing and low-income countries. These results support the argument that a more advanced and inclusive financial system can effectively stimulate investment, productivity, and resource allocation, particularly in economies with capital constraints.

Furthermore, the observed positive and significant effect of exports in the extended model aligns with the findings of Raza (2012), who highlighted the role of foreign capital flows and trade openness in fostering growth in Asian emerging markets. This reinforces the view that export performance, alongside financial development, serves as a complementary driver of economic growth.

However, the findings of this thesis differ from studies such as Asteriou and Spanos (2018) and Rioja and Valev (2004), who reported insignificant or even negative relationships in certain contexts. Their results suggest that in economies with underdeveloped financial systems or weak institutional frameworks, financial development may not always translate into growth. In contrast, the countries analyzed in this study appear to benefit from relatively stronger regulatory environments and more stable financial infrastructures, which may explain the positive outcomes observed.

In sum, while this research supports the finance-led growth hypothesis, it also acknowledges the complexity of the relationship and the influence of country-specific factors such as institutional quality, governance, and economic structure.

In a nutshell, financial development keeps it important position in the economy. Particularly in developing countries, in terms of capital lackness and efficiency, financial dynamics should be managed under realistic economic conditions. Espeacially during the extraordinary terms such as outberak and economic crises, active economy policies are suggested in the line of results in this thesis. Otherwise key goal for economy, economic growth may be interrupt and other economic indicators get spoiled. Furthermore, after extraordinary periods and decreasing the effects of crisis, applying of rational economy policies is recommended. Besides, each developing economy should do them by following its own economic characteristic while they try to achieve their economic goals.

Such as all other studies, this study was conducted in a certain context. While this study contributes to the literature by focusing on developing countries and including the Covid-19 period, it also has certain limitations that provide directions for future research.First, future studies could improve the modeling of the Covid-19 crisis by using more detailed variables, such as quarterly data, policy response indexes, or sector-specific shocks. This would allow a more precise understanding of how financial development interacts with crisis periods.

Second, researchers could expand the analysis by including additional financial development indicators such as financial inclusion, digital banking, or FinTech penetration to capture a more modern and comprehensive view of financial systems.

Third, it would be valuable to use alternative econometric methods such as cointegration tests or panel Granger causality analysis to examine the direction and long-run dynamics of the relationship. Lastly, future research could compare developing and developed countries or add institutional quality and governance as moderating variables to explore how structural differences affect the finance–growth nexus.

Compare Results with Prvious Literature

The results of this study that show positive relationship between financial development and economic growth concur with other past studies. As an example, Choong (2011) performed a meta-analysis based on which they concluded that the overall effect of financial development on economic growth is almost always positive on the country and regional level. Likewise, citing Turkey as an example, Şen and Pehlivan (2019) have actually discovered a long-run cointegrating and bi-directional relationship that confirmed that the improved financial markets contribute to economic growth. The positive connection was also proven by Nazir et al. (2020) in the scenario of India, China, and Pakistan, noting the importance of financial innovation in stimulating economic performance.

Conversely, other researches have negative or irrelevant results, which do not match with the current study. In a study conducted by Turgut and Ucan (2023) on five fragile countries, no significant causal association was detected between the two concepts of financial development and economic growth due to the role of institutional instability that impeded the analysis. A relationship between financial development

and growth is consistently negative across countries, and the costs of financial growth are counterproductive when poorly regulated (Nawaz et al., 2021). Tariq et al. (2020) have also found a threshold effect in Pakistan, with any effects of financial development there reverting to negative below a certain maturity stage.

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