R.T.
NİĞDE ÖMER HALİSDEMİR UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION
ACCOUNTING AND FINANCE

THE PERFORMANCE OF BANKING SYSTEM IN BALKAN COUNTRIES AND ITS IMPACT TO ECONOMY

DOCTORAL THESIS

By
Veton ZEQIRAJ

Niğde
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DECLARATION

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are original to this work. …/…/……

Veton ZEQIRAJ

ONAY SAYFASI

Prof. Dr. Ömer İSKENDEROĞLU danışmanlığında Veton ZEQIRAJ tarafından hazırlanan "Balkan Ülkelerindeki Bankacılık Sistemi ve Ülke Ekonomilerine Etkileri" adlı bu çalışma, jürimiz tarafından Niğde Ömer Halisdemir Üniversitesi Sosyal Bilimler Enstitüsü İşletme Anabilim Dalında Doktora Tezi olarak Kabul edilmiştir.

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This study titled as "The Performance of Banking System in Balkan Countries and Its Impact to Economy" prepared by Veton ZEQIRAJ in consultancy of Prof. Dr. Ömer İSKENDEROĞLU, is accepted as doctoral dissertation by our jury of Nigde Omer Halisdemir University, Institute of Social Sciences, department of Management.

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ABSTRACT

DOCTORAL THESIS

THE PERFORMANCE OF BANKING SYSTEM IN BALKAN COUNTRIES AND ITS IMPACT TO ECONOMY

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Various factors affecting economic growth constitute the subjects of many studies in the literature. In particular, the banking system can influence economies and support economic growth through its capital accumulation and fund transfer mechanism. Moreover, the performance of banks can be considered an important factor that would support growth. There are several studies that would claim the existence of the financial system's impact on banking performance regarding its financial stability and financial inclusion. This study aims to examine the factors affecting the performance of the banking system and both direct and indirect impacts of those factors along with banking performance on the economy. Accordingly, this issue is explicated over the period from 2000 to 2015 utilizing the data with the annual frequency obtained from a sample of the Balkan countries including Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Hungary, Macedonia, Moldova, Romania, Serbia, Slovenia, Greece, and Turkey. Panel Fixed Effects, Panel Random Effects, and Dynamic Panel Data Analysis (Panel Difference GMM and Panel System GMM) methodologies are performed within the frameworks of three separate objectives. Thus, the first objective of the study is to determine the potential impact of banking performance on economic growth. The second objective of the study is to determine the potential impact of financial stability on banking performance. The third and final objective of the study is to determine the impact of financial inclusion on the banking performance. The obtained results for the first objective of the study reveal a positive and statistically significant impact of the banking performance on economic growth. It is also concluded that human capital, trade openness, investment, and inflation have positive and statistically significant impacts on economic growth. However, no statistically significant impact of public expenditures on economic growth is found. The analysis results pertaining to the second objective of the study indicate that financial

stability has a positive and statistically significant impact on banking performance. Also, it is concluded that human capital, economic growth, trade openness, and investments have positive and significant impacts on banking performance. Nonetheless, there is no statistically significant impact of public expenditures on the banking performance. The obtained results in line with the third objective of the study reveal that financial inclusion has a positive and statistically significant on the banking performance. Moreover, the impact of financial openness, human capital, and investments on the banking performance is detected to be positive and statistically significant.

Keywords: Banking Sector, Financial Development, Economic Growth, Balkan Countries, Banking Performance, Financial Stability, Financial Inclusion

ÖZET

DOKTORA TEZİ

BALKAN ÜLKELERİNDEKİ BANKACILIK SİSTEMİ VE ÜLKE EKONOMİLERİNE ETKİLERİ

ZEQIRAJ, Veton
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İktisadi büyüme üzerinde etkili olan çok farklı faktörler literatürde birçok çalışmanın konusunu oluşturmaktadır. Özellikle bankacılık sistemi, oluşturduğu sermaye birikimi ve fon aktarım mekanizması ile ekonomilere etki edebilmekte ve iktisadi büyümeyi destekleyebilmektedir. Ayrıca bankaların performansları da büyümeyi destekleyen önemli bir faktör olarak değerlendirilebilir. Finansal sisteminin istikrarının ve finansal erişiminde bankacılık performansı üzerinde etkili olduğunu ifade eden çeşitli çalışmalar bulunmaktadır. Bu çalışmanın konusu bankacılık sistemi performansına etki eden faktörler ile bu faktörlerin ve bankacılık performansının doğrudan ve dolaylı olarak ekonomi üzerindeki etkilerini incelemektir. Buna göre Arnavutluk, Bosna Hersek, Bulgaristan, Hırvatistan, Karadağ, Macaristan, Makedonya, Moldova, Romanya, Sırbistan, Slovenya, Yunanistan ve Türkiye'nin içinde bulunduğu Balkan ülkelerinin yer aldığı örneklem için 2000 – 2015 dönemleri arası yıllık frekanstaki verilerden yararlanılarak konu incelenmeye çalışılmıştır. Panel Sabit Etkiler, Panel Rastsal Etkiler ve Dinamik Panel Veri Analizi olarak bilinen Panel Fark GMM ve Panel Sistem GMM metodolojileri üç farklı amaç çerçevesinde uygulanmıştır. Buna göre çalışmanın ilk amacı bankacılık performansının iktisadi büyüme üzerindeki potansiyel etkisini tespit etmeye yöneliktir. Çalışmanın ikinci amacı ise finansal istikrarın bankacılık performansı üzerindeki potansiyel etkisini tespit etmeye yöneliktir. Çalışmanın üçüncü ve son amacı ise finansal erişimin bankacılık sistemi üzerindeki etkisini belirlemeye yöneliktir. Çalışmanın ilk amacı doğrultusunda elde edilen sonuçlar bankacılık performansının iktisadi büyüme üzerinde pozitif ve istatistiksel olarak anlamlı etkisinin olduğunu ortaya koymaktadır. Ayrıca beşeri sermaye, ticari açıklık, yatırım ve enflasyonunda iktisadi büyüme üzerinde pozitif ve istatistiksel olarak anlamlı etkisi olduğu sonucuna ulaşılmıştır. Ancak kamu harcamalarının iktisadi büyüme üzerinde istatistiksel olarak anlamlı bir etkisine

rastlanmamıştır. Çalışmanın ikinci amacı doğrultusunda gerçekleştirilen analiz sonuçları ise finansal istikrarın bankacılık performansı üzerinde istatistiksel anlamlı ve pozitif etkisi olduğunu ortaya koymaktadır. Ayrıca beşeri sermayenin, iktisadi büyümenin, ticari açıklığın ve yatırımların bankacılık performansı üzerinde pozitif ve anlamlı etkileri olduğu sonucuna ulaşılmıştır. Ancak kamu harcamalarının bankacılık performansı üzerinde istatistiksel olarak anlamlı bir etkisine rastlanmamıştır. Çalışmanın üçüncü amacı doğrultusunda elde edilen sonuçlar finansal erişimin bankacılık performansı üzerinde istatistiksel olarak anlamlı ve pozitif etkisi olduğunu ortaya koymaktadır. Ayrıca finansal açıklık, beşeri sermaye ve yatırımlarında bankacılık performansı üzerindeki etkisi anlamlı ve pozitif olarak bulunmuştur.

Anahtar kelimeler: Bankacılık Sektörü, Finansal Kalkınma, Ekonomik Büyüme, Balkan Ülkeleri, Bankacılık Performansı, Finansal İstikrar, Finansal Erişim

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Abbreviations

ARDL	Autoregressive Distributed Lag
BKM	Bosnia-Herzegovina Convertible Mark
BRSA	Banking Regulation and Supervision Authority
BSC	Balanced Scorecard
CK	Croatian Kuna
DEA	Data Envelopment Analysis
DEM	Deutsche Mark
DICE	Database for Institutional Comparisons in Europe
EU	European Union
ECB	European Central Bank
EVA	Economic Value Added
EMU	European Monetary Unification
FE	Fixed Effects
FED	Federal Reserve in the US
FMCDM	Fuzzy Multiple Criteria Decision Making
FSDW	Financial Structure Database World Bank
FSAP	Financial Services Action Plan
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
G-20 FII	G20 Financial Inclusion Indicators
GMM	Generalized Method of Moments
GRD	Greek Drachma
IV	Instrumental Variables
LSDV	Least Square Dummy Variable
MG	Mean Group
MENA	The Middle East and North Africa
MKD	Macedonian Denar
NIM	Net Interest Margin
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Square
PMG	Pooled Mean Group

RE	Random Effects
ROA	Return on Assets
ROAA	Return on Average Assets
ROAE	Return on Average Equity
ROE	Return on Equity
SEE	Southeastern Europe
TIS	Slovenian Tolar
TFP	Total Factor Productivity
WDI	World Development Indicators
WGI	World Governance Indicators

INTRODUCTION

This study investigates the impact of banking performance on economic growth, financial stability on banking performance, financial inclusion on banking performance and other factors in every objective of this study. The fundamental aims of this studies on banking performance, economic growth, financial stability, and financial inclusion is to determine if the factors, which we have chosen can boost economic activity, which can turn in raises for prosperity for Balkan countries. Economists have studied the topic for a long time now, and due to its importance for policy implications, there is a large body of literature in this area, including contributions by the World Bank. From the early 20th century, a burgeoning volume of theoretical literature emphasizes the importance of the functions of financial institutions and other actors in financial in the process of economic progress. (Schumpeter, 1911; McKinnon, 1973; Shaw, 1973; Greenwood and Jovanovic, 1990; Bencivenga and Smith 1991).

In particular, it is commonly regarded that a well-developed financial sector contributes to the long-term economic growth via facilitating transactions, mobilizing savings and diversifying risk. However, such a theoretical expectation is never free from skepticism. As witnessed in various financial sectors worldwide, the pitfalls of the financial system, such as excessive speculative activities and financial resource misallocation, inevitably shed doubt on the expected growth-enhancing role of financial development. At the same time, it is worth noting that growth economists have attempted to prove the existence of a beneficial impact of the development of the financial sector on economic progress since the 1990s. (King and Levine, 1993a, b; Levine et al., 2000; Beck et al., 2014) Despite these efforts, however, existing empirics have failed to reach a complete consensus. Given the continuing interest in academia and among policymakers, this study investigates the well-known association between banking performance on economic growth, financial stability on banking performance, financial inclusion on banking performance and other factors which can directly impact on economic growth and banking performance. Especially, it focuses on the effect of financial development on growth in the Balkan countries and panel data. By and large, the originality of this study derives from the employment of a sophisticated wide range of panel data methods and recently developed panel data models. Clearly, such applications have important bearings on how to empirically estimate the effect which

banking performance, financial stability, financial inclusion and other factor to exerts on the long-term economic performance.

The main objectives of this research are to deeply examine the relationship between banking performance and economic growth. While, the specific objectives were as follows: to review the body of literature relating to the area of financial system development and economic growth, to examine the relationship between financial system development and economic growth in the Balkan countries, to examine the impact of financial stability on banking performance on Balkan countries, to investigate the dynamic impact of financial inclusion on banking performance in Balkan countries.

This research finding will be of great importance to financial institutions, regulators, and governments of these countries in different ways. For example, it will be important to banks in evaluating their performance and its contributions to economic growth, financial stability, and financial development of their respective countries. This will, therefore, give them more hints to strengthen their operations where needed for more contributions towards improving the overall economic development. Moreover, it will provide the regulators with holistic views on how it affects the performance of the economy with a view to identifying the weaknesses/strength of their respective sectoral regulations. If such performance signifies positively in moving the banking sector in particular forward and the economy at large, hence the regulators would track their strict measures in making sure the banks comply with the ethics of banking operations.

Furthermore, the governments, central banks, and investor of these countries will use this research finding in setting certain macroeconomic targets since the banking sector performance is among the measuring yardstick of financial sector development which in most instances positively affects the overall economic performances. The main limitation of the study is that the present research will not cover all the countries of this region due to the time and other constraints.

Chapter one in this study analyzes the basic theoretical aspects of financial development and economic growth. Another analysis in this chapter will focus on theoretical aspect on the role of financial development and economic growth including

savings mobilization, capital allocation, and risk management. Specifically, it reviews the earlier literature on the Keynesian Model, Neoclassical Model, and the McKinnon-Shaw Model. The chapter also examines endogenous growth models with financial development, whereby finance affects economic growth via to the banking performance, financial stability and financial inclusion.

Chapter two explores the studies which have the impact of financial development on economic growth in the context of the literature review. In this chapter are explore literature about the banking sector performance, and economic growth as well are explore the studies in related with non-banking sector performance on economic growth. Despite its rapid economic growth in last few decades in some of these countries in this region, mixed evidence is revealed on the relationship between financial development and economic performance. In this chapter is analysis relevant literature which will be used during the create the methodology.

Chapter three of this research are discussed for data and research methodology. In this study are used the annual data for thirteen Balkan countries for period 2000-2015. In this chapter discussed the econometric methodologies which are employed. Furthermore, for the estimation strategy, used Fixed and Random Effects and system Generalized Method of Moments (GMM) estimators, are employed in the dynamic panel data model. In particular, we highlight when using the GMM estimators in the finite sample after which the instrument count is restricted in our estimation. The estimation strategy is based on the Fixed and Random Effects and GMM frameworks. For the purposes of comparison, GMM purposed by Arellano and Bond (1991) and Arellano and Bover (1995) models, have been utilized.

Chapter four in this study provides findings and result in the relationship between banking performance on economic growth, financial stability on banking performance and financial inclusion on banking performance which is included in objective two. Given data availability, a balanced dataset containing 13 Balkan countries from 2000 to 2015 is constructed. The usage of annual data and employed the GMM estimation model purposed by Arellano and Bond (1991) and Arellano and Bover (1995), the effect of the banking performance on economic growth, financial stability on banking performance, and financial inclusion on banking performance (other factors) is found to be positive and significant.

1. CHAPTER ONE
FINANCE AND ECONOMIC GROWTH

Development of the financial sector, as one of the powerful basics of modern economists' norm, has a substantial power on economic growth. From the early 20th century, a burgeoning volume of theoretical literature emphasizes the importance of the functions of financial institutions and financial markets in the process of economic progress. (Bagehot, 1873; Schumpeter, 1911; Gurley and Shaw, 1955; Goldsmith, 1969; McKinnon, 1973; Greenwood and Jovanovic, 1990;) In practical, the importance of financial structure development and financial liberalization on economic growth.

Nevertheless, other economists think about the rapport amongst financial development, and economic growth (Robinson, 1952) and (Stern, 1989) is not so important or over-stressed (Lucas,1988). Growing empirical literature since the 1990s also proved the prominence of financial sector development for economic growth. However, such a theoretical expectation is never free from skepticism. As witnessed in various financial sectors worldwide, the pitfalls of the financial system, such as excessive speculative activities and financial resource misallocation, inevitably shed doubt on the expected growth-enhancing role of financial development. At the same time, it is worth noting that growth economists have attempted to prove the existence of a positive impact of the development of the financial sector on economic advancement since the 1990s (Levine et al., 2000; Beck et al., 2014). Notwithstanding these efforts, however, existing empirics have been unsuccessful to reach a complete compromise.

Most of the contributions portrayed above are based on demand following the hypothesis that postulated that financial sector development is a pre-requisite condition for achieving long-run growth in every economy. Robinson (1952) suggested the contribution believed that promoting economic activities is the reason for promoting the financial sector because it creates a demand for a different assortment of financial services.

The main notion of the supply-leading hypothesis is that entrepreneurship primes, finance follows. Kuznets (1955) also support Robinson's hypothesis based on his assertion that the growth of the real sector towards approaching the transitional stage; such expansion would require the businesses to demand more financial services. Thus, highlights that the development of the financial sector depends on the level of economic advancement.

Banking sector performance is one of the main and essential determinants of the overall in financial sector performance in every economy in the world. Some banks are poorly performed due to the nature of their operations, and the other segment believes that banks could function beyond the traditional approach of offering credits and accepting deposits. The proponents of restricting commercial banks to their traditional approach of accepting deposits and offering credits believed that intrinsic clash of interest emanated when banks mechanism in non-banking transactions such as; securities underwriting, real estate investment, insurance underwriting, and having nonfinancial firms. Increasing the collection of acceptable activities may give room for better chances for moral hazard to bend the investment decisions of banks, particularly at what time operate in the context of all system which offers a deposit (Boyd et al.,1998). More restrictive regulatory banking system generates more net interest margin (NIM) on average (Boyd, et al. 1998; 2002), hence this type of banking system performed well better than those that believed banking operations could be mix with other commercial ventures like trade in securities, insurance, real estate.

The antagonist of the notion above, Kroszner and Rajan (1994) and Puri (1996) as well Kwan (1997), argues that universal banking gives more room for diversification and creates a more stable banking system. They also believe that little restrictions regarding regulations may also enhance the franchise value of banks and thus boost motivations for bankers to act further cautiously and have a positive mindset for stability in the banking system. Moreover, diversifying banking operations enable the banks to adapt and therefore afford effective and dynamic financial services needed by the nonfinancial sector. Hence, moderate regulatory restrictions and monitoring on the commercial banking activities as well as diversified banking operations may generate more effective and more enduring financial systems.

1.1. Basics of Financial Development and Economic Growth

It is believed that in some cases, disruption in the banking intermediation process may cause financial crises; hence negatively affect economic and social development. Evidently, more than 180 countries had a negative experience in banking sectors since 1980. Researcher incurred huge financial resource losses because of its damaging effect on economic development. This phenomenon necessitated and urged the affected countries to reform on banking sectors as subjected to massive pressures from the World Bank (WB) and International Monetary Fund (IMF). The overall objective of the reform is not only restricted to the operations of the banking sectors, but also rather structural, regulatory, and supervisory reforms. Given the continuing interest in academia and among policymakers, this thesis investigates the well-known association between banking performance and financial development. Specifically, its concentrations in the result of financial development on growth in a single country setting (Balkan) and cross-country scenarios. By and large, the originality of this thesis derives from the employment of a sophisticated wide range of dynamic panel data methods and recently developed panel data models. Clearly, such applications have important bearings on how to empirically estimate the effect which financial development exerts on the long-term economic performance. The main expectation of financial access (inclusion) is to enhance the near of financial development and the overall economic performance of both developed and developing countries. This is related to its functions of enhancing banking liquidity, which positively promotes financial sector development due to the available funds it provides for existing and new businesses. However, contrary to the general norms, financial access does not promote growth in both developed and developing countries, and sometimes contribution might be unnoticeable or ambiguous.

Lämmermann (2010) argues that there is an adverse correlation amongst entry to finance, growth, and poverty reduction. Hence, become extremely difficult for the poor segment of the population to mobilize savings formally, and extremely difficult for them to obtain formal loans. While, the informal source of finances charged much higher than the formal mode of financing, therefore is regarded as exploitative. The Global Index (2012) database highlighted that the number of adults that possess formal financial accounts is less than a quarter of the total adult population of the world. Hence

most of the populace is using informal mediums to save money, and borrowing is mainly from family, friends and other non-formal ways as well. Moreover, financial development encompasses other sub-components that elaborate more details about the functions of each financial sector; these segments highpoint the performance of every financial sector in the global economy. The sub-components include; financial depth, financial stability, financial access, and financial efficiency.

Throughout economic history, there is a continuing controversy on the affiliation amongst financial development and output performance. By and large, an increasing body of literature has emphasized a positive role that financial plays in the modern economy. Typically, a well-functional financial system has the capacity to promote economic growth through producing essential information, exerting sound corporate governance, etc. (Beck et al., 2010) However, given the lasting influence of financial instability and the financial crisis, skepticism arises on the expected benefits of finance. At the same time, a strand of studies paid attention to the connection pattern amongst financial development and economic performance; an issue of key importance for policy. The level of private credit to GDP in high-income countries is 103 percent, which is four times the average ratio of low-income economies. Based on this indicator, countries developed and deep financial sector mostly from Europe; Canada, Australia, and South Africa are ranked at the highest quartile related to private credit to GDP ratio. China's quartile also supersedes other emerging market countries like; Russia, Brazil, and India.

The depth of the financial system is arguably believed to have a strong connection with the economic performance and poverty reduction. In the global financial report, 2016 highlighted that; the yearly middling private credit across countries is 39 percent, and its matching standard deviation is 36 percent. Its average during 1980-2010 was less than 10 percent in case of Angola, Cambodia, and Yemen, while it is higher than 85 percent of GDP of Austria, China, and the United Kingdom (UK), hence clearly reflect the superiority of the advanced financial economies when compared with the poorly financial economic systems (The Global Financial Report, 2016).

Financial stability is the financial system where advert to the ability of the financial system that comprised the key financial markets and other financial institutions to resist any internal or external economic shocks and its capability to achieve its basic roles in the economy. These primary functions include among others; financial funds intermediation, risk management, and sustainable planning of the payment systems After a long debate amongst the researcher, still has not any consensus, how to define and formulate the financial stability because of it is tough to formulate the policy to be reached because of the complications in defining, predicting and determining financial stability (Schinasi, 2004). In the absence of a consensus, it is recognized that these regulations should leastways be implemented in the euro area. The banking union is one step in this direction. The country of European are making a continuous effort to measure the stage of the financial stability and economic performing, particularly because, appreciations to financial incorporation and link up prudential regulations, the European countries are relatively similar compared if it compared other economy around the world.

Financial stability is measured as the conditions of the capacity of the financial system, which includes:

- Facilitation of an efficient allocation of resources both intertemporal and spatial as well as other economic processes which comprise; accumulation of wealth, economic growth, and finally affluence;
- To access, price, allot, and manage risks; and
- Maintaining its stability to perform these central functions and to manage the external shocks or build up of disparities via self-corrective tools (Schinasi, 2004).

In this research, Schinasi (2004) also highlighted that; financial system is considered steady when it enhances the performance of the economy in different degrees, whereas the unstable financial system weakens the performance of the economy. Thus, the stability of the financial system is highly related to its contributions of promoting economic growth. The decision makers could overcome financial

instability by redefining the market regulations for the effective performance of the financial systems.

Financial access is the capability of economic agents (individuals and firms) to have entree to official financial services anytime needed without any obstacle. Financial inclusion denotes to the process of assuring access to formal financial services at the rational time and ample credit to both underprivileged segment, which comprises low-income groups, and weaker segments at sensible costs, it primarily suggests access to bank accounts, reasonable loans, insurance, and sound payment system. There are two basic types of financial exclusion; the segments that intentionally excluded themselves from participating in the formal financial markets due to tradition and norms, religious beliefs, and those that were excluded due to the failure of the market imperfections (Khan, 2011). The policy direction on this concept focus more on the latter because they (individuals and firms) have problem to access to formal financial services due to market distortions such as; shortage of branches more especially in the rural areas, high costs of opening, operating and maintaining accounts, shortage of required financial products that suit most customer's needs. Financial inclusion is considered one of the main challenges of authorities in the global financial markets owing to the financial loses the financial sectors suffers from it. It is believed that part of its main objective is to incorporate the unbanked portion of the population into formal financial systems; the result could positively enhance economic growth through the mechanisms of pooling capitals from the surplus economic segment to the deficit part (financial intermediation) and hence improve the level of investment in the economy.

Financial efficiency relates to the sum of revenue received by the firms from its financial resources invested in each business. Financial efficiency also reflects how each dollar invested in every alternating business generate incomes for the firm. Financial efficiency is also related to the ability of the firms to transform its financial resources to achieve organizational objectives. That is why it becomes central to all organizations irrespective of its features. The concept of financial efficiency measures the magnitude through which business used its assets to generate gross earnings and the effectiveness of purchasing, producing, marketing, and financing decisions. Some of the indicators used to measure this concept include; net inters margin (NIM) which measures the variation between the incomes earned from interest by banks and other

related institutions and interest paid to their lenders, the margin of the benefits earned is the NIM. Financial sector efficiency could be among the important determinant of the overall financial system performance. The ability of the firms to manage the tradeoffs between risks and returns and liquidity and profitability is also determining its financial efficiency. The capability of the organization to effectively manage its financial resources and ability to obtain high returns is also determining the factor of its strength, which also reflects the degree of its financial efficiency. Hence, efficiency may be linked to the performance of the financial sector, which also includes banking sector performance Arcand et al. (2015).

There are various factors that determine banking performance in every economy which include the GDP growth rate of a particular economy, financial sector development, stability of the financial sector, and level of financial access. Banking sector performance is one of the key machinery that promotes the entire financial sector of every economy in the global economy. Hence, its failure has a serious detrimental impact on the entire financial development of the affected economies. Moreover, this is among the reasons why the recent global financial crises of 2007/2008 that emanated from the United States (US) sub-prime mortgages affected almost the entire functioning and financial performance of the various banks in the world (Ellaboudy, 2010; Smolo and Mirakhor, 2010; Kassim and Majid, 2010). The outcome forced several banks to report financial losses due to either their direct connection with the U.S. sub-prime mortgages or the elongated economic crises. The crisis engulfed even the giant Lehman Brothers as well as other banks that filed bankruptcy during such financial crisis which adversely affected the entire global banking sector performances.

It has been recently confirmed around the globe that, banking stability in an essential element of well-functioning financial systems. When the financial system in overall or banking sector in particular provisionally breakdown or is operating ineffectively, it will detrimentally affect its basic functions of financial intermediation. Hence, this will directly affect the level of funding to the firms irrespective of their available viable investment projects on the ground (Barth et al., 2001).

1.2. Role of Financial Development and Economic Growth on Economy

The early literature on financial development has been substantially influenced by economic growth. The main question is submitted very often, and it sparks debate among economists, and as a result of those, the debate among economist is: How important are financial development and economic growth? Ever since, Gurley and Shaw, 1955; Goldsmith, 1969; McKinnon, 1973; Shaw, 1973; King and Levine (1993a) provide on a publication that the economic growth plays the main role on targeting the firms in need of additional funds, the answer becomes even more complex as a result of new econometric models. However, hitherto, there is no consent on the function of financial development in economic growth, it is still disputable.

Moreover, Schumpeter (1934) argued that financial development plays a crucial role to recognize the importance of capital accumulation as the main factor in boosting economic growth. Schumpeter (1934) pointed to the role of financial development in creating models to emphasize that well-functioning of a financial institution, which can improve on cutting information and transactions costs. Therefore, the Schumpeterian sight of finance and economic development, emphasize the effect of the financial institution on productivity growth and technological change, which in many countries has spurred economic growth.

Another research about financial development and economic growth by Chistopoulos and Tsionas (2004) has sparked fierce debate among researchers. Creane et al. (2004) argued in his research that the role of a financial institution is to aid the accomplishment of economic growth which, in turn, raises the prosperity of all countries. Even though, the study was based on restricted data and did not have satisfactory control over other factors that have impacts on growth.

Alternatively, financial development for a long time had disregarded the financial system and focused on another field of areas. Lucas (1988) explains the protagonist of financial development in the growth process as exaggerated, and Robinson (1952) describe financial development primarily pursue economic growth. Goldsmith (1969), Shaw (1973) and McKinnon (1991) based on their research, have

provided strong arguments that financial development has a robust interaction with economic growth. As well, Benoit (1978) discussed the long debate concerning the relationships amongst financial development and economic growth.

Recent research by Bills and Klenow (2000), and Prescott (1998) in their research they concentrate on the importance of financial development and economic growth. On the other hand, huge financial development literature shows that capital collection is the basic factor of economic growth. Furthermore, better functioning of the financial system impact growth mainly by increasing internal savings rates and attracting foreign capital. Hence, there are so many theories noting that financial development arises to enhance market frictions; the resulting patterns show which competing sights about the essential channels and which join financial intermediaries for growth. In order to have a proper picture about the connection amid financial intermediation and economic growth, should examine and evaluate the impact of financial intermediaries on private savings rates, capital collection, productivity growth, and general economic growth.

1.2.1. Financial Development

Financial development mentions the improvement in the overall financial system which includes; banking sector, the stock market, pension sector, and insurance. The financial system refers to the set of institutions and markets that collects excess funds from the savers (households, firms) and allocates such funds to the deficit economic units. The development of the financial segment is considered a measuring yardstick for the performance of other economic sub-sectors. Meanwhile, McKinnon (1973) and Shaw (1973) pointed out that government interventions for financial repression were likely to restrict the financial intermediaries from channeling financial resources to productive enterprises thus lowering economic performance. The endogenous growth literature also focused on the various functions of financial institutions and financial markets in capital accumulation and technological innovation.

The financial system has the ability to match a huge volume of loans with diverse maturity periods which decreases the overall risk that individuals need to face, and investors are exposed. In particular, a well-established financial sector is capable

of diversifying the cross-sectional and inter-temporal risks in investment projects. Consequently, as the financial system develops, more investments can be conducted under a relatively low-risk level, which facilitates the research and development activities and economic performance. (Merton and Bodie, 1995), summarize some of the conditions that well-functioning financial system must satisfy, these include:

- savings mobilization,
- efficient capital allocation, and
- risk management.

1.2.1.1. Savings Mobilization

One of the main roles of the financial system is the mobilization of savings from the surplus economic component, despite its difficulty and expensiveness. Levine (1997) identified two different types of costs, which includes; (a) addressing informational asymmetries linked to the security of savers funds and (b) addressing transaction costs incurred in illustration savings from different causes. Savings funds might be insufficient to serve the wishes of the investors because such financial resources may be fragmented. Hence, it is the responsibility of financial intermediary to obtain these fragmented resources and provide it to prospective investors as loans for different investment projects. Through this medium, the decision of savings and investment emanated. It leads to withdraw funds from any idle segment and allocate it to the feasible investment project that will promote long-run growth. Moreover, that system that rely on foreign funds prosper more in countries with good financial markets, i.e., the resource allocation is better where finance is strong.

1.2.1.2. Efficient Capital Allocation

Inefficiency and uncertainty are among the detrimental phenomena that hampered the financial system and hence obtaining and distributing information become expensive. Financial intermediaries are established to lessen asymmetric information problem that would not be excluded from the system completely (Levine, 1997).

Contributing average cost by the individual investor is considered lower when compared with single investor contribution. To gather, process, and distribute information about feasible and cost-effective investment financial intermediaries are essential in the economic system to carry out such functions. Financial intermediaries help in transferring the financial resources from unproductive investments to the best feasible fruitful investments that will boost economic development, well-functioning financial market immensely contributes to efficient resources allocation. Both investors and other market accomplice need information about the firms especially when the market expand and become competent as stressed by Levine (2005).

With the advantages of lowering transaction costs, the financial system has the capacity of pooling the savings and diversifying them into different portfolios via financial arrangements, bilateral contracts for instance. New enterprises could have access to credit with the support of financial “mobilizers" which would encourage activities of innovation and technological reform. As a result, the financial system is able to boost economic growth through the mobilization of savings. (Levine, 1997; Beck et al. 2010).

Likewise, stock markets generate information about the quality of potential investments (Rousseau and Wachtel, 2000) and thereby make the effective allocation of capital. The agents of stock markets are involved in researching the firms to disseminate information which in effect promotes better information and capital allocation. Rajan and Zingales (1998) found that businesses that depend on another find burgeon more in countries with better developed financial markets, i.e., the resource allocation is better where finance is strong. Also, the financial system produces information ex-ante about possible investments which can help agents to better allocate resources.

1.2.1.3. Risk Management

One of the crucial roles of the financial system is to cut transactions and information costs, investors are at times skeptical in their investment decision as a result of lack of the firms which lead to the loose of some investment opportunities, that is why information disclosure is important because it will strengthen the investors to place

resources in lucrative firms and this will directly improve economic growth and lead to risks reduction. Risk-averse investors have intent to diversify portfolios. However, this makes them misplace some feasible and profitable investments, hence financial system helps investors to spread their investment and therefore benefit from high-return investments. Financial institutions can facilitate trading, hedging, diversifying and pooling of risk. The author discusses how financial institutions minimize liquidity and idiosyncratic risks (Levine 2005).

Effective financial system channel financial resources from several sources and this will allow the investor to possess assets in various projects thus lead to minimize risks. To reduce risks is to raise the likelihood of investment in the economy because some investors are inquisitive about any harmful consequences that may influence investment, and as such strive by all means to minimize the risk, and the better financial system is the one that provides different alternative portfolios to reducing risks. The risks of some institutions that cannot be diversified (the effect of the 1970s oil shock on the US market that caused highly positive correlation with most assets values at a point in while can be diversified across generations by financial institutions, as they are perpetual entities (Allen and Gale, 2004).

In general, according to Laeven and Levine (2009), each of these functions is capable of exerting impacts on the investment decisions and the efficiency of financial resources allocation, thus promoting long-term output. As a result, if existing, the causal relationship should be consecutively from financial development to economic performance. Such a view is also denoted to as the \supply-leading" hypothesis. However, some argued that financial sector passively responds to the new demand for financial service in the economy. In short, as stated by Robinson (1952), “where enterprise leads finance follows.” According to this “demand-following view, the causality is from economic performance to financial development.

1.2.2. Economic Growth

Economic growth is a multifaceted concept with a wider dimension of meanings across the global economy. It could be perceived as a term that explains the improvement in the overall GDP per-capita of a given economy over a period usually

calculated yearly. Economic growth is the term used to determine the extent to which how economically strong or weak a given country is. For example, if the level of the United States' economy grows faster than of Germany, the economic analyst would prove that the US economy is stronger than of the German economy and vice-versa. Therefore, the growth of the economy facilitates the overall sectoral improvements like the financial sector, agricultural sector, service sector, employment sector, telecommunication sector, etc. Economic growth is considered as the determinant yardstick that measures the overall economic performance of every economy in the world (Rodrik and Rosenzweig, 2009).

Many scientific research studies and vast industrial development have played a key role in the up-to-date economic growth understanding of contemporary developed countries. The high rates of growth have been constant by the interchange amid mass applications of many new technological innovations based on rapid progress in the stock of scientific facts and further superfluities to that stock of knowledge made probable by growing surplus wealth (Todaro, 2015).

The bulk of an economy to produce extra goods and services in a given year as compared to the previous years is a clear indication of its productivity improvements. The growth of the economy is measured by nominal or real GDP. The traditional method of measuring economic growth is regarding the gross national product (GNP) or GDP. However, other alternative approaches are sometimes applied. Economic growth can also be perceived as an increase in the overall productivity of a given country, which is usually calculated annually. The role of financial development on economic growth is directly linked to the emergence of endogenous growth theories. It is already a stylized fact based on different empirical findings that financial repression positively influences the development of the financial sector development (Ang and McKibbin, 2007).

1.3. Role of Financial System in the Economy

Financial system eases the distribution of resources, across interplanetary and time, in a vague environment. One of the key functions of the financial system is to improve transaction and information costs, steady and functional financial system can

be a booster of economic growth through two diverse but coordinated machinery as highlighted by the theory of growth (Ang, 2008). The stable and better financial system is an engine that converts the system into high economic growth via total productivity growth and capital accumulation (Merton, 1995).

Debt accrual hypothesis by Gurley and Shaw (1955) is the foundation upon which capital accumulation channel or "quantitative channel" relies. This refers to the efficiency of the financial intermediary to search for unutilized financial resources and combine to allocate to the best economically viable projects. Incessant allocation of funds effectively to the feasible investments is a medium through which high economic prosperity will be achieved, and also reduces the information asymmetry obtain in the financial sector. Financial sector improvement deals with project monitoring and substantiates efficient financial resource allocation in any economy. Moreover, the functions of the financial system are related to its importance of; savings mobilization, risk management, resources allocation, facilitating the transaction and training corporate control (Ang, 2008).

Having access to reasonable credits timely and when required is an essential function of the well-functioning financial system. Investors need credit accessibility to improve existing investments and acquire new assets. This helps them in investment projects in particular and also improves the economic performance in general. It is also a function of well-functioning financial intermediaries to guarantee payments for their customers more especially foreign transactions and other public sector contract projects. Another important function of the stable financial system is exercising corporate control, which has to do with the assets valuation of firms according to stock prices, which highlight or measure the performance of managers. Firms' assets value measures the strength and liquidity of a given company, and how customers are attracted to purchase its shares. Improving corporate control will positively translate into more economic growth because improving firms' performance boost productivity and therefore reduce the level of unemployment and poverty (Levine, 1997).

Figure 1 below shows the average financial inclusion and banking performance across the Balkan countries for period 2000-2015. In the vertical axis is presented Economic growth as a percentage of GDP as well as financial inclusion as a percentage

of GDP for each country for period 2000-2015. The variable of financial inclusion is higher in some countries while it is low in the case of other countries. The level of access and uses of formal financial services (financial inclusion) is higher in countries like Bulgaria, Croatia, Romania, and Slovenia. However, lower in the case Moldova, Serbia, Albania and Hungary, the variable of banking performance shows that the performance is higher in some countries as well as lower in the case of others. It is higher in the case of Moldova and Turkey while the same variable is low in countries like Greece, Slovenia, Montenegro, and Serbia.

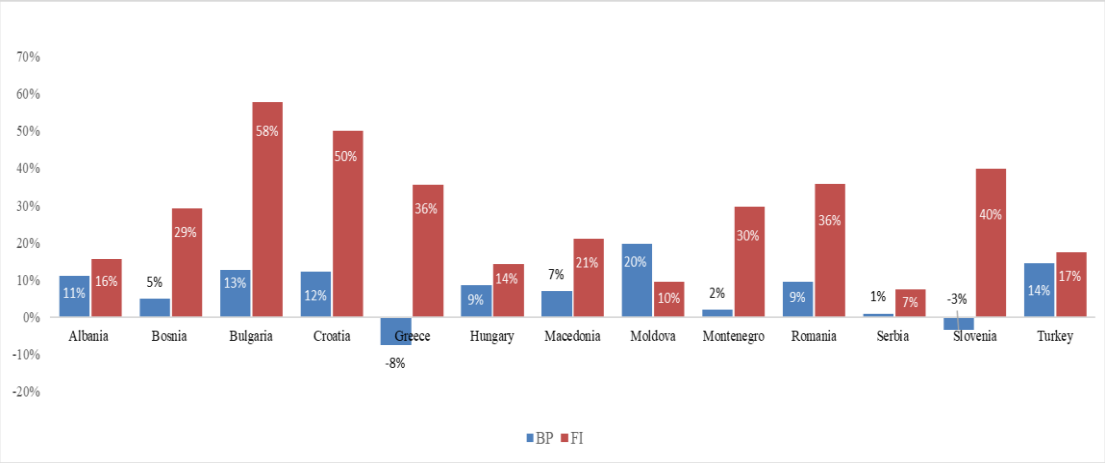

Figure 1: Average of Financial Inclusion and Banking Performance in the Balkan Countries over the period 2000-2015

1.4. Role of Banking System in the Economy

Banks play the pivotal role in the financial system is one of the fundamental issues in theoretical economics and finance. The recession of 2008-09 erupted from US sub-prime banking bust. The pressure on the US sub-prime market rapidly spread throughout financial systems triggering crises across the world. The recession of 2008-09 was the longest and deepest in duration since the 1930s which badly affected economies around the world including the USA, UK, Japan, China, Australia, and New Zealand. It also triggered the bankruptcies in Greece and Iceland.

Allen and Carletti, (2008) based on the result of the financial market, the banking system plays a pivotal role in every economic system. Though, in developing economies, banks play a far more important role. Countries that are considered low standards of life are characterized by scarcity, high stages of joblessness, and an acute

shortage of capital and poor entrepreneurial aids. Moreover, the presence of a well-functioning banking system is adept of selection to alleviate these contrary qualities. The worldwide financial crisis of 2008 was the prime shock to the world's financial system besides the Great Depression, and since then the role of banks have come under greater scrutiny.

In other words, the main condition to have a good financial system, covering banks, allow selecting the most productive contributor in order to ensure their actions will create e opportunity that the financial system as a whole will have a high return. Moreover, if financial system does not have a good performance and tend to make activity which can damage the system being to transfer capital in activity which not guarantee the good return. Main differences regarding growth can be huge. As one of the fundamental growth determinants in the banking system has created a growth model, the savings rate is normally measured by the ratio of the GDP. According to the Solow model, a higher volume of physical capital investment is predicted to have a positive effect on the steady-state level of output per capita. Meanwhile, if the transition to the new steady-state position needs a long time, the effect of the physical capital investment on the steady-state growth rate of average output could also last for a long time during the transitional period. (Stiglitz, 1995).

1.4.1. Impact of Banking Sector on Financial Development

Since the 21st century, many researchers like Schumpeter (1911) and Goldsmith (1969) have documented a strong nexus between financial development and the rate of economic growth. The scholars show clear evidence that development of the financial sector can assist to indorse steady economic growth, raise the rate of savings in the economy, monitor cost, and lead to the reduction of the information cost. Development of the economy's financial sector can also enhance investment efficiency, business opportunities, exchange of goods and services, and improve the overall technological aspect of the economy. Banks, as agencies and elements of the financial system that facilitate financial intermediation between the surplus and deficit economic units, play significant roles in the overall financial development of every economy and hence enhance the overall economic growth (Shaw, 1973).

To the development of the financial sector is mainly the concern of resolving the costs earn in the economic, financial system. The procedure of cutting costs of getting information, enforcing the contract, and performing transactions lead to the surfacing of financial contracts, mediators, and markets. Lots of empirical evidence documented that; vibrant financial sector enhances economic development. It promotes economic growth through technological progress via boosting the rate of savings and capital accumulation, making relevant information available for investment, capital allocation optimization, pooling and mobilizing savings, and enhancing and facilitating foreign capital mobility (Department for International Development, 2004). Several studies also presented empirical justification that stable and well-functioning financial systems hastens long-run economic growth through allocating of required capital to the viable productive ventures than poorly developed financial systems [For cross-country justifications in favor of this nexus, see King and Levine (1993a,b); Levine and Zervos (1998); Beck, Levine, and Loayza (2000); and Levine, Loayza, and Beck (2000)].

Figure 2 illustrates the average of financial stability and banking performance across the Balkan countries for period 2000-2015. In the vertical axis is presented banking performance (ROE) as a percentage of GDP of average for each country for period 2000-2015 as well in the vertical axis is presented financial stability as a percentage of GDP of average for each country for period 2000-2015. The variable of banking performance is higher in some countries while it is low in the case of other countries — the higher in the case of Croatia, Bulgaria, and Serbia. However, it is lower in the case of Greece, Montenegro, and Turkey. Moreover, the variable of economic growth shows the same, which is high in some countries and low in the case of other countries. This may depend upon the nature and activities of each country's economy; the growth of each country is different considering the different economic environment and political spheres as well. The GDP of Croatia, Macedonia and Serbia are considered higher when compared with the likes of Albania, Greece, and Montenegro.

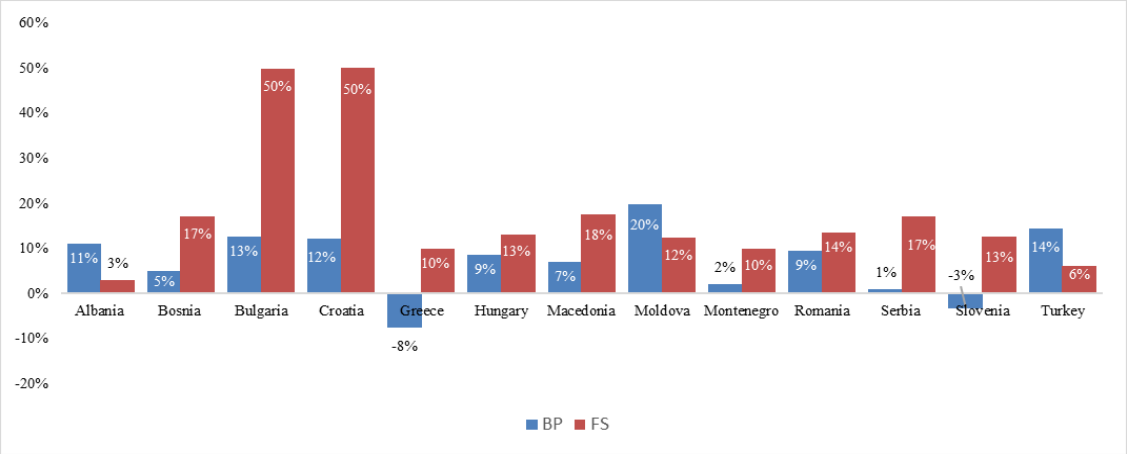

Figure 2: Average of Financial Stability and Banking Performance in the Balkan Countries over the period 2000-2015

1.4.2. Impact of Banking Sector on Economic Growth

Financial sector refers to the set of organizations, instruments, and markets. This sector also covers banking institutions, financial markets, and further associated financial intermediaries, which includes; pension funds and insurance companies. Moreover, it also covers the permitted and controlling framework that oversees the general transactions and businesses in the financial market (Ang, 2008).

Financial institutions which include banks and insurance companies as well as financial markets, stock markets, i.e., bond markets, and derivative markets have a positive and substantial effect on economic growth, poverty elimination, and lead to achieve economic stability. The objective of financial sector development in developing and emerging economies is to attain a higher level of GDP per-capita and reduce the level of poverty (Levine, 2005).

Performance of the banking economic sub-sector is no doubt one of the important determinants of the overall financial sector performance within the global economy. Some of the existing literature highlights the positive linkages among financial sector development and economic growth. Still, the effect of some studies is directly opposite of the above assertion as the relationships are found to be negative. Another segment of this research area argues that the finance-growth nexus is

conditional upon other factors, the level of institutional quality of an economy, the degree of economic growth, the stability of the macroeconomics.

Figure 3 below highlights the average economic growth and banking performance for sample Balkan countries for period 2000-2015. Where in the vertical axis is presented the average economic growth and banking performance (ROE) for each country for period 2000-2015. It reflects the average of banking performance and economic growth in across the sample Balkan countries. The connection shows the variation of the banking sector performance and how is the average for banking performance and economic growth across the Balkan countries. It is important to note that the column of banking sector performance for the countries; Albania, Bulgaria, Moldova, and Turkey are higher than others. The variable of economic growth denotes a swing in its nature which highlight is higher for some countries like Turkey and Hungary, while is very low in countries like Hungary, Slovenia, and Macedonia. It is vital to note that the data used to plot the graph is an average taken from the sample countries.

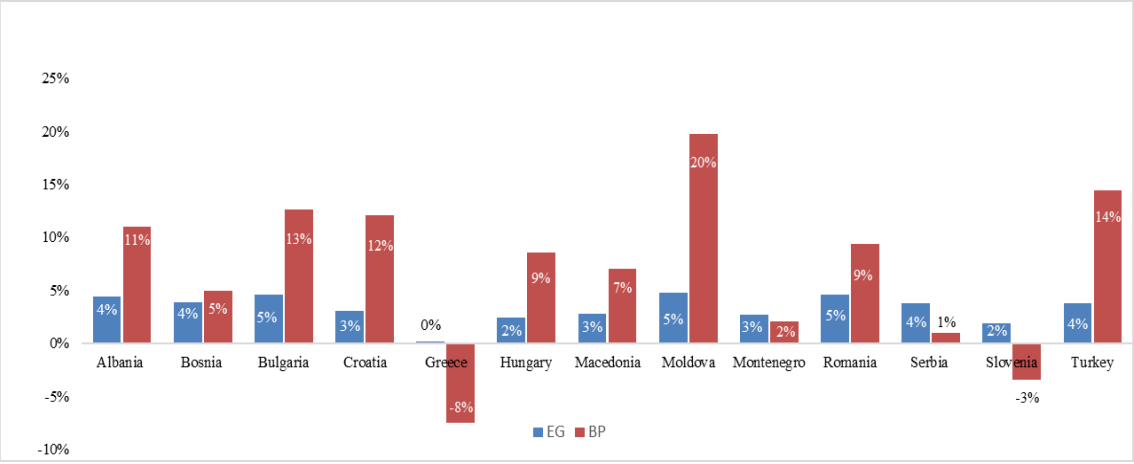

Figure 3: Average of Banking Performance and Economic Growth in the Balkan Countries over the period 2000-2015

1.5. Theoretical Link between Financial Development and Economic Growth

This part of the thesis expands a structure point out the possibility of levels over which financial development can impact economic growth. Firstly, the main result of financial development can affect growth in two other ways: the total factor productivity

(TFP) and the capital accumulation conduit. Simultaneously, it is worth noting that a large part of finance-growth literature commonly conducts estimations under the strong assumption of a cross-country homogeneity on the role of financial development on output performance. However, empirical evidence from several finance-growth studies has shed doubts on such a method. For instance, Huang and Lin (2009), and Rioja and Valev (2004b) collectively found that the growth-enhancing effect of financial system development is more significant in poor countries than in rich ones. Aghion et al. (2005) argued a diminishing influence of financial development on economic performance as nations become wealthier. In research on European economies, Brezigar-Masten et al. (2010) showed that the positive influence of the development of the domestic financial sector in output performance is smaller in developed countries than in developing ones. All of the above therefore suggests that the potential cross-country heterogeneity on the role of financial development on economic performance should be addressed.

In contrast, decision-making processes in democratic states are normally subject to strong public checks which essentially prevent attempts at controlling worthwhile economic occasions (Acemoglu and Robinson, 2013). Besides, with advantages in protecting the private sphere, ensuring socioeconomic rights, encouraging market competition, limiting state intervention, etc., a democratic political system is best suited for underdeveloped countries pursuing sustainable growth (King and Levine 1993a; Acemoglu et al., 2014). Furthermore, although democratic redistribution under popular demand is potentially distortionary, it is hard to ignore the fact that such redistribution could be beneficial for long-run economic performance if conducted in the form of public goods or education.

1.5.1. The Keynesian Model

Three purposes influence the motive to hold money based on the Keynesian school of thought; these are; transitionary motive, precautionary motive, and speculative motive. The idea of the speculative motive for holding money suggests an option to either hold money or hold bonds. The rate of interest is an important factor in this aspect because when the rate rises, it encourages the individual to hold more bonds instead of money and vice-versa. Based on this model, in a given period a person considers some rates as normal. When the rates fall below such point (normal), he

presumes it will upsurge in the future. Hence, when the money supply increases it will have no impact on the interest rate because buying additional bonds would be irrational. This is known as the 'liquidity trap', which has a significant consequence on the equilibrium level of output. The real money demand function $(M/P)^D$ can be expressed as;

$$(M/P)^D = \alpha + \beta/(i - \tilde{i}),\ \alpha > 0, \beta > 0 \quad (1)$$

Where α and β are parameters, i is the market interest rate, $\tilde{i}$ is the liquidity trap rate of interest and $i > \tilde{i}$. Thus, the market interest rate is adversely related to the demand for real money balances. Potential investment is determined only by the real interest rate based on the Keynesian model. When full employment is attained, the increase in the rate of the interest rate could lead planned investment to be less than planned savings as a result of liquidity trap that led to the unpremeditated accumulation of inventory. Aggregate output must fall to return to equilibrium. Therefore, this approach proposes a higher rate of interest which reduces economic growth. Nevertheless, this model is criticized for its price inflexibility assumption as well as its short-term nature (Keynes, 1936).

1.5.2. Neo-Classical Growth Theory

It is established in the theoretical literature of growth in which two different economic growth models exist, namely; endogenous growth and neo-classical growth. The two theories differ in their assumptions and the general notion of growth. One of the main differences is that there is no diminishing return to capital in case of endogenous growth which is directly opposite in exogenous growth postulations. The theory of the Solow growth model is initiated by Robert M. Solow in 1956 in his seminal work entitled. This theory captures both macro and monetary economics in the global economy (Solow, 1956).

According to the Solow growth model, savings to temporary growth, diminishing returns to capital can finally lead to attaining a good position of the state, in which growth is a function of exogenous technological progress. However, the idea

of an endogenous growth model considers both savings and investments to promote persistent economic growth. Economic development theories enhance that, financial development create a favorable environment for economic growth, and believed that inaccessibility to finance is a serious factor that leads to persistent income inequality and harms economic growth. Since late last century, a variety of scholars have established their specified models on the basis of solid theoretical grounding. Specifically, based on the studies of Solow (1956) and Swan (1956), the textbook Solow model suggests the growth rate of the per capita output depends on the initial per capita output, the savings rate, the corrected population growth rate, the initial level of technology, the technological progress rate, and the rate of convergence to the steady state.

It assumes that firms will continue employing labor until its marginal product of labor (MPL) is equals to its real wage rate, and the firm will also employ capital until its marginal product of capital f' $(k_t$) equals to its rental price. In this model, profit maximization is attained when the actual return of each factor input is equivalent to its marginal product. Combining expenses to capital and labor is equals to national income $r_t K_t + w_t L_t = Y_t$.

The next essential presumption of the Solow growth model is capital accumulation, assume that capital depreciates at the constant rate $\delta > 0$, in which I_t refers to gross investment, and s is savings rate, which is the the segment of output that is saved and invested. In order to went further and introduced population growth rate the (γ) and technical change rate (τ) into the model. The main emphasis to attain steady state is center on normal Solow endogenous growth model that has no population growth and technological change, based on this model believed that population growth to be zero ($\gamma = 0$).

The Solow growth model in distinct time argues that the quantity of capital for each labor is positively determined by the savings rate (s) and is harmfully related to the capital depreciation rate (δ). That means, the higher the savings rate, the more the capital available for investments, hence banking liquidity increases, which pave the way for probable and existing investors to borrow and invest in the economy.

To achieve equilibrium in this model, the presumption is that every variable grows at a constant rate as are using Solow without population and technological change. Therefore, equilibrium requires that capital per individual must remain stagnant over time. To achieve golden rule (maximization of steady-state per capita consumption) however, per-capita consumption (c^*) suppose to be maximized, which means that the state of achieving per-capita equilibrium consumption is for the marginal merchandise of net capital depreciation proportion equals to zero (Romer, 1986).

Economic development theories promoted that financial development generates a favorable environment for economic growth, it is believed that poor access to finance is a dangerous factor that is responsible for continuous income inequality and slower economic growth. Theory of the Solow growth model, as the name implies, is derived from the originator of the theory in his seminal work on growth theory entitled a huge contribution on the theory of growth Robert M. Solow in 1956, this theory captures both macroeconomics and monetary economics in the global economy. The Solow model contains two equations which are production function and capital accumulation equation. The production function shows how private factor inputs of Capital (K_t) and Labor (L_t) could be combine together in order to produce output (Y_t), the equation is in the following form below;

$$(Y_t) = \mathrm{F}\ (K_{t,} L_t) \tag{3}$$

Equation 3 above is presumed to exhibit returns to scale, therefore;

$$(\varphi K_{t,} \varphi L_t) = \varphi Y_t \tag{4}$$

For $\varphi > 0$, choosing $\varphi = 1/L_t$for $L_t > 0$, the production function could be written as;

$$Y_t = \mathrm{F}\ (K_{t,} L_t) = L_t\ \mathrm{F}\ (\frac{K_t}{L_{t,}} 1) = L_t\ \mathrm{F}\ (k_{t,}\ 1) = L_t\ \mathrm{f}\ (k_t\ ) \tag{5}$$

alternatively, it can be in per capita (that is, per worker) terms as shown below;

$$y_t = \text{f}(k_t) \quad (6)$$

Where y_t shows output per worker and $\frac{Yt}{Lt}$ refers to capital per worker. Equation 6 above focusing on y_t has more benefits as it is the best measure of standard of living than total output, the production function is presumed to meet the Inada conditions (assumptions on a production function's shape ensuring the stability of an economic growth path in a neoclassical growth model) below;

$$f' > 0,\ f'' < 0,\ f'(0) = \infty \text{ and } f'(\infty) = 0 \quad (7)$$

The main presumption is that there are large numbers of firms in the economy. Therefore, perfect competition exists in the economy and firms are the price takers. Each firm maximizes profits π_t by solving the problem below;

$$K_{t,}L_t\pi_t = L_t\,\text{f}(k_t) - w_t L_t - r_t K_t \quad (8)$$

Where w_t refers to real wage, r_t is the capital rental price and obtained $L_t\text{f}(k_t) = Y_t$, by rearranging Equation 6, the first order condition for maximizing profit are;

$$f(k_t) - k_t f'(k_t) = w_t; \quad (9)$$

$$f'(k_t) = r_t \quad (10)$$

Based on Equation 9, it presumes that firms will lease labor up to the point where marginal product of labor (MPL) $\text{f}(k_t) - k_t f'(k_t)$ equals to w_t, Equation 10 however states that firms will hire capital up to the point whereby the marginal product of capital $f'(k_t)$ is equal to the rental price of capital. Market clears under perfect competition profit maximization only when the actual return of each factor input equals to its marginal product. Payments to capital and labor when combined is equals to national income that is $r_t K_t + w_t L_t = Y_t$, this can best be shown in per capita terms by combining Equation (9) and (10) as below;

$$r_t\, k_t + w_t = f'(k_t)k_t + f'(k_t) - k_t\, f'(k_t) = f'(k_t) \quad (11)$$

Which will be multiplied by L_t to become;

$$r_t K_t + w_t L_t = Y_t \quad (12)$$

The next important assumption of the Solow model is the capital accumulation equation, suppose that capital depreciates at the constant rate $\delta > 0$, the capital accumulation equation is shown below;

$$K_{t+1} = I_t + (1-\delta)\, K_t = sY_t + (1-\delta)\, K_t \quad (13)$$

Where I_t refers to gross investment and s is the savings rate, that is the portion of output that is saved and invested. The population growth rate (γ) and technical change rate (τ) is introduced into the model. To emphasis and arrive at steady state is focus on normal Solow Endogenous growth model without population growth and technological change. Based on this model it assumes population growth to be zero ($\gamma = 0$), $L_{t+1} = L_t$ which will now give us;

$$k_{t+1} = \frac{K_{t+1}}{L_t+1} = \frac{sY_t + (1-\delta)\, K_t}{L_t} \quad (14)$$

Equation 14 leads to first order difference equation below;

$$k_{t+1} = sf'(k_t) + (1-\delta)k_t \quad (15)$$

Equation 15 refers to Solow model in discrete time which argues that the volume of capital per labor is determined positively by the rate of savings (s), and is adversely related with the rate of capital depreciation (δ), this means the higher the rate of savings in an economy the more capital available for investments because banking liquidity is

high which gave opportunity for potential and existing investors to burrow and invest in the economy.

Based on Equation 15 of the Solow model to reach equilibrium, it assumes that every variable grows at a constant rate since they are using the Solow model with no population and technological change, the equilibrium necessitates that capital per individual is constant over time which means $k_{t+1} = k_t$ in this instances Equation 15 diminishes to the standard steady state equation;

$$sf'(k^*) = \delta k^* \quad (16)$$

Signifying that δk^* refers to the volume of savings which is basically related to the investment level per capita to maintain the level of capital per labor. However, to achieve the golden rule position which is the maximization of steady state per capita consumption, achieving golden rule means the accumulation of capital is at an optimum level, per capita consumption (c^*) will be maximized in order to find the golden rule;

$$c^* = f'(k^*) - sf'(k^*) = f'(k^*) - \delta k^*, \quad (17)$$

In this equation will now differentiate with respect to per capita capital k^*, the first order condition indicates that;

$$f'(k^*) - \delta = 0 \quad (18)$$

From Equation 18 above, the next is to attain the golden rule of accumulation position which implies that the condition of achieving equilibrium per capita consumption is when the marginal product of net capital depreciation rate equals to zero as shown by Equation 19 below;

$$f'(k^*) - \delta = \gamma \quad (19)$$

The above equation shows the golden rule which implies the marginal product of net capital depreciation equals to zero (Romer, 1986).

1.5.3. Endogenous Financial Development and Growth Model

The theory of neoclassical growth model considers the capital stock, labor and technological progress as the key determinant of the economic system. Let us assume that there is no technological progress, and the labor develops a rate which is not changing, production per-capita depends only on per capital stock. The law of diminishing marginal returns creates less output production when the rate of stock per-capital increases. Thus, the increase in savings rate promotes capital accumulation, which temporarily enhances economic growth. To achieve long-run economic growth, an economy must have a consistent technological advancement. The seminal work of Lucas (1988) gave rise to the endogenous growth models. As previously highlighted, the development of the financial sector promotes economic growth through technological progress since the financial sector growth enhances more inventive projects in the economy. The neoclassical growth model exogenously determines technological progress. Therefore financial sector development is considered not an important factor in the long-run growth process.

To buttress more on this, in this research is followed a Pagano (1993) to show the importance of financial factors in the path of economic growth. This model presumably used the basic endogenous growth of the AK model of Rebelo (1991). This model proposed capital as the sole factor of production used, and also assumed a constant return to scale in the production process. The capital depreciation rate is determined by δ, and the level of population is assumed to be constant so that that K_{t+1} = I_t + (1- δ)K_t. This model also assumed that, some portion of saving will be lost (1-φ) as a result of the financial intermediation process. Therefore, the segment of savings left (φ) will be used to make funds available for investment. The amount of savings leaked reflect the inefficiency of the financial system, therefore the savings and investments nexus can be shown as $I_t = \varphi S_t$, and growth rate equilibrium (g) is stated as;

$$g = \frac{K_{t+1}-K_t}{K_t} = \frac{I_t+(1-\delta)K_t-K_t}{K_t} = \frac{\emptyset S_t}{K_t} = -\delta = A\emptyset S_t - \delta \quad (20)$$

Where $s_t = S_t/Y_t = S_t/AK_t$. The aforementioned equation contains three possibilities in which finance affect economic growth (a) increase the marginal productivity of capital (A); (b) raising savings segment and direct it to investment (φ) and (c) influencing the rate of savings (s). Depreciation rate is expected to be constant. However, this model has its shortcomings; the model regard economy as a closed system therefore failed to recognize capital inflows, and it is limited to financial intermediation and does not consider stock market and other financial system activities as well.

1.5.4. McKinnon-Shaw Model

These two models are among the most well-liked financial liberalization model in the field of finance and economics. The central argument of these models dwells on the numerous features of the impact of raising the rate of interests. McKinnon's pattern stress on the link between the deposit and investment whereas Shaw's model give more emphasis on the implication of borrowing and lending in the financial system. These two differences between the models highlighted how each model observes how financial resources are raised in the economy. The former perceived that all finances are raised internally (outside money model), while the latter believed that is raised externally (inside money model). Out of the money refers to that money that is held outside the monetary base, for example, gold or cash, whereas, inside money are any financial loan that is used for money.

Another contribution Molho (1986), stress on these models that the two are complimentary because he argued that, in a practical sense, most of the projects are jointly financed by the personal fund's money by migration and borrowed funds (inside money). The McKinnon–Shaw model has a significant task in the development of financial markets and institutions; the model believed that market mechanisms are the main determinant of interest rate. However, some scholars critically oppose the model for regarding interest rate as the principal determinant of financial sector development. For example, Gregorio and Guidotti (1995), argues that this is unclear since the increase in the interest rate may disclose a lack of assurance in economic policy and the banking sector. Thereforeş they thought is more risky behavior in investment activities.

Moreover, other popular theoretical literature that highlights the link between financial development and economic growth was provided by King and Levine (1993a). King and Levine (1997), argue that probably financial key players are driving force of capital accumulation which promotes productivity and enhances long-run economic growth. To support his idea that financial development is a precondition of attaining economic growth, Levine (1997) argue that, financial intermediaries improve risk management, ease transactions, savings mobilization, and facilitate the exchange of goods and services. In his theoretical study on the nexus of the financial sector on economic development, Odedokun (1998) argue that the monetary asset is an important production input, hence positively promote production process. This highlight the importance of real money balance, because when it increases the quantity of output will also be enhanced. This indicates that if the amount of real money balance is enhanced, there is the likelihood that the quantity of output in the economy will increase. Real money balance is an important factor that affects production like capital, labor, and technology. Similarly, the contribution works of Samuelson (1947)[1] Patinkin (1965), Friedman (1959), and Johnson (1969) are also important theoretical contributions that support the relationship between money balances and production process. This stress the positive and significant link between money balances and real output in an economy, which signify the significance of finance on economic growth.

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1.5.5. Theory of Asymmetric Information

One of the aims of the banks is to resolve information asymmetries between the providers and those in need of funds (Diamond 1984, 1991; Ramakrishnan and Thakor, 1984; Boyd and Prescott 1986) that can lead to Adverse Selection and Moral Hazard

[1] See Samuelson (1947), Patinkin (1965), Friedman (1959), and Johnson (1969) for details about the theoretical linkages between money balances and production process.

problems. This study identified theory of Asymmetric Information as one of the theories relevant in explaining the real picture of what is happening between the individuals, firms, and the financial institutions that might result in inaccessibility of formal financial services for some segment in developing countries. Theory of Asymmetric Information emerged with the pioneering works of Akerlof (1970), Spence (1973) and Rothschild and Stiglitz (1976).

It refers to the existence of unbalanced information between the two parties in financial transactions. Financial intermediaries exist to minimize information and operational costs that emerge from the unequal sharing of information between users and providers of funds. The relevant asymmetric information theory on financial inclusion is related to the unequal information sharing between the banks and excluded segments, this is because some people do not have knowledge about the importance of using formal financial services, and the banks did not provide such relevant information more specific to the rural populace, this will hinder them from participating in the formal transactions because they lacked information about the products and services of the financial services providers (Coase, 1937).

The banks at times also lacked proper information about the needs of the potential customers, if the banks are fully aware of their needs they will try to come up with products that will suit the prospective customers' needs, such imbalances of information between the two parties may lead to more financial exclusion, and it would also lead to the problems of adverse selection, i.e., before the financial transaction takes place, and moral hazard which occurs after the transaction is consummated. Information is shared unequally between the banks and its customers which will lead to the adverse selection of either party thereby making it at the detriment of either party after the transaction or deal is sealed.

1.6. Theoretical Framework

The relationship among finance and economic growth is a long debating issue in the field of financial economics and development aspect of the same discipline. The important function of the credit market in the quest of promoting the performance of the economy is already established since the date of Schumpeter (1911). Schumpeter

argued that business owners/promoters require certain financial resources from formal financial providers inform of loans to finance either new or existing ventures. Banks are considered the key agents that ease financial intermediation and promote economic development. Thus, the well-functioning financial system is expected to channel financial resources to effective and productive ventures.

Conversely, Robinson (1952) had an opposing view that financial development does not lead to economic advancement, but rather passively respond to demand more financial services. The main idea is that economic growth is what necessitates firms and household to demand more financial services. For the financial sector to meet up the increasing demand, more financial institutions, financial products, as well as financial services emanated, hence promotes the overall financial systems. The issue of finance-growth nexus also dated back to the contributions of Gurley and Shaw (1955), Goldsmith (1969) and Hicks (1969). The scholars mentioned above were also the proponents of the Schumpeterian school of thought that centered its argument on the function of the financial system on promoting economic development. An unstable or underdeveloped financial system hinders economic growth. However, diversification of the financial products and services as well as initiating more financial institutions have the capability to stimulate savings and investments, and thus promote long-run economic growth. This perception is mainly referred to as the 'financial structuralist.' Although, this point of view had a tiny influence on the development policy track during the early post-war periods, comparatively as a result of its informality presentation, as well as the influence of the powerful Keynesian 'financial regressionist' beliefs. That doctrine refers to the numerous preventive measures used on the financial systems which include; interest rates controls, high reserve requirements, and controlled credit schemes. These bad rules were more presence and practiced in developing countries to finance fiscal deficits. The policies discourage holding of money and other financial assets, and hence reduce the availability of loans to the investors. Financial repression is also considered as a negative policy as it reduces the size of the banking sector and capsizes financial intermediation.

The Keynesian school of thought in its analysis on the role of financial intermediaries and financial markets criticize McKinnon (1973) and Shaw (1973). This school of thought became more popular through its promoters such as; Kapur, 1976;

Mathieson, 1980; Fry, 1988; and Pagano, 1993. The authors of this research believed that developing countries are mainly self-financed. Accumulation of reasonable savings inform of deposits through the banks is an important determinant of investment. The relationship between money and physical assets is known as 'complementarity hypotheses.'

While, the debt intermediation perception initiated by Shaw (1973) advocates that, financial intermediaries uphold investment and enhance output through borrowing and lending. Based on these two points of view believed that financial sector development is mainly a result of removing obstructions that positively influence economic growth. There are different theoretical models that would give an insight on the finance-growth nexus; hence to elaborate on the most relevant among them which includes; Keynesian model, Neo-classical growth theory model, Endogenous financial development and growth model, and McKinnon-Shaw model.

Theoretical framework section of the study captures the theories that could be relevant in explaining the study; two theories are identified that deem fit in this study, namely; Neo-Classical Endogenous Growth theory and theory of Asymmetric Information.

1.7. Banking System

Banking system plays pivotal parts in the economy. To enrich the evidence difficulties among investors and borrowers by monitoring the latter and ensuring proper use of the depositors' funds. Banking systems provide intertemporal smoothing of risk that cannot be diversified at a given point in time as well as insurance to depositors against unexpected consumption shocks. Because of the maturity mismatch between assets and liabilities, however, banks are subject to the possibility of runs and systemic risk. Third, banks contribute to the growth of the economy. Fourth, to perform an important role in corporate governance. The relation importance of the changed the roles of banks varies substantially across countries and times, but banks are always critical to the financial system (Allen and Carletti, 2008).

1.7.1. History of European Banking

The history of the European banking system in the world started with earlier prototype banks of merchants which provide loanable funds to grains farmers and traders that move with their goods between cities. This type of banking started around 2000 BC in Assyria and Babylonia. The development of the banking system was also traced to ancient Greece during the Roman Empire, creditors in the temple accept deposits and changed money and also provides loans to prospective businesses. Money lending activity during this period was proven by an archaeologist in ancient China and India.

Much narration positioned the historical development of the banking system to medieval and Renaissance Italy; this is more noticeable in the famous, wealthy cities of Florence, Venice, and Genoa. In Italy two families (Bardi and Peruzzi) dominated the banking in the 14th century Florence; they established several branches in other parts of Europe. The most popular Italian bank was the Medici Bank which was established by Giovanni Medici in 1397. The oldest bank in Italy, which is still operating is Banca Monte dei Paschi di Siena, headquartered in Siena, Italy. This bank is operational since 1472. The growth and development of banking spread from northern Italy throughout the Holy Roman Empire. During the 15th and 16th century the banking system escalates to northern Europe. The fastest development is attributed to some essential innovations that happen in Amsterdam as a result of the Dutch Republic in the 17th century, as well as in London during the 19th century. The 20th-century development in computing and telecommunications lead to significant changes in the operations, size, and geographical expansion of the overall banking system (Pohl, 1994).

History of the European banking system is centered on the legal framework of the banks in the region. The European commission council of ministers took some actions which are categorized into five different aspects such as; internal marketplaces deregulation from 1957 to 1973. Several efforts to complement the regulations from 1973 to 1983, the 1992 commands concerning an only banking license, home-based country supervise, shared gratitude, cross-border choice services, the creation of a single currency (Euro) in 1999, as well as the Financial Services Act Plan (2001-2005) (Pohl, 1994).

In 1957 Rome agreement is to establish highly segmented national markets into one common market. This aim was accomplished through two mediums; legislative coordination and recognition of the establishment right. In June 1973, the commission agreed on an instruction on The Abolition of Restrictions on Freedom of Establishment and Freedom to Provide Services for self-starting Activities of Banks and other Financial Institutions. This instruction applies to the principle of the national action, that pledges the equivalent supervisory and supervisory treatment of the overall firms operating in each country. Even though in 1973, restrictions of entry could not be biased, the aim of the early agreement was unmoving distant from being from achieved. The capital inflow is rigorously restricted by international competition via the cross-border services. Moreover, there is poor coordination regarding banking supervision due to the different rules of each country (Hildreth, 1968).

Synchronization of Banking Regulations (1973-1983) the evolution in the coordination started in 1977 with the promulgation of the first banking edict on The Coordination of Laws, Regulations and Administrative Provisions Relating to the Taking Up and Pursuit of Credit Institution. The principle of home country control is established by this resolution. Responsibility for institutional credit supervision that operates in some member countries might steadily be moved in some of the hosts to the parent banks' in their country. The 1977 edict was initially directed toward the harmonization of such rules. It was a universal program that has no definite, specific regulations and is called for more directives. Despite 1977 first banking directive, the European banking institutions remain fragmented due to the following reasons:

- Any bank that wanted to function in another country necessity still be endorsed by the supervisors of that country.
- Every foreign bank must be supervised by the host country, and its laws may not conform to the host country rules and regulations.
- Mainly in the countries, branches had to be allocated with a given capital just like a new set up banks.
- Lastly, as already highlighted, providing international services was rigorously affected by capital inflow restrictions.

The Completion of the Internal Market (1983-1992) most of the global accord used the principle of national treatment, which promotes equality in the overall firms' treatment operating in each country. A powerful method of integration is applied by the European Commission, as well as home country control with a little national regulations' coordination. The European Union published a white paper on "The Completion of the Internal Market." This white paper focuses more on the free movement of people, goods, and capital in among the member countries. In the area of banking, the white paper called for a single license, home country control, as well as mutual recognition. These doctrines are included into the second banking directive which stipulated that: all credit institutions approved in the EU country has the ability to establish branches or provided cross-border financial services in other EU member countries without any additional approval in as much that institution provided such financial services in its home state (Pohl, 1994).

The Creation of the Single Currency, 1999 in 1989 the committee that study economic and monetary Union had recommended in the *Delors Report* that the Union need to establish a common currency for all member countries. In order to create a three-phase transition period that will be spread over ten years. Such resolution was concluded in the 1992 EU treaty. The initial stage started from July 1, 1990, to December 31, 1993, which stipulated the free flow of capitals as well as national monetary policies (Annual Report IMF 2000).

The second stage begins in July 1994 which led to the establishment of the European Monetary Institute. One of the key tasks is to establish the monetary institutions and the European System of Central Banks (ESCB). The last phase led to the establishment of the European Monetary Unification (EMU) on January 1, 1999. The EMU, created irrevocable fixed exchange rates, capital and money markets were motivated into the Euro, and the trade market continued its operations in the national currency legacy. The Euro notes and coins were launched in January 2002 (Annual Report IMF 2000).

The Financial Services Action Plan (1999 - 2005) financial services action plan (FSAP) was launched in May 1999 by the council. This action plan contains a series of programs with an aim to ensure the complete banking and capital market integration by

2005. The main aim is to provide a legislative and non-legislative framework. This is following additional four objectives of the plan which are; common EU across-the-board market, open and secure trade banking and insurance markets, the development of state-of-the-art prudential laws and management, and optimal wider conditions (essential fiscal rules) for a most favorable single financial market. The 22 July 2002 FSAP progress report highlights a sequence of the twelve-action plan for the entire market objectives and five retail market action objectives (Annual Report IMF 2004).

1.7.2. History of Banking in the Balkan Countries

Banking sectors of the transitional Balkan countries' economies went through serious remarkable changes due to consolidation, privatization, and liberalization. There is a total transformation of the banking sectors in this European region at the end of the second decade of the 2000s. The sector has been shifted from the former socialist mono-cultural bank systems to a market privately owned banking sector. A high percentage of the banking assets of transition economies are owned by foreign banks which reflect its differences with many developing and emerging market countries (Bonin et al. 2005). For example, in the year 2000, the ratio of bank assets held by foreign banks in these countries ranges from 97.4 percent in Albania and 84.1 percent in Croatia to the lowest level of 15.6 percent in Slovenia (Keren and Ofer, 2002).

According to the IMF report (2000), in eight out of the eleven countries, more than half of the banking assets are owned by foreign banks. In Slovakia and Romania, for example, the percentage of bank assets held by foreign banks is 42.7% and 46.7%, respectively. However, when compared to the Latin American sub-region only Chile that more than 50% of its banking assets are controlled by foreign banks. Although the trend keeps dramatically changing, the change in the banking ownership structure over the last decade has been amazingly rapid. In 1997, it was only in Latvia and Hungary that more than half of the banking assets were owned by foreign banks. Furthermore, in the case of Albania and Croatia, only 28.8% and 3% of the banking assets were held by foreign investors (IMF Report, 2000).

The banking system in Albania was a new system which is characterized with some minor activity. Albania has been communist country till 1990, where after opening the economy

the financial system has started a huge liberalization of this system. In 1999 in Albania was including by a pyramidal system (fraud scheme), where the banking system suffered a great shock. After this situation, government, central banks and other relevant institution with IMF took some action to approve the rule and regulation and Deposit guarantee schemes, created a new situation, where the system has started to open. Nowadays the number of commercial banks in Albania is 16 commercial banks where all of them are commercial banks. The structure of capital of these banks are only two banks are domestic banks and 14 others is foreign banks (Annual Report, Bank of Albania, 2016).

Bulgaria is part of the eurozone and is characterized by a stable banking system. It should be noted that the banking system of Bulgar during the period 2000-2015 has been characterized by a stable banking system that is developed along with the development of its economy. Today, the central bank of Bulgaria is responsible for overseeing and regulating this sector, which is profitable. During the last financial crisis 2007-2009 in Bulgaria bankrupt a total of 3 banks and Bulgaria was forced to take some steps to make this system more stable. The package of laws and regulations that were approved by the Bulgarian government and the central bank were the law on guarantees that boost the confidence of the Bulgarian banking system. Today, this system totals 27 banks, of which four are state-owned while 23 are privately-owned (Annual Report, The Central Bank of Bulgaria, 2016).

Bosnia and Herzegovina is the country that characterizes a banking system that developed after 2002. This system has been characterized by some essential problems since it was a country involved in war more than four years and had problems developing this system over the national base. Bosnia's banking system is stable and counts among 23 banks. The Bosnian banking system has two supervisory troops from the Republic of Bosnia and that of the Serbian Republic (Annual Report, The Central Bank of Bosnia and Hercegovina, 2016).

Croatia is a country from the former Yugoslavia which characterizes two stages of the banking system's development after 1997 and after 2004. In the first phase of development took place in the post-war period with Serbia where the banking system was depleted and not functioning. With the creation of post-war state institutions, the government and the Central Bank of Croatia intervened several steps to create a new

banking system that was in harmony with the developed countries. The second stage is that in 2004 where the government and the central bank approved the law and a new set of rules for the banking system as a whole. During the recent financial crisis 2007-2009, three banks went bankrupt in Croatia. Today, the Croatian system counts 14 banks, where 3 of them are state-owned, while 11 are private-owned (Annual Report, The Central Bank of Croatia, 2016).

Greece is the first country in Europe to start using the Euro as an official currency. The history of the banking system in Greece after 2007 is identified as the country that will be held during the mood of economists, politicians, Greek people and others as the biggest crisis in recent history. During the recent financial crisis in Greece bankrupt more than ten banks and the debt of the Greek government as a result of this crisis went up to 100% of GDP that the country where there was turmoil due to job cuts in the banking sector as well in other sectors. After negotiations that the government, the central bank, and other authorities have made some measures with the IMF to reduce the debt and to create a stable banking system. These measures were at the level of raising the deposit guarantee. The number of domestic credit institutions was drastically reduced since 2009 from 35 to 17, of which eight are commercial and nine state banks. Foreign banks have an insignificant market share since all but one of the foreign banks with retail customer service networks have divested from Greece (IMF, Annual Report 2016).

Hungary was the first country in Central and Eastern European to embark upon a reform of its banking system. Hungary had been in mono-banking system before the reform, with the National Bank of Hungary performing both central banking and commercial banking function. In 1987 the National Bank of Hungary had approved some rule and regulation where the banking sector opened the liberalization where the banking sector in Hungary started to operate separately from Central bank. During the last financial crisis of 2007-2009, the Hungarian government is attempting to guarantee the mortgage payments of everyone who loses a job in the crisis, but it is already in receipt of IMF assistance, and the pledge will mean more cuts in general expenditure. After the financial crisis government and central banks have taken some action to approve the new system of regulation and increase the guarantee deposits which affect directly in the banking system. Nowadays in Hungary operating 26 commercial banks where seven banks are stated banks and 19 are Private banks. The Central Bank of Hungary is a member of European Central Bank. Hungarian forint (HUF) is the official currency of Hungary was introduced in 1946. (Annual Report, The Central Bank of Hungary, 2016).

Macedonia as a former Yugoslav republic is the only country that was not involved in the war with the Yugoslav division. The Macedonian banking system is characterized by a set of stages, but two are more important after 1990 when it inherited a system of socialist banking system where the entire system was publicly owned and after 2000, where the banking system opened and became privatized the system and the thing that opens the way to the economy that the system based on the market economy. Macedonia's banking system during the financial crisis did not count the bankruptcy of any bank, but the government and central bank of Macedonia approved some rules and laws that provided better stability for this system. It should be noted that today the Macedonian banking system counts all 14 banks where one is state-owned and 13 are private (Annual Report, The Central Bank of Macedonia, 2016).

Moldova is the country that has been characterized by two stages of the banking system's development since 1991, following the Soviet and 2001 unification, where curatorial measures are taken to maintain a robust banking system. In 2001, the government, together with the central bank in cooperation with the IMF, prepared the package of laundering laws in 2002, including risk-based supervision and deposit guarantee systems, with a view to providing greater confidence in the system banking. Today, Moldova has a total of 11 banks, two of which are state-owned banks and nine with private capital (Annual Report, The Central Bank of Moldova, 2016).

Romania is the country that emerged from the communist countries and which in the 1990s was characterized by problems of the banking system. Based on the measures and the vows that the government and the bank took over they created them in the package of laws that have to do with the liberalization of the market for the banking system. After the 2000s, the central bank of Romania undertook some steps that had to do with Romania's efforts to become part of the central bank of Europe, where they became its member since 2007. During the last financial crisis in Romania bankruptcy two banks, where after the government together with the central bank approved a deposit guarantee scheme. Today, Romania has a total of 25 banks, two of which are state-owned banks and 23 are private banks (Annual Report, The Central Bank of Rumania, 2016).

Serbia is a country characterized by a well-developed banking system having in mind the wars that took place in the 1990-2000s. The Serbian banking system is characterized by development after the year 2003 which, in order to develop this system, took a series of actions involving the privatization of this sector. Following the adoption of the package of laws and regulations by the government and central bank of Serbia where this package of laws paved the way for the opening of the market and the investment of foreign-owned banks. Also, during the recent financial crisis 2007-2009, the Serbian banking system was not characterized by any failure of any bank. Today, the banking system of Serbia has a total of 22 banks, of which four are state-owned while 18 are owned by private capital (Annual Report, The Central Bank of Serbia, 2016).

Slovenia is considered to be the most developed country in the western Balkans, which proves that Slovenia is a naive member of the OECD. The Slovenian banking system is characterized by two phases, stages after 1992 and after 2000. The first stage is the stage after the separation of Yugoslavia where Slovenia inherited a stable banking system, but after the problems in Yugoslavia it saw a significant decline in the stability than the banking system. The second stage involves the deep reforms that the Slovenian Banking Center and the Government took with the aim of creating a more stable environment. After the financial crisis of 2007-2009, Slovenia faced this crisis, where four banks went bankrupt during this period. Since 2008, Slovenia has used the Euro Currency as its currency. She is a member of the ECB. Today, the Sloven banking system has a total of 12 banks, of which two are state-owned, while ten others are private (Annual Report, The Central Bank of Slovenia, 2016).

The Turkish banking sector has evaluated during the last decade especially from 1999 where financial crises in the banking sector have been. The government and central bank jointly with the IMF drafted a plan to overcome the crisis that affected the bankruptcy of more than ten banks and the merger of some others. This plan itself strengthened the creation of a new legal system that created a new approach to banking system supervision and functioning. After taken reform by the government, central bank and other authorities have taken the Turkish banking sector has started to have progress. This progress was referring to some reform which the government and financial supervision has made the change in the system of banking and approving some

rule and regulation which were very crucial for a stable banking system. Based on this reform the banking system in Turkey considered one of the models of banking system around the world. Nowadays in Turkey operate in the banking sector in 2016 was 52, where 34 of them were deposit banks, and 13 were development and investment banks. Of the deposit banks, 3 were state-owned banks, and 9 were private banks. Also, there were five participation banks (BRSA, 2016).

2. CHAPTER TWO
LITERATURE REVIEW

This basic objective of this section is to review the appropriate literature that deems fit for this certain research and to highlight more on how the topic under examination was previously argued by other researchers and gets an insight about the concept of the study. The section will, therefore, emphasize on the earlier works associated with the topic by raising some questions and critics some literature where necessary. Moreover, there are many published empirical studies which pointed out and determined economic growth as the dependent variable. In this research of thesis, the connection amid banking sector development and economic growth and economic growth, in other words, the connection between financial development and economic growth has been explored as a whole.

2.1. Studies on the Impact of Financial Development on Economic Growth

A large theoretical and empirical literature has debated the connection between banking performance and economic growth. A traditional view is that larger concentration financial development, in order to create an overview for all financial system. Some research findings confirmed demand-following hypothesis while others reject such hypothesis and vice-versa. The researcher has examined the causal link amid financial development and economic growth. To used currency to GDP ratio to measure financial development across a range of developing countries, and the result shows that there is bi-directional causality between the two variables. This suggests that variables cause each other in the countries under study, hence based on this finding advocated that financial sector development enhance economic growth. The likely trends that make finance to lead economic growth in some economies are directly opposite in other economies. The depth of the financial sector reduces the level of income inequality of the bottom 80% of the population. This means the advancement of the financial sector could reduce the level of income inequality (see Demetriades and Hussein 1996 and Hongyi et al. 1998).

At the same time, a strand of literature highlighted instances of financial crises, which shed doubt on the previous findings of a growth-enhancing role of finance. Early studies, for example, Greenwood and Jovanovic (1990) developed a pattern to investigate the association between income inequality, economic growth, and financial development. Empirical result shows that the nexus between income inequality, economic development, and financial development is negative. At every stage of economic development, financial development promotes capital allocation, enhance aggregate growth, and help the less privileged through this mechanism. Although, some argue that the impact of income distribution, as well as its effect on the poor people, is mainly determined by the stage of financial development. In the early stage of development, only the portion with high income could benefit from well-functioning financial markets. As soon as the economy move faster to the next level, most people will gain from the benefits of stable and improved financial markets, thus in this advance stage large segment benefited from financial development. In this study, the Gini coefficient is used, and the conclusion based on this finding is that, well and stable financial market reduces income inequality.

Also, individuals and enterprises could take advantages of financial arrangements to avoid difficulties during evaluating investments and searching for funds. Together, with a well-developed financial system, innovation and technological reform can be motivated which promotes banking performance in the long run. (Gregorio and Guidotti (1995) also find the relationship between financial development and long-run growth, used private sector credit as a percentage of GDP to measure the level of financial development. The main empirical findings suggest a positive correlation between financial development and long-run growth across the sample countries, although certain variation exists among the sample countries. It also shows a negative correlation across Latin American countries which may not be unconnected with their regulatory systems. This study hence concluded that the effective financial sector is the key to achieve long-run growth, not the investment volume. Also, the empirical results signify a positive and significant relationship among productivity growth, capital accumulation and financial development based on the Generalized Method of Moments (GMM) approach. This indicates the significant impact of labor productivity and capital accumulation on financial sector development.

The causation between financial development and economic growth is also examined by Kar and Pentecost (2000) in the case of Turkey. The main finding reveals that the causality between the two variables is determined by the indicator of financial development variable used. For example, when the money to income ratio is used as the proxy for financial development, the result signifies, financial development causes economic growth. However, on the occasion of a bank deposit or domestic credit ratio economic growth causes financial sector development.

The implication of a stable and well-functioning financial system on long-run growth is also highlighted in various based on the existing finance-growth. It shows that both banks and stock market mechanisms have a positive and significant impact on economic growth Beck and Levine (2004). Also, the nexus between finance and income inequality during 1960-1995 across 83 countries was investigated by Clarke et al. (2003). The empirical result documented that, a higher level of financial development reduces income inequality in the long-run, while inequality increases when the performance of the financial sector is poor. The central argument based on this study remains that, financial sector development reduces income inequality across the sample countries.

Levine (2005) also concluded that, on average countries with the developed financial system, enhance investments, increase the amount of output growth, and speed of technological invention. Hence, stability in the financial sector is a precondition for achieving long-run economic growth, increase in productivity, as well as technological development.

Based on system-GMM technique across Asian developing countries, Habibullah and Eng (2006) found that financial sector development promotes economic growth across the sample countries. This finding, therefore, answered the old Schumpeterian hypothesis as it opposed Patrick's supply-leading hypothesis. Habibullah and Eng (2006) study on the influence of financial development on economic growth, Liang and Teng (2006) applied multivariate vector autoregressive (VAR) in the case of China. The main finding reveals a one-way interconnection that runs from economic growth to financial sector development; this means improvement in the level of economic growth promotes financial sector performance.

Galindo et al. (2007) argue that financial liberalization plays an essential role in improving banks overturning managerial fixation and improve ease of offering credits, hence when market forces manage the banking system, improves efficiency, and hence the overall level of offering credits increases. Moreover, Ang (2008) examines the causal affiliation between financial development and economic growth in Malaysia. The finding suggests that financial development encourage economic growth via private savings and investments. The finding also highlights more on the supposition of endogenous financial development and growth models which asserted that financial sector growth could trigger economic growth through effective investment. This finding reveals that finance-led growth hence answered demand-following hypothesis in the case of Malaysia, as obtained in most other economies finance contributes immensely in promoting long-run growth.

Banking sector development in line with the liberalized financial market is an important mechanism to achieve long-term economic growth in both developed and developing economies (Baltagi et al. 2009). Furthermore, it means that no any difference regarding the roles the sustainable banking sector plays in promoting long-run growth across different economic segments. For a country to achieve higher technological progress, its financial sector must be vibrant, and its support is eminent as claimed by Rajan and Zingales (1998). Their remark also supports the hypothesis that finance-led-growth, because economies that are advanced in technology require massive financial sector support to sustain the trend. However, some scholars criticized finance-led growth axiom that it is not always financial development significantly influence economic growth as in some instance such link could be negative. There are some thresholds in the level of growth if reached, financial development will negatively affect economic growth as found by numerous empirical studies.

As stated by Deidda and Fattouh (2002) used Hansen (2000), various seminal growth studies using standard econometric approaches, including Rioja and Valev (2004a) generally assume errors to be cross-sectionally independent. In particular, such a phenomenon, as argued by Phillips and Moon (1999), is largely due to difficulties in characterizing and modelling cross-section dependence. However, various recent growth studies doubt whether the assumption of cross- country independence is likely to hold. Typically, it is widely accepted nowadays that a shock which affects one

country may also affect others with Westerlund and Edgerton (2008) arguing that \cross-sectional dependencies are expected to be rule rather than the exception" in the context of macroeconomic analysis. Eberhardt and Teal (2011), Pesaran (2015), and Cavalcanti et al. (2015) collectively ad- mitted that the potential cross-sectional dependence could be salient considering the high degree of macroeconomic linkages from history, geography, globalization, and common shocks.

However, researcher also examined the link amongst financial development and economic growth across 74 advanced and developing countries (Albania, Australia, Austria, Belgium, Canada, Denmark, Finland, Holand, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Netherlands, New Zeeland, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, United States, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cyprus, Dominican Republic, Ecuador, El Salvador, Guatemala, Iran, Jamaica, Korea, Malaysia, Mexico, Nicaragua, Panama, Papua New Guinea, Paraguay, Peru, South Africa, Syria, Uruguay, Algeria, Bangladesh, Cameroon, Egypt, Gambia, Ghana, Haiti, Honduras, India, Indonesia, Kenya, Malawi, Niger, Pakistan, Philippines, Senegal, Sierra Leone, Sri Lanka, Tanzania, Thailand, Togo, Tunisia, Zimbabwe and Zambia) based on applied dynamic panel GMM among low, intermediate and high-income economies. The main finding suggests that finance have a positive and significant effect on efficiency growth in advanced countries, whereas in low-income countries the impact of finance on output growth depends on capital accumulation. Rioja and Valev (2004b)

As defined by World Bank, overall government final consumption takes in all current government expenditures for acquisitions of goods and services and general defense and security but rejects some military expenditures that are part of government capital formation. In practice, the ratio of government final consumption expenditure to annual output is normally used to indicate the public outlays that do not directly result in any improvements of productivity in the economy.

Demetriades and Law (2006) argue that, the link between finance, institutions and economic growth based on the 72 countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Netherlands, New Zeeland, Norway, Portugal, Singapore, Spain, Sweden, Switzerland,

United Kingdom, United States, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cyprus, Dominican Republic, Ecuador, El Salvador, Guatemala, Iran, Jamaica, Korea, Malaysia, Mexico, Nicaragua, Panama, Papua New Guinea, Paraguay, Peru, South Africa, Syria, Uruguay, Algeria, Bangladesh, Cameroon, Egypt, Gambia, Ghana, Haiti, Honduras, India, Indonesia, Kenya, Malawi, Niger, Pakistan, Philippines, Senegal, Sierra Leone, Sri Lanka, Tanzania, Thailand, Togo, Tunisia, Zimbabwe and Zambia) . They applied to mean group (MG) and pooled mean group (PMG) approach and the result revealed that finance enhances growth only in countries where the level of the institution is sound. Moreover, the finding confirmations that the development of the financial sector is more efficient in middle-income countries; also, its effect in those economies is better when the quality of institutions is highly sound. Another investigates the relationship between financial development and growth across 48 developed and developing countries based on the pooled ordinary least squares approach. The main finding shows that the connection between the two variables is inverse U-shaped. The development of banks based on this finding is also considered to be U-shaped.

Recent work by Calderon and Liu (2003) used the data from 109 developed and developing countries (Afghanistan, Albania, Algeria, Argentina, Armenia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belgium, Belize, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cambodia, Cameron, Canada, Central Afr. Rep, Chile, China, Colombia, Congo. Rep, Costa Rica, Core d'Ivoire, Croatia, Cyprus, Czech Rep, Denmark, Dominican Rep, Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Gabon, Gambia, Germany, Ghana, Greece, Guatemala, Guyana, Haiti, Holland, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Indonesia, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Kyrgyz Rep, Latvia, Lesotho, Liberia, Lithuania, Luxemburg, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Macedonia, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Norway, Pakistan, Panama, Papua NG, Paraguay, Peru, Philippine, Poland, Portugal, Romania, Russian Fed, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Rep, Slovenia, South Africa, Sudan, Sweden, Switzerland, Syria, Tanzania, Thailand, Togo, Tonga, Tunisia, Turkey, Uganda, UK, USA, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe), during 1960-1994 and examined the causal link between financial

development and economic growth. The main finding suggests that finance lead economic growth, and the Granger causality result reveals bidirectional causality between financial development and economic growth. Development of the financial sector promotes economic growth in the case of developing countries than advanced nations. In this research, also found that, financial sector development trigger economic growth in line with productivity growth as well as prompt capital accumulation.

Beck et al. (2006) examined the impact of banking regulations, bank concentration and domestic institutions on the likelihood of a country to suffer a systemic banking crisis. The research was based on the data for 69 countries (Albania, Argentina, Austria, Brazil, Bulgaria, Belgium, Colombia, Croatia, Egypt, France, Germany, Greece, Hungary, India, Mexico, Panama, Peru, Philippines, Portugal, Spain, Ecuador, Israel, Italy, Japan, Sri Lanka, Switzerland, Thailand, Turkey, Chile, Cyprus, Finland, Netherlands, Norway, Pakistan, Zimbabwe, USA, Sweden, South Africa, Denmark, Australia, Belgium, Ireland, Jamaica, Kenya, New Zealand, Slovenia, Serbia Sweden, UK, Canada, Malaysia, Moldovia, Ghana, Russia Trinidad and Tobago) from 1980 to 1997. The main empirical finding revealed that focused banking systems are less susceptible to banking crises, despite controlling for variations in policies related to commercial banking regulatory, domestic institutions influencing competition and macroeconomic situations, as well as economic shocks. Also, the finding showed that domestic institutions and regulatory policies that impede competition were linked to higher banking system instability.

A study by Ergungor (2008) applied the two-stage least square (2SLS) approach for 46 developed and developing countries (Argentina, Austria, Brazil, Colombia, Egypt, France, Germany, Greece, Honduras, India, Mexico, Panama, Peru, Philippines, Portugal, Spain, Ecuador, Israel, Italy, Japan, Sri Lanka, Switzerland, Thailand, Turkey, Chile, Cyprus, Finland, Netherlands, Norway, Pakistan, Zimbabwe, USA, South Africa, Denmark, Australia, Belgium, Ireland, Jamaica, Kenya, New Zealand, Sweden, UK, Canada, Malaysia, Ghana and Trinidad and Tobago) and investigated the influence of financial development on economic growth across the sample countries. The main empirical finding suggests that the nexus between the two variables is inverse and dependent. The result further highlights that; economies that have stringent judicial process can grow faster if they apply the bank-based financial system. Therefore, the

quality of institutions is an important factor that measures the level of financial development, as well as the structure of the financial system whether market-based or banked based structure.

Other recent empirical research threshold between high and low-income countries to estimate the causal relationship between finance and growth, concluded that the association amongst finance and growth is positive and non-linear; also, the positive effect is more evident in the low-income countries compared to high-income countries. Huang and Lin (2009)

Rachdi (2011) study the link amongst financial development and economic growth across six OECD countries (Spain, Greece, Iceland, Italy, Portugal, and Sweden) and four MENA economies (Egypt, Morocco, Tunisia, and Turkey) respectively based on the system-GMM technique during 1990-2006. The main empirical result reveals a robust and positive relationship as the macroeconomic variables have a long-run relationship for OECD and MENA countries respectively. However, the result based on the error correction model reveals unidirectional causality among MENA countries, whereas the evidence in OECD countries is bi-directional causality. The ECM model indicates that, in the case of MENA countries, economic growth promotes financial development; while, in the case of OECD countries, the variables cause each other. In their study, that examines the association amid financial development and economic growth,

Cecchetti and Kharoubi (2012) applied on pooled OLS with robust standard error across 21 developed countries (Australia, Austria, Belgium, Canada, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Ireland, Italy, Japan, Korea, Netherlands, Norway, New-Zealand, Portugal, Sweden, United States). The main empirical finding suggests that finance and productivity are inversely related (inverted U-shaped). This reflects that the growth of the financial sector is essential to economic growth only to a given point of the threshold; upon crossing that point, more financial sector development will harm economic growth.

Based on semi-parametric estimate across more than 100 developed and developing countries (Albania, Algeria, Argentina, Armenia, Australia, Austria,

Bahrain, Bangladesh, Barbados, Belgium, Belize, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cambodia, Cameron, Canada, Central Afr. Rep, Chile, China, Colombia, Congo. Rep, Costa Rica, Core d'Ivoire, Croatia, Cyprus, Czech Rep, Denmark, Dominican Rep, Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Gabon, Gambia, Germany, Ghana, Greece, Guatemala, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Indonesia, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Kyrgyz Rep, Latvia, Lesotho, Liberia, Lithuania, Luxemburg, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Norway, Pakistan, Panama, Papua NG, Paraguay, Peru, Philippine, Poland, Portugal, Romania, Russian Fed, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Rep, Slovenia, South Africa, Sudan, Sweden, Switzerland, Syria, Tanzania, Thailand, Togo, Tonga, Tunisia, Turkey, Uganda, UK, USA, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe), Arcand et al. (2012) investigate the causality nexus amongst financial development and economic growth. Empirical finding claimed that, when the financial depth reached its maximum of 100% as a percentage of GDP, financial development negatively influences the growth of output. Hence, this empirical result sustains "vanishing effect of financial development" which means finance has a level to positively affect output growth beyond which its effect will be negative. Pasali (2013) argues that under suitable environment, the relationship between the stage of financial intermediation on growth and employment is found to be positive, and this could affect the level of economic growth in overall terms.

Adu et al. (2013) examine the result of finance on growth and its measures based on the ARDL technique in Ghana. The empirical result reveals that total domestic credit as a part of GDP and total credit to the private sector as a percentage of GDP positively influence economic growth. However, the stock of broad money to GDP does not have any influence on economic growth in the case of Ghana. This study, therefore, highlights the importance of a financial development indicator used, and how it could affect the level of growth.

Bumann et al. (2013) used meta-analysis empirical literature and analyses the rapport between financial liberalization and economic growth. The central concern is

the heterogeneity of the results in the selected sample about data and techniques. The main finding reveals that on average the connection between the liberalized financial system and economic growth is positive, although the significance is a bit fragile. Moreover, most of the variables that are used for heterogeneity clarification of the findings remain insignificant. On the other hand, two exceptions exist; firstly, all studies conducted according to 1970s data reveal the less significant association between financial liberalization policies on the growth of the economy as reflected by the lower level of t-statistics as compared to 1980s applied data. Secondly, in studies that controlled the level of the financial system, the results show a lower level of t-statistics for the relationship between financial liberalization and economic growth.

Law and Singh (2014) used an innovative Dynamic Gold panel data method across 87 developed and developing countries (Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Bolivia, Brazil, Cameroon, Canada, Chile, Colombia, Congo, Democratic Republic of Congo, Costa Rica, Cote d'Ivoire, Denmark, Ecuador, Egypt, El Salvador, Finland, France, Gabon, Gambia, Germany, Ghana, Greece, Guatemala, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Kuwait, Latvia, Luxembourg, Malawi, Malaysia, Mali, Mexico, Morocco, Netherlands, New Zealand, Niger, Norway, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Portugal, Saudi Arabia, Senegal, Sierra Leone, Singapore, South Africa, South Korea, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, Thailand, Togo, Trinidad & Tobago, Tunisia, Turkey, UK, USA, Uruguay, Venezuela, Zambia) and investigated the finance-growth relationship. The empirical finding suggests that financial development certainly and significantly stimulates economic growth but only up to a given point, moving of finance beyond such particular threshold its effect on economic growth become negative. Hence, this study shows that reaching an optimal threshold level of financial development is significant in improving the level of economic growth; this further highlighted that the affiliation is non-linear. According to this finding, understand that more finance does not always stimulate economic growth because moving beyond the threshold level more finance harm economic growth. Similarly, based on 77 sample countries for the period of 1980-2007, Beck et al. (2014) investigate the nexus between financial system size and financial intermediation in one angle, as well as the growth of GDP per-capita and volatility growth on the other extreme.

According to their finding, financial intermediation enhances growth and reduces volatility in the long-run. Financial sector expansion coupled with other magnitudes has no long-run impact on the real sector of the economy. In the short-run, however, large financial sector encourages growth despite the higher volatility cost in high-income countries. Financial intermediation undertakings in order to have a stable economy in the medium term, particularly in low-income countries.

Valickova et al. (2014) study the impact of financial development on economic growth. The key finding shows that nearby is the positive and significant effect of financial development on economic growth, although dissimilar estimation may make the result to differ. They further highlighted that heterogeneity and research design are the major reasons for results differences. Ignoring the endogeneity in the studies will lead to overstating the effect of finance on growth, and the impact shows that it is weaker in developing countries; however, the effect decline worldwide after the 1980s. They recommended that stock market promote quick economic growth in contrast to other financial intermediaries.

Arcand et al. (2015) investigated whether there will be a point in which more finances would not significantly affect the overall productivity in an economy. Different empirical approaches were used, and the finding suggests that the level of financial depth becomes negative when the level of the private sector reaches its peak, i.e. 100% of GDP. This means that, when the private sector credits reach 100%, its effect on the overall growth becomes negative and does not have an impact on the GDP. This finding is in line with the "vanishing effect" of financial depth and is not moved by endogeneity, volatility in output, crises in banking, poor quality of institutions, or by differences in bank guidelines and regulations.

2.2. Studies on Banking Sector Performance and Economic Growth

There are still debates in the literature on the nexus amid banking performance and economic growth in different countries, regions, and several economic unions. Although the studies on this angle are not mostly present in the current literature, the review would be directly on the concept and some issues that are related to the banking performance and economic growth. For example, a study by Cook et al. (2004), a study

applied mathematical programming models and examine the performance and changes in productivity. To achieve the high result are extended the normal data envelopment analysis approach and included benchmark. The models are applied to some Canadian banks in which the services of some branches are programmed to cut costs and improve the speed of service, and eventually to enhance productivity. The empirical finding reveals that though in the initial stage the performance seems improving, the gain of productivity is not discovered. Hence, this study finding can help the banks in identifying its business opportunities and highlight the strengths and weaknesses of their branch operations.

Shen and Chang (2006) examine the dynamic impact of regulations on banking performance. In this study, the authors tried to test two hypotheses, i.e., the restriction-enhancing and facility-supporting hypotheses. The main empirical result reveals that bordering on the right of commercial banks to use securities and insurance, in line with restrictions on the combining of banking and commerce reduces the profits of the bank. However, quality institutions such as good governance reduce adverse impact which supported the facility-supporting hypothesis, while the real estate restrictions may positively stimulate the bank's profits.

Altunbas et al. (2007) examine the rapport amongst capital, risk, and inefficiency across numerous European banks during 1992 and 2000. Contrary to the US proof, the researcher did not get a positive nexus between inefficiency and risk-taking in the banking operations. The empirical finding reveals a positive relationship between risk and liquidity, and the same positive relationship is obtained in the case of the financial strength of the corporate sector on reducing bank risk-taking and the level of capitals.

Cheng and Degryse (2009) investigated the dynamic effect of banks and non-banks on the local economic growth in China over the period of 1995-2003. The key finding shows that financial sector development (banks and non-banks financial institutions) significantly enhances the local economic growth of China provinces studied. Hence, the performance of the provinces banking sector positively influences their level of economic growth.

Wu et al. (2009), proposed a (FMCDM) technique for examining banking performance. In this research, author drew the Balanced Scorecard (BSC) from four different perceptions and initially reviewed the evaluation indexes produced from banking performance literature. Thus, these indexes were screened, and 23 are found to deem fit for banking performance evaluation and are selected through the use of expert questionnaires. Moreover, the comparative bulks of the selected evaluation indexes were determined through the Fuzzy Analytic Hierarchy Process (FAHP). The three MCDM investigative tools, which are; SAW, TOPSIS, and VIKOR were used to rank the banking operational performance and enhance the gaps by selecting three banks to support it empirically. The study reveals the important features of evaluation criteria and the gaps to enhance banking performance for attaining the needed results.

Furthermore, the result confirmations that the proposed FMCDM model for banking evaluation based on BSC technique can be utilized for an efficient and valuable assessment instrument. It highlights both the features of the financial and non-financial, long-term and short-term policies and underlines internal and external business measures. Furthermore, the result shows that the proposed FMCDM model for banking evaluation based on BSC technique can be used for an efficient and valuable assessment tool. The improvement in the services of information technology, as well as globalization, necessitated the overall financial sector improvement in different countries in the global economy; Sri Lanka is not an exception.

The financial sector reform took place in the country during 1977-2005, this motivated Seelanatha (2010) to examine the impact banking efficiency and market structure on the general banking performance as measured by profitability and net interest based on structured conduct performance. The key finding suggests that conventional conduct performance argument is not obtainable in the Sri Lankan banking industry, and the performance of the banking sector is not a function of market concentration or market power of the respective banking firms.

Heffernan and Fu (2010) investigated to observe whether or not the objectives of the reform were achieved based on the selected number of Chinese banks during 1999-2006. The factors that determine banking performance such as; economic value added (EVA), net inNIM), return on average equity (ROAE) and return on average

assets (ROAA). The empirical finding reveals that EVA and NIM perform better than the usual profitability measures of ROAE and ROAA. The result also reflects the importance of bank ownership in the determination of banking performance, while bank size does not have any substantial impact on banking performance.

Moussawi and Obeid (2011) projected an approach for evaluating the performance of Islamic banks that operate in the GCC region during 2005-2008. In this study is applied Data Envelopment Analysis (DEA) to dissect the efficiency of productivity into technical, allocative, and cost efficiency across 23 Islamic banks in the region. The main empirical finding shows that technical inefficiency and allocative inefficiency on average enhanced bank costs by about 14% and 29% respectively. Moreover, the findings reveal that internal and external determinants appear to contribute significantly to the efficiency growth scores of Islamic banks in the GCC.

Xu (2011) applied bank level measures and examined how the presence of foreign banks affect banking sector performance. The empirical result reveals that bank level measures clearly surpass the total measures and this result are essential in determining the inexplicable inconsistency is presently existing in the empirical literature. The main essential finding of this study provides robust empirical proof that foreign banks' entry encourages competitive and effective banking operations in China.

Sufian (2011) analyzed the impact of profitability on banking operations in Korea controlling for other bank-specific factors and macroeconomic determinants. The empirical finding reveals that those banks with lower liquidity in the country have more tendencies to earn higher profits.

Park (2012) empirically examined the influence of corruption on banking sector development and economic growth based on a cross-section of 76 countries (Austria, Belarus, Belgium, Botswana, Brazil, Bulgaria, Canada, Chile, Costa Rica, Czech Rep, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Israel, Italy, Jordan, Korea, Latvia, Lithuania, Luxembourg, Malaysia, Namibia, Netherlands, Norway, Portugal, Slovenia, South Africa, Spain, Sweden, Switzerland, Tunisia, UK, USA, Argentina, Azerbaijan, Bangladesh, Bolivia, Colombia, Croatia, Ecuador, Egypt, El Salvador, Ghana, Honduras, India, Jamaica, Kazakhstan, Kenya, Madagascar, Mexico,

Moldova, Morocco, Nicaragua, Nigeria, Pakistan, Panama, Paraguay, Peru, Poland, Romania, Russia, Senegal, Slovak Rep, Sri Lanka, Thailand, Turkey, Uganda, Venezuela, Zambia, Zimbabwe) during 2002-2004. The major research finding proved that corruption has a substantial effect of aggravating the problems of increasing bad loans in the banking industries of the countries studied. This study also found a new proof that corruption hampers economic growth through the distortion of effective allocation of funds to viable projects; instead, corruption in the sector enhances allocating such funds to non-feasible projects. This decreases the quality of private investments which ultimately affected the level of growth negatively.

Jiang et al. (2013) applied the fixed effects of proprietorship and the dynamic effect of privatization on the performance of the banking sector during 1995-2010. The empirical finding suggests that private intermediaries–joint stock commercial banks and city commercial banks performed better than government-owned commercial banks. However, banks that are traded on the stock market performed well better irrespective of the possession status. Moreover, the banking sector privatization enhances performance related to the inflow of revenue and efficiency gains both in the short- and the long-run. The positive long-run effect is more significant and pertinent for those banks with mild foreign proprietorship. This study also examines the efficiency of interest income and efficiency of non-interest income; the finding proved that Chinese banks are highly effective in generating interest income that raising interest revenue, though non-interest revenue is substantially enhanced during 1995-2010.

Kamau and Were (2013) analyze the dynamic factors that influence the banking sector performance during 1997-2013. In this research is applied structure conduct literature that presumes the structure and efficiency role that determine banking sector performance. To derive the efficiency scores DEA is used. The main finding indicates that the source of the better banking performance in banking sector is structure/collusive power, not banking sector efficiency which directly supported the hypothesis. Hence, Kamau and Were (2013) rejected the efficiency hypothesis since the technical and scale efficiency are not significant.

Pradhan et al. (2014) applied panel cointegration causality test and examine the causal relationship amongst banking sector maturity, stock market maturity, and the four features of banking performance and operation of the economy that include; economic growth, inflation, trade openness, and the level of government participation in the economy during 1960-2011. The main empirical finding shows that for all the regions studied there is a bidirectional connection amid banking sector maturity and stock market maturity. Moreover, stock market maturity might promote economic growth directly and otherwise through trade openness and inflation. The result also maintains the idea that, economic growth positively influences the maturity of the stock market in most of the regions studied. The findings of the study also support that, the established financial sector is the main supplier to engendering economic growth. Moreover, the level of economic growth could promote adulthood in the financial sector of the economy.

Demirguc-Kunt et al. (2013) in their study use of formal financial services across 98 developed and developing countries (Albania, Algeria, Argentina, Armenia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belgium, Belize, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cambodia, Cameron, Canada, Central Afr. Rep, Chile, China, Colombia, Congo. Rep, Costa Rica, Core d'Ivoire, Croatia, Cyprus, Czech Rep, Denmark, Dominican Rep, Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Gabon, Gambia, Germany, Ghana, Greece, Guatemala, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Indonesia, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Kyrgyz Rep, Latvia, Lesotho, Liberia, Lithuania, Luxemburg, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Norway, Pakistan, Panama, Papua NG, Paraguay, Peru, Philippine, Poland, Portugal, Romania, Russian Fed, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Rep, Slovenia, South Africa, Sudan, Sweden, Switzerland, Syria, Tanzania, Thailand, Togo, Tonga, Tunisia, Turkey, Uganda, UK, USA, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe) found that there are substantial gender differences regarding ownership of formal accounts and use of savings and loans products. They also argue that even when other individual features are held constant gender remains considerably linked to uses of formal financial services. Their findings also indicated that legal perception against women

also affected the use of formal financial services between the two-opposite sex. In economies where females are constraints legally in their ability to work, household control, choose where to settle the house, females have fewer tendencies to own an account, save or burrow compared to their males' counterparts.

Aterido et al. (2013) conducted a research on the gender gap and access to finance and concluded that there is no any proof of gender variation or lower request of financial services by firms owned by women or by men when important features of the firms or persons are taken into consideration. In case of firms, however, they highlight the result with a selection subjectivity that women have less tendency to operate sole proprietorships than men, and women-owned enterprises are meager compared to men counterpart but have more likelihood to invent. Related to individuals, the lesser use of financial services by a female will not be unconnected to their income and education levels, which is low, and also by their household and employment position.

The volume of Islamic financial assets in 2011 is up to $1.3 trillion, though is less than 1% of the world financial assets (Reuters, 2011), still is important considering its volume in the countries covered. Policymakers across the globe were still eyeing the sustained trend of the Islamic financial assets because of its fast and sustained growth. This means when a large number of adults has more access to Islamic financial products the result will generate sustained economic growth and reduces the level of financial exclusion.

Beck et al. (2013) uses a novel data and study the use and demand of formal financial services for the Muslim adults in a sample of more than 65,000 people across 64 countries. The finding suggests that compared to non-Muslims, Muslims are less likely to own formal account or save at formal financial institutions after holding other individual and country level features. However, the finding also refutes that Muslims as compared to non-Muslims have less tendency to borrow from formal or informal sources. When they took a comprehensive survey of adults in 5 MENA countries with moderately promising Islamic finance industries, the use of Shariah-compliant banking products is found to be low, whereas the respondents show a preference for Shariah-compliant products irrespective of the higher costs.

2.3. Studies on Non-Banking Sector Performance and Economic Growth

There are some institutions in the financial system that are not bank-based and have significant influences on the economic growth of different countries. Stock markets, insurance companies are essential components of every financial system. Therefore, in this segment the impact and performance of non-banking financial institutions (stock market and insurance) on economic growth will be reviewed, its impact on the overall economic development of different countries, regions, and economic unions will be highlighted.

Haiss and Sumegi (2008) investigate the dynamic impact of insurance investment and premiums on economic growth in Europe. The panel data analysis comprised of 29 countries for the period of 1992-2005. The key finding shows a positive and significant impact of life insurance on economic growth of the EU-15 countries (Germany, Italy, France, Holland, Denmark, Finland, Luxembourg, Austria, Belgium, Spain, Finland, Norway, Switzerland, Norway, and Iceland). The result based on the new EU member countries reveals a larger impact in the case of liability insurance. Furthermore, the result as per new member of EU countries from (CEE), the main impact found is on liability insurance. Their finding also gives more emphasis to the influence of interest rate and the degree of economic development on the insurance-growth relationship.

Welfarism and institutionalism are the two contending theories that explain the roles insurance should play in an economy, while welfares perception is for insurance to focus more on outreach; institutionalist argues that micro finance institutions should focus more on sustainability rather than outreach. Institutionalist believes that the focal reason for the emergence of insurance institutions is sustainability, which is their ability to cover operating costs derived from operating revenues. Sustainability in micro financial institutions is targeted towards ensuring uninterrupted operations of the institutions even when donors and emerging partners failed to make funds available for operations. It is therefore about how the institutions will continue to operate smoothly without relying on subsidies from donor agencies (Christen, 1997; Schreiner and Woller, 2003). Sustainability of the micro finance banks is in line with profitability, and they will be achieved when the banks are capable of slashing transaction costs,

deliver efficient products and services, diversified sources of revenue and find new ways of financing the unbanked poor individuals (IMF, 2000).

One of the aims of non-banking to the fewer privileges that do not have access to conventional banks to reduce poverty level and assist the poor to initiate their personal businesses. There is an increasing need for financial services among the fewer privileges, more specifically those with viable and favorable investments opportunities and were financially constrained (Morduch and Haley, 2002; Morduch, 2005). Early literature on the impacts of micro finance on poverty reduction traced from David and Mosley (1996) who found that microcredit does not assist poor people rather it benefits non-poor with an income above the poverty line. They also argue that a large number of those with initial income below the poverty line are not experiencing any addition in their income level when they obtain microcredits compared with the segments that did not receive the credits. This shows that having credits without the necessary enterprenual skills to utilize it could be non-useful because the beneficiary might utilize the funds for unproductive means.

Arena (2008) applied the GMM is applied for dynamic models across a panel data of 55 countries (Australia, Argentina, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Costa Rica, Ecuador, Egypt, Croatia, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Indonesia, Israel, Italy, Japan, Jordan, Kenya, Korea, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Pakistan, Panama, Paraguay, Peru, Philippine, Portugal, Sweden, Switzerland, Tunisia, Turkey, UK, USA, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe) and examines the dynamic impact of both life and nonlife insurance on economic growth. The study period is from 1976-2004 as theoretically required. The key empirical finding shows the presence of a positive and significant impact of both life and nonlife insurance on economic growth for the overall sample. However, when the sample is divided based on the level of income, it shows that higher income group drives the growth faster in the case of life insurance. While, for nonlife insurance, both high-income and developing countries drive the economic growth.

Adams et al. (2009) applied Granger causality and Toda and Yamamoto (1995) to examine the dynamic historical relationship between insurance, and economic

growth in Sweden during 1930-1998. The main empirical finding suggests that insurance sub-sector has Granger-caused economic growth and a bank loan. Hence, insurance financial sub-sector is considered as an essential factor that determines economic growth in Sweden. They empirically investigate the dynamic relationship between the development of the insurance sector and economic growth across ten transition European Union member countries. The research period ranges from 1992-2007 based on fixed-effects panel data technique. The main empirical results report a positive and important effect of insurance sector development on economic growth. The finding also reveals that such effect is both on life and non-life insurance, and total insurance as well.

Cheng and Degryse (2010) examine the dynamic nexus between non-banking financial institutions on economic growth in China during 1995-2003. Their main objective is to see whether or not the two different financial institutions affect the economies of the provinces under investigation. The main empirical finding reveals that banking sector development has a more significant impact on the economic growth of the provinces than non-banking financial institutions. Hence, in promoting the overall growth of these provinces, more emphasis would be given to the banking sector than non-banking financial institutions. Moreover, another study has examined the impact of life insurance on the growth of the economy as well as the conditions that determine the insurance-growth relationship. These conditions comprise the level of financial sector development, the rate of private sector savings, spending on social securities, income, the level of young dependency, geographic locations, and life expectancy. The main empirical finding reveals the presence of positive and a significant relationship between life insurance and economic growth of the sample countries. However, the nexus between insurance and economic growth differ commensurate with different income levels. For instance, the level of positive impact of life insurance on growth is lower in the middle-income countries, while it is much higher in low-income countries. Furthermore, the development of both the stock market and the life insurance market are considered alternates rather than complements.

Lee et al. (2013) used a test of the panel seemingly unrelated regressions augmented Dickey-Fuller (SURADF) and examine the stationarity properties of real-life insurance premiums per capita and economic growth for 41 countries based on three

level of income groups during 1979-2007. Their empirical result reveals the presence of the mixture of I (0) and I (1) variables which means the usual panel unit root tests may lead to misleading inferences. The result further shows that the calculated half-lives, the mean reversion degrees are higher in high-income countries. It also shows that there is a significant long-run connection amongst economic growth and real-life insurance premiums after permitting for the heterogeneous country-specific effect. Statistically, it shows that a 1% increase in real life premiums could increase economic growth by 0.06% (Lee et al. 2013:407).

Chang et al. (2014) used bootstrap panel Granger causality to observe the nature of causality amongst insurance and economic growth across 10 OECD countries (Australia, Italy, France, Germany, Netherlands, UK, Switzerland, USA, Sweden and Norway) from 1976 to 2006. The empirical findings show that there exist unidirectional causality running from overall insurance activities to economic growth in the case of Netherlands, UK, France, Switzerland, and Japan. While economic growth is what leads insurance happenings in Canada (for life insurance), Italy (for total and life insurance).

3. CHAPTER THREE
DATA AND RESEARCH METHODOLOGY

In this chapter, it was found and discussed that many of the empirical studies investigating the relationship between banking performance and economic growth have used similar dimensions and countries in their empirical analysis. This thesis overcomes such limitation of the existing literature by significantly expanding the number of Balkan countries included in the sample and the period required for the empirical study.

In this research, this thesis was able to acquire knowledge on the date's establishment for banking performance and economic growth. This information has helped to incorporate a larger number in a sample of the Balkan countries, which has rendered the dataset unique and interesting for empirical investigation. On the chapter pertaining to variables, the path of relevant and recent literature is followed. The discussion for each variable is conducted in detail. This has also helped in choosing the most appropriate variables for the investigation of the relationships.

The objective of this study is to empirically examine the dynamic impact of banking performance on economic growth, the impact of financial stability on banking performance, and the impact of financial inclusion on banking performance across the Balkan countries. Using the data obtained from 13 Balkan countries - Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Macedonia, Moldova, Montenegro, Romania, Serbia, Slovenia, and Turkey over the period 2000–2015, this research provides the analysis for this region of Europe.

3.1. Sample Countries

In every study, the first important question is why it has been chosen to be undertaken? And so is the question about the Balkan countries. First of all, there European countries are not so unique that the study would make an impression if something spectacular is to be discovered. Fa from it. In a globalization economy, no one would expect a kind of unique or forgotten economic topic from a total of 13 countries in Europe, with a combined area of about 470,000 km^2 (181,000 sq mi) or slightly larger area than California, including the European part of Turkey and

excluding Anatolia. However, from an economic point of view, in particular, financial systems and performance, these countries are considered diverse, beginning with the currency, level of development, incomes per capita, EU and non-EU members. Of 13 countries, 8 use their national currency (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, Serbia, Macedonia, and Turkey) and the rest have adopted the European Union common currency, the Euro (€) (Annual Report ECB 2010).

That is one of the main specific features why this study has taken into consideration to assess the impact of financial performance on economic growth as a whole. Perhaps a more important indicator is their diverse level of incomes per capita showing variance between them and the EU average. As of 2016, the GDP per capita in Slovenia stood at $36 000 (the highest) while in Albania below $10 000 (the lowest). Moreover, this diversity should also be tracked to their history of financial and banking system where, only two countries (Greece and Turkey) had a continuous market economy, while the rest descended from socialism through the political and economic transition to democracy and market economy. Still with specifics of this region, even during communism, their economies were also with different in models and principles (IMF, 2017).

Former Yugoslavia, which in our study today consists of 6 successor states, had a unique economic system known as self-management or market socialism, a kind of socialist with mixed property rights in state and private ownership, and open to the world trade more than any other socialist economy before the transition begun in the early 1990s. This was considerably different centralized economies of Albania, Bulgaria, and Hungary. Of course, the most stunning feature is the bloody collapse of former Yugoslavia through civil wars, involving destruction and crimes against humanity. War does affect and disrupts almost everything, but this is a separate topic that goes beyond the focus of our study.

Certainly, at first glance, this relatively small region, excluding the part of Anatolia, would make an economist to grasp its economic and financial performance. However, unlike California, the US or the Eurozone when amateur people are crowded in their minds with too many nations, ethnic groups, races, religions, states, highly diversified economy but still with a single currency and common market, the countries

in our study as a whole are different from the opposite direction, comparably more than any other region in the world with respect to the impact of financial performance on economic growth. If so, then let us see what study has found and how it fills a gap in the financial research and literature (IMF, 2010).

3.2. Data

In this research, the annual data obtained from the Balkan countries over the period from 2000 to 2015 are used. The data are collected from the World Development Indicators (WDI)- World Bank Database. The sample periods of those countries pose high importance since they correspond to a longer duration of time. The variables on banking performance measured by the ROE is obtained from Financial Development and Structure Dataset, while financial development and structure data are obtained from the World Bank. Economic growth is measured by changes in the real GDP per capita, while human capital is represented by the share of secondary school enrollment in total school enrollment, trade openness is proxied by the sum of exports and imports as the percentage of the GDP, investment is defined as the gross capital formation, inflation is proxied by the growth rate of the consumer price index, and government expenditure is measured by final government consumption expenditure. The data on these variables are obtained from the World Bank database (WDI). The institutional quality variable is measured by government effectiveness and is obtained from the World Governance Indicators (WGI) and financial openness is obtained from G-20 Financial Inclusion Indicators (G-20 FII).

Data reliability is the research aspect that highlights the accuracy and reliability of the data used in a given scientific research. Therefore, reliability and accuracy of the data is an essential component of any significant scientific research. The research outcome remains valid only if the used data are obtained from the reliable sources such as the World Bank database, the IMF database, the World Health Organization (WHO) database, the International Country Risk Guide (ICRG) database, The Penn World Table database, The Food and Agricultural Organization (FAO) database, and The BankScope database.

3.2.1. Economic Growth

Economic growth refers to the overall improvement in the quantity and quality of goods and services produced in a given country, nation or state. It also measures how bad or poor each economy operates regarding production and consumption of goods and services in a specific financial year. In the economics literature, there is no single variable to be used for measuring the rate of economic growth. This gives room for applying different variables to capture such improvement and or decline. Economic growth is measured by such variables as the real GDP, the nominal GDP, the real GDP per capita (in US$ at constant prices of 2010), the GDP growth rate. However, the real GDP per capita is used to measure economic growth in this study. This is because the variable (the real GDP per capita in US $ at constant prices) is mainly utilized in the literature to capture the rate of economic growth of different countries, regions, nations, and states within the global economy (see, Law and Singh (2014)).

Economic growth refers to the improvement of the country's GDP over a given period. Economic growth could also be perceived as the growth of the entire economic sector during a given financial year. The economic growth is mainly proxied by the real GDP which is the GDP divided by midyear population. It reveals the per capita income in a given economy as it measures the economic welfare of the nation. For example, the Solow endogenous growth theory of the early 1990s declares that financial development is an important factor which promotes the long-term growth; it also points out the significance of financial sector liberalization as it positively influences proper functioning of financial intermediation (Romer, 2011).

3.2.2. Financial Development

In order to measure the reliability of the financial development data that would be applied in this study depends on the source through which such data is derived. The financial development variable in this study would be obtained from the World Bank database (WDI). It is interesting to note that most of the used variables in this thesis would be derived from the World Bank database which is believed to be among the most accurate and reliable database in the field of economics and other social science research. This is the improvement of the overall financial sector in an economy. For

example, when there is an improvement in the level of the banking sector, the stock market, pension funds, and insurance firms' growth, it means the level of that country's financial sector developed. Stability in the level of financial intermediation enhances the allocation of resources in the financial sector. In the literature, several indicators are used to measure the level of financial sector development — for example, money supply (M2, M3) e.g. in King and Levine (1993), ratio of deposit liabilities to nominal GDP, e.g. in Demetriades and Hussein (1996), stock market capitalization as a percentage of GDP, domestic credit to private sector as a percentage of GDP, total commercial bank assets as a ratio of GDP, commercial bank assets to the sum of commercial bank and central bank assets, e.g. in Ang and McKibbin (2007).

In this study, will apply domestic credit to private sector as a proxy to measure the level of financial development as mainly obtained in the current literature. For example, in Habibullah and Eng (2006), Baltagi et al. (2009), Law et al. (2013), Law and Singh (2014), and Law et al. (2017). Domestic credit to the private sector is the financial resources make available to the private sector by the financial institutions in relation to loans, purchase of non-equity securities, trade credits and other account receivables that will be repaid later. In some countries, this kind of claims includes credits granted to public corporations. Financial corporation includes the monetary establishment and deposit money banks and include other financial firms with data accessibility including institutions that are not accepting transferable deposit but sustain liabilities like time and saving deposits. It also includes other financial firms such as insurance businesses, pension funds administrators, finance and leasing companies, money lenders and foreign exchange institutions WDI in the World Bank, 2017.

3.2.3. Banking Performance

There are different variables that are used in the existing literature to measure the level of banking performance/efficiency While; ROE is the average return on equity (Net income/Total equity), this indicator was obtained from Financial Structure Database by World Bank as an average of ROE for every country of our sample. On similar study, it has been observed that ROE has been used more than ROA to analyze the banking system's performance, as in study Rousseau and Watchel (2011) Samargandi et al. (2014), Cecchetti and Kharroubi (2014), and Zhang et al. (2015)..

Also it should be mentioned that some studies have also analyzed ROA. However, based on this research, there is a greater ROE engagement than ROA.

3.2.4. Control Variables

The trustworthiness of the human capital data that will be used in this study depends on the source through which such data is sourced. The human capital variable in this study will be obtained from the (WDI), the World Bank database. The variables will control the penitential determinant of economic growth in the growth regression. Similar to dependent and independent variables, this thesis follows the literature in the selection of control variables for the level of financial development (Levine, 2005). It is interesting to note that most of the variables to use in this thesis will be derived from World Bank database which is believed to be among the most accurate and reliable database in the field of economics and other social science research.

Human capital refers to the skills, knowledge and intellectual capability of human assets of a given economy. In this study, human capital is measured by the share of gross secondary school enrollment. Romer (1990) argue that; when the model gives room for research and development activities with a clear objective of initiating new goods and services, a simple accounting relationship does not hold. However, the actual relationship between the dynamism in the rate of inputs and outputs suggested by the growth accounting, the variable of human capital plays an important role in highlighting the growth rate of output as well as the level of investment. This means that human capital promotes growth through both output and investment WDI in World Bank, 2017. Human capital refers to the skills, knowledge, and experiences owned by any individual worker that is mainly measured by the cost or value of an organization/country. For example, Evans et al. (2002) postulate that there is a strong link between financial development and human capital which suggest that sound human capital have a positive influence on financial development. Physical capital that is linked to poor human development may generate low growth, and the development result might be (Bergheim, 2005). However, Arora (2012) found a negative and significant link between financial development and human capital as which is measured M2/GDP and pupil-teacher ratio, while there is a positive and strong connection between financial inclusion and anticipated years of schooling.

Population growth refers to an increase in the number of people that reside in a given environmental location. It is proxied by the population density which is the midyear total number of people divided by the land area in square kilometers. The population is defined as the number of all residents irrespective of their legal status or citizenship with the exception of non-permanent residents for example refugees who are regarded as the part of their countries of origin populace. However, land area is the country's total area except for areas under inland water bodies, exclusive economic zones, and countrywide claims and WDI in the World Bank, 2017.

Investment refers to the fund's commitments into business with an objective of earning returns from such funds. The proxy indicator that is used to measure investment is gross capital formation which is initially known as gross domestic investment. It refers to the spending on the fixed assets of which includes actual changes in the level of inventories. Fixed assets comprise of improvements in land, plant, machinery, equipment purchases and roads construction, railways, schools, offices, etc. Inventories are the collection of goods that are produced but presently not yet disposed of so as to meet temporary or unforeseen oscillations in production or sales as well as work in progress and WDI in the World Bank, 2017. Investment relates to the committing financial resources into any business with the intention of making profits from the ventures. The theoretical link between investment and economic growth is long established by the neo-classical endogenous theory initiated by Robert M. Solow in 1956. According to this theory, investment in human and physical capitals promotes the overall performance of the economy, and hence positively affects long-term growth. The gross investment is one of the main variables of this model, and the argument is that the high amount of capital is needed when output and productivity are anticipated to accelerate (Solow, 1962).

Institutions quality of measure the soundness and viability of the performance of institutions in an economy. The indicator that measured the quality of institutions in this study is government effectiveness. It refers to the level of efficiency in the government businesses dealings and is sourced from World Governance Indicators, World Bank database (2017). Institutional quality relates to how effective the public operates in a given economy, this highlight the procedures of conducting government

functions in different political set up in the world. It also refers to the factors that determine the operational effectiveness of a given economic/political environments. In a country where the residents respect the rule of law, and political system is stable, the creditors' and debtors' rights are protected, the performance of the financial market is considered higher when compared with the other countries in which such rights are infringed.

Trade openness is the overall abolition of any impediments or laws regulations that related to both imports and exports in a given economy. Based on this study it is measured by the total export and import as a percentage of GDP and WDI in World Bank, 2017. Trade openness refers to the GDP portion of the overall exports and imports of every economy over a given period. Removing restrictions and allowing a country to freely transact with the rest of the world is considered the open economy. It is highly hypothesized that; domestic financial sector development in developing countries mostly relies on foreign financial inflows from advanced nations in the form of foreign direct investment. However, these inflows might sometimes exacerbate the crisis in the developing countries, i.e., contagion effect.

Inflation rate refers to the persistent increases of general price levels over a given period. It is proxied by consumer price index which is the yearly proportion change in the average cost of consumer paid in order to have a given quantity of goods or services that is subject to change at given stated intervals usually every year and WDI in the World Bank, 2017. Inflation refers to the persistent rises of the overall prices of goods and services in the economy. Incessant increase in the prices could lead to several damages in the economy; this is related to the continuous and successive decline in the value of the affected country's currency. This phenomenon also leads to the loss of different businesses due to the fact that the business actors suffer serious losses more specifically when they are import oriented. Therefore, inflation is mainly considered as a menace that deteriorates the economic sphere of most nations. Stability in the general prices is among the key policy objective of any economy, hence required a holistic approach to ensure this macroeconomic goal is steadily achieved.

Government expenditure refers to the government spending over a given period of time; it also means the overall government spending in implementing its various

policies and programs that affect the people it represents. In this study, it is measured by the final government consumption expenditure as a percentage of GDP and WDI in the World Bank, 2017. Government expenditure refers to the overall government spending in achieving a different form of its functions. Government final consumption expenditures relate to those spending and government investments into different agencies with the aim of promoting the lives and wellbeing of the populace. It is highlighted that effective government expenditure could promote the overall long-run growth, this is because it stimulates other economic sub-sectors and hence its multiplier effect has a positive influence on the overall economic performance.

Financial inclusion refers to the population segment that uses formal financial services within a given economy. The level of financial inclusion is measured in this study by the number of commercial bank branches per 100,000 grownups. Khan (2011) stress on the functions that financial inclusion could play so as to improve the level of financial stability. Initially, diversification of credits to consist of small firms reduces overall risks of banks' credits portfolio by restricting the relative size of the individual borrower in the overall portfolio and hence decreases the instability. Secondly, enhancing the quantity of savings account improves the size and stability of both deposit and savings base of the banks, which will reduce the much dependence on non-core banking financing which becomes unbalanced throughout the financial crisis. Thirdly, when a massive number of people patronizes formal financial services, the monetary policy will be correctly conveyed which contributes enormously to the level of financial stability. Another research also argues that when those with lower income are incorporated into the formal financial sector, the deposit and credits bases increase and as such the sector become highly stable as a low-income section of the population are more prone to economic volatilities. Hannig and Jansen, (2010), also argue that financial establishments that rely on lower income section endure macro-crisis when compared with high net worth clients

Financial stability refers to the capacity of the financial system to withstand and absorbs any internal or external shocks both within and outside the financial system. Stability of the financial system is one of the ingredients that stimulate the overall financial development of every economy. The stable financial system reflects its ability

to stand in case of any shocks and regularize the system even when the contagion effects penetrate the system.

Inflation can sometimes be defined as macroeconomic instability is the movement backward and forward that usually happened in the macroeconomics as a result of internal or external shocks. In this study based on Kutivadze (2011), it is proxied by inflation which is the continual growth in the general prices of properties and facilities in an economy during a particular period. The importunate increase in prices may harmfully affect macroeconomic stability and the level of access and uses of formal financial services as found by Rojas-Suarez and Amado (2014) among Latin American countries.

3.3. Research Methodology

In this chapter are used two research methodology fixed and random effects and GMM to achieve the research objectives. The section will also emphasize the models and their specifications. The anticipated effects based on economic theories and or empirical literature will be discussed. Besides, the econometric methods that will be used in this study should be highlighted in this section. Moreover, the model specification that will highlight how each objective would be achieved will be fully discussed and highlighted in this chapter. Different models with their theoretical background and justification would also be fully discussed in this section.

3.3.1. Fixed and Random Effects Models

The fixed effects (FE) model is one of the most famous and frequently used panel data methods made of the least squares approaches of Legendre (1805) and Gauss (1809). The random effects (RE) or variance-components model, makes explicit use of a variance for the analysis of various panel data. Fisher, who coined the standings and established the methods of variance and analysis of variance (ANOVA), in his 1918 research explained both FE and RE models. In 1953, Henderson developed the method-of-moments techniques for analyzing RE and mixed models.

It is essential to note that controlling for the unobserved individual specific effects creates a bias in the estimations. Let us consider the panel data regression below:

$$\gamma_{it} = \alpha + X'_{it} + u_{it} \qquad i = 1, \ldots, N; \qquad t = 1, \ldots, T \tag{20}$$

Where *i* denotes individual samples and *t* stands for time. The panel data is considered balanced which means that there is any missing observations either randomly or otherwise as a result of the sample selection or attrition. α is a scalar, β means K × 1 while X'_{it} refers to the *i,t* observations on the K regressors. In most panel data approaches, a one-way error is utilized which comprises model for the disturbances, with

$$u_{it} = \mu_i + v_{it} \tag{21}$$

Where μ_i is the unobservable individual specific effect while v_{it} measures the remaining disturbances. If the μ_i's are expected to be fixed parameters that could be estimated, it means that will obtain the FE model. However, if the μ_i's are considered random variables independent of X_{it} and v_{it} for both individual samples across time, then we obtain the RE model. Thus, the regression in equation (20) for the FE models becomes

$$y_{it} = \alpha + x'_{it}\beta + \mu_{it} + v_{it} \tag{22}$$

Where μ_i's can be considered as the coefficients of dummy variables estimator for every individual in the sample. This model is also identified as the least squares dummy variables (LSDV) model. In this case, only $(\alpha + \mu_i)$ is estimated and is among the reasons why sometimes is shown by α_i. If the panel is very large (N), LSDV regressions like in equation (22) will be not achievable. Therefore, it is imperative to include (N – 1) dummy variable in the regression which would give room for upsetting a big matrix of dimensions (N + K) instead of (K + 1) as obtained in equation (20).

The FE regression is limited due to the loss in degrees of freedom as we are estimating (N–1) additional parameters as well as too many dummy variables which

gives rise to the problem of multicollinearity among the independent variables. The FE is the time-invariant variables covered by the individual dummies in equation (20), and hence each OLS regression aiming to estimate the equation (20) will not be successful, which reflects the problem of multicollinearity. Averaging equation (20) over time yields;

$$\bar{y}_i = \alpha + X_t'\beta + \mu_{it} + \bar{v}_{it} \tag{23}$$

Subtracting 23 from 22 will give us

$$y_{it} - \bar{y}_i = (\bar{X}_{it} - X_i)' \beta + (v_{it} + \bar{v}_i) \tag{24}$$

After subtracting equation 22 and 23, the equation 24 which is derived shows the FE estimator of β (denoted by $\bar{\beta}$ with hat) obtained from the sometimes infeasible LSDV regression analysis in equation 22. The FE model is believed suitable when one is fixing on a specific set of N countries, states, counties, regions or firms. Inference in this case is conditional on the N firms, countries or states that are observed. Note that, if T is fixed and N- 1 typical in short panels, then only the FE estimator of β is consistent; the FE estimators of the individual effects (a_i) are not consistent since the number of these parameters increases as N increases. This is the incidental parameter problem discussed by Neyman and Scott (1948) and reviewed more recently by Lancaster (2000). This is an error variable bias because OLS deletes the individual dummies when in fact they are relevant. One could assess the joint implication of these dummies, that is H_0 ; $\mu_1 = \mu_2 = \ldots \mu_{N-1} = 0$, by performing an F-test.

The RE model refers to an equation as follows:

$$y_{it} = \beta_0 + \beta_1 X_{it1} + \cdots + \beta_k X_{itk} + a_i \mu_{it} \tag{25}$$

μ_i's are independent of the v_{it},. In addition, the X_{it} are independent of the μ_i and v_{it}, for all *i* and *t*. The RE model is an appropriate specification if we are drawing N individuals randomly from a large parameter and have no endogeneity between the

regressors and the disturbances. Nerlove and Balestra (1992) emphasize Haavelmo's (1944) view that the population 'consists not of an infinity of individuals, in general, but of an infinity of decisions' that everyone might make. They argue that the FE model may be more appropriate in cases where the observations are sampled exhaustively (like data from geographic regions over time), whereas the RE model is more consistent with Haavelmo's sight agreed above. They argue that what differentiates individuals, who makes the decisions which we are concerned with, is largely historical. Knight (1921) maintained that these inheritances from the past are material goods and appliances, knowledge, skills, and morale.

If the RE model implies a homoskedastic variance, then using a transformation to eliminate *ai* results in inefficient estimators. Equation (25) becomes a RE model when we assume that the unobserved effect a_i is uncorrelated with each explanatory variable:

$$\text{Cov}(X_{itj,}a_i) = 0, t = 1,2, \ldots . T, j = 1,2 \ldots ., k. \quad (26)$$

for all *i* and *t*, and a correlated block-diagonal covariance matrix which exhibits serial correlation over time only between the disturbances of the same individual.

Moreover, the covariance for RE can be as below:

$$\text{Cov}\ (\mu_{it}, \mu_{js}) = \sigma^2{}_\mu + \sigma^2{}_v \text{ for } i=j, t=s$$
$$= \sigma^2{}_\mu \quad \text{for } i=j,\ t \neq s$$

When the equation derives zero, this means that the correlation coefficient between u_{it} and u_{js} is as below;

$$\text{Cor}\ (\mu_{it}, \mu_{js}) = 1\ \sigma^2{}_\mu + \sigma^2{}_v \quad \text{for } i=j, t=s$$
$$= \sigma^2{}_\mu / (\ \sigma^2{}_\mu + \sigma^2{}_v\ ) \quad \text{for } i=j,\ t \neq s$$

and zero otherwise. In this model, the regression coefficients are RE which can be attained from a least squares' regression the equation below represents the variance components that can be estimated form between and within the disturbances:

$$\hat{\sigma}_1^2 = T \sum_{i=1}^{N} \frac{\hat{\mu}_{1.}^2}{N-K-1} \quad (27)$$

or

$$\hat{\sigma}_v^2 = \frac{\sum_{i=1}^{N} \sum_{t=1}^{T} \mu_{it}^2}{[N(T-1)-K]} \quad (28)$$

where $\hat{\mu}$ present the between-residuals from equation (23) in equation (24) is *T* times the $S^2$of the between-regression obtained in (23). Also, $\tilde{\mu}_{i,t}$ where *t* denotes the FE residuals from (24). So, (28) is the S^2 of the FE regression obtained in (5). Substituting these estimates for the variance components in *y* and running Y_{it} on X_{it} *t* yields a feasible RE estimator suggested by Swamy and Arora (1972). For alternative estimators of the variance components, see Baltagi (2005). Hausman (1978) suggested linking $\hat{\beta}_{FE}\ and\ \tilde{\beta}_{RE}$ these two models of which are reliable underneath the null hypothesis H_0; $E\ (\mu/X\imath t\dot{)} = 0$. In this case, the contrast $\hat{\beta}_{FE}\ and\ \tilde{\beta}_{RE}$. Though, uncertainty H_0 is not true, and the Hausman test statistic is given by

$$m = \hat{q}'[var(\hat{q})]^{-1}\,\hat{q} \quad (29)$$

However, Hausman (1978) recommended another asymptotically comparable test to (29) that can be obtained from the improved regression

$$y^* = X^*\beta + \tilde{X}_y + w \quad (30)$$

The possibility for failure of the regression hypothesis correspondingly raises nearly uncertainties about the use of the Hausman test as a statistical instrument for determining whether a fixed or random effect pattern is most suitable (Wooldridge, 2002). Hausman test effect cannot be so simply understood; the alternative hypothesis misperceives the failure of the RE hypothesis with all other features of model misspecification, so it cannot always be used to select amongst the lines.

3.3.2. Generalized Method of Moments

Arellano and Bond (1991) in their quest to contribute to the existing literature on the weaknesses of the fixed effects model, they introduced alternative method of estimation which removed time invariant effect α_i from the regression after taking first difference as indicated in the model can be highlighted below;

$$y_{it} - y_{it-1} = \gamma(y_{it-1} - y_{it-2}) + (x_{it} - x_{it-1})' \beta + (\mu_{it} - \mu_{it-1}) \quad (31)$$

Or

$$\Delta y_{it} = \gamma \Delta y_{it-1} + \Delta x'_{it} \beta + \Delta \mu_{it} \quad (32)$$

The lagged error term μ_{it-1}relies on y_{it-1} in the model above; hence this shows that ordinary least square (OLS) estimator of the model is not consistent. Therefore, an instrument matrix is needed with a view to break the correlation nature of the variables. Arellano and Bond (1991) recommend that; the optimal instrument will not depend upon any variables before determining whether the variables are predetermined or strictly exogenous. In this case, x_{it} are strictly exogenous and their moment conditions are:

$$E = \left[x'_{is}(\mu_{it} - \mu_{i,t-1})\right] = 0_{p\times 1} \quad t = 2,\ldots,T, \quad s = 1,\ldots, T, \quad I = 1,\ldots\ldots N \quad (33)$$

Moreover, the instrumental matrix is depicted as follows;

$$z_i = \begin{bmatrix} \begin{bmatrix} y_{i0} \\ x_{i1} \\ . \\ x_{iT} \end{bmatrix} & 0 & 0 & 0 \\ 0 & \begin{bmatrix} y_{i0} \\ y_{i1} \\ x_{i1} \\ . \\ x_{i,T} \end{bmatrix} & 0 & 0 \\ 0 & 0 & . & 0 \\ 0 & 0 & 0 & \begin{bmatrix} y_{i0} \\ y_{i,T} \\ x_{it} \\ . \\ x_{iY} \end{bmatrix} \end{bmatrix} \quad (34)$$

In the case of occurrence of predetermined variables however, these situations only for s = 1…….t-1 will be hold and the instrumental matrix is shown as follows;

$$z_i = \begin{bmatrix} \begin{bmatrix} y_{i0} \\ x_{i1} \\ . \\ x_{i,s-1} \end{bmatrix} & 0 & 0 & 0 \\ 0 & \begin{bmatrix} y_{i0} \\ y_{i1} \\ x_{i1} \\ . \\ x_{i,s-1} \end{bmatrix} & 0 & 0 \\ 0 & 0 & . & 0 \\ 0 & 0 & 0 & \begin{bmatrix} y_{i0} \\ . \\ y_{i,T-2} \\ x_{it} \\ . \\ x_{i,s-1} \end{bmatrix} \end{bmatrix} \quad (35)$$

In any case the moment conditions of the sample $g_i(\delta) = \frac{1}{N}\sum_i^N Z_i' \Delta\mu_1 = 0$ which are used to obtain the GMM estimator which is;

$$\hat{\delta}_{GMM} = \left(X^{*'} ZWZ' X^{*}\right)^{-1} X^{*'} ZWZ' Y^{*} \quad (36)$$

Where x^* = $[\Delta y_{t-1}|\Delta x]$ which is the K × N (T-2) matrix regressors, y^* = $[\Delta_y]$ refers to N (T-2) × 1 is a vector of observations on the regressand and W is a weighted matrix that is well-specified as;

$$W = \left(\frac{1}{N} \sum_{1}^{N} Z_i^{'} H Z_i \sum_{1}^{N} Z_i^{'} H Z_i \right)^{-1}$$

(37)

In equation (31) above, H is the T-2 square matrix that comprises two on the main, subtract one on the first sub-diagonals and zero otherwise. The authors used a two-step efficient GMM estimator in which the moment conditions are weighted by their anticipated variance-covariance matrix which is calculated based on:

$$W = \left(\frac{1}{N} \sum_{i}^{N} Z_i{}' \Delta \hat{\mu}_i{}' \Delta \hat{\mu}_i{}' Z_i \sum_{i}^{N} Z_i{}' \Delta \hat{\mu}_i{}' \Delta \hat{\mu}_i{}' Z_i \right)^{-1}$$

(38)

In the above equation (31) $\Delta \hat{\mu}_i$ are the residuals gotten from consistent one-step estimator of the first difference. While, Arellano and Bond (1991) and Blundell and Bond (1998) highlighted two-step GMM which uses the optimum weighted matrix that contain a poor small sample properties. This problem persists due to GMM's ability to weights all the limitations equally across the sample. For example, when the moment conditions for data only provide weak identification of parameters, the model would be subjected to considerable bias.

Arellano and Bover (1995) introduced new estimator known as system GMM with a view to resolve the weaknesses of the difference GMM estimator. Based on this estimator they argues that if the first condition x_{i1} accomplishes the stationarity constraints E($\Delta x_{i2}\mu_i$) = 0, then Δx_{it} is expected to be correlated with μ_{it} only in a situation in whichΔx_{i2} is correlated with μ_i. The authors argues that, the existence of correlation between the level of the regressors x_{it} and unobserved individual specific effect $\mu_{i,}$ there is no correlation between the differences of the regressors Δx_{it} and

unobservable specific effect μ_i. The current assumption generates the level equation estimator which exploits other moment conditions. Lagged differences of right hand side variables $\Delta x_{i,t-r}$ are applied as more instruments for equation in levels when x_{i1} is mean stationary.

Blundell and Bond (1998) on the other hand, pointed out that lagged differences of the dependent variable simultaneously with the lagged differences of independent variable are appropriate instruments for the regression in the level equation with the initial conditions y_{it} accomplishes the stationary restraints E($\Delta y_{i2}\mu_i$) = 0. Therefore, in a situation whereby Δx_{it} and Δy_{it} are not correlated with μ_{i1}, lagged differences of independent variable Δx_{it-r} together with the lagged differences of dependent variable Δy_{it-r} are efficient instruments for the level equations. Furthermore, Blundell and Bond (1998) revealed that, what is using to estimate system-GMM is the difference equation together with the moment conditions for level equation. If explanatory variables are measured and regarded exogenous the system-GMM estimator develops the below moment conditions:

E ($\Delta\varepsilon_{it} y_{it-r}$) = 0; E ($\Delta\varepsilon_{it} x_{it-r}$) = 0 (39)

Where r = 2,..,t – 1, and t = 3,…….,T,

E ($\mu_{it} y_{it-r}$) = 0; E ($\mu_{it} x_{it-r}$) = 0 (40)

Where r = 1, and t = 3,…….,T,

The estimator of system-GMM combined different equations which includes; T-2 in difference and T-2 of in the levels form combine both a single equation. Lagged levels of regressor and regressors are applied as instruments for the differenced equation and the lagged differences of regressor and regressors as instruments for the level equation. The estimator of system-GMM provide consistent and more efficient result parameter estimates and at the same time possess a better asymptotic and finite sample properties as presumed by Blundell and Bond (1998). The condition for running

this estimation technique is appropriate based on the following three fulfilled conditions:

- T is small, and N is large.
- The regressors are considered endogenous.
- When unobservable individual specific effects are correlated with other independent variables.

Some of the expected modeling panel data problems mostly expected includes; endogeneity problems and country specific effects. Correlation may exist between the regressors and error term. However, GMM required pooling of number of countries with different characteristics (e.g. economic, social, and geographical dimensions). Interestingly, part of the superior feature and qualities of GMM is that it controls both endogeneity and country specific effect problems.

Baltagi et al. (2009) argues that, with the inclusion of lagged dependent variable in the empirical model as a result of the anticipation of serial correlation between the regressors and error term. For example, the lagged dependent variable of economic growth would rely on u_{it-1} which also depends μ_i that is country specific effect. Moreover, Nickell (1991) stress that, the estimator of dynamic panel data may be bias which disappears when T approaches infinity. The best estimator suggested by Arellano and Bond (1991) is GMM considering its ability to remove the country specific effects and time-invariant country specific problems.

The moment condition applies the orthogonality settings between the differenced errors and preceding values of dependent variable. This assumes that the new error term of the main model v_{it} does not have serial correlation; however, the differenced errors are serially correlated with the error term. Hence, there are two diagnostics tests are used as per Arellano and Bond GMM method to with a view to check the first and second order serial correlation in the errors. The position of the model is that, the null for first order serial correlation ought to be rejected, and for the second order serial correlation cannot be rejected. One of the indispensable features of dynamic panel GMM estimation methods is that, moment conditions increases with an

increase in T. Moreover, Sargan/Hansen test are applied to take care of the over-identification restrictions. There is extensive evidence that, when the moment conditions are many, the estimation may be bias, hence increase the model competence. Therefore, Baltagi (2005) recommended the use of subset moment conditions to take the benefit between reducing the estimation bias and efficiency loss (Baltagi et al. 2009).

3.4. Model Specifications

This section will discuss on the models that will be used to achieve the research objectives of this study. The specification econometric model applied different forms of dataset due to the nature of the time and individual effect. There are certain considerations that need to put in place while selecting a method in running the fixed effects model that have lagged value of dependent variable which require much consideration Arellano and Bond (1991) and Arellano and Bover (1995).

3.4.1. Model Specification for Objective One

The aim of this empirical specification is to examine the steps of achieving economic growth and the differences in growth across the Balkan countries, by employing an empirical model that allows for testing the key hypotheses. The estimation method uses the Arellano and Bond (1991) (difference-GMM) and the Arellano and Bover (1995) (system-GMM) dynamic panel GMM estimation techniques. GMM is used in this study because it has certain advantages over other panel data techniques, including controlling for endogeneity problems that may arise among the series. GMM controls for endogeneity among the series once the first difference is taken, as the slopes of the coefficients will remain the same for all of the variables, which directly overcomes endogeneity issues and time-invariant effects in the model. The GMM also contains a lagged dependent variable.

The GMM estimator proposed by Arellano and Bond (1991) is considered a two-step estimation procedure, thereby is constructed in two stages. The first stage is to calculate the first difference from the dynamic panel data model, and the lags of the right-hand side variables are considered as their instruments. It thus includes a lagged

dependent variable and other endogenous variables, and t-2 is considered as the date of the lagged levels. If the models contain predetermined endogenous variables, their lagged levels are applied as instruments.

However, the Blundell and Bond (1998) conclusion remain that if the dependent variable is persistent which means there is a possibility of a high correlation between the present period values and those in the previous period, and with the short period, in this case, the difference GMM estimator is not efficient. To overcome this challenge, Blundell and Bond (1998) extend the difference GMM estimator by incorporating a system with variables both at the levels and first differences. The difference GMM and system GMM can only be regarded as robust if the restrictions created a system where the results of using both models are valid. Moreover, there is no second order serial correlation in the model. Note that the validity of the models is checked with the use of the Sargan test for both models.

The empirical model contains the time and cross-country dimensions of the available annual data sets. To allow for the likelihood of partial adjustments, in this model is to specify a dynamic log-linear equation of economic growth that has a lagged dependent variable as an explanatory variable. The current empirical literature confirms that banking performance enhances economic growth (Cheng and Degryse, 2010; Poshakwale and Qian, 2011). Hence, this study specifies the following dynamic log-linear equation for economic growth:

$$lnGDP_{it} = \beta_{0i} + \gamma lnGDP_{it-1} + \beta_1 lnBP_{it} + \beta_2 lnHC_{it} + \beta_3 lnTO_{it} + \beta_4 lnINQ_{it} + \beta_5 lnINF_{it} + \beta_6 lnGEX_{it} + \beta_7 lnINV_{it} + \eta_t + \lambda_i + \varepsilon_{it} \quad (41)$$

where GDP refers to economic growth, GDP_{it-1} is the lagged dependent variable of economic growth, BP is the logarithm of banking performance, HC is the logarithm of human capital, TO is the logarithm of trade openness, INQ is the logarithm institutional quality, INF is the logarithm of inflation, GEX is the logarithm of government expenditure, and INV is the logarithm of investment. Furthermore, $\eta_t$signifies the time fixed effects and λ_i captures country-specific effects,

i stands for countries and t stands for the time period of the study and ε is the random error term.

Where;

GDP = Economic growth measured by real GDP per-capita
BP = Banking performance which is measured by return on equity
HC = Human capital proxied by the gross secondary school enrollment
TO = Trade openness measured by the sum of export and import as a share of GDP
INQ = Institutional quality measured by the government effectiveness
INF = Inflation as measured by the consumer price index
GEX = Government expenditure as represented by the government final consumption expenditure
INV = Investment measured by the gross capital formation

The coefficients that show how a change in one unit of each variable affects banking performance, and the study used an annual data for the time period of 2000-2015.

The expected signs based on the existing literature and economic theory for banking performance, human capital, institutional quality, government expenditure, investment as well as the interaction term between banking performance and investment are all positive. However, the anticipated sign as per trade openness, inflation and interacted variables of trade openness and inflation are either negative and or positive as shown in table 1 below;

Table 1: Expected Signs Based on Theory/Literature for Objective One

Variables	**Expected sign(s)**	**Studies that confirm the signs**
Banking performance	+	Rousseau and Watchel (2011) Samargandi et al. (2014), Cecchetti and Kharroubi (2014), and Zhang et al. (2015).
Human capital	+	Evans et al. (2002)

Trade openness	+/-	Kim et al. (2010a, 2010b), Law and Habibullah (2009)
Institutional quality	+	Jedidia et al. (2014), and Samargandi et al. (2014)
Inflation	+/-	Rajan and Zingalez (2003)
Government expenditure	+	Omran and Bolbol (2003)
Investment	+	Omran and Ali (2003)

In Table 2 below, measurements and sources of the data for the regression of the impact of banking performance on economic growth are presented.

Table 2: Data Description for Regression of the Impact of Banking Performance on Economic Growth

Variables	**Description**	**Measurement**	**Data source**
GDP	Economic growth	Real GDP per-capita (USD$ Constant price 2010)	WDI
BP	Banking performance	Return on equity	FSDW
HC	Human capital	Ratio of gross secondary school enrollment	WDI
TO	Trade openness	Sum of export and import as a percentage of GDP	WDI
INQ	Institutional quality	Government effectiveness	WGI
INF	Inflation	Consumer price index	WDI
GEX	Government expenditure	Government final consumption expenditure	WDI

INV	Investment	Gross capital formation	WDI

3.4.2. Model Specification for Objective Two

Financial stability refers to the capacity of the financial system to withstand and absorb any internal or external shocks both within and outside the financial system. Stability of the financial system is one of the ingredients that stimulate the overall financial development of every economy. The stable financial system reflects its ability to stand in case of any shocks and regularize the system even when the contagion effects penetrate the system. That is when the external forces affect the level of financial aspect of the economy, since in most cases all the economies are integrated, i.e. have a direct link with other economies as no economy lives in isolation.

The objective of every empirical specification is to investigate the steps that will be used to achieve banking performance and its variations across the sample units e.g. countries. This is in line with the empirical model that would allow testing the main hypothesis. The method of estimation would be relying on the Arellano and Bond (1991) (difference-GMM) and the Arellano and Bover (1995) (system-GMM) dynamic panel GMM estimation approaches. The empirical model comprises time and cross-country proportions of the available annual sets of data. To give room for the possibility of partial adjustments, the dynamic log-linear equation of banking performance with lagged dependent variable is given. Therefore, this study specifies the following dynamic log-linear equation for banking performance:

$$lnBP_{it} = \beta_{0i} + \gamma lnBP_{it-1} + \beta_1 lnFS_{it} + \beta_2 lnHC_{it} + \beta_3 lnTO_{it} + \beta_4 lnGDP_{it} + \beta_5 lnGEX_{it} + \beta_6 lnINV_{it} + \eta_t + \lambda_i + \varepsilon_{it} \quad (42)$$

where BP is banking performance, BP_{it-1} is the lagged dependent variable of banking performance, FS is the logarithm of financial stability, HC is the logarithm of human capital, TO is the logarithm of trade openness, GDP is the logarithm of Economic growth, GEX is the logarithm of government expenditure, and INV is the

logarithm of investment. Furthermore, $\eta_t$signifies the time fixed effects and λ_i captures country-specific effects, i stands for countries and t stands for the time period of the study and ε is the random error term.

Where;

BP = Banking performance which is measured by return on equity
FS = Financial stability measured based on this study by bank's Z-score
HC = Human capital proxied by the gross secondary school enrollment
TO = Trade openness measured by the sum of export and import as a share of GDP
GDP = Economic growth measured by real GDP per-capita (in US$ at Constant prices of 2010)
GEX = Government expenditure as represented by the government final consumption expenditure
INV = Investment measured by the gross capital formation

The expected signs based on the existing literature and economic theory for financial stability, human capital, trade openness, economic growth, government expenditure, and investment as well as the interaction term between banking performance and investment are all positive, except for trade openness which has expected signs either negative and or positive as shown in Table 3 below;

Table 3: Expected Signs Based on Theory/Literature for Objective Two

Variables	Expected sign(s)	Studies that confirm the signs
Financial stability	+	Vithessonthi (2014)
Human capital	+	Evans et al. (2002)
Trade openness	+/-	Kim et al. (2010a, 2010b), Law and Habibullah (2009)
Economic growth	+	Jedidia et al. (2014) and Samargandi et al. (2014)
Government expenditure	+	Rajan and Zingalez (2003)

Investment	+	Benhabib and Spiegel (2000), Omran and Bolbol (2003)

Investment relates to the committing financial resources into any business with an intention of making profits from the ventures. The theoretical link between investment and economic growth is long established by the neo-classical endogenous theory initiated by Robert M. Solow in 1956. According to this theory, investment in human and physical capitals promotes the overall performance of the economy, and hence positively affects the long-term growth. The gross investment is one of the main variables of this model and the argument is that high amount of capital is needed when output and productivity are anticipated to accelerate.

Table 4: Data Description for Regression of the Impact of Financial Stability on Banking Sector Performance

Variables	**Description**	**Measurement**	**Data source**
BP	Banking performance	Return on equity	FSDW
FS	Financial stability	Bank Z-score	WDI
HC	Human capital	Ratio of gross secondary school enrollment	WDI
TO	Trade openness concentration	Sum of export and import as a percentage of GDP	WDI
GDP	Economic growth	Real GDP per-capita (USD$ Constant price 2010)	WDI
GEX	Government expenditure	Government final consumption expenditure	WDI
INV	Investment	Gross capital formation	WDI

3.4.3. Model Specification for Objective Three

Financial inclusion refers to the population segment that uses formal financial services within a given economy. The level of financial inclusion is measured in this study by the number of commercial bank branches per 100,000 adults. Khan (2011) stressed on the functions of financial inclusion so as to improve the level of financial stability. Initially, diversification of credits to consist of small firms reduces overall risks of banks' credits portfolio by restricting the relative size of individual borrower in the overall portfolio and hence decreases the instability. Secondly, enhancing the quantity of savings account improves the size and stability of both deposit and savings base of the banks, which would reduce the dependence on non-core banking financing which becomes unbalanced throughout financial crisis. Thirdly, when massive number of people patronizes formal financial services, the monetary policy would be correctly conveyed which contributes enormously to the level of financial stability.

Hannig and Jansen (2010), also argue that when those with lower income are incorporated into formal financial sector, the deposit and credits bases increase and as such the sector become highly stable as low-income section of the population are more prone to economic volatilities. They also argue that financial establishments which rely on lower income section endure macro-crisis in comparison with high net worth clients.

The objective of each empirical specification is to examine the steps that would be used to attain banking performance and its variations across the sample units e.g. countries. This is in line with the empirical model that would allow testing the key hypothesis. The method of estimation would be relying on the Arellano and Bond (1991) (difference-GMM) and the Arellano and Bover (1995) (system-GMM) dynamic panel GMM estimation approaches. The empirical model comprises time and cross-country proportions of the available annual sets of data. To give room for the possibility of partial adjustments, the dynamic log-linear equation of banking performance with lagged dependent variable is given. Therefore, this study specifies the following dynamic log-linear equation for banking performance:

$$lnBP_{it} = \beta_{0i} + \gamma lnBP_{it-1} + \beta_1 lnFI_{it} + \beta_2 lnFO_{it} + \beta_3 lnHC_{it} + \beta_4 lnINV_{it} + \beta_5 lnGEX_{it} + \beta_6 lnINF_{it} + \eta_t + \lambda_i + \varepsilon_{it} \quad (43)$$

where the logged variables; *BP* refers to the banking performance, γBP_{it-1} is the lagged dependent variable of banking performance, *FI* is the logarithm of financial inclusion, FO is the logarithm of financial openness, HC is the logarithm of human capital, GEX is the logarithm of government expenditure, and INF is the logarithm of inflation. Moreover, η_t signify the time fixed effects while λ_i imply stands for the country specific effect, *i* indicate countries and *t* stands for study time period and ε is the random error term.

Where;

BP = Banking performance which is measured by return on equity
FI = Financial inclusion measured based on this study by the number of commercial bank branches per 100,000 people
FO = Financial openness is an index measuring a country's degree of capital account openness.
HC = Human capital proxied by the gross secondary school enrollment
INV = Investment measured by the gross capital formation
GEX = Government expenditure as represented by the government final consumption expenditure
INF = Inflation as measured by the consumer price index

The coefficients indicate how a change in one unit of each variable affects banking performance.

The anticipated signs based on the existing literature and economic theory for financial inclusion, financial openness, human capital, investment, government expenditure is all positive. However, the anticipated sign as per inflation is expected to negative. The expected signs based on interaction terms of financial inclusion conditioned on financial openness as well as government expenditure conditioned on human capital are expected to be positive also as shown in Table 5 below;

Table 5: Expected Signs Based on Theory/Literature for Objective Three

Variables	**Expected sign(s)**	**Studies that confirm the signs**
Financial inclusion	+	Allen et al. (2014)
Financial openness	+	Law (2009)
Human capital	+	Evans et al. (2002)
Investment	+	Benhabib and Spiegel (2000), and Ang (2009)
Government expenditure	+	Rajan and Zingalez (2003)
Inflation	-	Boyd et al. (2001)

In Table 6 below, data descriptions and data sources for regression of the impact of banking performance on economic growth are presented.

Table 6: Data Description for Regression of the Impact of Financial Inclusion on Banking Performance

Variables	Description	Measurement	Data source
BP	Banking performance	Return on equity	FSDW
FI	Financial inclusion	Number of commercial bank branches per 100,000 adults	G-20 FII
FO	Financial openness	Capital account openness index	The Chinn-Ito index (KAOPEN)
HC	Human capital	Ratio of gross secondary school enrollment	WDI
INV	Investment	Gross capital formation	WDI
GEX	Government expenditure	Government final consumption expenditure	WDI
INF	Inflation	Consumer price index	WDI

Banking performance relates to the productivity measurements of the banking sub-sector during a given financial year in a given economy. In this study, two distinct alternative indicators are used, i.e. return on equity. ROE is, however, the average return on equity (Net income/total equity). Higher level of banking performance signifies better and sound financial sector, because its performance directly reflects how productive a given financial economic sub-sector behaves.

3.5. Structure of Objectives

In figure below is presented the structure of objective of this research. In the first objective is presented how banking performance impact on economic growth where the black line presented which indicators affecting on economic growth. In the second objective is presented how financial stability impact in banking performance where the blue line presented which indictors effect on banking performance. In the third objective is presented how financial inclusion impact on banking performance where the green line presented which other indicators in third objective.

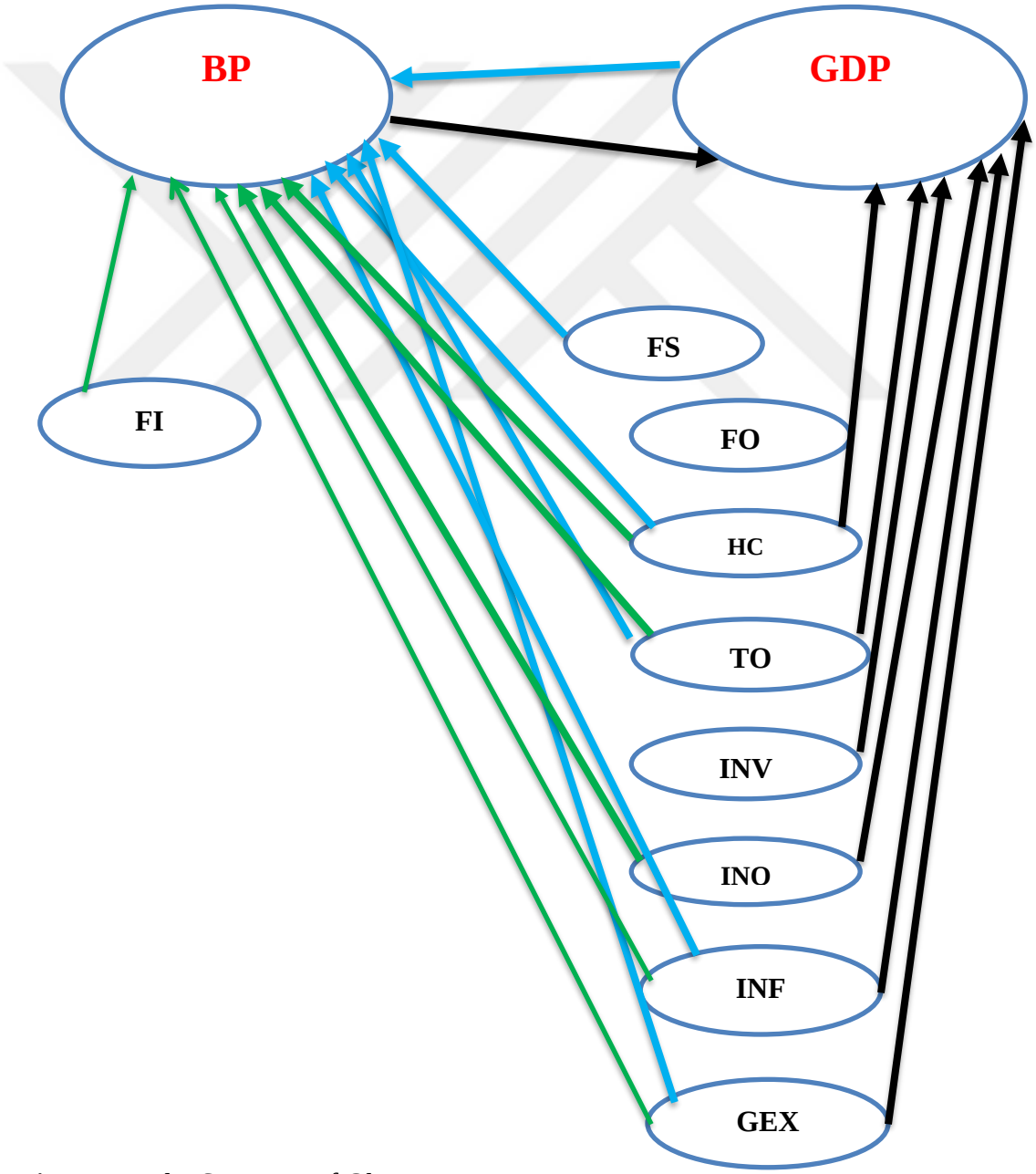

Figure 4 : The Structure of Objectives

4. CHAPTER FOUR
FINDINGS AND RESULTS

The main objective of this research is to empirically examine the dynamic impact of banking performance on economic growth, financial stability and financial inclusion for 13 Balkan countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Macedonia, Moldova, Montenegro, Romania, Serbia, Slovenia and Turkey) over the period 2000–2015. Relevant theoretical framework and empirical literature are presented in chapter one and two, respectively. The methodology and model specification are also outlined in chapter three. This chapter presents the estimated results and analyses based on the models applied. It commences with descriptive statistics of the data, then it explains the results presented and the tests of methodology.

The data are obtained from different sources. Since the data for some countries are missing, the paper uses an unbalanced panel. The variable on banking performance measured by the ROE are obtained from Financial Development and Structure Dataset (updated in September 2016), while financial development and structure data are obtained from the World Bank. Economic growth is measured by the changes in the real GDP per capita, while human capital is denoted by the share of secondary school enrollment in total school enrollment. Trade openness is proxied by the sum of exports and imports as the percentage of GDP, investment is defined as gross capital formation, inflation is proxied by the growth rate of the consumer price index, and government expenditure is measured by final government consumption expenditure. The data for these variables is obtained from the WDI of the World Bank database. The institutional quality variable is measured by government effectiveness, where the data source was the World Governance Indicators (WGI).

4.1. Empirical Results of Impact of Banking Performance on Economic Growth

The descriptive statistics of the data is presented in Table 7, which summarizes the number of observations, mean, standard deviation, minimum and maximum values of the variables across the 13 sample countries. The variables exhibit a variance between the data, which is the basis for preferring the panel estimation technique.

Table 7: Summary of Descriptive Statistics of the Variables for Objective One

Variables	**Observation**	**Mean**	**Std-dev**	**Minimum**	**Maximum**
Economic growth	117	9.03	1.41	2.08	6.13
Banking performance (ROE)	117	10.51	11.09	-52.5	42.67
Human capital	108	91.43	6.82	75.26	109.04
Trade openness	117	95.35	30.5	47.03	168.91
Institutional quality	117	0.89	0.45	0.09	2.02
Inflation	117	5.36	4.19	-1.34	25.29
Government expenditure	117	18.69	3.09	10.13	29.94
Investment	117	25.04	5.17	14.93	40.63

As seen in Table 7 above, the variables of banking performance and economic growth have mean values of 10.51 and 9.03, respectively. The mean values for the rest of variables are as follows: human capital 91.43, trade openness 95.35, institutional quality 0.89, inflation 5.36, government expenditure 18.69, and investment 25.04.

The correlation matrix of the variables in Table 8 highlights the relationship between the independent variables. Banking performance, institutional quality, investment, trade openness, inflation, and government expenditure are all positively correlated with each other. In this situation, they indicate the importance by the banks,

institutions, investment and inflation in improving economic growth. However, the correlation between trade openness and institutional quality is significant but negative, which may reflect the negative impacts of trade imbalances and crowding-out on economic growth. Another negative correlation is found between inflation and trade openness, though the value is very low with almost no impact.

Table 8: Correlation Matrix between the Variables for Objective One

	BP	HC	TO	INQ	INF	GEX	INV
BP	1.0000						
HC	0.7530	1.0000					
TO	0.6090	0.7438	1.0000				
INQ	0.2642	0.0490	0.0496	1.0000			
INF	0.2890	0.2864	0.3790	0.3389	1.0000		
GEX	0.4437	0.3703	0.5389	0.2789	-0.0589	1.0000	
INV	0.2095	0.6900	0.2456	0.5438	0.4689	0.3679	1.0000

The preliminary multicollinearity check indicated by the correlation matrix coefficient requires the value of the partial correlation between the independent variables to be less than 0.8 (Gujarati and Porter, 2010). In fact, Table 8 indicates that the value of partial correlation exhibited no multicollinearity as all the values obtained for independent variables were smaller than 0.8. The closest cases approaching this value were the stronger positive correlations between banking performance and human capital, 0.75 and between trade openness and human capital, 0.74. These stronger correlations indicate the greater importance or the prominence of human capital in the better performance of institutions as well as the banks while the relationships between government expenditures, and economic growth are significant but negative.

Initially, traditional panel data techniques of fixed and random effects were estimated before establishing the dynamic impact of banking performance on economic growth. The empirical results of the two models are reported in Table 9.

Table 9: Impact of Banking Sector Performance on Economic Growth in the Balkan Countries: Fixed and Random Effects Models

Variables	Fixed Effects	Random Effects
Banking performance	0.073**	0.225**
	(0.093)	(0.040)
Human capital	-0.062	-0.103
	(0.082)	(0.070)
Trade openness	-0.042	-0.033
	(0.063)	(0.092)
Institutional quality	0.380***	0.395***
	(0.352)	(0.031)
Inflation	0.336**	0.192
	(1.832)	(0.212)
Government expenditure	0.652**	0.489**
	(1.602)	(1.394)
Investment	0.027	-0.063
	(0.073)	(0.092)
Constant	-1.118***	-7.942***
	(1.237)	(2.794)
Hausman test (p-value)	13.42	13.42
	(0.020)	(0.020)

Note: ***, ** and * are used for hypothesis rejection at 1%, 5% and 10%, respectively and the number in parentheses are standard errors

The results on Table 9 should be validated by post-estimation results of heteroscedasticy and autocorrelation. Otherwise, any comment on Table 9 would be biased and Best Linear Unbiased Estimation (BLUE) results may be drift. To have an accurate and proper comment on Table 9, Table 10 presents the Breusch Pagan LM test and Greene Likelihood test for heteroscedasticy and Wooldridge autocorrelation test in Table 10.

Table 10: Heteroscedasticity and Autocorrelation Test for Objective One

	Breusch-Pagan Lagrange Multiplier Test	**Greene Likelihood Test**
Lagrange Multiplier LM Test	2791.335	1352.743
Degrees of Freedom	10	10
P-Value > Chi² (10)	0	0
Wooldridge test for autocorrelation		
F (1, 10)	28.743	
Prob > F	0.0083	

Accordingly, the result as reported in Table 10 and based on the panel data in order to be sure that the model is free from heteroscedastic problem, Breusch-Pagan Lagrange Multiplier (LM Test) and Greene Likelihood (LR Test) should test (Gujarati and Porter, 2010). According to the results as shown in Table 10, the panel data contain heteroscedasticity. The results based on the Wooldridge test in Table 10 indicate that there is autocorrelation.

Table 11 below, presents the impact of banking performance on economic growth using GMM model with sample data.

Table 11: Impacts of Banking Sector Performance on Economic Growth: A Dynamic Panel GMM Model

Variables	**Model I**	**Model II**	**Model III**	**Model IV**
	One-Step Dif. GMM	**Two-Step Dif. GMM**	**One-Step Sys. GMM**	**Two-Step Sys. GMM**
$GDP_{i,t-1}$	0.639***	0.594***	0.876***	0.843***
	(0.094)	(0.093)	(0.058)	(0.095)
Banking performance	0.004	0.898*	0.065	0.635***
	(0.945)	(0.093)	(0.074)	(0.094)
Human capital	0.093	0.593***	0.793**	0.090*
	(0.028)	(0.49)	(0.763)	(0.393)
Trade openness	0.193***	0.492***	-0.084	0.075**

	(0.004)	(0.038)	(0.034)	(0.092)
Institutional quality	0.002	-0.094	0.086	0.029
	(0.094)	(0.047)	(0.059)	(0.063)
Inflation	0.093	0.096***	0.049	0.098*
	(0.094)	(0.094)	(0.085)	(0.019)
Government expenditure	-0.095	-0.094	-0.085	0.048
	(0.409)	(0.087)	(0.089)	(0.098)
Investment	0.09	0.085***	0.083	0.094**
	(0.6)	(0.084)	(0.093)	(0.063)
Sargan test (p-values)	4.96	4.96	9.68	9.68
	(0.895)	(0.895)	(0.694)	(0.694)
Hansen test (p-values)	-	8.65	-	9.95
	-	(0.789)	-	(0.954)
AR (2) (p-value)	-0.93	-1.76	-2.58	-3.49
	(0.843)	(0.675)	(0.765)	(0.874)

Note: ***, ** and * signify significance at the 1%, 5% and 10% levels, respectively. The numbers in the parentheses are the standard errors, unless specified otherwise.

The results shown in Table 11 based on the system-GMM reveal that the banking performance has a positive and significant impact on economic growth in the sample countries. In Model IV, it specifically highlights that a 1 percent increase in the banking performance would positively stimulate economic growth by 0.635 percent. This finding underlines the importance of banking performance in supporting the overall economic growth in the examined countries. The results also indicate that the variables of investment, trade openness and inflation have a positive and significant impact on the overall economic growth.

The results shown in Table 11 for investment, trade openness and inflation also have a positive and significant impact on the overall economic growth. Statistically, they confirm that a 1 percent increase in human capital, investment, trade openness, and inflation positively influence economic growth by 0.090 percent, 0.094 percent, 0.075 percent, and 0.098 percent, respectively; as well in Model II and Model III, human capital has a positive and statistically significant impact on economic growth,

0.593 percent and 0.793 percent, respectively. This finding underlines the slightly higher importance of human capital for economic growth relative to the other variables.

The post-estimation analysis is in line with the theoretical requirements, where the null hypothesis of the Hansen and Sargan Tests cannot be rejected. More specifically, it implies that the instruments of the difference and system GMM methods are suitable, and the problem of over-identification restrictions in the model is solved. Moreover, the problem of serial autocorrelation is also resolved in the models because the of the AR (2) cannot be rejected as theoretically required.

4.2. Empirical Results of Impact of Financial Stability on Banking Performance

At first, the data are discussed by highlighting their descriptive statistics and correlation matrix. The number of observations for all the variables, their mean, standard deviation, minimum and maximum values is shown in Table 12.

Table 12: Descriptive Statistics of the Variables for Objective Two

Variables	Observation	Mean	Std-dev	Minimum	Maximum
Banking performance	117	1.273	1.567	-9.530	4.920
Financial stability	117	14.24	11.896	-3.290	58.710
Human capital	117	91.436	6.824	75.263	109.041
Trade openness	117	93.352	30.507	47.072	168.901
Economic growth	117	9.030	1.410	2.089	6.023
Government expenditure	117	18.694	3.891	10.134	29.941
Investment	117	25.042	5.179	14.937	40.671

The unit of measurement for each variable is highlighted in the same table. For example, the largest coefficient of variance (i.e., the variance adjusted by the mean, covariance) is for trade openness followed by human capital and investment. However, the lowest is the banking performance.

Table 13: The Correlation Matrix of the Variables for Objective Two

	FS	HC	TO	GDP	GEX	INV
FS	1.0000					
HC	0.3730	1.0000				
TO	0.1960	0.0110	1.0000			
GDP	0.1500	0.1860	0.3190	1.0000		
GEX	-0.2360	0.5200	-0.1920	0.3390	1.000	
INV	0.0860	0.7003	0.3110	0.5350	0.32000	1.0000

The correlation matrix of the variables in Table 13 indicate the relationship between the independent variables. This correlation between financial stability, investment, trade openness, and economic growth is positive and statistically significant, highlighting the importance of the banks, institutions, investment and inflation in improving economic growth. However, the correlation value between trade openness and institutional quality is significant but negative, which may reflect the negative effects on banking performance. The values of partial correlations between independent variables suggests that the model fulfills the criteria to get rid of the multicollinearity problem.

In the beginning, the multicollinearity check signified by the correlation matrix coefficient requires the value of the partial correlation between the independent variables to be less than 0.8. Table 13 indicates that the values of partial correlations between independent variables are less than 0.8, which means the model meets the criteria to eliminate multicollinearity problem.

Before establishing the dynamic impact of banking performance on economic growth, traditional panel data techniques of fixed and random effects were estimated.

Table 14: Impact of Financial Stability on Banking Sector Performance in the Balkan Countries: Fixed and Random Effects Models

Variables	Fixed Effects	Random Effects
Financial stability	0.091**	0.357**
	(0.026)	(0.033)
Human capital	0.294	0.203
	(0.301)	(0.005)
Trade openness	0.025	0.025
	(0.092)	(0.026)
Economic growth	0.291**	0.590**
	(0.451)	(0.052)
Government expenditure	0.502*	0.693**
	(1.236)	(1.926)
Investment	0.001	0.033
	(0.095)	(0.027)
Constant	-1.202**	-5.582***
	(1.892)	(2.702)
Hausman test (p-value)	10.28	10.28
	(0.060)	(0.060)

Note: ***, ** and * is used for hypothesis rejection at 1%, 5% and 10%, respectively and the numbers in parentheses are standard errors.

The estimated results presented in Table 14 should be validated through testing of hetroscedasticity and autocorrelation by post-estimation test. Although they are estimated, the comment on them as they appear in Table 14 cannot be clear as long as they can be biased and Best Linear Unbiased Estimation (BLUE) result may deviate. Therefore, in order to have an accurate or more credible interpretation for the results in Table 15 was present the Breusch Pagan LM test and Greene Likelihood test for heteroscedasticy and Wooldridge autocorrelation test.

Table 15: Heteroscedasticity and Autocorrelation Test for Objective Two

	Breusch-Pagan Lagrange Multiplier Test	**Greene Likelihood Test**
Lagrange Multiplier LM Test	1831.732	1004.304
Degrees of Freedom	10	10
P-Value > Chi² (10)	0	0
Wooldridge test for autocorrelation		
F (1, 10)	17.29	
Prob > F	0.0015	

In order to provide that model is free from the heteroscedasticity problem, the Breusch-Pagan Lagrange Multiplier (BP-LM test) and the Green Likelihood Ratio (LR test) test should be testified (Gujarati and Porter, 2010: 394). Based on the outcomes as reported in Table 15 based that the panel data are heteroscedasticy. Autocorrelation test based on the Wooldridge test reveal that there is an autocorrelation result in Table 15.

The key finding based on the impact of financial stability on banking performance across the sample countries using GMM model are presented in Table 16 as shown below.

Table 16: Impact of Financial Stability on Banking Sector Performance: A Dynamic Panel GMM Model

Variables	**Model I**	**Model II**	**Model III**	**Model IV**
	One-Step Dif. GMM	**Two-Step Dif. GMM**	**One-Step Sys. GMM**	**Two-Step Sys. GMM**
$BP_{i,t-1}$	0.224	0.190**	0.270*	0.274***
	(0.149)	(0.082)	(0.139)	(0.043)
Financial stability	0.712*	0.855**	0.256**	0.302***
	(0.521)	(0.823)	(0.121)	(0.073)
Human capital	-1.001	-0.875	0.380**	0.450***
	(0.893)	(0.554)	(0.858)	(0.342)
Trade openness	-0.259	0.573	0.206*	0.094**

	(1.417)	(0.960)	(0.368)	(0.224)
Economic growth	-1.039	-1.89	0.158**	0.173***
	(1.571)	(1.150)	(0.078)	(0.034)
Government expenditure	-2.287	-1.484	-4.467	0.469
	(1.676)	(2.027)	(0.566)	(0.435)
Investment	1.951**	1.857***	1.159**	0.558*
	(0.821)	(0.59)	(0.526)	(0.345)
Sargan test (p-value)	11.68	11.68	15.75	15.75
	(0.07)	(0.07)	(0.138)	(0.516)
Hansen test (p-value)	-	8.73	-	3.54
	-	(0.189)	-	(0.739)
AR (2) (p-value)	1.18	1.05	1.21	1.35
	(0.236)	(0.293)	(0.225)	(0.178)

Note: ***, ** and * signify significance at the 1%, 5% and 10% levels, respectively. The numbers in the parentheses are the standard errors, unless specified otherwise.

As the findings suggest, a 1 percent increase in the financial stability can positively promote the banking performance by 0.302 percent, and that means the essential functions of financial stability on the overall banking performance in the Balkan countries have significant effect. The variables of economic growth, investment and trade openness have a positive and significant impact on performance of the banking sector across the sample countries. Statistically, they reveal that a 1 percent increase in human capital, economic growth, investment, and trade openness positively affects thee banking performance by 0.450 percent, 0.173 percent, 0.558 percent, and 0.094%, respectively. These indicate the relative importance of these variables on the overall banking performance of the region. Moreover, all model in Investment, financial stability has positive and significant effect on banking performance.

The post-estimation results as highlighted by the Hansen and Sargan tests are in line with the theoretical justifications. The null hypothesis cannot be rejected. It means the instruments of the difference and system GMM methods are suitable, and the over-identification restriction problems are resolved in the model. The model is also out of serial autocorrelation because the AR (2) cannot be rejected as the theory requires.

4.3. Empirical Results of Impact of Financial Inclusion on Banking Performance

As obtained in the subsequent objectives, the descriptive statistics and correlation matrix of the third objectives were discussed to highlighting the distribution of the data, how closely each variable is with others, their respective means, standard deviation, minimum and maximum values that are shown in Table 17.

Table 17: Descriptive Statistics of the Variables for Objective Three

Variables	Observation	Mean	Std-dev	Minimum	Maximum
Banking Performance	173	1.593	3.793	-5.94	6.83
Financial inclusion	173	12.593	14.670	-3.95	64.72
Financial openness	169	86.732	7.879	84.385	115.042
Human capital	173	95.562	25.784	52.704	178.034
Investment	173	11.603	3.540	3.894	7.078
Government expenditure	173	19.543	6.785	12.432	32.782
Inflation	173	58.702	7.797	15.395	46.874

The unit of measurement for each variable is highlighted in the Table 17 above. For example, the largest coefficient of variance (i.e., the variance adjusted by the mean, covariance) is for human capital followed by financial openness and inflation. The banking performance has the lowest.

Table 18: The Correlation Matrix of the Variables for Objective Three

	FI	FO	HC	INV	GEX	INF
FI	1.0000					
FO	0.6430	1.0000				
HC	0.2480	0.0340	1.0000			
INV	0.1430	0.2860	0.2860	1.0000		
GEX	-0.3250	0.4870	-0.2650	0.7320	1.0000	
INF	0.0460	0.7430	-0.2940	0.3940	-0.4930	1.0000

The correlation matrix of the variables in Table 18 indicates the relationship between the independent variables. The correlation between financial inclusion, financial openness, human capital, and investment is positive and significant. As in the rest of the cases with positive and significant value, it denotes the importance of the banks, institutions, investment and inflation in improving the banking performance.

However, the correlation between government expenditures and inflation is significant but negative, thus they may negatively affect the banking performance. As the value of partial correlations between independent variables in Table 18 are less than 0.8, the model is out of multicollinearity problem.

The traditional panel data methods of fixed effects and random effects were estimated before establishing the dynamic impact of financial inclusion on the banking performance. The empirical finding of the two models is reported in Table 19.

Table 19: Impact of Financial Inclusion on Banking Sector Performance in Balkan Countries: Fixed and Random Effects Models

Variables	**Fixed Effects**	**Random Effects**
Financial inclusion	0.472**	0.653**
	(0.042)	(0.032)
Financial openness	0.653***	0.467**
	(0.037)	(0.032)
Human capital	0.175**	0.432***
	(0.582)	(0.017)

Investment	0.032	0.037
	(0.073)	(0.043)
Government expenditure	-0.092	-0.045
	(0.073)	(0.083)
Inflation	-0.532*	-0.374**
	(1.592)	(1.903)
Constant	-2.384***	-5.592***
	(1.333)	(2.653)
Hausman test (p-value)	12.02	12.02
	(0.009)	(0.009)

Note: ***, ** and * are used for hypothesis rejection at 1%, 5%, and 10%, respectively, and the numbers in parentheses are standard errors.

The estimated results presented in Table 19 should be validated by post-estimation test through testing of heteroscedasticity and autocorrelation. Those estimations would not be clearly commented on as they are shown in Table 19 unless they satisfy the Best Linear Unbiased Estimation (BLUE) constraint in order to avoid deviation.

Table 20: Heteroscedasticity and Autocorrelation Test for Objective Three

	Breusch-Pagan Lagrange Multiplier Test	**Greene Likelihood Test**
Lagrange Multiplier LM Test	2153.521	1753.435
Degrees of Freedom	10	10
P-Value > Chi² (10)	0	0
Wooldridge test for autocorrelation		
F (1, 10)	31.4850	
Prob > F	0.0092	

Therefore, in order to ensure higher accuracy and credibility of the interpretation on the results presented in Table 20, the Breusch-Pagan LM test, Greene Likelihood Ratio (LR) Panel Heteroscedasticity test and Wooldridge autocorrelation test are performed. To detect possible existence of the heteroscedasticity problem in the

model, the Breusch-Pagan Lagrange Multiplier (BP-LM) and the Greene Likelihood Ratio (LR) tests should be applied (Gujarati and Porter, 2010: 394). According to the results reported in Table 20, it is concluded that the panel data contain heteroscedasticity. The result in Wooldridge autocorrelation test shows there is an autocorrelation result in Table 20.

Table 21 indicates the result for the impact of financial inclusion on banking performance using GMM for sample data presented below.

Table 21: Impact of Financial Inclusion on Banking Sector Performance in Balkan Countries: A Dynamic Panel GMM Model

Variables	**Model I**	**Model II**	**Model III**	**Model IV**
	One-Step Dif. GMM	**Two-Step Dif. GMM**	**One-Step Sys. GMM**	**Two-Step Sys. GMM**
$BP_{i,t-1}$	0.237**	0.206**	0.382*	0.301***
	(0.285)	(0.073)	(0.293)	(0.062)
Financial inclusion	0.517*	0.483**	0.492**	0.532***
	(0.403)	(0.339)	(0.392)	(0.092)
Financial openness	3.503	-3.648	2.392**	0.372***
	(7.339)	(3.399)	(2.492)	(2.036)
Human capital	1.993	1.304	0.202**	0.302***
	(1.307)	(1.043)	(0.046)	(0.052)
Investment	1.335**	1.496***	1.293**	0.382**
	(0.490)	(0.307)	(0.339)	(0.291)
Government expenditure	0.555	0.056	0.302	0.492
	(1.32)	(0.665)	(0.203)	(0.192)
Inflation	-3.222	-4.337	-3.835	-0.392
	(1.394)	(1.093)	(0.339)	(0.302)
Sargan test (p-value)	10.32	10.32	12.29	12.29
	(0.037)	(0.037)	(0.328)	(0.328)
Hansen test (p-value)	-	6.48	-	4.74
	-	(0.147)	-	(0.293)
AR (2) (p-value)	1.36	1.04	2.26	2.93

	(0.482)	(0.184)	(0.182)	(0.283)

Note: ***, ** and * signify significance at the 1%, 5% and 10% levels, respectively. The numbers in the parentheses are the standard errors, unless specified otherwise.

Financial inclusion has a positive and significant impact on economic growth in the sample countries. A 1 percent increase in financial inclusion positively stimulates banking performance by 0.532 percent. The results also indicate that investment, trade openness, and inflation also have positive and significant impact on overall economic growth. To interpret this in figures, a 1 percent increase in financial openness, human capital, and investment, positively influences financial inclusion by 0.372 percent, 0.302 percent, and 0.382 percent, respectively; with a slightly higher position of human capital for economic growth.

The post-estimation test results as shown by the Hansen and Sargan tests are in line with the theoretical needs of the models. The null hypothesis cannot be rejected, and that implis that the instruments of the difference and system GMM methods are appropriate, and the over-identification restrictions problems are not present in the model. Moreover, the model does not contain serial autocorrelation because of the AR (2.). Therefore, the AR (2) cannot be rejected as theoretically demanded.

CONCLUSION

The role of banks has been increased in the structure of economic systems. Besides, the increased role of banking motivates capital flows and allocation of resources. It is widely expected that high performance of banks supports financial stability. As the result of stability, economic growth should occur, and eventually economic growth supports financial system. This interaction is furtherly researched in several studies regarding the economic growth and financial development relationship. While the Balkan countries are relatively less financially stable than the rest of Europe, the motivation behind this study emerges. This study examines the performance of banking system and its impacts on economy in the sample of Balkan countries along with three different objectives.

Accordingly, the first objective of the study is to determine the banking sector's performance and the other factors affecting the economic growth in the Balkan countries. In the light of the literature, the regional dynamics are examined, and the relevant factors are determined such as human capital, trade openness, institutional quality as governmental activities, inflation, public expenditures, and investments. Nevertheless, the second objective of the study is to determine the financial stability and other factors that would affect banking performance. In the light of the literature and regional dynamics, other related factors are determined such as human capital, trade openness, economic growth, government expenditures, and investments. The third and the final objective of the study is to determine the impact of financial inclusion on banking performance, which is integrated with the second objective. The other factors are determined such as financial openness, human capital, investments, government spending and inflation rate as the indicator of macroeconomic inequilibrium. Under these three objectives, the interaction of banking system and economic development is evaluated with several econometric techniques.

The obtained data from 13 Balkan countries - Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Macedonia, Moldova, Montenegro, Romania, Serbia, Slovenia, and Turkey, are utilized in the analyses that are conducted over the period 2000–2015. As the study method, panel Random Effects, Panel Fixed Effects, panel diff GMM and panel System GMM methodologies are employed. The results of

the panel fixed effects and panel random effects model tests, the difference, and system generalized methods of moments models proposed by Arellano and Bond (1991) and Arellano and Bover (1995) are applied in one-and two-steps.

Upon evaluation of the findings obtained from the analyses, none of the panel fixed and panel random effects models are found to reveal biased results. All results contain autocorrelation and multicollinearity. Upon evaluation of the generalized method of moments analyses, it is concluded that the impact of banking sector on economic growth, which is the first objective of the study, is positive and statistically significant for the Balkan countries. Similar studies, such as Samargandi *et al.* (2014), and Cecchetti and Kharroubi (2014), have used the similar methodology to indicate the close relationship between banking performance and economic growth and confirmed positive and significant relationships.

Upon evaluation of the other variables associated with the first objective, it is concluded that human capital, investments, trade openness, and inflation have positive and significant impacts on economic growth; these concur with the findings of Law and Singh (2014), Demirguc-Kunt et al. (2015), and Zhang et al. (2015) who found the existence of an interaction between the variables and economic growth. Contrary to the findings of some studies that opposed the relationship between the variables and economic growth, Arcand et al. (2012) and Cecchetti and Kharroubi (2014) highlight the impacts of finance and growth claiming that financial development contributes to economic growth only up to a certain level and beyond that level it might affect economic growth negatively when the credit to private sector exceeds 100 percent of the GDP.

In terms of the first objective of the study, no significant impact of government spending on economic growth is detected. Similar results are also found by Law et al (2014). Certainly, almost all researchers would agree that there are conditions on which lower levels of government expenditures can boost economic growth, and other circumstances in which higher government expenditures would be detrimental. Such trade-off, which is typical for this region where some of the countries tend to increase government expenditures as part of their policies to drive the economic growth, leads to a tendency of increasing the public debt.

Upon evaluation of the analysis for the second objective, it is concluded that financial stability has a positive and statistically significant impact on the banking system performance. Similar results are also found in the studies such as Schinasi (2004) and Beck *et al.* (2014) which confirmed that it is of paramount importance to stabilize the financial sector considering its positive impact on the banking sector performance, in particular, and financial sector development, in general. Also, positive and significant impacts of human capital, economic growth, investments, and trade openness on the banking system performance are determined. Similar results are also found in the studies such as Vithessonthi (2014) and Kim et al. (2010a, 2010b) which confirmed the variables playing pivotal role on banking performance.

In compliance with the first objective of the study, no significant impact of government expenditures on economic growth was detected. Similarly, no statistically significant impact of government expenditures on the banking performance is found in terms of the second objective of the study. This result asserts that government expenditures have no means of contributing to the banking performance, and economic growth indirectly.

The analysis results for the third objective of the study are found in the same direction as the second objective. Accordingly, the impact of financial inclusion on the banking sector is statistically significant and positive. Other variables such as financial openness, human capital and investments have positive and significant impacts.

Financial system in general and financial performance in particular, as the obtained findings from this study suggest, can be more stable and have greater impact on economic growth if the financial inclusion of various entities and stakeholders, including individuals, are involved. This is especially significant for the countries in question where the share of informal sector in the economy is considered to be larger than in the rest of Europe.

Due to the importance of banking performance on economic growth, in order to increase economic activity, the outcome obtained in this research can be used by a wide range of policymakers and researchers. The positive impact on economic growth and banking performance increases the importance of financial system. Despite the

results, this research suggests that the government, the central banks and relevant financial authorities should pay more attention to certain categories such as strengthening the level of their financial stability, financial dealings, improvements in financial activities, effective monitoring, policy integration of the financial sector, and expansion of financial markets. Thus, the application of such recommendation can help avoidance of financial instability and boosting of banking performance and economic growth.

Although the results can be interesting for scholars and policymakers, this paper can be enhanced by using alternative samples and methodology. The reason behind this is that the debate regarding government expenditures, human capital, economic growth, financial openness, trade openness and financial stability is far from being settled and the question still remains for the literature review. In addition, the idea of creating a set of regulation could be included, and new estimations might be done according to this concept. It would constitute the main subject of future studies.

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PUBLICATIONS

Articles

1. Ali, Hamisu Sadi, Siong Hook Law, Zulkornain Yusop, Veton Zeqiraj, Yusuf Ibrahim Kofarmata, and Fatima Muhammad Abdulkarim. 2018. "Remittance and growth nexus: bootstrap panel granger-causality evidence from high remittance receiving countries." *International Journal of Economics and Business Research* 15 (3): 312-324. doi:10.1504/IJEBR.2018.10011592.

2. Zeqiraj, Veton, Fitor Murati, and Valon Zeqiraj. 2017. "Microfinance Institutions in Kosovo Regulation and Supervision Issues and Challenges." *Review of European Studies* 9 (4): 93-113. doi:10.5539/res.v9n4p94.