

THE CONTRIBUTION OF BANK INTERMEDIATION TO ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM CESEE COUNTRIES

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Abstract

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The financial system is the crucial supporter of economic growth, as it is said to be the “blood” of economic activities. Many studies reveal the role and importance of the financial system in promoting economic development by raising growth through the accumulation and utilization of savings for productive investments (Levine, 2005). However, some studies highlight a negative or non-significant relationship which may differ depending on the sample of countries and the applied methodology, proxy of financial development, time period, etc. Based on the relevance of the topic and on the ongoing debate, the aim of this study is to explore the nexus and contribution of banking intermediation in the economic growth of some Central Eastern and South-Eastern European (CESEE) countries for the period 2010–2020. We use regression methods, ordinary least squares (OLS), and a fixed effect model to investigate the relationship between economic growth and bank intermediation. We measure the development of banking intermediation using banks’ credit to the private sector, credit to government and state-owned enterprises. The research results show that credits provided by banks do not affect economic growth and are in fact negatively related to economic growth, whereas the return on equity is positively related to economic growth.

Keywords: Bank Intermediation, Economic Growth, Bank Credit, CESEE Countries

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1. INTRODUCTION

The relationship between financial development and economic growth has been widely examined in the literature. According to Levine (2005), financial institutions and markets contribute to economic growth through different channels. These include increasing liquidity and reducing intertemporal risk, mobilizing and aggregating savings from multiple investors, facilitating the exchange of goods and services by providing payment services, collecting and analyzing information about potential investment

enterprises and projects to allocate savings efficiently, monitoring investments and ensuring corporate governance, and diversifying assets. Each of these functions can influence decisions related to savings and investment, thus influencing economic growth. However, because of existing market frictions and changes in laws, regulations, and policies across economies and over time, improvements in each dimension may have different implications for resource allocation and overall welfare, depending on the frictions. others present in the economy.

A developed economy needs to be supported by a more consolidated financial system. The financial system is considered developed if there are sufficient financial institutions for providing financial services to the public (branches per 100,000 adults, etc.), the financial markets, and financial instruments that would help the allocation of savings in profitable investment projects of economic entities and therefore promote economic development. A developed financial market directs an economy's savings into profitable investments (Stiglitz & Weiss, 1983).

In the financial systems of developed economies, especially in developing and transition economies, the flow of funds from an economic entity with a deficit to an economic entity with a surplus is mainly realized through an indirect flow (financial intermediaries) rather than between a direct flow (financial markets). Financial intermediaries are a much more important source of financing than the securities markets even in the US (Mishkin & Eakins, 2014). This is because banking intermediation lowers transaction costs and reduces the problem of asymmetric information — adverse selection and moral hazard.

During the last decades, Central Eastern and South-Eastern European (CESEE) countries have undergone significant economic transformations, from centrally planned economies to market-oriented systems. This transition has also included changes in the financial sector, such as the liberalization of banking systems, the privatization of state-owned banks, and increased integration with global financial markets. The issue of the relationship between banking intermediation and economic growth in the context of CESEE countries is essential due to the unique characteristics of these economies, due to the fact that some economies still face specific challenges, such as structural reforms still not completed in some economies, weaknesses institutional, the process of integration with the European Union (EU) (Western Balkan countries), etc.

Banks in CESEE countries are the largest providers of credit to households and businesses, while the capital market remains generally underdeveloped. The banking sector of these countries is very similar, it is a relatively new sector, since after the 1990s the economic and financial transition changed the establishment and operation of banks in this region. Bank capital is mainly in foreign ownership. Despite the great progress made in financial development and financial deepening, CESEE financial systems are bank-basic, focusing on lending to individuals and corporate clients. Bank assets include 83–89% of financial system assets (Comunale et al., 2019), while other participants of the financial system, such as the capital market dominated by the market of state and corporate bonds, the stock market, and other non-banking financial intermediaries show a low level of development.

The research study aims to examine the impact of banking intermediation on economic growth in CESEE countries. We use an empirical approach to investigate the contribution of bank intermediation to economic growth in this region. It uses a comprehensive database obtained by World Development Indicators (WDI) for the period

2010–2021 covering 19 CESEE economies, that includes banking sector variables such as credit to the private sector which represents the flow of funds to businesses and credit to the government and state enterprises. Economic development is proxied by the annual gross domestic product (GDP) growth rate.

The findings of this study have important implications for financial institutions and policymakers. In addition, financial institutions can benefit from a deeper understanding of the relationship between banking intermediation and economic growth in the region to develop appropriate strategies for market penetration and expansion. As for policymakers, the results can be useful during the process of drafting regulatory frameworks and policies aimed at increasing banking intermediation and promoting sustainable economic growth. Overall, this study is an added value to the existing literature on the role of banks in economic growth, providing specific empirical evidence for CESEE countries.

The paper is composed of five sections. Section 1 is the introduction. Section 2 covers theoretical and empirical issues on financial development and economic growth. Section 3 describes the data and methodology applied in this study. Section 4 outlines and discusses the results of the panel analysis. Section 5 includes the summary and conclusions of the research results and also underlines some research proposals.

2. LITERATURE REVIEW

The effect and importance of the banking sector in the economic system have awakened the curiosity of many scholars and researchers to analyze the impact of banks on economic growth, to find out whether the financial system affects economic growth or whether there is interdependence between these economic categories, etc.

Numerous theoretical and empirical studies since the earliest times have studied the question of the relationship between the financial system and economic development for different economies in different periods and also using different variables and methodologies (King & Levine, 1993a; King & Levine, 1993c; King & Levine, 1993b; Levine et al., 1998; Levine et al., 2000; Giovannini et al., 2013; Kostyuk et al., 2011; Mamo et al., 2021; Al Kharusi et al., 2022; Sumaira & Bibi, 2022). The results of almost all studies show a positive correlation between the development of banking intermediation with various variables that present economic growth. King and Levine (1993a), shows that the level of financial intermediation is a good driver of long-term economic development, capital accumulation, and productivity improvement. At the same time, the size and performance of the financial system have a significant impact on economic growth (Prochniak & Wasiak, 2017). Also, the impact of financial development on economic growth depends on the level of economic development of the country (Fufa & Kim, 2018). Other researchers, such as Lucchetti et al. (2001) and Hakenes et al. (2015), have analyzed the effect of regional banks on regional and local economic development. Hakenes et al. (2015) consider that richer regions are more attractive for foreign investment due to higher initial funding and because poorer regions tend to have

only a few projects that need refinancing, in such cases, capital will flow from poor regions to developed ones. In this direction, small banks can elevate local economic development in such regions (Hakenes et al., 2015). Also, Luchetti et al. (2001) applied a methodology where they specify the growth equation which abstracts the allocative role of banks in economic growth to emphasize the influence of banks in the real sector in the regions of Italy, their empirical data highlight the existence of an independent effect shown by the efficiency of banks on real growth.

Bongini et al. (2017) investigate the impact of financial development on economic growth for the post-communist countries of the CESEE region for the period 1995-2014, focusing on the role of banks with foreign capital that have operated in this region. Their results show that credit to private cannot be said to be the catalyst of economic growth, while the role of stock markets has contributed to economic growth. We can conclude that the empirical results from the literature review are different and not definitive regarding the effect of the financial system on economic growth. These results are certainly influenced by the use of different research methods, the time frame analyzed, the data sample, the variables analyzed, etc. But, above all, the relationship between the financial system and economic growth depends on the specifics of the countries' economies as they differ from the macroeconomic environment, cyclical economic conjunctures, the level of development and financial inclusion, financial policies and regulations, etc. Asteriou and Spanos (2019) analyze the relationship between financial development and economic growth taking into account the financial crisis of 2008, they use panel data from 26 EU countries during the period 1990-2016, revealing that the financial crisis has hindered economic development, while before the financial crisis, the development finance has boosted economic growth.

For example, Guru and Ydav (2019) researched the relationship between economic development and economic growth for the largest BRIC developing economies, for the period 1993-2014 using the system generalized method of moments (SYS-GMM), whereas indicators of the banking sector they took the size of financial intermediaries, credit to deposit ratio and domestic credit to the private sector, while value of shares traded and turnover ratio as stock market indicators. Their results have shown significant differences between the analyzed economies, but in general, all indicators of the development of the banking sector and the stock market are complementary to each other in stimulating economic growth. Petkovski and Kjosevski (2014), in their analysis, which includes the transition economies of Central and South Eastern Europe, measure the impact of the banking sector on economic growth using bank credit to the private sector, interest rates, and the quasi-money ratio, they come to an interesting conclusion, that credit to the private sector and interest margin are negatively related to economic growth, while the quasi-money ratio is positively related to economic growth. Taking into account the period of analysis (1991-2011), this period includes the beginning of the economic transition process of these economies, where almost all countries at

the beginning of the transition faced the transformation of the banking system, the creation and operation of the financial sector were not at the level of proper development as a factor of a series of situations such as war, unstable political and monetary situation. It is expected that the impact of credit for the private sector on economic growth will not have a positive effect. The analyzed period also includes the financial crisis of 2008, where the restrictive monetary policies also affected the increase in the costs of private sector loans, which affected the decrease in the volume of loans. Nguyen's (2022) empirical findings also confirm the long-term positive effect of banking development on the economic growth of Vietnam's transition economy, highlighting the important role of the banking system in a typical bank-based financial system in mobilizing and supplying capital to the economy. Nguyen (2022), in his research, includes a period from 1990 to 2020, and due to economic changes during this period (transition, financial crisis, etc.), he divides the research into two periods, and it is worth noting that the periods of the crisis are 2007-2020, the results show a non-linear effect and a decreasing marginal effect of banking development.

Other studies also examine the role of economic development in banking performance. Abbas et al. (2023) explore the role of economic growth in influencing the relationship between capital, liquidity, and profitability of commercial banks in selected emerging Asian economies. They conclude that bank capital and liquidity are interdependent and determined by economic growth. However, their findings are heterogeneous for large, medium, and small banks in developing Asian economies. Skare and Porada-Rochoń (2019), analyzing the causality between financial and economic development for transition countries for the period 1991-2017, reach the conclusion that the relationship between financial development and economic growth exists in CESEE countries with unidirectional causality (Albania, Bosnia and Herzegovina, Belarus, Estonia, Macedonia, Russia, Turkey), and bi-directional spectral Granger causality (Bulgaria, Croatia, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia, Ukraine).

In general, financial development plays an essential role in promoting economic growth by mobilizing savings, allocating resources efficiently, promoting innovation, managing risks, facilitating international transactions, and promoting financial inclusion. A well-developed financial sector contributes to overall economic stability, productivity, and prosperity. However, the research reviewed shows a diversity of the impact of the financial sector on economic growth for different economies, where the effect of the financial sector on economic growth has been shown to be more important in developed and developing countries, while in underdeveloped countries and some impact of financial intermediation in developing economies is not so important, even negative in some cases. Due to the fact that the level of economic development plays a crucial role in increasing the demand for financial funds, many studies have also focused on researching the causality between financial development and economic development.

3. RESEARCH METHODOLOGY

3.1. Data

Based on the research that the structure of the development of the financial system determines the selection of financial variables in the economic development of an economy and based on the fact that most of the CESEE countries' financial systems are based on banks, the analysis includes the main indicators of the level of development of the banking system.

In order to analyse the contributions of the banks' intermediation on economic growth and their relationships, we used the yearly percent of GDP growth as a measure of economic growth as the dependent variable. GDP growth and GDP per capita growth are most widely used to establish the impact of financial sector development on economic growth (King & Levine, 1993a; Levine et al., 2000; Nguyen, 2022). According to the suggestion of Barro and Sala-i-Martin (2004), real economic growth should be related to the groups of variables that include the initial values of some variables and control variables. In our research, we have included two categories of independent variables, such as key independent variables and control variables. Key independent variables include lagged GDP, domestic credit to the private sector, credit to the government, return on assets (ROA), return on equity (ROE), and net margin profitability. Control variables include macroeconomic variables such as inflation government expenditure and trade.

Key independent variables

Lagged GDP: According to previous research (Cole et al., 2008; Lucas, 1988), the economic growth of the previous year ($t - 1$) had a positive and significant impact on the economic growth of the year (t) in developed and emerging economies, so we have taken lagged GDP growth as an independent variable that influences economic growth.

The ratio of bank credit to the private sector to GDP: Given that the asset structure of the banking sector of the CESEE countries is dominated by loans granted to the private sector and individuals, in our analysis, we have also the ratio of bank credit to the private sector to GDP, as independent variable as we think it reflects the impact of bank intermediation in the economy the best. According to Beck et al. (2012), the ratio of bank credit to the private sector is decomposed into the ratio of bank credit to private enterprises, the ratio of credit bank to households, and the ratio of bank credit to the nonfinancial sector. But, due to the lack of data on credit for households, as an independent variable, we use credit to government and state-owned enterprises as a proxy of financial development.

The ratio of banks' profitability: Based on theoretical views and empirical results (Athanasoglou et al., 2008), a profitable banking sector is necessary to promote economic growth, we have used ROA and ROE as proxies of banks' profitability.

Macroeconomic control variables

Inflation, as the yearly percentage; Government expenditure as the annual percentage change in government expenditure as a potential determinant of economic growth; Trade openness, as the sum of export and import of goods and services, are the macroeconomic control variables in this study.

Table 1. Definitions, notation, measurement, and source of variables

Variables	Notation	Measure	Data source
Dependent variable			
Gross domestic product	GDP	Annual GDP growth rate (%)	WDI
Independent variables			
Lagged gross	LGDP	Lagged annual GDP growth rate (%)	WDI
Credit to privat sector	CPE	The yearly amount of credit to the private sector (%)	WDI
Credit to government and state-owned enterprises	CGOV	The yearly amount of credit to non-financial sector (%)	WDI
Return on assets	ROA	Return on assets = Net income/Total assets	WDI
Return on equity	ROE	Return on equity = Net income/Total equity	WDI
Net interest margin	NIM	Difference between deposit and lending rates	WDI
Macroeconomic control variables			
Inflation	INF	Annual percentage changes (%)	WDI
Government expenditure	GOVEXP	Annual percentage changes in government consumption (%)	WDI
Openness to economy	TRADE	Annual percentage changes in sum of export and import (%)	WDI

3.2. Methodology

The purpose of this article is to empirically analyze the contribution of banks' intermediation in support of economic growth in the economies of CESEE countries and this is an attempt to make a contribution to the literature for CESEE countries. Different studies during the research on the effect of banking intermediation on economic growth have applied different empirical methods depending on the type of data they used and the time period of the research. The most used methods are the generalized method of moments (GMM), ordinary least squares (OLS), fixed effect model, random effect model, Granger causality, vector autoregression (VAR) approach, etc.

We use panel data from 19 CESEE countries during the period 2000–2021 to estimate the impact of financial development on economic growth. To analyse the effect of banks' intermediation in the economic growth of CESEE countries, we used the OLS method, the fixed-effect regression model that will avoid the problem of heterogeneity and allow us to control country-specific factors.

The basic fixed effect model regression is:

$$Y_{it} = \alpha_i + \beta X_{it} + \delta_t + \mu_i + \varepsilon_{it} \quad (1)$$

where, Y_{it} is the outcome variable for entity i at time t ; X_{it} is explanatory variables; α_i is an unknown intercept; δ_t is the unknown coefficient for the time regressors; μ_i is within the entity error term; ε_{it} is the overall error term.

The fixed effect model in our case is as follows:

$$GDP_{it} = \alpha_i + \beta_1 LGDP + \beta_2 CPS + \beta_3 CGOV + \beta_4 NIM + \beta_5 ROA + \beta_6 ROE + \beta_7 GOVEXP + \beta_8 INFL + \beta_9 TRADE + \delta_t + \mu_i + \varepsilon_{it} \quad (2)$$

4. RESULTS AND DATA ANALYSIS

4.1. Descriptive statistics

In this section, we present and interpret the secondary data collected from the WDI database and the results obtained from econometric analysis. The panel consists of data for 19 countries from CESEE post-socialist European countries in transition (Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Kosovo, Latvia,

Lithuania, Polonia, Montenegro, North Macedonia, Romania, Serbia, Slovak Republic, Slovenia, and Ukraine) observed annually over the 2010–2020. Table 2 provides a summary of statistics for the dependent variable, independent variable, and control variables. The result of summary statistics reveals that there is a considerable sample heterogeneity of mean values and standard deviations, this difference comes from the level of economic and financial development varies across countries included in the research. In particular, although the sample covers a 12-year period and includes a total of 19 observations, one might expect that the number of observations for which summary statistics are provided is 228, even though the panel was balanced, data were missing for some counties.

Table 2. Summary statistics

Variables	Mean	Min.	Max.	Std. Dev.	Obs.
Dependent variable					
GDP	2.362605	-15.30689	13.0722	3.454694	228
Independent variables					
LGDP	2.342847	-15.30689	13.0722	3.449394	227
CPS	49.58944	21.7776	94.6761	13.54697	207
CGOV	13.31496	1.817376	31.81655	7.362082	187
NIM	3.523733	1.499436	10.56908	1.499218	216
ROA	0.7226901	-23.88732	6.090778	2.013321	214
ROE	0.8119577	-23.80089	6.529688	2.231954	216
Control variables					
GOVEXP	17.07419	-1.809493	24.01632	4.446702	228
INFL	3.294741	-1.5841	59.21973	6.636828	228
TRADE	117.9584	59.95175	189.804	31.38102	228

4.2. Regression analysis

The purpose of the paper is to empirically analyze whether the exogenous components of banking intermediation affect economic growth. Table 3 presents the results using a robust fixed effect regression model since the model choice tests

between fixed effect, random effect, or pool OLS showed that the fixed effect model should be used for our sample. The variables that are considered to be endogenous are GDP annual growth, credit to the private sector, and credit to government and state-owned enterprises.

Table 3. Result of regression analysis

GDP annual ratio	Model 1	Model 2	Model 3
LGDP	0.0389817 (0.727)	0.1212586 (0.269)	-0.2482191** (0.022)
CPS	-0.0473285*** (0.092)	-0.0582982** (0.029)	
CGOV	-0.2120205** (0.036)	-0.2499621** (0.032)	
NIM	0.5212084** (0.027)		0.2983649 (0.231)
ROA	-5.750439* (0.003)		-7.635405* (0.002)
ROE	5.618221* (0.003)		7.718892* (0.002)
GOVEXP	-0.6060626** (0.019)	-0.6851041** (0.013)	-0.4840818** (0.026)
INFL	-0.1141678* (0.001)	-0.1097462** (0.010)	-0.0910794 (0.120)
TRADE	0.0908727** (0.014)	0.0798822** (0.034)	0.105082* (0.008)
Constant	4.002688 (0.604)	10.25244 (0.196)	-3.507662 (0.453)
Rho	0.59984084	0.59606515	0.51422576

Note: Numbers in parentheses are *p*-values for the coefficients; * $p < 0.1$; ** $p < 0.05$; *** $p > 0.001$.

The results of Table 3 reveal that credit does not accelerate economic growth. Credit to the private sector (CPS) is negatively correlated with annual growth at a significance level of 10% in Model 1, while in Model 2, the significance is at a 5%

level. Also, credit to government and state-owned enterprises (CGOV) has shown a negative relationship with economic growth at the level of 5%. These results are in line with Iwanicz-Drozdowska et al. (2019), Bongini et al. (2017), Petkovski and Kjosevski

(2014), and Koivu (2002), whose research had approximately the same countries that we included in the sample, but they were analyzed at different time periods, and different methods were used, such as the GMM. Also, our results correspond to those of Caporale et al. (2015) who have investigated the relationship between financial development and economic growth for 10 countries covering the period from 1994 to 2007 (these countries are also included in our research together with the countries of the Western Balkans) that recently joined the EU. Their results highlight that the stock and credit markets in the studied economies are underdeveloped. The negative relationship between credit to the private sector and credit to government state-owned enterprises to economic growth can also be explained by the fact that the average percentage of credits in GDP is 49.5% for *CPS* and 13.3% for *CGOV* (Table 2), which is much lower than the average of developed countries. Other causes for this result are the effects of the financial crises of 2008, 2010, and COVID-19 in 2020. The period of the pandemic in the first stages of spread has influenced the reduction of the demand for loans from individuals and businesses, and the tightening of supply conditions of banks to allow loans. Another reason for the unprofitability of loans to economic growth may be the distribution of loans in economic sectors that have a smaller contribution to GDP.

In the general model (Model 1), we also included the efficiency indicators of the financial sector such as *INM*, *ROA*, and *ROE* to analyse their impact on economic growth. According to column 2, Table 3, *NIM* is positively correlated with economic growth but is insignificant. The result is the opposite of the theory that an efficient banking sector lowers transaction costs and the spread between loan and deposit rates, but the European transition countries have been characterized by political, financial, and economic instability that has influenced credit rates to be higher. *ROE* is significant, and an increase in profitability leads to an increase in economic growth. *ROA* has a negative significant impact on economic growth at a 1% level. Additionally, control variables inflation and government spending, as expected, negatively affect economic growth and are significant, while having a significant impact on economic growth.

5. CONCLUSION

The effects of the relationship and causality between financial development and economic growth have attracted great attention in the field of economics, reflecting numerous kinds of research for many countries and regions. The nexus between banking intermediation and economic growth in the countries of CESEE also is a subject of considerable interest and importance, although few studies have been done in this direction. This region has been characterized by significant economic transformations, moving from centrally planned economies to market-oriented systems. Throughout this process, the financial system has also undergone significant transformation.

Our research focuses on the impact of banking intermediation on the economic growth of the transition countries of CESEE — the former socialist countries. The results of the regression regarding the contribution of financial intermediation to economic growth for 19 developing European transition countries for the period 2010–2021 highlight that the credits allowed for the private sector and for the public sector do not affect the promotion of economic growth. In our case, the impact of credit to the private sector and credit to the government and state-owned enterprises have a negative effect on economic growth. While *ROE*, adjusted in the model as a variable of the efficiency of the banking sector, has a significant positive impact. This result can be explained or justified by the fact that the level of financial intermediation in the economies of Southeast Europe remains relatively low, mainly based on banking intermediation, while the financial markets are underdeveloped with a low level of market capitalization. Although banks are by far the most important pillar in the financial sectors, the degree of financial permeation through assets and loans is much lower than euro area. Evidence suggests that in the transition economies of Southeast Europe, financial and credit markets are still underdeveloped and that their contribution to economic growth is limited due to a lack of financial depth, banking crises of 2008 and 2010 experienced by these economies at the beginning of the transition period and the COVID-19 pandemic affected the reduction of the effect of loans on economic growth.

Furthermore, the unique characteristics of transition economies and different levels of financial development may influence heterogeneity in the relationship between banking intermediation and economic growth across the region. Therefore, it is important to consider country-specific factors and adapt policies accordingly to maximize the positive effects of banking intermediation on economic growth.

In order to further analyze the relationship between financial intermediation and economic growth, we think that the research should also include other banking variables such as financial inclusion, conditions of access to credit, and the structure of loans in economic sectors, which is very important in terms of the contribution in the economic growth that the sectors have. Since the efficiency of the banking system is the main channel through which the financial system can exercise and play its role as a driver of economic growth, we hope that our findings are an additional contribution in this direction.

The study of the contribution of bank intermediation on growth for CESEE countries has some common challenges and limitations such as heterogeneity of economic development and financial system evolutions and development among the countries members of the European Union and emerging markets. Also, changes in banking regulation and government policies can significantly affect the relationship between bank intermediation and economic growth.

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