



UW Faculty of Management

Working Paper Series

No 1/ February 2019

**The link between economic growth and financial
development in the Europe**

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JEL Classification: G20; G32; O16; O40

Keywords: financial markets, economic development, financial institutions, banks, financial sector

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Publisher: University of Warsaw, Faculty of Management Press

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Str.: Szturmowa 1/3; 02-678 Warsaw, Poland

Telephone: +48 22 55 34 164

Fax: +48 22 55 34 001

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ISSN 2300-4371 (ONLINE)

The link between economic growth and financial development in the Europe

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Abstract

This paper shows theoretical and empirical research on the connection between financial system development and economic growth. Despite the fact that empirical studies provide a correlation between these two concepts, the results interpretation is still under scientific discussion. The theoretical part of the paper shows how other researchers describe this relationship – mostly in Europe and United States of America. The main conclusion coming from the theoretical part of the study is that the financial sector actually affects economic growth. Most of the researchers confirm that fact, however, they interpret it in few different ways. The empirical part of the paper uses Europe cross-country data from banks (taking the time frame from 2000 to 2016) to do econometric research which confirm the thesis of connection between financial system and economic growth. The results indicate which components of the financial sector affects most to economic growth. The paper also highlights areas that need additional research.

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Contents

1. Introduction	5
2. Related Literature and Hypotheses	6
3. Data and Research Methodology	10
4. Empirical Results	15
5. Conclusion	34
6. References	34

1. Introduction

This paper is an extension of my master thesis written in Polish: “Analiza związku między rozwojem sektora bankowego i wzrostem gospodarczym”. Translating the title to English: “Banking sector development and economic growth – analysis.” which is related to the title of this research.

The main research problem is whether there actually exists a connection between economic growth and the financial sector development and how this connection looks like in different European countries in the years 2000-2016.

The impact of the financial sector on economic growth has been of interest to the academic community for many years. Economists from all over the world disagree about the role of the financial sector in economic growth. On the one hand there is a statement written by Joan Robinson: “It seems to be the case that where enterprise leads finance follows.”(J. Robinson 1953). It means that finance does not cause growth, but rather follows firms that are growing. On the other hand there is Noble Price Winner Merton Miller who claims that the idea that finance contribute to economic growth is too obvious for serious discussion. (Miller 1998)

The research presented in the following paper is a part of research based on various approaches of the impact of the financial sector on economic development. The starting point, both theoretical and practical, is the work of Doctor Levin (Levine, 1997), who has been studying this topics for many years.

It is also important to realize that the results of research on this phenomenon may have a long-lasting impact both on the policy and legal regulations of the financial sector. The convincing evidence that the financial system affects long-term economic growth may cause politicians to understand that it is necessary to place great emphasis on appropriate legal and political regulations that could stimulate this growth. However, if the right amount of research indicates that the operations of the financial sector and its development is only a reaction to economic growth, it is expected that this will reduce the intensity of research on the determinants and evolution of financial systems.

The rest of the paper is organized as follows. Section 2 reviews related literature and presents hypotheses. Section 3 describes the data set and the methodology used to test hypotheses. Section 4 includes analysis of empirical results. Section 5 presents conclusions.

2. Related Literature and Hypotheses

The vast majority of studies on the impact of the financial sector on economic growth generally suggests that development of finance is positively related to economic growth. Researchers just cannot say clearly whether the financial sector influences economic growth or the reverse. literature review should start with the words of scientist Joan Robinson (J. Robinson 1952) who argue that “where enterprise leads finance follows”. Review of the literature has been collected in the next table. The table presents both theoretical and empirical studies. There are also few summary words are below the table.

1 Table Review of literature related to the topic of work

AUTHOR	DATA	CONCLUSION
<i>SCHUMPETER J.</i>	1912	Schumpeter pointed at specific function of financial intermediation – essential for economic growth and development – consisting in mobilizing savings, allocation capital, managing risk and monitoring companies
<i>ROBINSON J.</i>	1952	It seems to be the case that where enterprise leads finance follows
<i>RONDO C.</i>	1967	The author after analysis of available data from the 18 th , 19 th and early 20 th centuries, came to conclusion that in the analysed countries (Scotland, Japan, Belgium, Germany, England and Rosia) the banking sector positively influence economic growth.
<i>LUCAS R.</i>	1988	Economists overestimate the role of finance in economic growth.
<i>J. GREENWOOD I B. JOVANOWIC</i>	1989	The development of financial markets and economic growth are interdependent - economic growth provides funds to develop financial markets and financial intermediation, which in turn accelerates capital growth by supporting capital allocation

<i>KING I LEVINE</i>	1993	The authors analysed the cross-country panel data and they concluded that the indicators of the level of financial development are strongly and reliably related to economic growth.
<i>LEVINE I ZERVOS</i>	1996	The authors of the study focused on examining whether the stock market, its liquidity and capitalization could be correlated with economic growth. After analysis in 42 countries in the years 1976-1993, they concluded that the liquidity ratio on the stock exchange was positively and significantly correlated with the growth rates. Liquidity indicator on the stock exchange - is a statistically significant prognosis of economic growth, capital accumulation and productivity growth within the next 18 years.
<i>LEVINE</i>	1997	Dr. Levine, after analyzing numerous studies referring to the financial sector's influence on economic growth, concluded that the majority of empirical analyzes, including research in enterprises and public sector, shows a strong positive relationship between the functioning of the financial system and long-term economic growth.
<i>MILLER M.</i>	1998	The claim that financial markets contribute to economic growth is proposal too obvious for serious discussion
<i>R. STULTZ</i>	2000	Bank-based economies and market-based economies have separate financial structures.
<i>ROUSSEAU I WACHTEL</i>	2000	The authors of the study used data from 47 different countries in the years 1980 - 1995 and the authors concluded that the development of financial markets in the global economy may contribute to the development of the entire economy

<i>BECK I LEVINE</i>	2002	The results of the empirical study, which authors did, indicate the view that overall financial development is good or irrelevant to economic growth.
National Bank of Poland	2004	The legal environment is very important in the development of the financial sector and economic growth
<i>LEVINE R.</i>	2004	<p>Financial development occurs when financial instruments and financial intermediaries improve the effects of information, increase the discipline of financial market participants and reduce transaction costs, and in this way make it better to perform five functions:</p> <ul style="list-style-type: none"> - providing ex ante information on possible investments and capital allocation, - monitoring of investments and strengthening corporate governance, - facilitating trade in financial instruments, risk diversification and risk management, - mobilization and collecting savings, - facilitating the exchange of goods and services. <p>Each of these functions can influence decisions about saving and investments, and then on economic growth</p>
<i>MISHKIN F.S.</i>	2011	Banks operating effectively are able to improve well-being of society and influence economic growth.
<i>AYADI I INNI</i>	2013	The authors analyzed over 20 years in the countries of the Mediterranean region and concluded that loans to the private sector and bank deposits are negatively correlated with economic growth. However, on the other hand, the study proved that the size and stock market power of the market plays a large role in economic growth.

<i>CECCHETTI</i> <i>I KHARROUBI</i>	2015	The authors of this study concluded that the growth of the financial sector could be a strong brake on the increase in productivity. The authors after a thorough analysis of the data proved that the so-called financial booms can negatively affect economic development. Through this evidence, the authors express the view that there is a need to reassess the relationship of finance and real growth in today's - modern economy.
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Summing up the literature review there is a strong connection between economic growth and financial system. This relation is ambiguous and almost every study on this case can lead to different conclusion.

Some of the authors explicitly claim that the development of financial markets leads to economic growth, but on the other hand there are some researchers who are more cautious in their conclusions. This is particularly visible in studies that were written after the financial crisis.

It is true that after the financial crisis, which began in 2007, many financial systems did not have a good position, which is why more research is needed on the new situation in the financial system. In Europe, many requirements have been created for the financial sector, such as the regulations of the Basel Committee. The discussion of the issue of the Basel Committee is not a question of this research, so only one study which analyzes this topic will be presented.

In 2011 two researchers Slovik P., Cournede B. (Slovik, Cournede, 2011) after empirical research they came to the conclusion that the capital requirements imposed on banks by the Basel Committee may negatively affect economic growth. They wrote that credit margins may increase by around 15-50 basis points, while medium-term impact on economic growth is expected to range from -0.05 to -0.15 percentage points on an annual basis.

This review of research shows us that it is true that the financial system affects economic growth, however, this impact varies depending on time, place and research methods.

After the literature review, the following theses have been put forward:

1. the financial system affects economic development;
2. the banking sector plays the largest role in this impact, as a set of institutions that have the greatest impact on other participants of the financial market.

3. Data and Research Methodology

In the following paper cross-country data was used (18 countries from Europe) over a period from 2000 to 2016. The variables are taken from Global Financial Development Database (GFDD). Date of the access – July 2017. The data about economic growth is taken from Eurostat database. Variables which are used in research are described in the table 2.

2 Table Variables selected for testing

Variable abbreviation	Description of the variables	Group of variable
DEP	Deposit money banks' assets to GDP (%)	<i>Banks</i>
CBA	Central bank assets to GDP (%)	<i>Banks</i>
PCDB	Private credit by deposit money banks and other financial institutions to GDP (%)	<i>Banks</i>
BD	Bank deposits to GDP (%)	<i>Banks</i>
LIP	Life insurance premium volume to GDP (%)	<i>Insurance</i>
NLIP	Nonlife insurance premium volume to GDP (%)	<i>Insurance</i>
ICA	Insurance company assets to GDP (%)	<i>Insurance</i>
SMC	Stock market capitalization to GDP (%)	<i>Stock Market</i>
LIQUID	Liquid liabilities to GDP (%)	<i>Liquid Liabilities</i>

First four variables concern banks, next three insurance companies then one is directly related with stock market and the last one in Liquid liabilities. First eight variables are simple in description, but Liquid liabilities should be explained in more detail. As authors of the database said liquid liabilities is calculating as: *“Liquid liabilities are also known as broad money, or M3. They are the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travellers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents.”*

These 9 variables were selected after an analysis of the literature related to the topic of this following paper. The planned impact of the variables has been established on the basis of the literature and it is in correlation with the hypotheses.

The next table shows the countries from Europe selected for the study and also division into subgroups – eurozone, noneurozone, CEE countries and WE countries.

3 Table division of countries into groups

Central and Eastern Europe (CEE)	West Europe (WE)
Bulgaria	Austria
Czech Republic	Belgium
Estonia	France
Lithuania	Spain
Latvia	Netherlands
Poland	Norway
Romania	Portugal
Slovakia	United Kingdom
Hungary	Italy
Eurozone	Non-eurozone
Austria	Bulgaria
Belgium	Czech Republic
Estonia	Hungary

France	Norway
Italy	Poland
Latvia	Romania
Lithuania	United Kingdom
Netherlands	
Portugal	
Slovakia	
Spain	

The selection of countries was dictated by data availability and other research in the topic of this paper. The next table contains descriptive statistics about selected variables.

4 Table Summary descriptive statistics of key regression variables (A, B, C, D, E) and correlations of data (F)

A. DESCRIPTIVE STATISTICS in whole population									
	DEP	CBA	PCDB	BD	LIP	NLIP	ICA	SMC	LIQUID
Mean	86,97	1,1973	75,440	57,6088	2,8454	1,8040	28,5015	42,1299	70,5963
Std. Dev	42,35	2,1029	41,134	22,4157	2,7234	0,5103	28,4045	33,9199	29,0012
#observ.	286	273	286	272	287	287	262	262	282
B. DESCRIPTIVE STATISTICS in Eurozone									
Mean	96,61	1,1764	81,997	64,64	3,044	1,836	32,242	45,233	75,474
Std. Dev	39,45	1,6816	36,281	23,328	2,251	0,4892	26,324	32,184	25,481
#observ.	287	280	287	289	289	289	269	275	283
C. DESCRIPTIVE STATISTICS in Noneurozone									
Mean	72,00	1,2303	65,255	44,719	2,5297	1,7532	22,997	37,102	63,193
Std. Dev	42,41	2,6427	46,052	13,091	3,3252	0,54035	30,516	36,159	32,387
#observ.	289	283	289	273	288	288	283	277	289
D. DESCRIPTIVE STATISTICS in WE									
Mean	120,3	1,331	106,3	76,01	4,85	2,2	49,77	64,41	90,64

Std. Dev	30,8	1,743	33,13	15,43	2,547	0,3025	24,95	31,47	25,23
#observ.	288	278	282	272	287	287	279	284	288
E. DESCRIPTIVE STATISTICS in CEE									
Mean	53,1	1,0483	44,192	41,256	0,8544	1,4111	5,898	16,566	49,683
Std. Dev	19,20	2,4413	18,798	12,981	0,6159	0,3435	3,158	10,54	14,073
#observ.	287	274	287	289	289	289	272	267	283
F. Correlations in all population									
	DEP	CBA	PCDB	BD	LIP	NLIP	ICA	SMC	LIQUID
DEP	1,0000								
CBA	-0,028	1,0000							
PCDB	0,972	-0,0938	1,0000						
BD	0,825	-0,0141	0,7412	1,0000					
LIP	0,653	0,0161	0,6265	0,7120	1,0000				
NLIP	0,634	0,0231	0,6083	0,7113	0,7090	1,0000			
ICA	0,639	-0,1026	0,6243	0,7075	0,8919	0,7047	1,0000		
SMC	0,659	-0,0771	0,6635	0,6715	0,7703	0,6558	0,8081	1,0000	
LIQUID	0,817	-0,0619	0,7689	0,9888	0,7277	0,6908	0,7679	0,6964	1,0000

DEP - Deposit money banks' assets to GDP (%), CBA - Central bank assets to GDP (%), PCDB - Private credit by deposit money banks and other financial institutions to GDP (%), BD - Bank deposits to GDP (%), LIP - Life insurance premium volume to GDP (%), NLIP - Nonlife insurance premium volume to GDP (%), ICA - Insurance company assets to GDP (%), SMC - Stock market capitalization to GDP (%), LIQUID - Liquid liabilities to GDP (%)

denotes "number of", observ denotes observations

The number of observations in individual groups is not very different, therefore it is assumed that these minimal differences do not affect the results.

As can be seen, the average DEP is the highest in the group of CEE countries and the lowest in the group of WE countries. Standard deviation is the lowest in CEE countries what could indicate similarity of bank sectors within those countries. The same situation is observed with the CBA variable. There is also big Standard Deviation in CEE countries (0,7 bigger than in WE) – sectors in CEE are not as stable as in WE.

The PCBD value differs greatly between the CEE and EC countries. Western countries are characterized by a definitely larger PCBD indicator but also a larger standard deviation. Differences between the eurozone and nonurozone countries are also visible, but they are not that large. The BD indicator is the largest in Western countries, however, the largest standard deviation is recorded in the Eurozone countries. This may indicate that the size of the banking sector in countries with the Euro is the most diversified.

The next three indicators, concerning the insurance market, can be interpreted together, as the results of descriptive statistics are similar. In WE countries, the insurance market is definitely larger. The situation looks similar within eurozone - in countries with the euro currency - both the premium assigned and the size of assets of insurance companies is greater than in countries with other currencies. However, this difference is not that relevant, which may indicate that in the case of insurance indicators, the geographic location is much more significant than the currency.

In the correlation matrix, all variables appearing in the study are presented. The highest ratio has a correlation between BD and LIQUID. Looking at the results, the indicators from their groups (the first four - banking, the next three - insurance, SMC and LIQUID) are correlated with each other most strongly, and weaker with the other variables. The weakest correlation is observed with CBA, which for most variables takes values less than 0. For all variables, the absolute value of CBA is below 0.2, which may indicate that central banks in today's financial system do not have an active role in the financial sector - central banks have only regulatory functions. This is according to the literature presented.

After the statistical test, it may be argued that the CBA is the least significant variable in the study. This hypothesis will be also tested in regression.

To perform the test, the classic least-squares method will be used. Main model of regression with dummies variables reads as:

$$GDP_{i,t} = \beta_0 + \beta_1 DEP_{i,t} + \beta_2 CBA_{i,t} + \beta_3 PCBD_{i,t} + \beta_4 BD_{i,t} + \beta_5 LIP_{i,t} + \beta_6 NLIP_{i,t} + \beta_7 ICA_{i,t} + \beta_8 SMC_{i,t} + \beta_9 LIQUID_{i,t} + \beta_{10} dummies_{i,t} \quad (1)$$

Economic growth in the econometric model will be represented by GDP.

In the next chapter, the results of the above regression will be presented - at the beginning without the use of dummies and then with the use of dummies in 4 subgroups.

4. Empirical Results

The basic regression was presented in the 5th table. The tested variable is GDP. It will be also a tested variable in all next regressions.

5 Table Base regression results

Variables	Base regression
DEP	-0,0358248 (-1,111)
CBA	-0,116256* (-1,699)
PCDB	0,00189826 (0,06184)
BD	-0,298879*** (-3,360)

LIP	0,00693285
	(0,02984)
NLIP	-0,403148
	(-0,6059)
ICA	-0,0402776**
	(-2,340)
SMC	0,0576423***
	(6,118)
LIQUID	0,217506***
	(3,102)
R square	0,4674
No. Of observ.	219

All main variables are in % DEP - Deposit money banks' assets to GDP, CBA - Central bank assets to GDP, PCDB - Private credit by deposit money banks and other financial institutions to GDP, BD - Bank deposits to GDP, LIP - Life insurance premium volume to GDP, NLIP - Nonlife insurance premium volume to GDP, ICA - Insurance company assets to GDP, SMC - Stock market capitalization to GDP, LIQUID - Liquid liabilities to GDP;

*, **, *** denote significance at 10%, 5% and 1% level respectively, t-statistic are given in brackets

Table 5 presents the results of basic regression. The R square coefficient is around 47%, which allows us to think that the model is sufficiently matched. The most important variables are LIQUID, SMC and BD. The less important variable is ICA and CBA. It shows that most of the variables have an impact on economic growth. The regression coefficient related with SMC LIQUID are significantly positive, but the regression coefficient related with CBA,

BD, and ICA are significantly negative, which might suggest, that banks and insurance companies actually inhibit economic growth.

Next four tables present the results in which the population was divided into subgroups. In the following four regressions, dummy variables were used.

6 Table Regressionin with Eurozone Dummies

	1	2	3	4	5	6	7	8	9	10
EP	-0,0654*	-0,0816*	-0,0500	-0,0670*	-0,0648*	-0,0648*	-0,05157	-0,0581*	-0,0601*	-0,0630*
	*	*		*	*	*	*		*	*
	(-2,233)	(-2,324)	(-1,614)	(-2,279)	(-2,271)	(-2,155)	(-1,734)	(-1,886)	(-2,005)	(-2,254)
CBA	-0,0762	-0,10658	-0,0054	-0,0880	-0,0959	-0,0710	-0,0672	-0,0601	-0,0509	-0,1023
	(-1,067)	(-1,459)	(-0,186)	(-1,245)	(-1,343)	(-1,044)	(-0,8857)	(-0,8199)	(-0,7401)	(-1,520)
PCDB	0,0201	0,0221	0,0074	0,0152	0,0194	0,0191	0,0075	0,0093	0,0129	0,0172e
	(0,7402)	(0,8374)	(0,2765)	(0,55)	(0,7361)	(0,6909)	(0,2774)	(0,3323)	(0,4758)	(0,6742)
BD	-0,237**	-0,2072*	-0,229**	-0,2216*	-0,245**	-0,2533*	-0,260**	-0,299**	-0,291**	-0,233**
	*	*	*	*	*	*	*	*	*	*
	(-2,986)	(-2,131)	(-2,947)	(-2,213)	(-3,174)	(-2,498)	(-3,094)	(-2,687)	(-2,962)	(-2,901)
LIP	-0,04856	-0,0583	-0,0346	-0,0535	-0,0489	0,1280	-0,0399	-0,0473	-0,0684	-0,0506
	(-0,2050)	(-0,2575)	(-0,1644)	(-0,2307)	(-0,2122)	(0,2716)	(-0,1595)	(-0,1940)	(-0,2866)	(-0,2243)
NLIP	-0,3494	-0,4156	-0,2487	-0,3602	-0,3105	-0,3221	0,8011	-0,3173	-0,3001	-0,2739
	(-0,6102)	(-0,7574)	(-0,4321)	(-0,6399)	(-0,5323)	(-0,5682)	(1,596)	(-0,5196)	(-0,5192)	(-0,4694)
ICA	-0,048**	-0,0439*	-0,048**	-0,045**	-0,049**	-0,048**	-0,046**	-0,0009	-0,050**	-0,050**
	*	*	*	*	*	*	*		*	*
	(-2,795)	(-2,535)	(-3,128)	(-2,624)	(-2,829)	(-2,854)	(-2,616)	(-0,02370	(-2,938)	(-2,924)

SMC	0,0587**	0,0564**	0,0579**	0,0574**	0,0578**	0,0591**	0,0607**	0,0617**	0,1000**	0,0579**
	*	*	*	*	*	*	*	*	*	*
	(6,027)	(5,298)	(5,905)	(5,274)	(5,783)	(5,924)	(5,944)	(5,616)	(3,524)	(5,932)
LIQUID	0,1673**	0,1380	0,1545**	0,1515*	0,1570**	0,1813**	0,1865**	0,2261**	0,2182**	0,1369*
	(2,327)	(1,574)	(2,151)	(1,662)	(2,069)	(1,986)	(2,456)	(2,184)	(2,42)	(1,765)
Eurozone	2,0900**	0,9219	2,3189**	1,6209*	1,0423	2,3739**	5,0458**	2,8152**	3,2238**	0,4293
Dummies	*		*			*	*	*	*	
	(3,349)	(0,7664)	(3,652)	(1,868)	(0,8693)	(3,692)	(3,301)	(5,077)	(4,366)	(0,3089)
DEP*Euro		0,0178								
		(0,8513)								
CBA*Euro			-0,2647							
			(-1,580)							
PCDB*Euro				0,0083						
				(0,4336)						
BD*Euro					0,0222					
					(0,9301)					
LIP*Euro						-0,1868				
						(-0,4397)				
NLIP*Euro							-1,7878*			
							(-1,824)			

ICA*Euro								-0,0550		
								(-1,410)		
SMC*Euro									-0,0420*	
									(-1,914)	
LIQUID*Euro										0,0306
										(1,363)
R square	0,5119	0,5147	0,5158	0,5126	0,5130	0,5122	0,5183	0,5163	0,5181	0,5143
No. Of observ.	219	219	219	219	219	219	219	219	219	219

All main variables are in %, number 1-10 are every next regression where 1 is basic and every next step contains next dummies variable (following the table), DEP - Deposit money banks' assets to GDP, CBA - Central bank assets to GDP, PCDB - Private credit by deposit money banks and other financial institutions to GDP, BD - Bank deposits to GDP, LIP - Life insurance premium volume to GDP, NLIP - Nonlife insurance premium volume to GDP, ICA - Insurance company assets to GDP, SMC - Stock market capitalization to GDP, LIQUID - Liquid liabilities to GDP;

*, **, *** denote significance at 10%, 5% and 1% level respectively, t-statistic are given in brackets

7 Table Regression with noneurozone dummies

	1	2	3	4	5	6	7	8	9	10
DEP	-0,0654**	-0,063**	-0,0500	-0,0670**	-0,0648**	-0,0648**	-0,05157*	-0,0581*	-0,0601**	-0,0630**

	(-2,233)	(-2,370)	(-1,614)	(-2,279)	(-2,271)	(-2,155)	(-1,734)	(-1,886)	(-2,005)	(-2,254)
CBA	-0,0762	-0,1065	-0,2702*	-0,0880	-0,0959	-0,0710	-0,0672	-0,0601	-0,0509	-0,1023
	(-1,067)	(-1,459)	(-1,808)	(-1,245)	(-1,343)	(-1,044)	(-0,8857)	(-0,8199)	(-0,7401)	(-1,520)
PCDB	0,02011	0,0221	0,0074	0,0236	0,0194	0,0191	0,0075	0,0093	0,0129	0,0172
	(0,7402)	(0,8374)	(0,2765)	(0,807)	(0,7361)	(0,6909)	(0,2774)	(0,3323)	(0,4758)	(0,6742)
BD	-0,237***	-0,207**	-0,229***	-0,2216**	-0,223***	-0,2533**	-0,260***	-0,299***	-0,291***	-0,233***
	(-2,986)	(-2,131)	(-2,947)	(-2,213)	(-2,583)	(-2,498)	(-3,094)	(-2,687)	(-2,962)	(-2,901)
LIP	-0,0485	-0,0583	-0,0346	-0,0535	-0,0489	-0,0588	-0,0399	-0,0473	-0,0684	-0,0506
	(-0,2050)	(-0,2575)	(-0,1644)	(-0,2307)	(-0,2122)	(-0,2462)	(-0,1595)	(-0,1940)	(-0,2866)	(-0,2243)
NLIP	-0,3494	-0,4156	-0,2487	-0,3602	-0,3105	-0,3221	-0,9867	-0,3173	-0,3001	-0,2739
	(-0,6102)	(-0,7574)	(-0,4321)	(-0,6399)	(-0,5323)	(-0,5682)	(-1,164)	(-0,5196)	(-0,5192)	(-0,4694)
ICA	-0,048***	-0,043**	-0,048***	-0,045***	-0,049***	-0,048***	-0,046***	-0,055***	-0,050***	-0,050***
	(-2,795)	(-2,535)	(-3,128)	(-2,624)	(-2,829)	(-2,854)	(-2,616)	(-3,019)	(-2,938)	(-2,924)
SMC	0,0587***	0,056***	0,0579***	0,0574***	0,0578***	0,0591***	0,0607***	0,0617***	0,058***	0,0572***

	(6,027)	(5,298)	(5,905)	(5,274)	(5,783)	(5,924)	(5,944)	(5,616)	(6,369)	(5,932)
LIQUID	0,1673**	0,1380	0,1545**	0,15153*	0,1570**	0,1813**	0,1865**	0,2261**	0,21823**	0,1676**
	(2,327)	(1,574)	(2,151)	(1,662)	(2,069)	(1,986)	(2,456)	(2,184)	(2,42)	(2,337)
Noneurozone e Dummies	-2,09***	-0,9219	-2,318***	-1,6209*	-1,04238	-2,373***	-5,045***	-2,815***	-3,223***	-0,4293
	(-3,349)	(-0,7664)	(-3,652)	(-1,868)	(-0,8693)	(-3,692)	(-3,301)	(-5,077)	(-4,366)	(-0,3089)
DEP*NonE		-0,0178								
		(-0,8513)								
CBA* NonE			0,2647							
			(1,58)							
PCDB* NonE				-0,0083						
				(-0,4336)						
BD* NonE					-0,0222					
					(-0,9301)					

LIP* NonE						0,1868				
						(0,4397)				
NLIP* NonE							1,7878*			
							(1,824)			
ICA* NonE								0,0550		
								(1,41)		
SMC*Noneur ozone									0,0420*	
									(1,914)	
LIQUID* NonE										-0,0306
										(-1,363)
R square	0,5119	0,5147	0,5158	0,5126	0,5130	0,5122	0,5183	0,5163	0,5181	0,5143

No. Of observ.	219	219	219	219	219	219	219	219	219	219
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All main variables are in %, number 1-10 are every next regression where 1 is basic and every next step contains next dummies variable (following the table), DEP - Deposit money banks' assets to GDP, CBA - Central bank assets to GDP, PCDB - Private credit by deposit money banks and other financial institutions to GDP, BD - Bank deposits to GDP, LIP - Life insurance premium volume to GDP, NLIP - Nonlife insurance premium volume to GDP, ICA - Insurance company assets to GDP, SMC - Stock market capitalization to GDP, LIQUID - Liquid liabilities to GDP;

*, **, *** denote significance at 10%, 5% and 1% level respectively, t-statistic are given in brackets

8 Table Regression with CEE dummies

	1	2	3	4	5	6	7	8	9	10
DEP	-0,0359 (-1,140)	-0,0230 (-0,9223)	-0,0154 (-0,5492)	-0,0372 (-1,321)	-0,0345 (-1,253)	-0,0263 (-0,9018)	-0,0343 (-1,087)	-0,0152 (-0,5440)	-0,0357 (-1,128)	-0,0364 (-1,292)
CBA	-0,1665* (-1,881)	-0,237** (-2,885) *	-0,421** (-3,392) *	-0,211** (-2,718) *	-0,187** (-2,633) *	-0,1670 (-1,639)	-0,1821* (-2,001) *	-0,208** (-2,150)	-0,165* (-1,906)	-0,181** (-2,686) *
PCDB	-0,0126	-0,0074	-0,0318	0,0038	-0,0092	-0,0232	-0,0151	-0,0310	-0,0128	-0,0078

	(-0,4582)	(-0,3460)	(-1,313)	(0,1554)	(-0,4047)	(-0,8924)	(-0,5466)	(-1,249)	(-0,4649)	(-0,3352)
BD	-0,335***	-0,224**	-0,335** *	-0,282** *	-0,1701	-0,2544**	-0,354** *	-0,1804*	-0,338** *	-0,2373* *
	(-3,425)	(-2,199)	(-3,486)	(-2,906)	(-1,313)	(-2,234)	(-4,215)	(-1,847)	(-3,129)	(-2,051)
LIP	-0,1547	-0,0385	-0,1575	-0,0944	0,0202	-0,0113	-0,1782	0,0625	-0,1657	-0,0265
	(-0,7418)	(-0,2485)	(-0,8895)	(-0,6086)	(0,114)	(-0,05080)	(-0,8959)	(0,2812)	(-0,7665)	(-0,1546)
NLIP	-1,2803*	-0,7709	-1,3419*	-0,9429	-0,2017	-1,1724*	-1,8595* *	-0,9327	-1,3075*	-0,3842
	(-1,832)	(-1,014)	(-1,867)	(-1,197)	(-0,2079)	(-1,747)	(-2,424)	(-1,293)	(-1,700)	(-0,3949)
ICA	-0,0541=** *	-0,046** *	-0,057** *	-0,047** *	-0,055** *	-0,058***	-0,053** *	-0,057** *	-0,053** *	-0,056** *
	(-2,694)	(-3,648)	(-2,945)	(-3,488)	(-3,340)	(-2,934)	(-2,668)	(-3,126)	(-2,693)	(-3,298)
SMC	0,0577***	0,0490** *	0,0566** *	0,0519** *	0,0498** *	0,0574***	0,0583** *	0,0551** *	0,0569** *	0,0521** *

	(7,545)	(6,922)	(7,91)	(7,854)	(5,332)	(6,399)	(8,128)	(6,403)	(10,31)	(5,569)
LIQUID	0,2519***	0,1669**	0,2462** *	0,2119** *	0,1383	0,1902**	0,2651** *	0,135	0,2539** *	0,1902**
	(3,109)	(2,074)	(3,075)	(2,758)	(1,351)	(1,985)	(3,681)	(1,642)	(2,853)	(2,073)
CEE Dummies	-2,8806**	3,8808	-3,534** *	1,5752	4,6855	-0,8142	-5,0563	2,0993	-3,1082	3,7061
	(-2,235)	(1,498)	(-2,805)	(0,6922)	(1,282)	(-0,3647)	(-1,600)	(0,8259)	(-1,509)	(0,9513)
DEP*CEE		-0,080** *								
		(-2,865)								
CBA*CEE			0,3296** (2,474)							
PCDB*CEE				-0,0644* *						
				(-2,333)						

BD*CEE	-0,1148*			
	*			
	(-2,461)			
LIP*CEE		-1,1686		
		(-1,527)		
NLIP*CEE			1,0298	
			(0,7622)	
ICA*CEE			-0,4708*	
			*	
			(-2,566)	
SMC*CEE				0,0087
				(0,2004)
LIQUID*CEE				-0,0902*
				*
				(-2,016)

R square	0,4857	0,5266	0,4915	0,5142	0,5082	0,4966	0,4869	0,5285	0,4859	0,5056
No. Of observ.	219	219	219	219	219	219	219	219	219	219

All main variables are in %, number 1-10 are every next regression where 1 is basic and every next step contains next dummies variable (following the table), DEP - Deposit money banks' assets to GDP, CBA - Central bank assets to GDP, PCDB - Private credit by deposit money banks and other financial institutions to GDP, BD - Bank deposits to GDP, LIP - Life insurance premium volume to GDP, NLIP - Nonlife insurance premium volume to GDP, ICA - Insurance company assets to GDP, SMC - Stock market capitalization to GDP, LIQUID - Liquid liabilities to GDP;

*, **, *** denote significance at 10%, 5% and 1% level respectively, t-statistic are given in brackets

9 Table Regression with WE dummies

	1	2	3	4	5	6	7	8	9	10
DEP	-0,0359	-0,103***	-0,0154	-0,0372	-0,0345	-0,0263	-0,0343	-0,0152	-0,0357	-0,0364
	(-1,140)	(-2,854)	(-0,5492)	(-1,321)	(-1,253)	(-0,9018)	(-1,087)	(-0,5440)	(0,2593)	(0,1964)
CBA	-0,1665*	-0,237***	-0,0919	-0,211***	-0,187***	-0,1670	-0,1821**	-0,2082**	-0,1658*	-0,180***
	(-1,881)	(-2,885)	(-1,521)	(-2,718)	(-2,633)	(-1,639)	(-2,001)	(-2,150)	(-1,906)	(-2,686)

PCDB	-0,0126	-0,0074	-0,0318	-0,0606*	-0,0092	-0,0232	-0,0151	-0,0310	-0,0128	-0,0078
	(-0,4582)	(-0,3460)	(-1,313)	(-1,775)	(-0,4047)	(-0,8924)	(-0,5466)	(-1,249)	(-0,4649)	(-0,3352)
BD	-0,335***	-0,2249**	-0,335***	-0,282***	-0,1701	-0,2544**	-0,354***	-0,1804*	-0,338***	-0,2373**
	(-3,425)	(-2,199)	(-3,486)	(-2,906)	(-1,313)	(-2,234)	(-4,215)	(-1,847)	(-3,129)	(-2,051)
LIP	-0,15473	-0,0385	-0,1575	-0,0944	0,0202	-1,1799	-0,1782	0,0625	-0,1657	-0,0265
	(-0,7418)	(-0,2485)	(-0,8895)	(-0,6086)	(0,114)	(-1,596)	(-0,8959)	(0,2812)	(-0,7665)	(-0,1546)
NLIP	-1,2803*	-0,7709	-1,3419*	-0,9429	-0,2017	-1,1724*	-1,8595**	-0,932781	-1,3075*	-0,3842
	(-1,832)	(-1,014)	(-1,867)	(-1,197)	(-0,2079)	(-1,747)	(-2,424)	(-1,293)	(-1,700)	(-0,3949)
ICA	-0,054***	-0,046***	-0,057***	-0,047***	-0,055***	-0,058***	-0,053***	-0,528***	-0,053***	-0,056***
	(-2,694)	(-3,648)	(-2,945)	(-3,488)	(-3,340)	(-2,934)	(-2,668)	(-2,910)	(-2,693)	(-3,298)
SMC	0,0577***	0,0490***	0,0566***	0,0519***	0,0498***	0,057***	0,0583***	0,055***	0,0656	0,0521***
	(7,545)	(6,922)	(7,91)	(7,854)	(5,332)	(6,399)	(8,128)	(6,403)	(1,463)	(5,569)
LIQUID	0,251***	0,1669**	0,2462***	0,2119***	0,1383	0,1902**	0,265***	0,135	0,2539***	0,1000
	(3,109)	(2,074)	(3,075)	(2,758)	(1,351)	(1,985)	(3,681)	(1,642)	(2,853)	(0,7693)

WE Dummies	2,8806**	-3,8808	3,5343***	-1,5752	-4,6855	0,8142	5,0563	-2,0993	3,1082	-3,7061
	(2,235)	(-1,498)	(2,805)	(-0,6922)	(-1,282)	(0,3647)	(1,6)	(-0,8259)	(1,509)	(-0,9513)
DEP*WE		0,080***								
		(2,865)								
CBA*WE			-0,3296**							
			(-2,474)							
PCDB*WE				0,0644**						
				(2,333)						
BD*WE					-0,1148**					
					(-2,461)					
LIP*WE						1,1686				
						(1,527)				
NLIP*WE							1,0293			
							(0,7622)			

ICA*WE								0,4708**		
								(2,566)		
SMC*WE									-0,0087	
									(-0,2004)	
LIQUID*WE										0,0902**
										(2,016)
R square	0,4857	0,5266	0,4915	0,5142	0,5082	0,4966	0,4869	0,5285	0,4859	0,5056
No. Of observ.	219	219	219	219	219	219	219	219	219	219

All main variables are in %, number 1-10 are every next regression where 1 is basic and every next step contains next dummies variable (following the table), DEP - Deposit money banks' assets to GDP, CBA - Central bank assets to GDP, PCDB - Private credit by deposit money banks and other financial institutions to GDP, BD - Bank deposits to GDP, LIP - Life insurance premium volume to GDP, NLIP - Nonlife insurance premium volume to GDP, ICA - Insurance company assets to GDP, SMC - Stock market capitalization to GDP, LIQUID - Liquid liabilities to GDP;

*, **, *** denote significance at 10%, 5% and 1% level respectively, t-statistic are given in brackets

Looking at Table 6, there are following conclusions. In the euro area countries, the results are different in relation to the whole population. In these countries, the NLIP variable is statistically significant and negatively affects economic growth. In the whole population, this variable was statistically insignificant. The second statistically significant variable is SMC. In the whole population, this variable was also statistically significant, however, in the Eurozone countries this effect is the opposite. In the entire population the variable SMC has a positive impact, while in the countries of the Eurozone it has a negative impact.

Next table presents variables in countries outside the euro area. In countries where are different currencies, two variables are statistically significant: NLIP and SMC. The first of these has a positive impact on economic growth, while in the entire population this impact was irrelevant. Looking at the variable SMC, there is an observation that in the Noneurozone Countries it also has a positive effect on GDP. There could be a similar conclusion to the whole population, where the variable has also a positive impact, but it was stronger.

Table 8 shows the regression in the CEE countries and it is possible to draw the following conclusions. The DEP variable has the biggest impact on economic growth. The CBA, PCBD, BD, ICA, LIQUID variables have a smaller impact, but it is still strong. The impact of the DEP variable is strong and negative both in the entire population and in the CEE countries. The CBA in the whole population has a strong negative impact on GDP, while in the CEE countries this indicator has a positive and not so strong impact on economic growth. The PCBD variable in the whole population is statistically insignificant, but in the CEE countries it has a negative effect on economic growth. The BD variable in the entire population of countries is insignificant statistical, when in CEE countries it has a strong negative effect on GDP. ICA in the whole population has a strong negative impact on economic growth and similar conclusions can be drawn from the study of this variable in the CEE countries. The last statistically significant variable – LIQUID as positively influences on GDP in the whole population, and in CEE countries the impact is also strong, but negative.

The last 9 table shows regression in EC countries. The most significant statistic is the DEP variable. The smaller impact on economic growth, but also strong, has variable: CBA, PCBD, BD, ICA and LIQUID. The impact of the DEP variable is very strong both in the whole population and in western countries. The difference is that in the whole population this

influence is negative, while in EC countries it is positive. CBA is a statistically insignificant variable in the whole population, and in EC countries this variable has a strong negative impact on economic growth. PCBD has a small, negative impact on the variable in the entire population, while in Western countries this influence is strong and positive. The BD variable in the whole population is statistically insignificant, while in the EC countries the variable has a negative impact on economic growth. ICA in the whole population has a very strong negative impact on GDP, while in Western countries this influence is smaller and positive. The LIQUID variable is statistically insignificant in the whole population, but in EC countries this variable has a strong positive impact on economic growth.

Summing up the results of regression, there is a conclusion that division in the subgroups was a good choice, thanks to which the studied phenomenon was better described. Table 2 presents 4 groups of indicators that were supposed to reflect the financial market as a whole and during the study the indicator from each group turned out to be statistically significant in at least one of the groups of countries. There are indications that the appropriate variables have been chosen there are indications that the appropriate variables have been chosen, so that there is a possibility to try to answer the research hypotheses that were presented at the beginning of the study, and the auxiliary hypothesis that appeared under table 4.

Definitely the first hypothesis can be confirmed, because the first regression (table 5) shows described correlation, and subsequent regressions only confirm the fact, that the financial system affects economic development.

The second hypothesis is more difficult to confirm or reject. After the regressions it is difficult to provide an unambiguous answer. In basic regression and in the last two banking variables were significantly correlated with economic growth, sometimes were the most important variables, however it cannot be overlooked that in regression with the use of euro / Noneurozone dummies these variables were irrelevant.

Therefore, the second hypothesis was rejected, because banks play a big role in the impact on economic growth, but after econometric analysis it is impossible to state clearly whether this impact is the most important in the entire financial sector.

It is also not true that the variable CBA is irrelevant in the study. This is shown in the table 8. Summing up, all the variables used in the study seem to be important in the study of the impact of the financial sector on economic growth.

5. Conclusion

The research used a cross-country data from 18 European countries in the years 2000-2016.

The correlation between the banking sector and economic growth has been proven in the above work, however, one must also be aware that this impact has not been explained in a way that would end these considerations. The factors that explain the phenomenon were studied and those which are much less important are indicated. Such a result of research is also similar to the approach of many other researchers who over the past years have been concerned with this problem – table 1.

According to the research, the 2007 financial crisis has had a major impact on the financial sector in recent years. For this reason, the next step in the study of the connection between the financial sector and economic growth should be an analysis that would take into consideration legal regulations concerning both the banking sector and the financial sector.

Nowadays, such an analysis would be difficult due to the fact that less than ten years have passed since the end of the last financial crisis, which is an insufficient time to draw any correct conclusions.. In addition, the problem require constant change in law, specifically in the field of regulation of the financial sector. Basel II and Basel III regulations are constantly being implemented and it would be almost impossible to think about immutability in law and politics in this area over the next few years. It could slowdown research and distort possible outcomes.

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