sciendo

The impact of financial systems on economic growth in European Union member countries

Ela-Andrada PUȘCAȘU*
Bucharest University of Economic Studies, Bucharest, Romania
**Corresponding author, puscasuela15@stud.ase.ro*

Abstract. *As the economy develops, self-financed capital investments are less frequent, being replaced by financing through banking intermediation and later through capital markets. The development of financial systems has a positive effect on the mobilization of resources, improving corporate governance and risk management, leading to economic growth. The preponderance of previous research papers shows a positive relationship between financial development and economic growth. Studies using cross-sectional methodologies discover almost unanimously a positive link between financial development and economic growth, while studies with methodologies based on time series, panel data or case studies reach different conclusions depending on the period considered, the countries' initial level of development and the structure of the financial systems. The purpose of this paper is to investigate the impact of financial systems on economic growth using panel regressions based on annual data regarding measures of financial development for the member countries of the European Union, for the period 1990-2020. The findings show that the development of the financial systems, through the activity of banks and capital markets, has a positive effect on the allocation of resources, the mobilization of savings and the efficient management of risks, leading in turn to economic growth if there is a correlation between the funds invested and the output of the real sector. The paper's contribution to the field refers to the study of the long-term relations between the financial systems and the economic growth using data for all European Union countries, the findings helping to formulate public policies.*

Keywords: financial systems, economic growth, European Union, banking sector, capital market.

Introduction

In the context of globalization and the emergence of market economies, the development and interaction of financial systems are increasing, supporting the exchange of funds between participating institutions, investors and borrowers. The financial system has roles related to the real economy, such as the intermediation between individuals and households on one side and businesses on the other side.

A system refers to a complex group of institutions, agents, markets, transactions, procedures, receivables and liabilities closely related within an economy. The main components of the financial system are: financial institutions (banks, insurance companies, mutual funds, pension funds, etc.), financial markets (including the money market, the capital market, the foreign exchange market), financial instruments (financial assets or securities), financial services and financial resources (Dragota et al., 2009). In this respect, 'the financial system represents a set of financial institutions, as well as the relations between them' (Dragota et al, 2008).

Figure 1. presents the main indicators of the financial system as GDP percentage, referring to the banking sector and the stock market, for the European Union and Romania. As it can be seen, the financial system of Romania is less developed than the average system of European Union countries, each indicator having lower values in Romania compared to the EU average.

DOI: 10.2478/picbe-2022-0068
© 2022 E.-A. Puşcaşu, published by Sciendo.
This work is licensed under the Creative Commons Attribution 4.0 License.

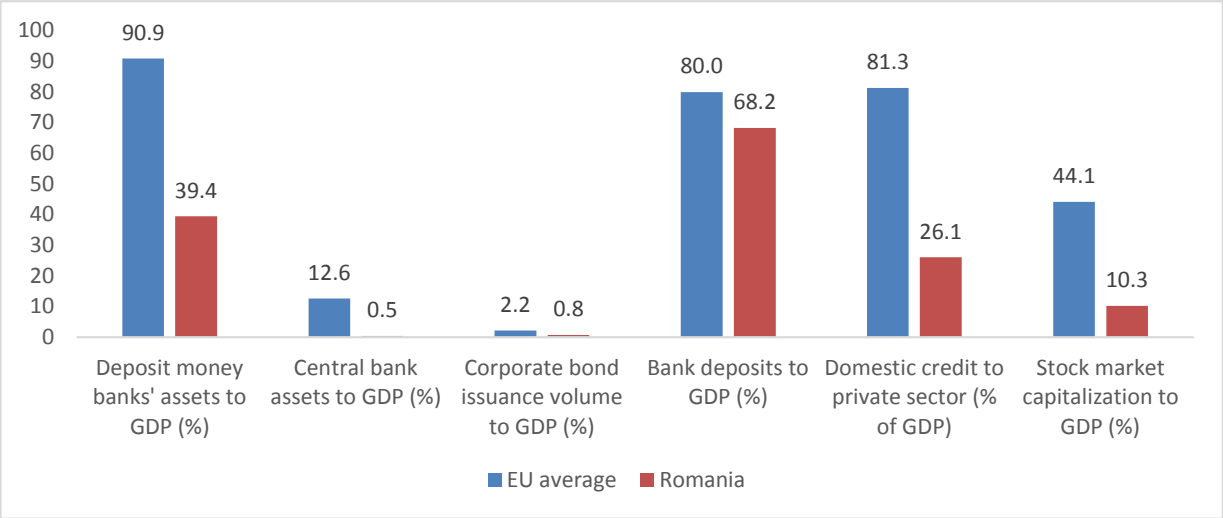


Figure 1: The main indicators of financial systems (2020)

Source: Global Financial Development Database - World Bank.

This research investigates the impact of financial systems on economic growth using panel regressions for the member countries of the European Union, for the period 1990-2020. Further on, the paper presents the current state of the scientific literature regarding the relationship between the financial systems and economic growth, the database and methodology used in the empirical analysis, as well as the main findings of the research.

Literature review

In this chapter, the paper will focus on recent empirical studies and their results regarding the impact of financial systems on the economic growth of a state, as a whole or in structure.

The research papers in the scientific literature studying the link between the development of financial systems and economic growth, have different opinions on the effect of one on the other, their causality and interdependence. However, the preponderance of theoretical reasoning and empirical evidence shows a first-order positive relation between financial development and economic growth (Levine, 1997), the development of the financial system stimulating economic growth (Demirgüç-Kunt & Levine, 1996). Also, the level of financial development, especially of the stock market, is a good indicator that can anticipate future growth rates, the level of capital accumulation and technological changes (Idem).

As the economy of a country develops, self-financed capital investments are less frequent and are replaced by financing through banking intermediation and later by the emergence of capital markets, being an additional tool for obtaining increased external funds. The mix of financial markets and intermediaries that make up the financial structure undergoes changes with the development of a country (Demirgüç-Kunt & Levine, 1996). However, this doesn't refer to completely replacing financing through financial institutions with funding through securities available on the capital markets, but only reducing the frequency of use of these methods among households or firms. Capital markets have important roles even in economies with a well-developed banking sector because financing by attracting new capital and financing through debt is not perfectly substitutable (Demirgüç-Kunt & Maksimovic, 1996), each individual or company choosing its optimal structure.

In 2004, Levine studied previous theoretical and empirical research papers on the relation between the functioning of the financial system and economic growth where, although they are subject to compensatory opinions, the preponderance of evidence suggests that both financial intermediaries and capital markets have a significant impact on growth, reverse causality not being possible. The research also points out that different methodologies and econometric approaches lead to different results and conclusions.

Based on Levine's findings, as well as the results of other similar research (Asteriou & Spanos, 2019; Azman-Saini et al, 2010; King & Levine, 1993; Levine & Zervos, 1996), studies involving cross-sectional methodologies reach similar conclusions and almost unanimously discover a positive relationship between the level of financial development and economic growth.

At the same time, to address some of the issues of previous studies, numerous research papers use methodologies that include time series, panel data or country-specific case studies. For these methodologies, the findings differ significantly depending on the period analyzed, the development of the selected countries and the structure of the financial systems, but the preponderance of studies supports, as in the case of cross-sectional data, a positive impact of financial systems on economic growth in certain periods or countries (Arestis et al., 2001; Bumann et al., 2013; Demetriades, 1996; Kandil et al, 2017).

Masoud and Hardaker (2012) provide an empirical analysis on the effect of the stock markets' development on the economic growth rate in emerging markets, carried out using an endogenous growth model that suggests that stock market development can influence the economic growth rate through improving the capital accumulation, the productivity of capital investments and the mobilization of capital. The results indicate that the stock market had a significant role in emerging markets, influencing economic growth, along with indicators of the banking sector's development.

Ductor and Grechyna (2015) assess the interdependence between financial development and production of the real sector and their effect on economic growth based on a data panel of 101 countries for the period 1970-2010. The results show that if there is a balance between the growth rates of the financial sector and the real sector, there is a positive effect of financial development on economic growth. If the growth rates of the two sectors are disproportionate, this increased effect is low or may lead to negative effects.

In recent scientific literature, empirical studies distance themselves from the constraints of a linear relation and increasingly examine the possibility of a nonlinear relationship. Mainly, the variables taken into account include the different initial levels of country development, their level of income, as well as the structure of the financial system.

For this, Rioja and Valev (2004) show that the financial system stimulates economic growth in rich countries mainly by accelerating productivity growth, while in poor countries they encourage economic growth by accelerating the accumulation of capital. Rousseau and Wachtel (2002) show that the positive impact of financial development on economic growth is reduced on higher inflation rates. At the same time, the research results of Egert and Jawadi (2018) indicate that the financial sector has a higher positive effect on the economic growth rate in developed countries, compared to a lower positive impact in countries with less commercial openness due to reduced access to alternative funding sources.

Rousseau and Wachtel (2006) empirically demonstrate based on panel data that the relationship between the financial system and economic growth is not as strong in recent years, as it was shown in initial studies in the 1980s-1990s, the decrease being determined by frequent financial crises after the 1990s. Also, Asteriou and Spanos (2019) empirically show that before the

2008 financial crisis, financial development encouraged economic growth, while during the financial crisis and afterwards the impact of financial development on economic growth was negative in EU countries.

Regarding the structure of the financial systems, numerous research papers are indicating that there is no difference between the impact of bank-based and capital market-based systems on economic growth, since the overall level of financial development matters (Domowitz et al., 2004; Schmukler and Vesperoni, 2004). This perspective is based on the complementarity between the capital market and the banking sector in the provision of financial services, a conclusion also supported by Masoud and Hardaker (2012) and by Egert and Jawadi (2018). Differently, several articles are in favor of a financial structure based on the banking system (Bencivenga and Smith, 1991; Stulz, 2000) or based on the capital market (Levine, 1997).

The scientific literature presents different research papers studying the relationship between financial systems and economic growth in certain countries or for different periods, their preponderance documenting a positive direct from the functioning of the financial systems to the economic growth. The paper's contribution to the field refers to studying the long-term relations between the financial systems and the economic growth using a panel data regression model including all European Union member countries, results that could help formulate public policies.

Methodology

The data set includes annual data for the member states of the European Union for the period 1990-2020. The financial development variables (DMB, LLB, PRIV, CAP, SMT) were extracted from the Global Financial Development Database of the World Bank and the macroeconomic variables (GDPG, GDPCG, INFL, FDI, OCOM) were collected from databases provided by World Bank.

The variables considered in the empirical analysis are presented in table 1.

Table 1: List of variables

Symbol	Name	Description
Dependent variables		
GDPG	Annual GDP growth rate (%)	Annual percentage growth rate of GDP at market prices based on constant local currency.
GDPCG	Annual GDP per capita growth rate (%)	Annual percentage growth rate of GDP per capita based on constant local currency.
Independent variables		
DMB	Deposit money bank assets to deposit money bank assets and central bank assets (%)	Captures the advantage of financial intermediaries in performing the functions of financial systems (i.e. channeling savings to investments, monitoring firms, influencing corporate governance, management of risks).
LLB	Liquid liabilities to GDP (%)	The primary indicator used to measure the size of financial intermediation relative to the economy, including three types of financial institutions: the central bank, deposit banks and other financial institutions.
PRIV	Private credit by deposit money banks to GDP (%)	Shows the directing of resource surpluses towards the financing of production, consumption and capital formation, which in turn affects economic activity.
CAP	Stock market capitalization to GDP (%)	Captures the size of the economy's stock market
SMT	Stock market turnover ratio (%)	A measure of stock market liquidity.
INFL	Annual inflation rate (%)	Used as a proxy for macroeconomic stability

Symbol	Name	Description
FDI	Foreign direct investment, net inflows (% of GDP)	The main channel for transmitting financial development to economic growth
OCOM	Trade openness as a percentage of GDP (%)	Measures economic policies that restrict or encourage trade between countries.

Source: Author's own research.

To achieve the goal of the research, the paper uses the methodology proposed by Asteriou and Spanos (2019). Thus, in order to examine the impact of financial development on economic growth over the last three decades, we will use multiple regressions in a data panel of the 28 EU member states for the period 1990-2020. The empirical models will be estimated using EViews software.

The econometric reference model is as follows:

$EG_{it} = \alpha_0 + \beta\, FD_{it} + \gamma\, X_{it} + u_{it}$

where EG is the dependent variable that measures the economic growth (GDPG, GDPCG),

i=1, 2,…,28 countries

t= 1990, 1991, ..., 2020

FD_{it} is the matrix of variables that capture the level of financial development (DMB, LLB, PRIV, CAP, SMT) and

X_{it} is the matrix of control variables (INFL, FDI, OCOM).

To verify the robustness of the estimates, the annual growth rate of GDP per capita is also used as a dependent variable. The variable was used in previous studies like King and Levine (1993), Levine and Zervos (1996), Rousseau and Wachtel (1998). The empirical analysis also uses an additional financial development variable to capture the spread of the banking sector, respectively, the private credit by deposit money banks to GDP. The variable was previously used in studies like King and Levine (1993), Ductor and Grechyna (2014).

The econometric models developed alternately use annual GDP growth rate and annual GDP per capita growth rate as dependent variables, quantifying the economic growth of a country, several independent variables that express financial development and control variables.

The variables' stationarity is tested using unit root tests specific to panel data such as the LLC, IPS, Fisher and Breitung test. For the variables where the presence of the unit root is proven, the first difference is computed, and the variable is retested to verify the absence of the unit root.

Thus, the table below summarizes the results of the stationarity tests and adjustments made:

Table 2: Stationarity of the variables and adjustments

Variable	Stationarity
GDPG	level
GDPCG	level
DMB	first difference
LLB	first difference
PRIV	first difference
CAP	level
SMT	level
INFL	level
FDI	level
OCOM	first difference

Source: Author's own research.

The multicollinearity between independent variables is verified based on the correlation matrix and in order to avoid it, only those independent variables that are not correlated with each other or with reduced correlations are introduced into the model (a maximum accepted correlation coefficient of 0.4) The correlation matrix is presented in the table below:

Table 3: Correlation matrix

	GDPG	GDPCG	D (DMB)	D (LLB)	D (PRIV)	CAP	SMT	INFL	FDI	D (OCOM)
GDPG	1.00	0.97	0.21	-0.30	-0.07	0.04	-0.14	0.04	0.10	0.32
GDPCG	0.97	1.00	0.25	-0.31	-0.09	-0.02	-0.14	0.08	0.07	0.33
D(DMB)	0.21	0.25	1.00	-0.08	0.17	-0.01	0.04	-0.05	-0.06	0.08
D(LLB)	-0.30	-0.31	-0.08	1.00	0.35	0.04	0.04	-0.05	-0.02	-0.04
D(PRIV)	-0.07	-0.09	0.17	0.35	1.00	0.13	0.10	0.01	0.01	0.03
CAP	0.04	-0.02	-0.01	0.04	0.13	1.00	0.25	-0.24	-0.10	0.04
SMT	-0.14	-0.14	0.04	0.04	0.10	0.25	1.00	0.00	-0.11	0.01
INFL	0.04	0.08	-0.05	-0.05	0.01	-0.24	0.00	1.00	-0.03	0.00
FDI	0.09	0.07	-0.06	-0.02	0.01	0.10	-0.11	-0.03	1.00	0.23
D(OCOM)	0.32	0.33	0.08	-0.04	0.03	0.04	0.01	0.00	0.23	1.00

Source: Author's own research

Given that the countries analyzed are part of a specific group of countries, namely the European Union, and the results apply only to these countries, the econometrics scientific literature opts for estimating regression models with fixed effects. In order to verify the applicability of these models to the present dataset, the models were tested by applying fixed effects tests and the Hausman test. Thus, based on the results of the available tests carried out, the estimation of panel regression models with individual and time fixed effects is the optimal option for the analyzed database.

Results and discussions

Following on the estimation of the regression models for the panel data of the 28 European Union member states for the period between 1990 and 2020, the following results were obtained:

Table 4: Econometric estimates, EU member states, 1990-2020

	Model 1 GDPG	Model 2 GDPG	Model 3 GDPCG	Model4 GDPCG
const	0,793*	0.253	0.484	-0.047
	[0,474]	[0,507]	[0,488]	[0,520]
D(DMB)	0,267***	0,212***	0,281***	0,221***
	[0,699]	[0,077]	[0,072]	[0,078]
D(LLB)	-0,051***	-0,056***	-0,046**	-0,051**
	[0,019]	[0,021]	[0,019]	[0,022]
D(PRIV)	-0,044**	-0,051**	-0,064***	-0,071***
	[0,020]	[0,020]	[0,021]	[0,020]
CAP	0,032***	0,046***	0,032***	0,440***

	Model 1 GDPG	Model 2 GDPG	Model 3 GDPCG	Model4 GDPCG
	[0,009]	[0,010]	[0,009]	[0,010]
SMT	0.002	0.003	0.000	0.003
	[0,004]	[0,005]	[0,005]	[0,005]
INFL		-0.023		-0,033**
		[0,016]		[0,016]
FDI		-0,008**		-0.004
		[0,004]		[0,004]
D(OCOM)		0,047**		0,057***
		[0.019]		[0,019]
R-squared	64.15%	65.79%	62.68%	64.62%
Adjusted R-squared	58.52%	59.99%	56.82%	58.63%
Observations	421	415	421	415

Source: EViews output, Author's own research.

Note: The numbers in parentheses [...] indicate the standard error of each variable in the model; (***), (**), (*) reflects the significance level of 1%, 5% and 10%; D shows the first difference for the DMB, LLB, PRIV, OCOM variables that have been converted to become stationary.

The first model shows the impact of the financial development level on the real GDP growth rate. Thus, an increase in the dynamics of the DMB variable of one percentage point has a positive and significant impact of 0.267 percentage points on the annual growth rate of real GDP. If the functions of the financial systems are performed in a greater measure through financial intermediaries, the savings are better directed towards investments, the firms' supervision and corporate governance establishment are more thorough and reliable, while risk management is carried out more efficiently. These conditions lead to increased production and economic activities and implicitly to economic growth.

A higher dynamic of the LLB variable has a significantly negative impact on economic growth with a decrease of the annual rate by 0.051 percentage points. Thus, if the activity of financial intermediation is too large, without influencing the efficiency and the productivity, the economic growth of a specific country will decrease.

Also, the change in the PRIV variable by one percentage point leads to a decrease of 0.044 percentage points in the GDPG variable. In general, increasing the level of lending to the private sector is a measure of the sector's development and efficient financing of capital production, consumption and formation. However, the level of financial development can generate an inverted U-shaped relation with the economic growth if an acceleration in credit growth is not accompanied by a simultaneous growth of the real sector. An increase of one percentage point in the stock market capitalization to GDP ratio leads to an increase of 0.032 percentage points in the level of the real GDP growth rate, while the stock market turnover ratio is not significant. Thus, a larger capital market leads to a better allocation of resources and economic growth.

The second model shows the influence of the financial systems' variables on economic growth, after introducing the control variables that typically influence economic growth. In this model, all variables quantifying financial development remain significant and do not change the sign of their coefficients after the application of the control variables. However, the size of variables' impact changes.

In contrast, the dynamics of DMB of one percentage point cause an increase of 0,212 percentage points on the annual GDP growth rate, while an increase of one percentage point in the

dynamics of LLB and PRIV leads to a decrease of 0.056 percentage points, respectively of 0.051 percentage points in the annual GDP growth rate, the impact being higher than in model 1. Thus, further development of financial intermediation and credit facility to the private sector, which are not correlated with private sector development, increased capital formation and productivity, leads to a reverse relation between financial development and countries' economic growth.

At the same time, the positive and significant influence of the CAP variable is sustained when control variables are introduced. Thus, the increase in the size of the capital market by one percentage point determines an improvement in the economic situation of a country of 0.046 percentage points. The efficient allocation of resources, the corporate control and risk management procedure leads to increased productivity and efficiency in the allocation of capital that generates economic growth.

Regarding the control variables, only the share of FDI net inflows to GDP and trade openness indicator has a significant impact on the real GDP growth rate. Even if the FDI net inflows generally have a positive effect on growth, the negative effect generated in the second model can be explained by the heterogeneity of the selected countries and their differences in terms of the government's business freedom, FDI volatility and dependence on main export. Thus, the regression model shows that if the foreign direct investments do not result in increased labor productivity and new technologies, the growth of the production level is hampered and leads to a decrease in the GDP growth rate. The dynamics of international trade level on GDP have a positive significant impact on economic growth, showing that the improvement of countries' trade policy toward an open economy, increases the economic growth rate.

The third and fourth models use the same independent variables as in models 1 and 2 but use as a dependent variable the annual growth rate of GDP per capita to capture the effect of financial systems and control variables on the citizens' living standards in the European Union countries. Thus, in the third model, the variables are significant and show signs similar to those in Model 1, but different coefficients. The LLB negative coefficient suggests that the lack of correlations of real sector's activity with the financial institutions may lead to the blocking of financial resources and their distribution towards unproductive projects, thus harming the growth rate of GDP per capita. At the same time, the growing dynamics of PRIV by one percentage point leads to a decrease of 0.064 percentage points (higher than in the case of Model 1) in living standards due to the inefficient investment and resource allocation. The share of stock market capitalization to GDP has a significant, positive impact on the improvement of the standard of living quantified by the GDR per capita growth rate of 0.032 percentage points of growth for any additional percentage point of the ratio.

The fourth model is similar to Model 3 but introduces additional control variables to validate the robustness of estimates on the impact of financial development on GDP per capita growth rate. All financial development variables remain significant and retain their sign when estimating the regression together with the control variables, while their effect is slightly different. Thus, at a dynamic of one percentage point of the DMB variable, the growth rate of GDP per capita increases by 0.221 percentage points, but at a one percentage point increase in the dynamics of LLB or the dynamics of PRIV, the GDP growth rate decreases by 0.051, respectively 0.071 percentage points. Thus, the further development of financial intermediation, as long as it is also accompanied by a development of the real sector transposed to the level of capital investments, technologies and increased production, determines economic growth. Also, the stock market capitalization to GDP ratio has a significant positive impact on the growth of GDP per capita and the standard of living by 0.044 percentage points at one percentage point change in the ratio.

Of the control variables, only the rate of inflation and the share of trade openness to GDP have a significant impact on the growth rate of GDP per capita. In this respect, the macroeconomic

instability of a state by one percentage point negatively affects the purchasing power of consumers, as well as the supply and level of production for producers and leads to a decrease of 0.033 percentage points in the growth rate of GDP per capita and worsening living conditions. At the same time, the further increase in the FDI variable of one percentage point determines a positive impact of 0.057 percentage points of the GDP per capita growth rate because the more the countries of the world adopt measures that encourage international trade, the companies become more competitive, the production processes become more efficient and consumer needs are better met, thus leading to an improvement in the living conditions of the population as measured by a higher growth rate of real GDP per capita.

Conclusion

The results of the empirical analysis are similar to the conclusions of other research papers investigating this relation. Thus, the development of financial systems, both through the activity of the banking sector and through the capital market, improves the mobilization of savings and the allocation of resources, directing funds towards productive projects, establishing better corporate governance and more efficient management of risks. These conditions lead to economic growth when there is a correspondence between the funds invested and the output of the real sector. The effect of financial development on economic growth becomes negative if there is a faster growth of private credit, unaccompanied by the growth of production at the same pace, a situation that is most often found in the case of the analyzed panels.

At the same time, based on the results of the empirical analysis, the effect of the development of financial systems on economic growth depends on the correlation between financial systems' growth rates and real sectors 'growth rates. Through the unbalanced growth between financial development and real production, the effect of financial development on economic growth is reduced or even becomes negative (Ductor & Grechyna, 2015).

Future areas of research may refer to the analysis of the relationship between financial systems and economic growth for advanced and emerging economies, the study of the activity of non-banking financial institutions on economic growth or of the effect of the financial systems' structure on economic growth.

References

Dragotă, M., Dragotă, V., Hândoreanu, C., Stoian, A., Şerbănescu, I. & Braşoveanu Obreja, L. (2009), *Pieţe Financiare. Structură, Instituţii, Instrumente, Reglementări*. Editura ASE.

Dragotă, V., Dragotă, M., Braşoveanu Obreja, L., Stoian, A., Lipară, C. & Cetean, E. (2008). *Pieţe Şi Sisteme Financiare*. Editura ASE, pp. 11-42.

Arestis, P., Demetriades, P. O. & Luintel, K. (2001). Financial Development and Economic Growth: The Role of Stock Markets. *Journal of Money, Credit and Banking*, 33(1), pp. 16-41.

Arestis, P., Demetriades, P. O., & Luintel, K. B. (2001). Financial development and economic growth: the role of stock markets. *Journal of money, credit and banking*, 16-41.

Asteriou, D. & Spanos, K. (2019). 'The relationship between financial development and economic growth during the recent crisis: Evidence from the EU', *Finance Research Letters*, pp. 238-245.

Azman-Saini, W. N. W., Law, S. H. & Ahmad, A. H. (2010). FDI and economic growth: New evidence on the role of financial markets. *Economics Letters*, 107(2), pp. 211-213.

Bencivenga, V. R., Smith, B. D., & Starr, R. M. (1995). Transactions costs, technological choice, and endogenous growth. *Journal of economic theory*, 67(1), 153-177.

Bumann, S., Hermes, N., & Lensink, R. (2013). Financial liberalization and economic growth: A meta-analysis. *Journal of International Money and Finance*, 33, 255-281.

Demetriades, P. O., & Hussein, K. A. (1996). Does financial development cause economic growth? Time-series evidence from 16 countries. *Journal of development Economics*, 51(2), 387-411.

Demirgüç-Kunt, A. & Levine, R. (1996). 'Stock markets, corporate finance, and economic growth: An overview', *The World Bank Economic Review*, 10(2), pp. 223-239.

Demirgüç-Kunt, A. & Maksimovic, V. (1996). 'Stock market development and financing choices of firms', *The World Bank Economic Review*, 10(2), pp. 341-369.

Domowitz, I., Glen, J., & Madhavan, A. (2004). International evidence on aggregate corporate financing decisions. *Financial structure and economic growth*, 263-295.

Ductor, L. & Grechyna, D. (2015). 'Financial development, real sector, and economic growth', *International Review of Economics and Finance*, 37, pp. 393-405.

Egert, B., & Jawadi, F. (2018). *The Nonlinear Relationship between Economic growth and Financial Development* (No. 2018-26). University of Paris Nanterre, EconomiX.

Kandil, M., Shahbaz, M., Mahalik, M. K., & Nguyen, D. K. (2017). The drivers of economic growth in China and India: globalization or financial development?. *International Journal of Development Issues*.

King, R. G. & Levine, R. (1993). Finance and Growth: Schumpeter Might Be Right. *The Quarterly Journal of Economics,* 108(3), pp.717-737.

Levine, R. (1997). 'Financial Development and Economic Growth: Views and Agenda', *Journal of Economic Literature*, 35(2), pp. 688–726.

Levine, R. (2004). 'Finance and Growth: Theory and Evidence', Nber Working Paper Series, 865-934.

Levine, R. & Zervos, S. (1996). Stock Market Development and Long-Run Growth. *The World Bank Economic Review*, 10(2), pp.323-339.

Masoud, N., & Hardaker, G. (2012). The impact of financial development on economic growth. *Studies in Economics and Finance.*

Rioja, F. & N. Valev, (2004). "Does One Size Fit All?: A Reexamination of the Finance and Growth Relationship", *Journal of Development Economics*, 74(2), 429-447.

Rousseau, P. L., & Wachtel, P. (1998). Financial intermediation and economic performance: historical evidence from five industrialized countries. *Journal of money, credit and banking*, 657-678.

Rousseau, P. L., & Wachtel, P. (2002). Inflation thresholds and the finance–growth nexus. *Journal of international money and finance*, 21(6), 777-793.

Rousseau, P. L., & Wachtel, P. (2006). What is happening to the impact of financial deepening on economic growth? *Economic inquiry,* 49(1), 276-288.

Schmukler, S., & Vesperoni, E. (2004). Firms' financing choices in bank-based and market-based economies. *Financial structure and economic growth,* 347-75.

Stulz, R. M. (2000). Financial structure, corporate finance and economic growth. *International Review of Finance*, 1(1), 11-38.