FDI AND FINANCIAL DEVELOPMENT AS DETERMINANTS OF ECONOMIC GROWTH FOR V4 COUNTRIES

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Abstract. The *purpose* of the paper is to analyze the influence of foreign direct investment (FDI) and financial development (qualitative and quantitative changes in the financial system and its components) on the dynamics of economic growth in V4 countries. In modern conditions, the financial system is a transfer mechanism of the business cycle and therefore affects the structure and dynamics of foreign direct investment, and especially the efficiency of their assimilation. The *subject* of the survey is the financial development and the FDI flows impact on economic growth. *Methodology*. The survey is based on the evaluation of the equation, which is the Barro regression specification. This model helps to find out the impact of the volume and depth of financial system on the dynamics of economic growth. GDP growth per capita is used as an indicator of economic growth. The paper proposes modeling results for the group countries (Hungary, Poland, Slovak and Czech Republic). Static data have been used for the period from 1992 to 2016. *Results*. FDI has an important role in reforming and developing the national economies of the countries in Visegrad Group. However, today, there is a problem with the stability of FDI inflows and with the efficiency of their development, which negatively affects the dynamics of economic growth. An important factor is the insufficient level of national financial system development of the Visegrad countries. All countries of the group have bank-oriented financial systems that are heavily dependent on foreign capital. At the same time, governments pay particular attention to the stability of banking sectors and set high standards for their sustainability. This holds back the financial development of the national economies of the Visegrad Group. At the same time, regression models for all countries confirm the importance of financial development in economic growth. The most important for V4 countries is to increase the size of the financial sector. Simulation shows that the stock market has the biggest positive impact on economic growth. The creation and development of the regional financial market were proposed for the countries in the Visegrad Group. Perhaps such an offer will not be in Hungarian interests as it has a different financial system and investment policy than other countries in V4 Group. However, other CEE and former Soviet countries will be able to join the regional market in the future. The obtained results should be taken into consideration when developing the macroeconomic policy of the Visegrad Group countries, implementing the policy of financial sectors development of these countries, and improving the policy of attracting foreign direct investment.

Key words: economic growth, foreign direct investment, financial system, financial development, countries of V4 Group.

JEL Classification: E44, F21, G20

1. Introduction

Economies of V4 countries (Poland, Czech Republic, Hungary, Slovak Republic) have shown the stable growth rate during the long period of time. However, the global financial crisis (2008) has negatively affected the dynamic of economic growth. On the one hand V4 countries' economies didn't suffer from significant problems in comparison to other EU countries, but on the other hand pace of growth dropped significantly in comparison to their previous years.

Foreign direct investment (FDI) has had an important role in national economies development of Visegrad Group, although their influence is ambiguous. In general it can be concluded that FDI has positive impact on economic development. However, some scientists believe that this impact won't last long and countries should not only absorb positive effects, but also develop them in different ways (Fifecová, Nemcová, 2015).

The developed financial system is an important condition for the effective attraction and assimilation of

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FDI. The developed financial system can be defined, in general terms, as a set of agencies and institutions, forms and methods, financial relations' fields, connected with the formation and use of centralized and decentralized money funds. Modern research shows that its development anticipates fulfilment of three financial institutions' functions, that speed up economic growth: evaluation and selection of investment projects, risk-management simplification and reduction of aggregate risks in economy, cut down the cost of capital attraction (King, Levine, 1993). Also, the effective financial system increases the return on innovation, alleviates the problem of moral risk, disciplines the activities of researchers and venture companies (Stolbov, 2008). It can be concluded, that financial system has an increasingly important role as a transfer mechanism of business cycle.

On the one hand Visegrad countries managed to create a developed financial system which was effectively attracting FDI. On the other hand financial system is mainly made of the stable international banking sector. These countries require a more developed financial sector today with a variety of financial institutions. The purpose of the article is to analyze the impact of FDI flows and financial development on economic growth in V4 countries and to compare the results with previous publications in this field of study.

The methodology of this survey is based on one of the Barro regression specification. This model helps to find out the impact of financial development on GDP per capita growth as an indicator of economic growth. This type of model also has the indicator of investment that helps to find out the impact on economic growth and to compare financial development and FDI. Four models were made for each country in V4 group. The data was taken from 1992 to 2016.

2. Literature Review

There is a large amount of literature devoted to the analysis of the impact of foreign investment on the country's economic prosperity. Many contradictory conclusions were made by scientists.

Grossman and Helpman, Barro and Sala-I-Martin (1991, 2003) confirmed in their works that FDI positively affect the economic development, especially in developing and undeveloped countries. However, there is a certain necessity in the potential of host countries, human capital for the effective developing of new technologies, the existence of a certain legislative framework (protection of property rights, protection of intellectual property rights, etc.) and the existence of a well-developed financial system. It was considered in works of Borensztein, Gregorio and Lee, Smarzynska (1998, 2004).

Hermes and Lensik (2003) in the paper "Foreign Direct Investment, Financial Development and Economic Growth" have developed some models for determining the role of investment in the economic growth and have identified some peculiarities among countries. They explain that in addition to human capital, investment has bigger positive impact in 37 countries with more developed financial sectors. Hence, financial development is an intermediary between FDI and economic growth. Financial development should be comprehended as qualitative and quantitative, structural changes in financial system in general and in its components – financial institutions, financial instruments, financial infrastructure, financial behavior, etc.

In the latest work, Lomachynska, Manchenko (2017) made some aggregated conclusions about positive impacts of FDI on economic growth in V4 Group in the past. The authors claim that FDI has become the main factor in the country's economic growth during the transformation period; FDI have contributed the new jobs for society, increased productivity and production efficiency and so on. They argue that FDI inflows have accelerated European integration, due to European origin of investment. Also, FDI positively affected the balance of payment (Yakubovskiy, Zhuravliov, 2016).

Simionescu, Lazányi, Sopkova, Dobeš and Balcerzak (2017) investigated the determinants of a sustainable economic growth of V4 Group. They point that FDI has the greatest impact on economic growth, except for the Slovak Republic. Expenditures on education played a significant role only in the Czech Republic and the cost of new technologies has an impact only in Hungary and in the Czech Republic. Thus, they conclude that FDI has an equally important role as before in this group, so countries are focused on their involvement.

Afanasyev's work (2004) investigates the interconnection between the influence of the financial sector and its separate components (banking sector and stock market) on the economic growth in 99 countries. The author concludes that financial development positively impacted economic growth at 2.2%. It is concluded, that the development of financial institutions positively influences the dynamics of FDI and economic growth. The most influential element of the financial sector is the national stock market (the greatest influence has the level of stock market development, but not its volume). The author also points that insignificant development of the financial sector has a strong positive effect on economic growth in countries with average developed financial sectors.

3. Financial Sector, FDI and National Economic Growth

The economies of the Visegrad countries are studied by scientists for many years. Analyzing the main macroeconomic indicators (World Bank, 2017) and financial stability reports of Poland, Czech Republic, Hungary and Slovak Republic (Financial Stability

Report May 2017, 2017) can be concluded that governments of countries manage to maintain positive trends, but growth rates slightly decreased. The GDP indicator is growing from 2009 in Poland, Czech Republic and Slovak Republic, but indicator of GDP growth doesn't attain the pace of growth in pre-crisis period. The indicator of GDP was shortening during the last three years in Hungary, due to reduction in FDI inflows from EU countries and reduction of lending to business entities.

The central government debts have declined in general over the last 3 years in the Visegrad countries. It is a positive trend, especially for Hungary. The average central government debt is 55% of GDP in Poland, the Czech Republic and the Slovak Republic. The central government debt was 96% of GDP in Hungary in 2015. The positive dynamics in Hungary's government debt reduction were achieved as a result of the debt obligations restructuring of social institutions and local governments, but government debt servicing remains high. The control of central government debts stays important due to the EU debt crisis and migration crisis, that has negative fiscal consequences in certain EU countries.

The FDI inflow has significantly decreased after the financial crisis 2007-2008 in V4 Group. The indicator of FDI inflows doesn't exceed 4% of GDP in Poland and the Czech Republic and no more than 6% of GDP in Slovak Republic over the past seven years. This indicator was mostly negative in recent years in Hungary. This trend is connected with general reduction of EU financial assistance and with a decrease in the investment of private European companies to V4 Group. The big amount of FDI inflow was directed to the real economy sector, for example constructing factories. Nowadays, those projects function independently and do not need significant investments. However, the Visegrad countries continue to pursue an active investment policy and improve an investment climate. FDI have been assimilated mostly through the international banks in the past. Nowadays the government of each country attempts to coordinate investments' flows and their assimilation through the investment funds and other non-bank financial institutions.

Financial systems are quite developed and bank-oriented in Poland, the Czech Republic, Hungary and the Slovak Republic. Another peculiarity is a high level of internationalization, that have had a positive impact in the past, but it is a restraining factor of financial development today. Banking sectors are highly stable in V4 Group. They haven't gone through significant changes under the influence of the financial crisis. The government continues to carry out the policy to stabilize the banking sector; to carry out the stress tests and to control financial stability of banking institutions.

The national stock markets remain weakly developed. Poland's stock market is actively developing especially until 2013. It was predicted that the Warsaw Stock Exchange would be regional for the CEE countries. However, the development of Poland's stock market has slowed down significantly over the past 3 years. Stock markets are developing at an even lower pace in other countries. Mostly domestic companies are listed there. The Visegrads' stock markets are underdeveloped, and their volumes are not sufficient for effective economic growth.

Other financial institutions are developing faster than stock markets. Particular attention is paid to the development of investment and pension funds by national governments of V4 Group. Pension reforms are taking place in Poland, Hungary and Slovak Republic. These reforms still have negative consequences, but they are short-term. It is expected that they will positively affect the development of social economic prosperity of countries in the long-run.

4. Data and methodological basis of the study.

One of the Barro's regression specification was selected for this regression analysis (Stolbov, 2008). This specification is found in formula (1).

$$\text{�}GDPpc = a + b * \frac{cap.SM}{loans} + c * \frac{fin.assets}{GDP} + d * \frac{investment}{GDP} + \varepsilon, \quad (1)$$

�GDPpc – annual growth rate of real GDP per capita; "capital of Securities Markets/loans" – the ratio of market capitalization to the volume of loans issued by commercial banks to private sector; "financial assets/GDP" – share of the total assets of central bank, commercial banks and non-banking financial institutions in GDP; "investment/GDP" – the share of investment in GDP, and "a" – free part of the regression equations; "b", "c", "d" – individual coefficients of sensitivity of the GDP per capita growth rate to the change of the corresponding variables, ε – the error of regression.

Indicator "capital SM/loans" shows the type of financial structure (bank-oriented or market-oriented). This indicator does not exceed 0,5 in all countries (Poland, the Slovak Republic, the Czech Republic and Hungary). Hence, the financial system is bank-oriented.

Indicator "financial assets/GDP" characterizes the financial depth of the national economy setting aside the type of financial structure. Its indicate whether financial development influences GDP per capita growth and how.

Indicator "investment/GDP" – reflects the importance of investment in the real sector of the national economy.

It will be possible to make a conclusion on the role of financial development and investment in the national economic development, according to the results of the analysis.

This approach, that used Stolbov (2008), shows the link between financial and economic development of the country. In the analysis of 21 countries (different in terms of development), the author made the following main conclusion: the lower level of country's development gives the greater likelihood that the indicator of financial depth negatively affects the rate of economic growth; there is a close link between financial and economic development that has direct or indirect influence (due to increased investment in the real sector, labor productivity) in developed counties; underdeveloped and developing countries should focus on the dominance of banking institutions in the financial system; developed countries should focus on the institutes of stock market; development of stock markets affects innovation activity more that banking development; financial development leads to a poverty reduction.

5. Presentation of results

Data was used from 1992 to 2016 for the construction of regression models for Poland and Hungary and data from 2000 to 2016 was used for the Czech and Slovak Republic because of the lack of a complete set of data. All data was taken from the World Bank website.

The table 1 presents the results for the four constructed models for each countries of Visegrad Group. An addition model was built for the Czech Republic, after excluding the indicator of investment.

According to the results in table 1, it is confirmed that the investment in the real sector has the greatest influence on the development of the national economy of Poland. Indicator "cap.SM/loans" has a small positive impact on the dynamic of GDP per capita and the indicator of financial depth is insignificant. Thus, it can be generalized that the further dynamic of economic growth depends on investment inflows in Poland.

Paying attention to the structure of investment inflows and to the state of financial development in Poland, it can be concluded that it is advisable to actively develop the financial system, using institutions of stock markets and non-banking institutions.

The Czech model results are differed the most from other countries in the group. Indicator "cap.SM/loans" has the largest positive impact on the dynamic of GDP per capita growth. Also, a positive, but less significant impact has the indicator of financial depth. Investment in the real economy sector has a positive impact on the economic development, but this indicator is insignificant in this model. Therefore, another model was build without indicator "investment/GDP". New model demonstrates that the largest impact has financial depth. However, growth of indicator "cap.SM/loans" negatively affects the growth of the GDP per capita.

It can be assumed that the current investment policy in't sufficiently effective for national economic growth in Czech Republic. This may also be explained by the fact that the insufficient level of development and efficiency of the financial market negatively affects the structure and dynamics of investment inflows. Most of the FDI that enters the Czech economy continues to be assimilated through foreign banks in the country.

Table 1
Parameters of the regression models of Poland, Hungary, the Czech and Slovak Republic

Country	Model
Poland	$\blacklozenge GDPpc = 2,307 + 3,204^* \frac{cap.SM}{loans} - 0,224^* \frac{fin.assets}{GDP} + 53,5^* \frac{investment}{GDP}$, $R^2 = 0{,}751$ $F_{st} = 50{,}818$ Relev. = 0,000 (3,199) (1,724) (0,565) (5,739)
Czech Republic	$\blacklozenge GDPpc = 0,936 + 4,839^* \frac{cap.SM}{loans} + 0,181^* \frac{fin.assets}{GDP} + 57,327^* \frac{investment}{GDP}$, $R^2 = 0{,}624$ $F_{st} = 7{,}206$ Relev. = 0,004 (0,235) (1,127) (0,165) (2,843) $\blacklozenge GDPpc = 2,428 - 3,762^* \frac{cap.SM}{Loans} + 74,562^* \frac{fin.assets}{GDP}$, $R^2 = 0{,}408$, $F_{st} = 6{,}547$ Relev. = 0,007 (3,423) (1,854) (3,455)
Hungary	$\blacklozenge GDPpc = 2,458 + 1528,348^* \frac{cap.SM}{loans} - 0,090^* \frac{fin.assets}{GDP} - 3,795^* \frac{investment}{GDP}$, $R^2 = 0{,}280$ $F_{st} = 4{,}350$ Relev. = 0,011 (1,550) (2,827) (0,142) (2,582)
Slovak Republic	$\blacklozenge GDPpc = 4,198 + 22,769^* \frac{cap.SM}{loans} - 2,452^* \frac{fin.assets}{GDP} + 20,376^* \frac{investment}{GDP}$, $R^2 = 0{,}644$ $F_{st} = 40{,}680$ Relev. = 0,000 (2,496) (4,887) (2,001) (2,803)

T statistics of indicators are indicated in brackets.

Source: calculated by the author (the World Bank, 2017)

The indicators "cap.SM/loans" has a significant positive effect on economic growth in Hungary. However, indicators "fin.assets/GDP" and "investment/GDP" negatively affect the dynamic of GDP per capita growth. This can be explained by the fact that there have been outflow of FDI from Hungary in recent years, as well as high level of economy and financial sector internationalization.

The positive dynamic of the economic growth is determined by indicators "cap.SM/loans" and "investment/GDP" in the Slovak Republic, according to the results of the model. Financial depth indicator has a negative impact on the dynamic of the GDP per capita growth. It can be explained by the fact that the Slovak Republic has the least successful results of reforms, that were carried out in the 1990s, in comparison with other countries of Visegrad Group. Nowadays, the Slovak Republic is less developed than other countries of V4 Group. However, the Slovak government has managed to ensure a stable positive dynamic of the main macroeconomic indicators in recent years.

Thus, it can be concluded that the financial development has an important role in ensuring the economic growth of the Visegrad countries. The institutions of the financial markets have the greatest positive influence on economic development. This should be used in national policies that aimed at financial development.

6. Conclusion

The analysis of the dynamic of FDI, the main indicators of economic development, the financial systems and its impact on economic growth allows making some conclusions for Visegrad countries.

1. The analysis of the main macroeconomic indicators and indicators of financial development of Poland, Hungary the Czech and Slovak Republic show that the countries of Visegrad Group manage to maintain a positive dynamic of economic growth. However, its pace is decreasing, despite the positive reforms that are taking place in the countries. The assessment of financial stability reports shows that governments are paying a lot of attention to the stability of banking system and setting a very rigid framework that reduces the pace of development in all V4 Group.

2. The results of the regression analysis confirm conclusions that were mentioned earlier by other authors. The FDI and financial development have positive effect on the economic development of the countries in V4 Group. However, there is a necessity for increasing volume of financial sectors rather than for the increasing financial depth in Poland, Hungary, the Slovak Republic. On the contrary, there is a need to increase financial system's volume and depth in the Czech Republic. In addition, the stock market development has a greater effect on economic growth than banking sector development. Thus, it can be claimed that financial development is a prerequisite for accelerating the economic growth of the Visegrad Group.

3. As was indicated a certain level of financial development is required for effective assimilation of FDI. The financial sector is characterized by a lack of development and efficiency in all countries in V4 Group. This reduces the effectiveness of FDI development because the financial system does not play the role of mediator for investment inflows in national economy. The governments of the Visegrad countries are trying to pursue the policies that aimed to develop the financial sector of the countries. These reforms have begun to take a place in recent years and have long-run prospects, so now can only be assumed that they should accelerate the paces of economic development.

4. The result indicates a general problem in the V4 Group – insufficient level of financial development. Paying attention to the structure and capacity of the financial sectors of each countries in the V4 Group, it would be advisable, in our opinion, to create a regional financial market based on Warsaw Stock Exchange. Such a regional financial market may not be in Hungarian interests as it has a different financial system and investment policy than other countries in V4 Group. However, other CEE and former Soviet countries will be able to join the regional market in the future.

In the future, a more detailed regression analysis can be developed to determine the impact of different elements of the financial system of the countries and to determine the link between FDI and the financial development of the Visegrad Group.

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Анастасия ГУРАЛЬ, Ирина ЛОМАЧИНСКАЯ

ПИИ И ФИНАНСОВОЕ РАЗВИТИЕ КАК ДЕТЕРМИНАНТЫ ЭКОНОМИЧЕСКОГО РОСТА ДЛЯ СТРАН V4

Аннотация. *Целью работы* является анализ влияния прямых иностранных инвестиций (ПИИ) и финансового развития (качественное и количественное изменение финансовой системы и ее компонентов) на динамику экономического роста стран Вышеградской группы. В современных условиях финансовая система является передаточным механизмом делового цикла, а значит влияет на структуру, динамику прямых иностранных инвестиций и особенно на эффективность их освоения. *Предметом* исследования является финансовое развитие и влияние потоков ПИИ на экономический рост. *Методология*. Исследование основано на оценке уравнения, которое является спецификацией регрессии Барро. Эта модель позволяет оценить влияние объема и глубины финансовой системы, ПИИ на динамику экономического роста. В качестве показателя экономического роста используется прирост ВВП на душу населения. В работе предложено результаты моделирования для стран группы (Венгрия, Польша, Словакия, Чехия). Использованы статические данные за период с 1992 г. по 2016 г. *Результаты*. ППИ сыграли важную роль в реформировании и развитии национальных экономик стран-участниц Вышеградской группы. Однако на современном этапе существует проблема стабильности притока ПИИ и эффективности их освоения, что негативно влияет на динамику экономического роста. Важным фактором этого является недостаточный уровень развития национальных финансовых систем исследуемых стран. Все страны группы имеют банкоориентированные финансовые системы, которые сильно зависят от иностранного капитала. При этом правительства уделяют особое внимание стабильности банковских систем и устанавливают высокие требования к их устойчивости. Это сдерживает финансовое развития национальных экономик стран Вышеградской группы. В тоже время модели регрессии для всех стран подтверждают значимость для экономического роста финансового развития. Наиболее важным для стран V4 является увеличение размеров финансового сектора. Моделирование демонстрирует, что наибольший положительный эффект для экономического роста имеет фондовой рынок. Предложено создание и развитие регионального фондового рынка стран Вышеградской группы. Возможно такое предложение не будет интересно Венгрии, учитывая особенности ее финансовой системы и инвестиционной политики в сравнении с другими странами V4. В тоже время к региональному фондовому рынку V4 в будущем смогут присоединиться другие стран Центрально-Восточной Европы и другие постсоциалистические страны. Полученные результаты следует учесть при разработке макроэкономической политики стран Вышеградской группы, реализации политики развития финансовых секторов этих стран, а также усовершенствовании политики привлечения прямых иностранных инвестиций.