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**PORTFOLIO INVESTMENT FLOWS  
AND THE LUCAS PARADOX – AN EVIDENCE FROM  
THE GLOBAL ECONOMY IN THE 21ST CENTURY**

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**INWESTYCJE PORTFELOWE A PARADOKS LUCASA  
W GLOBALNEJ GOSPODARCE XXI WIEKU**

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**Summary:** The aim of this article is to examine the flow of portfolio investment in the 21st century in the further use of the Lucas paradox observed in the world economy in the twentieth century. Portfolio investments are perceived in the literature and empirical research as less significant, while both their size and importance to the development of capital markets are usually only indicated. Data for the study were obtained from the balance of payments of individual countries and groups of countries, as well as data on the size and level of development of capital markets in these groups. The course of this research confirmed the importance of the flow of capital in the form of portfolio investments in the global economy. This has shown the further occurrence of the Lucas paradox, also in portfolio investment. It shows the weakness of the capital markets of LDCs in conjunction with the insufficient inflow of portfolio investments. The originality of the article lies in the combination of portfolio investments and determinants of the attractiveness of individual capital markets for investors in international financial markets. The small inflow of portfolio investments is both the cause and the consequence of the insufficient level of development of capital markets in the least developed countries (LDC). Hence the need to make a diagnosis and to build paths of development of such markets based on the experience of more developed countries, in order to adapt them to attract and retain capital in the form of portfolio investments.

**Keywords:** portfolio investment, international capital flows, capital markets, Lucas paradox.

**Streszczenie:** Celem artykułu było zbadanie przepływów inwestycji portfelowych w XXI wieku pod kątem dalszego zastosowania paradoksu Lucasa, obserwowanego w światowej gospodarce w XX wieku. Inwestycje portfelowe są odbierane w literaturze i badaniach empirycznych jako mniej istotne, tymczasem zarówno ich wielkość, jak i znaczenie dla rozwoju rynków kapitałowych są zwykle jedynie sygnalizowane. Dane do badań uzyskano z bilansów płatniczych poszczególnych państw i grup państw, a także z informacji dotyczących wielkości i poziomu rozwoju rynków kapitałowych w tych grupach. W toku prowadzonych rozważań potwierdzono istotność przepływu kapitału w postaci inwestycji portfelowych w globalnej gospodarce. Wykazano dalsze występowanie paradoksu Lucasa, również w zakresie inwe-

stycji portfelowych. Ukazano słabości rynków kapitałowych krajów najsłabiej rozwiniętych w powiązaniu z niedostatecznym napływem inwestycji portfelowych. Oryginalność artykułu polega na powiązaniu inwestycji portfelowych z czynnikami warunkującymi atrakcyjność poszczególnych rynków kapitałowych dla inwestorów na międzynarodowych rynkach finansowych. Brak napływu inwestycji portfelowych jest jednocześnie powodem i skutkiem niewystarczającego poziomu rozwoju rynków kapitałowych w krajach najsłabiej rozwiniętych. Występuje więc konieczność dokonania diagnozy i zbudowania ścieżek rozwoju takich rynków w oparciu o doświadczenia krajów wyżej rozwiniętych w celu przystosowania ich do przyciągania i zatrzymywania kapitału w postaci inwestycji portfelowych.

**Słowa kluczowe:** inwestycje portfelowe, międzynarodowe przepływy kapitału, rynki kapitałowe, paradoks Lucasa.

## 1. Introduction

The processes of globalization on the international financial markets are not equally strong and clearly positive for all those present on their bodies and their constituent economies. This also means the diversification of direct and portfolio investment on a global scale, the increase in the degree of dependence and correlation between different markets, or the share of large capital operators and government administrations on an international scale.

The mentioned topic is important because of that in the era of current volatility in the global financial markets, it seems necessary to analyze their causes and effects, also in comparison with the historical records. Undoubtedly one of the factors causing instability in the international financial markets is speculative capital on the incoming domestic capital markets in the form of portfolio investment. However, apart from the negative assessment received by portfolio investment, it should also be assumed that the incoming capital forces the development of capital markets by the intake of patterns and solutions from developed countries in order to maintain long-term capital.

This article is a continuation of previous considerations, as well as a wider section of research in the field of the directions of flows of portfolio investment in the world economy, and the determinants of their size and structure. The aim of the article is to verify the current stage present in the literature of the twentieth century Lucas paradox in explaining the directions of capital flows. The studies presented in the article focus on factors such as the direction, size and structure of portfolio investment flows depending on the economic and social situation of the country (GNI per capita) and the development of the capital markets in the world in the context of modern financial centres.

The article consists of three main parts. The first, based on the literature review in the field of theory and empirical research, includes formulated research hypotheses. The second discusses the research methods and identifies the variables that were used to test hypotheses, and then presents the results of the research. The third

section summarizes the results of research and confront them with the formulated hypotheses.

## **2. Hypotheses on the basis of a review of theory and empirical research**

In the literature of the subject of capital flows on the international capital markets, a trend of growth of foreign assets and liabilities can be observed, depending on the wealth and degree of development of the region in the years 1975-2005. Countries with high incomes have the highest growth of assets and liabilities (at a level five times higher than GDP), twice the GDP of their level in the development of middle and lower income (among which stand out the countries of Southeast Asia – increased six-fold, and the countries of Central Eastern Europe – a threefold increase [Mauro, Ostry 2007, p. 78]). This measure of financial globalization does not show, however, the nature of capital flows and their impact on the investment position of individual countries and regions. Therefore it is important to analyze each market in terms of the direction of movement of capital, the short or long period of destiny, its economic structure and its effects on the balance of payments.

Studies show a paradox (the Lucas paradox), which stirred debate in the scientific world of finance and international flows. In 1990, R. Lucas stated that capital flows take place mainly between developed countries and, in addition, contrary to expectations, this production factor flows not down (downhill) – from countries relatively rich to the poor, but in the vast majority of cases, just the opposite [Lucas 1990, pp. 92-96].

Lucas in his studies compared the state of the inflow of capital to the markets of the United States and India in 1988. It showed that it does not apply to the neoclassical economic model, in which the marginal product of capital in India should be 58 times greater than that recorded in the United States [Alfaro, Kalemli-Ozcan, Volosovych 2005, p. 5]. In addition, taking into account the differences in the levels of development of the economies, the whole capital should flow from the highly developed countries to India. In fact, this phenomenon does not happen, prompting researchers to formulate fundamental questions about the sources of economic development.

The regularity observed by Lucas is based on the observation of capital flows in the twentieth century, with particular attention paid to the developing countries: India, China and African countries. Although these countries are characterized by a large number of natural resources and important human capital, they draw funds mostly as development aid. Natural conditions could be a source of dynamic growth, meanwhile remaining unused, however, partly because these countries only partially floated capital in the form of portfolio investments [Coval, Moskowitz 1999, pp. 2045-2073, Laeven 2014, p. 18] The primary causes of this state of affairs is considered to be immature institutions and political instability, and the market system in developing countries.

Interesting considerations apply to the colonial period, because even imposing colonial institutional solutions (usually better organized, for example the situation of Great Britain and its colonies) on the country, did not bring a result in the form of capital inflow to the less developed countries. This was due to the cultural and historical burden of the past, making it impossible to make rapid reforms and the introduction of, among others, a new legal order. The conclusions from this state of affairs can be seen currently in the regulatory governance of the OECD, which sets only a general framework, but allows to customize the solutions in each country according to their needs and conditions. Another example may be the United States, where capital inflows began intensively after the revolution and the development of the constitution. The regulation of private property and the freedom of industrial activities allowed to obtain a strong investment position of the country for a long period of time [Tornell, Velasco 1999, pp. 1208-1231]. Even when the level of income in the United States exceeded that achieved in the UK, the institutions adopted in the period of imperialism and the established system of state institutions determined the direction of capital flows between Europe and America.

Although capital achieves high rates of return in developing countries, they do not reach them primarily because of the errors of the market mechanism. It would seem that based on the achievements of colonialism, the country's colonizer and conquered lands offer the same conditions for making investments. However, the example even of the UK and India shows that the level of development of institutions in the UK is much higher than in India or Australia (which is the cause of less capital flowing to these markets [Doidge, Karolyi, Stulz 2004, p. 16; Hostland 2009, p. 3]).

The cause of the Lucas paradox is considered primarily to be the differences in the conditions of the fundamental functioning of economies, such as technological advances, productivity, human capital, government policy and, importantly, the institutional structure. In addition, attention is also drawn to the existence of market failures, in particular information asymmetry. It is noteworthy that both of these causes can be removed through the development and implementation of properly developed corporate governance rules.

As a basic factor conditioning the investment attractiveness is considered the value of the institutional arrangements of the capital market as the main pull factor of flows in the global market. The institutions have an impact on the economic development of the market and the region because they determine investment decisions. It is done by setting the level of protection of private property, highlighting the impact of the social environment on the functioning of enterprises, preventing blocking of new technologies by managers in companies and making decision unfavorable economically. The main factor for investment decisions is that they are properly developed corporate governance rules, adapted to the specifics of the market and striving to achieve a level designated by the highly developed countries in this matter (as well as international organizations such as the OECD). It would seem easier and cheaper to make changes in the market making administrative decisions rather

than improve the quality of the companies through the purchase of technology or innovative projects. Experience shows, however, that changes legal and political are the most difficult to implement and bring the slowest results, although they seem to be the most needed on markets of developing countries.

The problem of information asymmetry, also finding a solution in terms of corporate governance, is manifested in the insufficient readiness of management to carry out the mission of the enterprises (information hiding, making decisions unfavorable to the company, share price manipulation, accounting fraud and tax). Properly developed corporate governance rules solve this problem by determining the tasks of supervisors and the creation of the tools designed to control the current activities of public companies and its employees (e.g. the need for the publication of interim reports and audits accounting [Calvo, Leiderman, Reinhart 1996, pp. 123-139]).

All the mentioned conditions of capital markets have an influence on the attractiveness for foreign capital. Portfolio investments account for an increasing share of capital flows in international markets, which is easier thanks to the basic conditioning of globalization, which are technological progress and the compression of time and space.

The size of foreign direct investment in the world in 2015 amounted to 1 590 992.7 (outward, in million US dollars) [OECD 2017], while portfolio investments 695.2 620 (in million US dollars) [World Bank 2017]. Portfolio investment covers transactions in equity securities and debt securities, in net inflow value. “Portfolio investments are purchases of equities and other securities of foreign manufacturing and service companies in order to obtain income, which is then transferred to the home country in the form of interest and dividends” [OECD 1996]. The size of portfolio investment in the global economy provides the basis to help reach the conclusion that their cash flows are sufficient to take action toward directing financial flows to less developed markets in order to enforce their development.

Taking into account the above described literature review for this study the author formulated three hypotheses.

H1: Portfolio investments are an important component of capital flows in global financial markets, although the size subsides direct investment. Their importance to the global economy is important especially during financial crises, and the accuracy of flow directions allow to determine the factors of the decision-making of investors.

H2: The phenomenon called the Lucas paradox is constantly present in the world economy, and also in flows of portfolio investment. Investors active in the global financial markets are looking for sources of profits (mainly short-term) in stable markets, regarding the expected macroeconomic environment, even during the global financial crises.

H3: The inflow of portfolio investment contributes to the development of the capital markets of the host countries, due to the necessity of the establishment of regulations, institutions and instruments that support the incoming capital. The creation of a system of the capital market by the beneficiary of portfolio investment

can contribute to the retention of capital in the form of an extended period of time, which will increase the investment attractiveness of the entire market and its stakeholders. The direction of flow of portfolio investments determines the location of the new world's financial centres and vice versa – the developed financial markets are hardest to attract capital in the form of portfolio investments. [*Coordinated Portfolio Investment* 2002, p. 49].

### **3. Verification of hypotheses based on empirical research**

#### **3.1. The comparison between FDI and portfolio investment in the last decade**

Data used to carry out these studies were taken from the balance of payments of individual countries, as well as collected by the International Monetary Fund (IMF), the World Bank and the OECD. They were compared to the size of global direct investment and portfolio investment, as well as the divided flows of portfolio investment between countries with different levels of development (based on the rate of GNI per capita) [WIR 2015]. They also shown the typical directions of the investment portfolio to the markets of developed countries.

In order to verify the first of the hypotheses, testing the size of flows of direct investment and portfolio changes over time were compared. In an era of lesser stability of financial markets and economies, causing changes in the choice of flow directions and their total value, the size of FDI and portfolio investment are much different (see Chart 1).

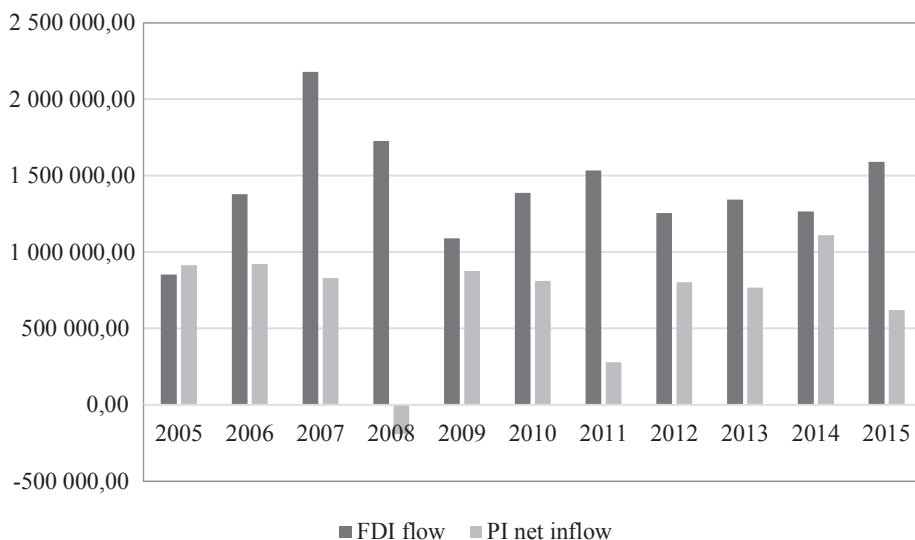
In the last decade the volume of direct investments outweighed the investment portfolio, it was not, however, the benefit of the solid performance. Especially in a period of instability in the global financial markets – during the crisis in 2008 significant advantages of direct investment could be seen. The possibility of incurring severe losses in the financial markets forced the decisions of investors to refrain from investing, or even the withdrawal of capital. Due to the technical ability to quickly 'escape' capital by making the sale of held securities, portfolio investments are called 'hot capital'. The search for more liquid assets requires an assessment of the various capital markets and the analysis of the fundamental pressure on their issuers, but it is an action less binding in decision-making, compared with direct investments.

In order to make direct investments, it is necessary to examine the possibilities of cooperation with the host country, both in terms of capital flows as well as the creation of technical conditions for conducting business abroad. The decisions made by the beginning of the investment can not be changed under the influence of a temporary crisis or change in the functioning of markets, as it would involve significant costs and losses. Capital, transferred not only in the financial form, but also as know-how, is not subject to sudden fluctuations, as is the case with portfolio investment. Foreign direct investment, as long-term and binding on the economy of the host countries and exporting capital, is evaluated positively for the development of the country – the

importer of capital. Portfolio investment associated with investments in securities, equity and debt, allow for a quick exit from the investment, which is associated with the speculative nature and the more ambiguous assessment of the importance for the economy of the host country.

In fact, in assessing the size of portfolio investment flows it is important to remember that, as shown in the Chart 1, the size of portfolio net inflow is based on data from the balance of payments of individual states. The balance sheets of these flows are recognized as "changes due to credit and debit entries, which are recorded on a net basis separately for financial assets and liabilities. Financial account balances are calculated as the change in assets minus the change in liabilities" [World Bank 2017].

The important role of investment portfolio capital flows in global financial markets can be seen in Chart 1. This role also highlights the fact that decisions made by investors are specific: first, investors themselves belong to both public and private entities, including individuals, centers offering generally large capital (in the case of FDI private entities are companies, not private individuals, so in the case of portfolio investment it is also running individual capital). Second, the portfolio investment gets directly into the capital market, so that it is possible to achieve allocative efficiency of the financial market. The capital is directed to entities that demonstrate high growth potential, which on investments in equity securities is less risk of loss, and in the case of debt securities reduces the risk of selection of the insolvent issuer to the investor.



**Chart 1.** Comparison of the size of flows of foreign direct investment and portfolio investment in the world in 2005-2015, in millions of US dollars

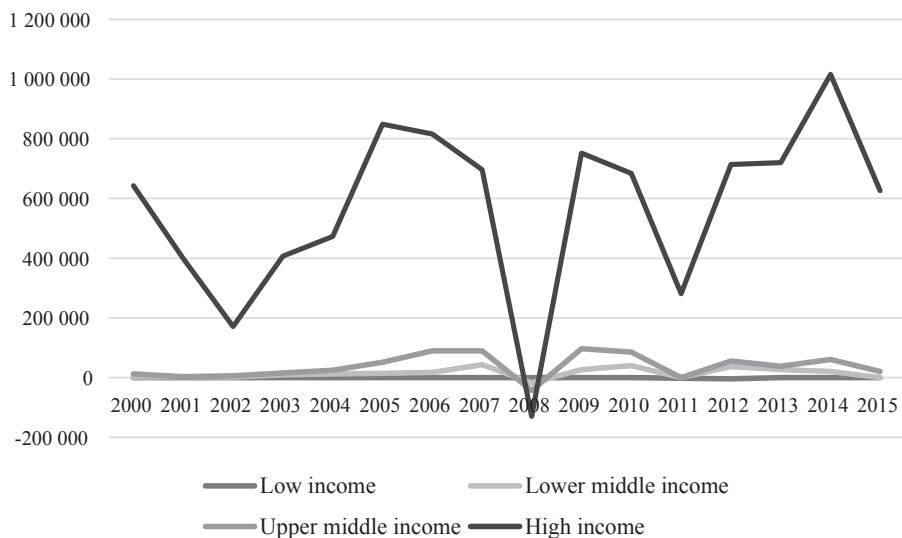
Source: own study based on [OECD 2017; World Bank 2017].



On the other hand, capital goes to the entities which offer investors not only historical increases in the value of the securities being issued, but also show the investment objective of high returns. This gives an opportunity to make investments in the real economy, which benefits the closer and further business environment and the markets of the countries receiving portfolio investment. The only question raised here is the capacity of the markets and entities to retain capital in the form of the extended period of time necessary to achieve growth and development. This is a matter to be solved by the capital markets of the host countries capital, which will be discussed later in the discussion.

### 3.2. The Lucas paradox in portfolio investment in the 21st century

Flows of portfolio investments in the global economy in the twenty-first century confirm the existence of the Lucas paradox in the field of directions of movement of capital. As can be seen in Chart 2, portfolio investment in the form of equity-securities transactions were concluded mainly in the capital markets of developed countries with the highest level of per capita income [Sheppard 2003, p. 13].



**Chart 2.** Portfolio equity, net inflows in the group of countries divided by GNI per capita<sup>1</sup>, 2000-2015, in millions of US dollars

Source: own study based on [World Development Indicators].

<sup>1</sup> In order to show the truth of the Lucas paradox in terms of portfolio investment in the 21st century, for the purposes of this article the division of countries into groups according to height ratio GNI per capita (gross national income) was used: low-income economies are those in which 2015 GNI per capita was \$1,025 or less, lower-middle-income: between \$1,026 and \$4,035; upper-middle-income: between \$4,036 and \$12,475 and high-income: \$12,476 or more (data for 2015).



As can also be seen in the graph above, net cash flows from the investment portfolio for the countries with the lowest level of development (the lowest income per capita) are so small compared to the flows especially to the group of countries with the highest level of income per capita that it is impossible for quantitative assessment. For this reason, Table 1 lists the net flows of portfolio investment transactions in the form of equity in this group of countries.

**Table 1.** Portfolio equity, net inflows in the group of countries with low income, 2000-2015, in millions of US dollars

|  |          |        |        |        |       |          |
|--|----------|--------|--------|--------|-------|----------|
| Low income countries<br>– portfolio equity, net<br>inflows | 2000     | 2001   | 2002   | 2003   | 2004  | 2005     |
|  | 2,21     | 18,91  | 13,57  | 19,21  | 17,52 | 16,28    |
|  | 2006     | 2007   | 2008   | 2009   | 2010  | 2011     |
|  | 34,13    | –10,11 | –82,94 | 222,14 | 63,45 | –1978,40 |
|  | 2012     | 2013   | 2014   | 2015   |       |          |
|  | –3578,01 | 21,81  | 213,46 | 34,5   |       |          |

Source: own study based on [World Development Indicators].

A characteristic feature of portfolio investment flows between countries with different levels of development is also the dynamics of their changes over time. As can be seen in Chart 2, the changes in the levels of flows in countries with low and middle income per capita are small, only in the financial crisis on global markets the collapse of capital inflows in the form of a negative value is evident. Definitely harder is this negative aspect's ability to quickly 'escape' capital in the form of portfolio investment evident in countries with the highest level of development. The financial markets of these countries during the financial crisis were seriously affected by the withdrawal of capital by foreign investors and the achievement of a critical low flow (negative) in 2008. This reflects the greater exposure to the risk of instability of financial markets to the countries with the highest level of development. Also, the amplitude of fluctuations in the inflow of portfolio investments in the period 2011-2015 is the highest for the most developed countries.

It is also worth noting that in 2009 all groups of countries recorded a return of investors to its capital markets. The countries with the lowest per capita income recorded an unprecedented inflow of portfolio investments. This demonstrates the interest of investors opportunities to invest capital in these countries; however the weakness of the market systems, including capital markets (as below) and individual entities do not allow the retention of capital in the long term.

As can be seen from the data above, a significant amount of portfolio investment flows are concentrated in the most developed countries, with the highest per capita income. This demonstrates the paradox news Lucas also in the contemporary processes of globalization and liberalization of capital movements. Financial capital circulates constantly mainly between the "old" financial centers, located throughout

the country, established macroeconomic stability and the “new” represented by the countries with a very high per capita income and which are in the growth phase (see Table 2). Flows of portfolio investments in countries with low and middle income per capita are small in comparison with them.

**Table 2.** The biggest beneficiaries of portfolio equity net inflows in 2000-2015

| Rank | 2000           | 2001           | 2002               | 2003           | 2004          | 2005           | 2006           | 2007               |
|------|----------------|----------------|--------------------|----------------|---------------|----------------|----------------|--------------------|
| 1    | United States  | United States  | Ireland            | Japan          | Luxembourg    | Luxembourg     | Luxembourg     | Luxembourg         |
| 2    | United Kingdom | Ireland        | United States      | Ireland        | Japan         | Japan          | Ireland        | United States      |
| 3    | Ireland        | Germany        | Luxembourg         | Luxembourg     | Ireland       | Ireland        | United States  | Ireland            |
| 4    | France         | Japan          | Germany            | United States  | United States | United States  | France         | Germany            |
| 5    | Hong Kong      | United Kingdom | Switzerland        | United Kingdom | France        | Netherlands    | Japan          | Japan              |
| 6    | Canada         | France         | Portugal           | Germany        | Canada        | France         | China          | Hong Kong          |
| 7    | Spain          | Netherlands    | Spain              | France         | Italy         | Germany        | Netherlands    | India              |
| 8    | Sweden         | Korea, Rep.    | Austria            | Korea, Rep.    | China         | China          | Germany        | Brazil             |
| 9    | Netherlands    | Spain          | Russian Federation | Australia      | Spain         | United Kingdom | South Africa   | China              |
| 10   | Korea, Rep.    | Australia      | Sweden             | Canada         | Korea, Rep.   | India          | Hong Kong      | Russian Federation |
| Rank | 2008           | 2009           | 2010               | 2011           | 2012          | 2013           | 2014           | 2015               |
| 1    | United States  | United States  | Luxembourg         | United States  | United States | Luxembourg     | Luxembourg     | Luxembourg         |
| 2    | United Kingdom | Luxembourg     | United States      | Ireland        | Luxembourg    | Japan          | Ireland        | Ireland            |
| 3    | Switzerland    | United Kingdom | Ireland            | Luxembourg     | Ireland       | Ireland        | United States  | United Kingdom     |
| 4    | Australia      | France         | Japan              | Canada         | France        | United Kingdom | China          | Netherlands        |
| 5    | Hong Kong      | Brazil         | Brazil             | France         | Japan         | France         | Spain          | Spain              |
| 6    | Belgium        | Australia      | China              | Netherlands    | China         | China          | Japan          | Germany            |
| 7    | Portugal       | Ireland        | India              | Switzerland    | Hong Kong     | Spain          | United Kingdom | China              |
| 8    | China          | China          | Korea, Rep.        | Brazil         | India         | India          | Italy          | Australia          |
| 9    | Kuwait         | Korea, Rep.    | Hong Kong          | Hong Kong      | Italy         | Canada         | Canada         | Italy              |
| 10   | Canada         | India          | Canada             | Italy          | Korea, Rep.   | Italy          | Hong Kong      | Canada             |

Source: own study based on [World Development Indicators].

As can be seen from the list below, portfolio investment in the 21st century is directed mainly to the developed countries or those developing dynamically. Also significant is the fact that in the last 15 years the group of those countries was rather limited, and in the statement of the 10 largest beneficiaries of the inflow of portfolio investments into equity capital at the time there were only isolated cases of “new”

countries. The most common among the countries importing net capital in the form of portfolio investments in the 21st century were: Luxembourg (8 times) due to the favorable location of the capital tax conditions and the United States (6 times) due to being the most developed capital market in the world and its attractiveness to investors.

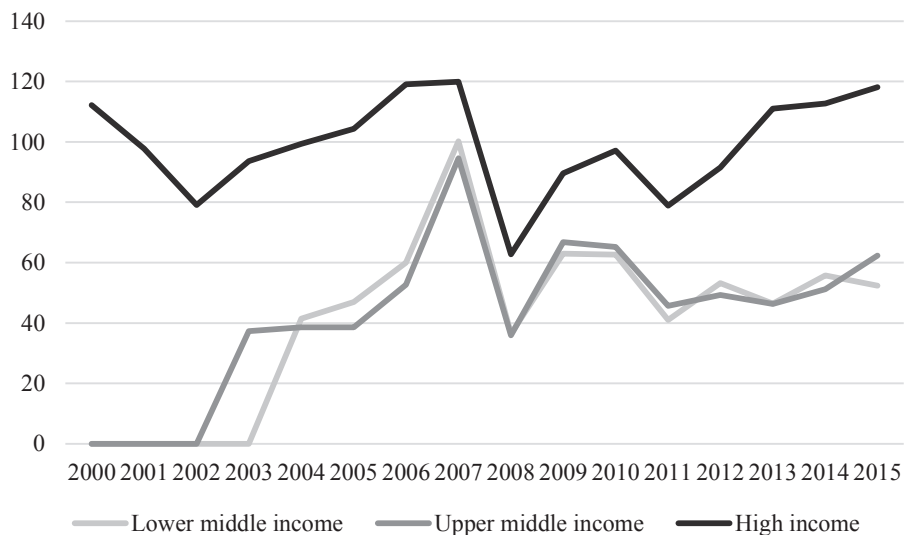
These considerations are also confirmed by the distribution of the financial centers of the world. Using the Global Financial Centres Index, financial centers numbering approximately 29,000 were assessed based on 5 main criteria: “business environment”, “financial sector development”, “infrastructure factors”, “human capital”, “reputation and general factors” [GFCI 2016] and ranked in order of the most attractive for investors. These markets were assessed as offering the broadest range of instruments and the most liquid. In 2016, the top ten ranked up: London (United Kingdom), New York City (United States), Singapore, Hong Kong (SAR China), Tokyo (Japan), San Francisco (United States), Boston (United States), Chicago (United States), Zurich (Switzerland), Washington, DC (United States).

From the above data it can be concluded that portfolio investment flows mainly to the financial centers of the world. Countries with a low level of development can therefore draw patterns of behavior and solutions in the markets of developed countries to improve the situation in the global capital flows.

### **3.3. The stage of development of capital markets in connection with portfolio investment**

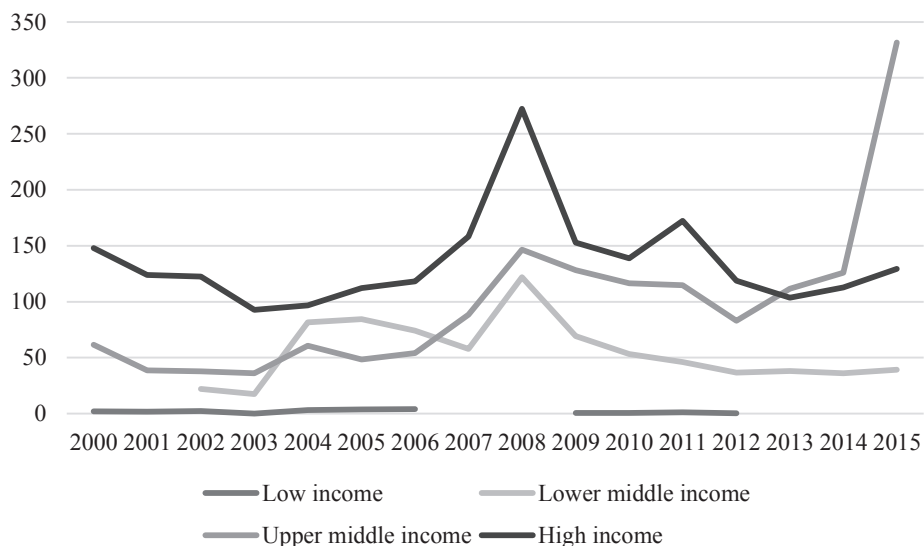
The importance of saving money in today’s economy lies in the fact that they are the primary source of capital. This in turn allows the economy tangible investments which provide the basis for economic growth and the overall development of society. The allocation of the capital in the most effective way is made on the capital markets of individual countries. The most important feature of the capital market is the conversion of free capital gains into equity-related, for the financing of economic development. The capital market is considered to be an organized market, it works in accordance with specific rules and due to their efficiency reduces the cost of transactions, which contributes to the promotion of the exchange. Building the investment attractiveness of individual capital markets contributes to the existence of allocative efficiency. On the effective market measures are provided to companies that use them in the most effective manner.

The following Charts 3 and 4 show the indicators in an attempt to determine the level of development of capital markets in each group of countries. Market capitalization on Chart 3 (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. The turnover ratio in Chart 4 is the value of domestic shares traded divided by their market capitalization. The value is annualized by multiplying the monthly average by 12.



**Chart 3.** Market capitalization in the groups of countries as a percentage of GDP in 2000-2015. Data are end of year values

Source: own study based on [World Federation of Exchanges].



**Chart 4.** Turnover ratio of domestic shares in percent for groups of countries in 2000-2015

Source: own study based on [World Federation of Exchanges].

The size of the capitalization of the capital markets in different groups of countries shows exactly their investment attractiveness. The biggest markets capable of attracting capital both domestic and foreign, are the countries with the highest level of development. At the same level are the markets of the countries with an average per capita income levels, both higher and lower values. It is impossible to show this relationship for countries with the lowest level of development because they do not have or do not present such data – often due to problems with the functioning or lack of capital markets. By analyzing these data over time we can see a reduction in market capitalization during the financial crisis in 2008, but after this period the most developed markets quickly recovered their losses. The markets of developed countries on average grew at a slower pace. Thus it can be concluded that foreign capital in the form of portfolio investments will be looking for emerging markets in a predictable way, as well as giving the opportunity to achieve the required rate of return on investment.

A similar relationship can be seen in Chart 4, which shows the value of domestic shares traded, divided by their market capitalization. It may be noted that in the most developed countries the rate of return is highest, however in the most dynamically developing – upper middle income – this relationship begins to prevail in recent years. In the least developed countries (LDC), turnover ratio is close to zero. Again, it seems that capital, especially foreign, will look for opportunities to make the most cost-effective investments in countries with the highest level of development.

#### 4. Conclusions

In the above considerations and using empirical data we formulated the following conclusions:

- portfolio investments account for a significant share of capital flows between global financial markets, hence the need for their observation and diagnosis of the determinants of flows (first hypothesis);
- flows of portfolio investments take place mainly between developed countries and countries with high or medium level of per capita income. Underdeveloped countries do not derive profits from those cash flows at the level of which they need to develop (second hypothesis);
- the capital markets of LDCs are not an investment attractive for investors. At the same time the lack of large amounts of capital inflow does not enforce technical adjustments and infrastructure, as well as legal and organizational in these countries (third hypothesis).

Thus it can be considered that the assumptions contained in the theoretical considerations of the flow of portfolio investment in the modern global economy were confirmed.

At the same time capital in the form of portfolio investments can be transferred to different markets while incurring relatively low cost. Creating the conditions for capital investment and retaining them in the long term, thus becomes one of the fundamental tasks of the capital markets, especially medium and underdeveloped, which can derive patterns and solutions in the most developed countries.

A subject of further research will be to formulate the factors attracting capital in the form of portfolio investment on capital markets in the global economy. Indeed, although these factors were clearly formulated for direct investments, portfolio investments remain so far unexplained in the sphere of decision-making by investors. In the course of the research it should be determined whether these investments are made on the basis of rational reasons, or also based on behavioral and emotional factors. This could be an indication for the formulation of policy and the development of capital markets, especially in developing countries.

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