Časopis za poslovnu teoriju i praksu
The paper submitted: 11/04/2019
The paper accepted: 28/05/2019

UDK 336.1.07:364.35]:339.76
DOI 10.7251/POS1922075G
Original scientific paper

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PENSION FUNDS AS A GENERATOR OF DEVELOPMENT OF THE FINANCIAL MARKET

Summary: *The aim of the paper is to relate the credit rating of the country and the development of the financial market. At the same time, we will analyze the structure and size of pension funds and the development of the financial market by country. The research question is: "Does the size and structure of pension funds has any influence on the development of the financial market in the country?" The research deals with finding a response to the question of the dependence between the structure and size of pension funds on one side and the development of the financial market on the other. The subject of the research is an analysis of all pension funds, financial markets, credit rating and GDP in developed countries and in emerging markets. The obtained response to the research question may point to the direction of regulatory change that would stimulate or dissipate the development of pension funds in emerging markets. The methods used in this paper are the analysis and synthesis of previous research and theoretical findings, and an overview of case studies, to make conclusions drawn by the induction method. The contribution of the work is reflected in the fact that pension funds have been explained by their structure and size offering the development of the financial market in the country. The results show that pension funds can be significant support for state development, financing of local communities, but there are only weak determinations between the size and structure of the funds and the size of the economy and between the development of the financial market and the development of the market.*

Key words: *pension funds; investment funds, financial market development*

JEL classification: *C82, D53, E44, G15, 016*

INTRODUCTION

Searching for the answer to the question of the preferred structure and size of pension funds, the structure and size of pension funds in the world have been analyzed. The structure of investment of pension funds in the world with an emphasis on the structure of the portfolio and the functioning of the Pension Reserve Fund of the Republic of Srpska and the European Voluntary Pension Fund of Republika Srpska were compared. The tendency of this paper is to through a detailed analysis of the structure of pension funds in the world, determine the regularity between the size and structure of pension reserve funds and the size and degree of development of the financial market, that is, the country and GDP. In this regard, the main hypothesis is: "The size and structure of pension funds have an impact on the size and structure of the financial system of a particular country." Thus, the method of induction was used - from individual experiences to general. From the main hypothesis arises the auxiliary hypothesis:
H1: "Greater participation of equity securities in pension funds' portfolios has a positive impact on the development of the financial market."
H2: "Greater participation of debt securities in pension funds' portfolios has a positive impact on the development of the financial market."

H3: "Greater participation of equity securities in pension funds' portfolios has a positive impact on the GDP of the country."
H4: "Greater participation of debt securities in pension funds' portfolios has a positive impact on the GDP of the country."
H5: "The size of pension funds in relation to GDP has a positive impact on the development of the financial market."
H6: "The size of pension funds has a positive impact on the GDP of the country."

The aim of this paper is to offer recommendations for creating the optimal structure and size of pension funds in developing markets, that is, to offer the direction of development of pension funds.

1. PREVIOUS RESEARCH

A large body of literature has developed to assess the impact of financial development on economic growth, inequality, and economic stability (Levine 2005; Demirgüç-Kunt and Levine 2009; Dabla-Norris and Srivisal 2013). Financial development involves improvements in such functions provided by the financial systems as: (i) pooling of savings; (ii) allocating capital to productive investments; (iii) monitoring those investments; (iv) risk diversification; and (v) exchange of goods and services (Levine 2005). Each of these financial functions can influence saving and investment decisions and the efficiency with which funds are allocated. As a result, finance affects the accumulation of physical and human capital and total factor productivity – the three factors that determine economic growth. To the extent that financial development reduces informational asymmetries and financial constraints and promotes risk sharing, it can enhance the ability of financial systems to absorb shocks and reduce the amplification of cycles through the financial accelerator (Bernanke and Gertler and Gilchrist 1999), lowering macroeconomic volatility and inequality.
Most of the empirical literature since the 1970s approximates financial development by two measures of financial depth – the ratio of private credit to GDP and, to a lesser extent, by stock market capitalization, also as a ratio to GDP. For example, in an influential industry-level study Rajan and Zingales (Rajan and Zingales 1998) use both measures to show that more financial development facilitates economic growth. More recently, Arcand, Berkes and Panizza (Arcand and Berkes and Panizza 2012) use credit to GDP ratio to establish that there is a threshold above which financial development no longer has a positive effect on economic growth. On the macroeconomic volatility side, Dabla-Norris and Srivisal (Dabla-Norris and Srivisal 2013) find that financial development, as measured by private credit to GDP from banks and other financial institutions, plays a significant role in dampening the volatility of output, consumption, and investment growth, but only up to a certain point. Most researchers in this field use variations of these two measures to examine the role of the financial system in economic development.
And yet, financial development is a multidimensional process. With the passage of time, financial sectors have evolved across the globe and modern financial systems have become multifaceted. For example, while banks are typically the largest and most important, investment banks, insurance companies, mutual funds, pension funds, venture capital firms, and many other types of nonbank financial institutions now play substantive roles. Similarly, financial markets have developed in ways that allow individuals and firms to diversify their savings, and firms can now raise money through stocks, bonds, and wholesale money markets, by-passing traditional bank lending. The constellation of such financial institutions and markets facilitates the provision of financial services. Furthermore, an important feature of financial systems is their access and efficiency. Large financial systems are of limited use if they are not accessible to a sufficiently large proportion of the population and firms. Even if financial systems are sizeable and have a broad reach, their contribution to economic

development would be limited if they were wasteful and inefficient. This point is made also, for example, in Čihák et al. and Aizenman, Jinjarak and Park (Čihák et al. 2012; Aizenman, Jinjarak and Park 2015). The diversity of financial systems across countries implies that one needs to look at multiple indicators to measure financial development.

To overcome the shortcomings of single indicators as proxies for financial development, a large number of indices that summarize how developed financial institutions and financial markets are in terms of their depth, access, and efficiency, culminating in the final index of financial development has been created (Figure 1). These indices were originally developed in the context of the IMF Staff Discussion Note "Rethinking Financial Deepening: Stability and Growth in Emerging Markets" (Sahay et al. 2015). This paper presents and explains the methodology that underpins them. The sub-indices and the final overall index are constructed for 183 countries on annual frequency between 1980 and 2013. Financial institutions include banks, insurance companies, mutual funds, and pension funds. Financial markets include stock and bond markets. Financial development is defined as a combination of depth (size and liquidity of markets), access (ability of individuals and companies to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets). This broad multi-dimensional approach to defining financial development follows the matrix of financial system characteristics developed by Čihák (Čihák et al. 2012).

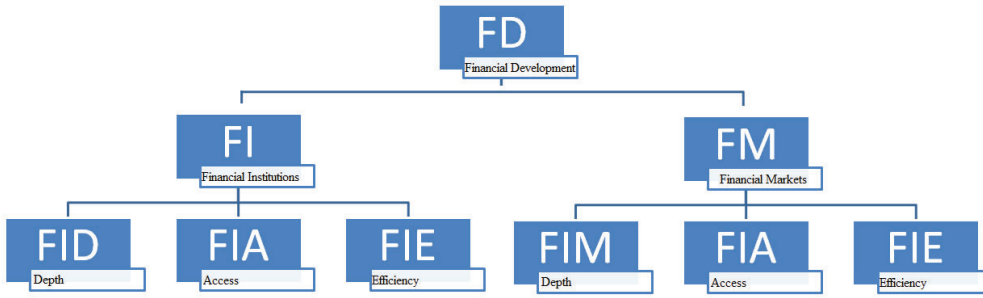

Chart 1. Pyramid of the Financial Development Index (IMF staff, bazirano na Čihák and et al. 2012)

The contribution of this paper is quite distinct. First, we supplement the World Bank FinStats, a more updated version of the Global Financial Development Database (GFDD) introduced by Čihák and co-authors, with additional data from the Bank of International Settlements (BIS) debt securities database, Dealogic corporate debt database, and IMF Financial Access Survey. Second, we summarize this diverse information in several easy to use indices. Given the wealth of information on financial system properties – there are 105 distinct indicators in GFDD and 46 indicators in FinStats – it is not feasible to track all of these different indicators individually, especially in empirical work. And even if it were possible, not one single indicator, when taken on its own, would offer a comprehensive understanding of the level of financial development. The sub-indices and the final index pull together these various indicators and allow a comprehensive assessment of particular features of financial systems and the overall level of financial development. As a result, the indices allow to pin down where deficiencies in financial development lie or which aspects of financial development affect macroeconomic performance, which could then be investigated in greater detail using the disaggregated data from FinStats or GFDD.

In the discussion, we will look at some of the constraints and shortcomings of the index in order to show to what extent the structure and size of pension funds influence the index result. The goal is to determine whether by replicating a certain country by the structure and size of the index, it is possible to further develop the financial market. In this regard, the term

"emerging market" means countries that are characterized by institutional turbulence, low level of corporate governance and economic development in relation to developed countries. Hoskisson and associates mark all the countries of the Western Balkans as the countries in transition (Hoskisson et al. 2000, 249-267). For the sake of illustration, institutional legacy of the communism is reflected in a large, undisciplined and ineffective administration, a bureaucratic approach of the institutions and corruption. So, a workplace in the state administration was a source of safety and influence (Haramija and Njavro 2016).

'A bureaucratised and restrictive authority has opened the door to corruption and bribery of public services because most citizens seem to believe that it is the only way to get things done' (Dimitrova-Grajzl and Simon 2010, 206). Even a glance at the agencies for statistics of the West Balkans countries confirms the prolongation of such practice, i.e. the increase in number of employees in the budget funded areas of administration, public authorities, education and art. On the other hand, there is an obvious decrease in number of employees in the processing industry. Besides, relevant researches also show a high level of corruption in the new EU member states as opposed to the *old* ones as a consequence of the communist regime (Transparency International 2016). Also, when observing the trust in institutions researches, countries in transition are always at the bottom of such lists (Bjørnskov 2007). Also, in small and open economies, such as contries in Western Balkans, monetary policy abilities are limited by many constraints (Benazić and Rami 2016, 1039). Therefore, in parallel with the weak development of the financial market, the criticism of the transition is based on the fact of significant increase of poverty and degradation, mostly of the middle class (Cifrić 1996, 137).

By comparing developing markets, we notice that, as in all Western Balkan countries as well as in Bosnia and Herzegovina, non-economic factors in the region play the most important role in determining the value of trade between countries (Trivić and Klimczak 2015, 57). The economic instability results from "frequent reforms, where the economic growth and the social impact of changes were completely ignored, low rates of domestic and foreign investment, foreign trade deficit and low rates of GDP" (Duvnjak 2018, 198). For example, there is a line of social and economic questions which are not yet answered and whose improvement implies complicated and demanding solutions (Amidžić et al. 2016, 57). Also, many buyers of the public companies saw the privatisation as an opportunity to gain certain asset without any entrepreneurial activities and/or creation of new value. As a result of such measures, a great deal of former public companies was closed after a lengthy insolvency proceeding. In the case of better luck, such companies still exist but their market value is significantly lower than it was a couple of years ago. As a result, a high percentage of working age people lost their jobs and new workplaces were never opened (Šokčević and Dugalić 2007).

The capital market in the country has gone through stages from establishment of the both stock exchange markets to the rise and fall and awakening again through the increased value of debt securities, but in the terms of market material and the number of market instruments it is still undeveloped and inactive. Moreover, the banking sector is at a medium level or development with basic aggregates in it (Serdar 2015, 127). In spite of that fact, in spite of all the limitations, institutional investors can create a security portfolio in local stock markets which would provide them with the wanted yield with only a little exposure to the market risk (Grujić 2017, 437). That sort of interest from institutional investors, along with the stability of domestic currency and foreign exchange rate, can represent a desired feature of a financial market. However, it is precisely the fixed foreign exchange rate that can create an illusion. In 1999 Bosnia and Herzegovina adopted a system of *currency board*. To tell the truth, this move has given results in the field of country's inflation reduction representing a significant contribution to the regulation of the finance sector. Currency board implies constantly fixed exchange rate, foreign-exchange reserve in a stable currency at a level sufficient to cover the amount of money (in paper and coins) and unlimited internal convertibility, i.e. the ability to

convert domestic money into the currency of the reserve (and vice-versa) at a fixed rate. In this regard the binding of the BAM to the EUR has been an *anchor keeping the Bosnia and Herzegovina vessel from unnecessary wandering across the stormy seas of transition*. Debt crisis situations and the experience of transitional countries in the last twenty years or so point to the fact that the entry of foreign capital with borrowing from foreign markets can lead a country to big problems. For example, even though the fixing of exchange rate is rather unpopular, it still presents a certain security to the system. Abandoning of the fixed exchange rate in Bosnia and Herzegovina would lead to depreciation of the BAM in relation to stronger currencies. As a consequence, the debts expressed in dollars or euros would rise in relation to the GDP.

Talking about the development of the domestic financial market, it is a fact that bonds are gaining in importance on the domestic market. Experiences from developed markets show that the secondary market of municipal bonds is significantly more passive and less liquid in relation to the stock market or the government bond market which to some extent may be the lack of this financial instrument. In addition, as a clear lack and danger of obtaining money through the issuance of municipal bonds, the fact that this financial instrument is underdeveloped in terms of the market, and that the procedure for obtaining money for the issuer is significantly longer compared to the bank loan. Namely, from the date of making the decision on borrowing, until the announcement of the decision on admission of bonds to the official stock exchange market, it passes even after several months. Experiences of developed capital markets, as well as countries in transition, show that municipal bonds, in addition to refreshing and diversifying the market, increase competitiveness among financial instruments. In addition to local communities, there is a direct benefit for the state, which is one of the synergetic effects of the appearance of municipal bonds on the capital market. At the same time, it is natural that the number of "smaller" companies, which is "listed by the law" - privatized, listed on the stock exchange - is reduced under the influence of the amended legislation. It implies that the majority owner who holds 95 percent of the ownership in the company can buy the rest, change the legal form of the company and delist it. Also, a smaller number of listed companies does not mean a less developed capital market. Stock markets in the region have more listed shares than the stock exchanges in Austria, Slovenia, the Czech Republic, Poland, Hungary and the turnover on those exchanges is incomparably lower than on European stock exchanges. For example, 98 shares were listed on the Vienna Stock Exchange and 3,304 bonds were listed. In addition, there are 4,826 structural products on this stock exchange. So, it is natural that the number of listed shares decreases, and parallel with this, the offer of bonds is growing. Speaking about the domestic market, we must point out that in BiH there are only two pension funds: the Pension Reserve Fund of Republika Srpska and the European Pension Voluntary Fund. Both are based in Banja Luka and are primarily oriented to the Banja Luka Stock Exchange. According to the OECD methodology, the Pension Reserve Fund of the Republika Srpska is the Sovereign Pension Reserve Fund (OECD 2018) while the European Pension Fund is a Social Security Reserve Fund. The difference is in the "filling" of the fund. Sovereign Pension Reserve Fund is a closed-end investment fund, and Social Security Reserve Funds are charged on the basis of "entry" of new members into the fund. The total assets they manage are about 240 million euros, of which about 92 million are in cash, bonds, deposits and treasury bills and the rest in shares and uncorrelated property.

2. METHODOLOGY

The paper presents the data provided by The National Bureau of Economic Research (The National Bureau of Economic Research 2019), Organization for Economic Co-operation and Development (Organization for Economic Co-operation and Development 2019), and data on credit ratings of countries published by the three most famous rating agencies in the world.

For each observed country, the percentage of assets of pension funds in equities, debt securities, the percentage of assets in cash and deposits, as well as the percentage of investments in other classes of assets and in uncorrelated assets were taken into account. At the same time, the amount of GDP for each country, the amount of the FD index, and the size of pension funds as a percentage of GDP were observed. In the end, a credit rating for each country was presented in accordance with the ratings obtained from the agencies: Moody's, S & P and Fitch. In the end, where possible, credit ratings for each individual rating were presented (Prime - first-class rating; High grade; upper credit rating; Upper medium grade; upper middle class; Lower medium grade; lower middle class; Non-investment grade; - non-investment grade; speculative - speculative bonds and Highly speculative - high speculative bonds).

Table 1. Overview of structure and size of pension funds, indicators of market development and GDP by country (OECD 2018).

State	Equity	Bills and bonds	Cash and deposits	CIS	Other	GDP	FD Index	Assets as a % of GDP	Moody's ratings	S&P ratings	Fitch ratings	Description
Australia	58,25	4,79	11,22		25,74	1.427.767	0,85	130,17	Aaa	AAA	AAA	Prime
Austria	35,45	44,36	7,05		13,14	459.401	0,64	6,04	Aa1	AA+	AA+	High grade
Belgium	41,49	45,12	5,74		7,65	536.055	0,58	7,80	Aa3	AA	AA-	High grade
Canada	30,50	31,74	4,29		33,48	1.733.706	0,86	154,70	Aaa	AAA	AAA	Prime
Chile	40,83	58,40	0,23		0,54	299.887	0,47	72,04	A1	A+	A	Upper medium grade
Czech Republic	0,57	76,89	19,12	2,14	1,28	244.540	0,37	8,83	A1	AA-	AA-	Upper medium grade
Denmark	25,65	29,86	2,01	4,12	38,37	354.683	0,64	218,53	Aaa	AAA	AAA	Prime
Estonia	36,13	59,45	4,05		0,36	29.527	0,33	17,54	A1	AA-	AA-	Upper medium grade
Finland	39,46	27,95	3,46		29,13	276.553	0,66	60,49	Aa1	AA+	AA+	High grade
France	38,12	22,39	34,49		5,01	2.794.696	0,76	-	Aa2	AA	AA	High grade
Germany	6,20	51,94	3,82		38,05	4.029.140	0,70	6,89	Aaa	AAA	AAA	Prime
Greece	11,39	58,67	7,81	20,81	1,32	218.057	0,54	0,75	B1	B+	BB-	Highly speculative
Hungary	7,15	60,11	3,70	26,62	2,42	156.393	0,44	5,94	Baa3	BBB	BBB	Lower medium grade
Iceland	30,50	43,98	9,99		15,54	26.684	0,54	164,55	A3	A	A	Upper medium grade
Ireland	32,30	40,90	2,90		23,90	366.448	0,69	184,65	A2	A+	A+	Upper medium grade
Israel	18,13	65,10	7,12		9,64	365.599	0,57	59,03	A1	AA-	A+	Upper medium grade
Italy	20,08	44,96	6,17		28,80	2.086.911	0,80	-	Baa3	BBB	BBB	Lower medium grade
Japan	10,46	30,44	8,04		51,06	5.070.626	0,87	28,83	A1	A+	A	Upper medium grade
South Korea	3,12	44,21	16,58	6,29	29,80	1.655.608	0,86	30,06	Aa2	AA	AA-	High grade
Latvia	27,85	61,66	7,13		3,36	34.286	0,29	13,81	A3	A	A-	Upper medium grade
Lithuania	45,92	46,20	5,20		2,67	52.468	0,26	7,20	A3	A	A-	Upper medium grade
Lukembourg	29,11	60,04	4,12		6,72	68.993	0,75	2,92	Aaa	AAA	AAA	Prime
Mexico	21,52	75,64	0,88		1,96	1.199.264	0,41	26,63	A3	BBB+	BBB+	Upper medium grade
Netherlands	31,70	43,60	3,28		21,42	909.887	0,71	184,15	Aaa	AAA	AAA	Prime
New Zealand	33,23	23,75	6,97	34,47	1,59	205.997	0,61	25,77	Aaa	AA	AA	Prime
Norway	36,94	54,18	2,37		6,52	441.439	0,69	10,48	Aaa	AAA	AAA	Prime
Poland	85,23	7,41	5,92	0,01	1,43	549.478	0,47	10,12	A2	A-	A-	Upper medium grade
Portugal	20,43	58,14	6,31		15,11	237.962	0,69	11,41	Baa3	BBB	BBB	Lower medium grade
Slovakia	2,24	57,81	12,05	23,51	4,39	106.940	-	-	A2	A+	A+	Upper medium grade
Slovenia	1,88	59,58	12,28	24,60	1,66	54.969	0,39	6,92	Baa1	A+	A-	Lower medium grade
Spain	13,20	45,48	11,00	21,83	8,50	1.437.047	0,88	13,57	Baa1	A-	A-	Lower medium grade
Sweden	13,92	14,52	0,90	65,23	5,43	554.659	0,72	90,20	Aaa	AAA	AAA	Prime
Switzerland	31,10	30,64	5,01		33,25	709.118	0,94	-	Aaa	AAA	AAA	Prime
Turkey	13,07	50,45	25,16		11,32	713.513	0,83	14,30	Ba3	B+	BB	speculative
United Kingdom	13,14	27,97	2,15	28,47	28,27	2.808.899	0,82	105,30	Aa2	AA	AA	High grade
United States	32,95	21,58	2,37	33,29	9,81	20.513.000	0,87	145,27	Aaa	AA+	AAA	Prime

State	Equity	Bills and bonds	Cash and deposits	CIS	Other	GDP	FD Index	Assets as a % of GDP	Moody's ratings	S&P ratings	Fitch ratings	Description
Namibika	65,08	24,01	8,11		2,81	14.148	0,45	91,66	Ba1	0	BB+	Non-investment grade
Hong Kong	63,44	20,93	11,50		4,14	360.315	0,73	43,52	Aa2	AA+	AA+	High grade
Mauritius	55,95	32,39	8,73		2,92	14.033	0,43	4,69	Baa1	0	0	Lower medium grade
Pakistan	49,31	34,11			16,58	306.987	0,23	0,06	B3	B-	B-	Highly speculative
Papua New Guinea	48,69	23,62	11,17	-	16,53	20.767	0,23	18,01	B2	B	B+	Highly speculative
Peru	42,96	43,56	6,04		7,45	228.944	0,38	22,67	A3	BBB+	BBB+	Upper medium grade
Malawi	41,78	37,14	9,82	-	11,26	6.885	0,08	11,82	0	0	B-	Highly speculative
Colombia	40,37	49,48	2,24		7,91	336.940	0,44	25,28	Baa2	BBB-	BBB	Lower medium grade
Jamaica	33,48	52,61	1,23		12,68	15.424	0,27	28,51	B3	B	B+	Highly speculative
Trinidad and Tobago	32,34	43,35	6,18		18,12	23.284	0,34	19,76	Ba1	BBB+	0	Non-investment grade
Northern Macedonia	30,31	61,34	8,20		0,15	12.374	0,28	9,40	0	BB-	BB	speculative
Armenia	28,07	41,06	29,97		0,90	12.533	0,25	1,90	B1	0	B+	Highly speculative
Romania	22,97	68,29	8,66		0,08	239.440	0,31	4,85	Baa3	BBB-	BBB-	Lower medium grade
Zambia	22,33	21,78	8,00	7,63	40,27	25.778	0,12	3,48	0	B-	B-	Highly speculative
Croatia	21,90	73,42	4,38		0,30	59.971	0,41	26,79	Ba2	BBB-	BB+	speculative
Kenya	19,83	40,39	4,24		35,53	89.591	0,19	13,13	0	B+	B+	Highly speculative
South Africa	19,54	9,32	3,99	15,85	51,30	376.679	0,62	95,30	Baa3	BB	BB+	Lower medium grade
Thailand	18,35	56,41	12,27	11,97	0,99	490.120	0,73	7,06	Baa1	BBB+	BBB+	Lower medium grade
Bulgaria	17,40	60,87	5,85	12,87	3,01	63.651	0,38	12,92	Baa2	BBB-	BBB	Lower medium grade
Indonesia	17,33	45,17	27,78		9,72	1.005.268	0,36	1,88	Baa2	BBB-	BBB	Lower medium grade
Uganda	16,77	72,62	4,68		5,93	27.855	0,12	9,29	0	B	B+	Highly speculative
Malta	12,27	11,29	4,93	28,48	43,03	14.270	0,57	42,00	A3	A-	A+	Upper medium grade
Russia	11,49	68,83	14,83		4,85	1.576.488	0,51	6,06	Baa3	BBB-	BBB-	Lower medium grade
India	11,25	84,49	2,55		1,72	2.689.992	0,41	1,05	Baa2	BBB-	BBB-	Lower medium grade
Nigeria	10,67	76,14	10,05		3,14	397.472	0,24	6,54	0	B	B+	Highly speculative
Suriname	10,16	33,71	18,48	1,36	36,29	3.840	0,22	11,28	B2	B	B-	Highly speculative
Malaysia	9,36	79,47	6,61	1,48	3,07	347.290	0,66	0,32	A3	A-	A-	Upper medium grade
Brazil	8,51	35,93	0,10		55,46	1.909.386	0,57	24,59	Ba2	BB-	BB-	speculative
Serbia	8,49	84,14	7,37		-	47.564	0,27	0,81	0	BB	BB	speculative
Egypt	7,41	71,82	2,82		17,95	249.471	0,31	1,74	B3	B	B+	Highly speculative
Maldives	3,75	91,10	5,15		-	4.809	0,18	9,28	0	0	B+	Highly speculative
Costa Rica	3,04	92,05	3,42		1,49	60.816	0,27	18,83	B1	B+	B+	Highly speculative
Ghana	1,74	69,57	13,89	1,22	13,58	51.815	0,15	5,39	0	B	B	Highly speculative
Panama	0,37	55,05	43,37		1,21	66.031	0,35	0,87	Baa1	BBB	BBB	Lower medium grade
Singapore	0,18		3,22		96,60	346.621	0,71	80,22	Aaa	AAA	AAA	Prime
Uruguay	0,17	77,57	6,78	-	15,48	60.933	0,25	27,40	Baa2	BBB	BBB-	Lower medium grade
Dominican Republic	-	99,86	0,00		0,14	81.103	0,18	12,44	Ba3	BB-	BB-	speculative
Albania	-	94,74	3,37	-	1,89	15.121	0,21	0,11	B1	B+	0	Highly speculative

State	Equity	Bills and bonds	Cash and deposits	CIS	Other	GDP	FD Index	Assets as a % of GDP	Moody's ratings	S&P ratings	Fitch ratings	Description
Bosnia and Herzegovina	44,88	34,59	7,66	-	12,88	18.170	0,26	7,03	B3	B	0	Highly speculative

Using the Excel program, the correlation coefficients and determinations for the following variables are presented as follows :
X-axis - country credit rating and Y-axis market development (FD index)
X-axis - participation of equity securities in funds and Y-axis market development (FD index)
X-axis - the share of debt securities in funds and Y-axis market development (FD index)
X axis - participation of equity securities in funds and Y-axis amount of GDP
X-axis - the share of debt securities in funds and Y-axis amount of GDP
X-axis - the size of pension funds in relation to GDP and Y-axis market development (FD index)
X-axis - the size of pension funds in relation to GDP and Y-axis amount of GDP

3. RESULTS AND DISCUSSION

We noticed that the function is increasing, y = 0.2977x + 0.0868 and that the value of R2 = 0.4051 ie the determination coefficient is 40.51 or the correlation between the two observed variables is 0.64 (Chart 2) a which presents weak link between the credit rating of the country, ie the rating of government bonds and the development of the financial market. The same methodology was further compared (Table 2):

a) participation in stocks and market development (FD index)
b) participation of debt securities in funds and market development (FD index)
c) participation in equity securities and in GDP
d) participation of debt securities in funds and GDP
e) the size of pension funds in relation to GDP and market development (FD index)
f) the size of pension funds in relation to GDP and GDP

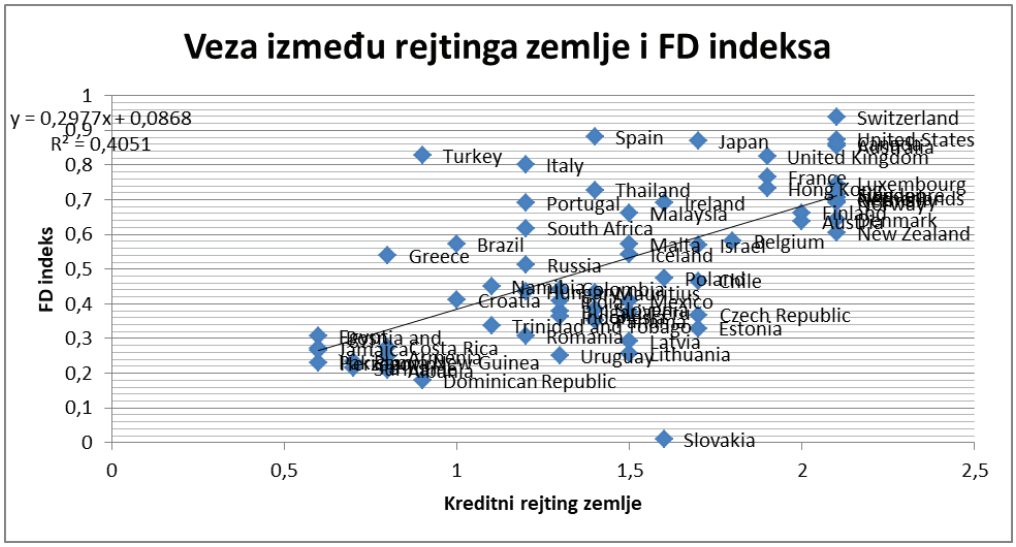

Chart 2. View link between country rating and market development (Author)

Table 2. Correlation and Determination by Country (Author)

Relationship	Correlation	Determination
participation in equity funds and market development (FD index)	13.0%	1.7%
participation of debt securities in funds and market development (FD index)	-39.3%	15.5%
participation in equity and GDP holdings	0.8%	0.0%

the participation of debt securities in funds and GDP	-19.6%	3.9%
the size of pension funds in relation to GDP and market development (FD index)	43.1%	18.6%
the size of pension funds in relation to GDP and GDP	26.8%	7.2%

It is noticed that there is no significant correlation nor determination between the observed variables. However, when countries are grouped by rating from a rating agency to the same groups (Prime, High grade, Upper medium grade, Low medium grade, Non-investment grade, Speculative, Highly speculative), we come to significantly different results. When the results from the main table are adjusted by groups, we get the following view.

Table 3. Overview of the structure and size of pension funds, indicators of market development and GDP by country by country groups according to credit rating (Author)

Rating description	Equity securities	Debt securities	Cash and deposits	Other assets	Other	GDP	FD Index	Assets as% of GDP
Prime	27.48	33.33	4.13	34.28	26.41	2.607.917	0.75	87.44
High grade	33.46	33.27	11.57	17.38	16.73	1.270.218	0.72	36.17
Upper medium grade	27.75	50.55	6.68	11.13	11.31	595.750	0.46	43.88
Lower medium grade	17.37	54.76	11.03	16.25	9.73	680.803	0.50	14.08
Non-investment grade	48.71	33.68	7.14	0.00	10.47	18.716	0.39	55.71
Speculative	13.71	67.52	7.54	0.00	11.23	470.651	0.42	14.72
Highly speculative	20.78	55.63	8.86	3.88	13.42	89.728	0.23	8.66

We noticed that countries with speculative credit rating have almost two-thirds in debt securities and non-investment countries have almost half of their assets in debt securities of value. It is important to emphasize that developed countries have more investment alternatives, and more than a third of their assets invest in other forms of property. From this, we can conclude that pension funds in developed countries are more likely to be exposed to risky financial instruments. On the other hand, countries in the post-transition period, naturally, have many more equity securities than the market, and the funds invest more in these securities. Finally, analyzing sorted results should not be lost from the vision and effects of geographical diversification. Namely, funds in Scandinavian countries are well known for investing significantly in other developed markets. In this regard, when considering the geographic distribution of the pension fund assets, we note that about 2/3 of the assets were invested in US markets.

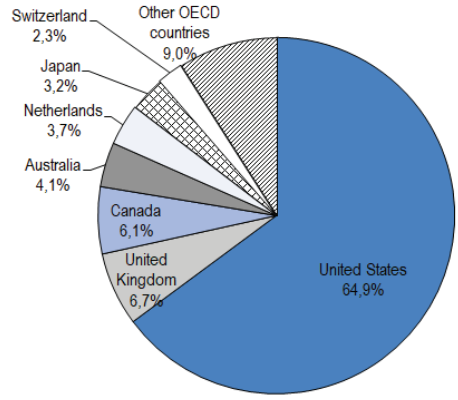

Chart 3. Markets in which pension funds invest (OECD 2018)

Considering that these analyses are carried out again only based on the group in which certain countries belong (prime, high grade, lower medium grade, lower medium grade, non-investment grade, speculative and highly speculative), we come to significantly different results. New results are a consequence of the fact that in the X-axis we have only seven sizes, which greatly increases the correlation coefficient and the determination between the observed phenomena because the "scattering" is smaller. Namely, the rating of the credit rating neglects the rating of rating agencies, such as "stable", "negative" or "on track".

Table 4. Credit rating grading and group description (Author)

AgencyMoody's	AgencyS&P	AgencyFitch	Description
Aaa	AAA	AAA	Prime
Aa1	AA+	AA+	High grade
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	Upper medium grade
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	Lower medium grade
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	
Ba1	BB+	BB+	Non-investment grade
Ba2	BB	BB	Speculative
Ba3	BB-	BB-	
B1	B+	B+	Highly speculative
B2	B	B	
B3	B-	B-	
Caa1	CCC+	CCC	Substantial risks
Caa2	CCC		Extremely speculative
Caa3	CCC-		In default with little prospect for recovery
Ca	CC		
C	C		
/	D	DDD	In default
/		DD	
		D	

We noticed that there is a weak link between debt securities participation in the funds and market development (the correlation coefficient is -0.604 and the coefficient of determination is 0.365), the size of pension funds in relation to GDP and market development (0.631; 0.398), and the size of pension funds compared to GDP and GDP (0.696, 0.485).

Table 5. Correlation and determination of observed sizes by groups of countries according to credit rating (Author)

Relationship	Correlation	Determination
participation in equity funds and market development (FD index)	15.0%	2.2%
participation of debt securities in funds and market development (FD index)	-60.4%	36.5%
participation in equity and GDP holdings	-5.2%	0.3%
the participation of debt securities in funds and GDP	-48.3%	23.3%
the size of pension funds in relation to GDP and market development (FD index)	63.1%	39.8%
the size of pension funds in relation to GDP and GDP	69.6%	48.5%

Analyzing the obtained results, we can argue that there is a weak link between debt securities participation in the fund and market development, the size of pension funds in relation to GDP and market development, and the size of pension funds in relation to GDP and the size of GDP. For example, pension funds in countries with Prime Credit Rating have about one-third of their portfolio debt securities while countries with a somewhat weaker rating have almost half of their assets in debt securities of value.

Observing the structure of the portfolio of pension funds both in developed and emerging markets, it is natural that the pension fund has at least one-third of the debtor in bonds. Transferred to the Republika Srpska framework we can argue that, for example, the Pension Fund of the Republic of Srpska in its form and manner of functioning is a closed investment fund, which is established by a special law, and from investment funds differs in that there is only one founder-owner - the PIO Fund Republic of Srpska and was established in the form of a joint stock company controlled by the Management Company, whose sole founder/owner is also the PIO Fund. As such, the pension fund can be a generator of local community development because it can invest in bonds issued by the local community in its prospectus and investment policy. The role of pension funds in the success of issuing bonds in emerging markets is important. Thus, pension funds have a significant impact and can be a significant support to finance the development of local communities. At the same time, investment in a pension fund, on the principle of investing in the third installment of pension insurance, also has a synergistic effect when using tax relief. When investing in pension funds, tax incentives stimulate employers and workers to create savings for the third time when disposable income falls, and citizens who have this kind of savings will not make so much social pressure on the budget in the future as they have additional income. Secondly, the legal investment constraints and the EPF investment policy that emerges from them is quite conservative and primarily supported (an important feature of all pension funds in the world) on investing in long-term government securities.

On the other hand, retirement funds simply have to invest a significant part of the assets they manage in bonds, and therefore in municipal ones, thus directly increasing the opportunity for municipal development. The investment objective of the pension fund is everywhere - the realization of a continuous and stable return on investment in securities. The investment horizon of investment of pension funds is a long time. Judging by this, municipal bonds represent an almost ideal instrument for investing pension funds. Judging by this, pension funds can be seen as a generator of local community development, but not capital markets. Without a doubt, funding for projects related to economic development, the local community, can be secured by issuing bonds in which pension funds can also participate. Despite this, it should be borne in mind that, as a consequence of geographical diversification, which is preferred by the pension funds, the investment in the already developed markets is encouraged. In this connection, the pension funds can not by themselves be considered as a generator of financial market development.

CONCLUSION

The paper shows that the country's financial development is defined as a combination of depth, market access, and market efficiency. In order to determine to what extent the pension funds and how they affect financial development and economic growth, it is shown that the pension funds in the countries with Prime credit rating have about one-third of the portfolios in debt securities, while countries with somewhat lower rating have almost half of the assets in debt securities of value. In addition, the trend suggests that developed financial markets are characterized by a wide range of investment instruments as well as derivatives, facilitating dispersion and diversification. Also, given the approach to financial instruments and the efficiency of the market, we can claim that funds in developed markets are more exposed to risky bonds.

Relating to equity holdings in pension fund portfolio and financial market development, the correlation was 13.0% and the determination was 1.7%. When a group of countries ranked by investment grade, high grade, upper middle grade, lower middle grade, non-investment grade, speculative and highly speculative, there is a correlation of 15.0% and a 2.2% determination. Therefore, there is not even a weak link between the participation of equity securities in the portfolio of pension funds and the development of the financial market.

The correlation of the participation of debt securities in the portfolio of pension funds and the level of development of the financial market is 11.5% and the determination is 1.3%. Similarly, when we look at the country's investment rating, we observe a correlation of 8.9% or a 0.8% determination. Hence, we can not claim that the greater participation of debt securities in the portfolio of pension funds has a positive impact on the development of the financial market.

Considering the participation of equity securities in the portfolio of pension funds and the amount of GDP of the country, there is a negative correlation, ie -39.3%, and the determination coefficient is 15.5%. When we look at groups this relationship is even more significant (-60.4% and 36.5%) and we can say that there is a negative weak link between these two phenomena.

Similarly, there is a link between the participation of debt securities and GDP. Based on the analysis of available data, it was found that the correlation between the participation of debt securities in the portfolio of pension funds and the GDP of the country is -39.7%. Therefore, the determination is 15.7%. When we group the country by credit rating we get the correlation -60.2% and the determination of 36.2%. Based on this we can conclude that there is a weak negative link between these two phenomena. Finally, it has been established that there is virtually no link between the size of pension funds in relation to GDP and the development of the financial market. The coefficient of correlation between individual countries is 0.8% and when we consider credit rating it is 5.2%. The most significant link is the size of the pension funds and the GDP of the country, but it can not be called a weak one. There is a correlation of -19.6%, or -48.3% when we look at countries according to credit rating. In accordance with the aforementioned, the third and fourth auxiliary hypotheses have been partially confirmed: "Greater participation of equity securities in portfolio of pension funds has a positive impact on the GDP of the country" and "Greater participation of debt securities in portfolio of pension funds has a positive impact on the GDP of the country ".

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