Analysis of the investments made on the Romanian capital market by the privately managed pension funds – Pillar II

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Abstract. *The Pillar II appeared on the Romanian market in order to provide to the population an alternative source of income at the retirement time on one hand, but also to stimulate the increase of the capital market liquidity through investments made by the private fund managers on the other hand. Through the current study, I wanted to make an analysis of the investments made on the Romanian capital market of the privately managed pension funds (pillar II). The subject is very topical at present and the purpose of the paper is to identify whether these funds are major players on the capital markets and what investment instruments they use. In this regard, we made a linear regression in Excel, with several factors influencing the results, as well as a regression in Eviews, using data between May 2008 and December 2017. The most representative was a statistically significant correlation between the value of the investments and the value of total assets of privately managed pension funds.*

Keywords: private pension funds, investments, capital markets, pillar II, occupational pension.

JEL Classification: G11, G28, J26, J32.

Introduction

Pension reform has taken place throughout the world, in Central and Eastern Europe, starting with 1994 when Hungary, Czech Republic and Bulgaria were the first countries which have adopted a private pension system. These reforms have started from the subject: the aging of the population due to the improvement of the quality of life. However, it seems that this phenomenon is not the only one that "disturbs", but there are also other reasons why countries choose to switch to private pensions, such as: population decrease, decrease in fertility rate.

On the other hand, there are countries such as those in Western Europe and the United States of America that have adopted the Occupational Pension Scheme (as an alternative to the facultative pension system), which differs from that of private pensions by addressing directly to the employer and the labor unions, being the ones who negotiate with the employee their future pension plans.

Adopting such schemes allows employees to obtain additional income reaching a maximum of 20-30% of the total pension, which is benefic considering that there already exists information showing that the public system, also called pay-as-you-go, will not have the force to cover the payment of the debts for the future pensioners.

1. Literature review

Although popular discussion often assumes that the annual growth in the value of pension funds represents an equivalent increase in national economies, the standard economic analysis indicates that the increase of pensions represents a change in the form of saving rather than an increase in the total value (Feldstein, 1978). According to Feldstein (1978), private pensions may be a reason why the national economy decrease if the employees involved reduce their savings by more than the amount of pension funded accumulation.

However, as there are always fluctuations in the financial market, it should be taken into account that pension funds, like investment funds, show variations in returns. In other words, there will always be times when pension funds will score less performing, but their advantage is that they do not only invest in the Romanian stock market but also outside the country, which leads to a diversification of the portfolio and therefore, better financial stability.

The positive evolution of pension fund returns over the 10 years of existence is that the periods in which they received negative results were short, positive results being present over a longer period of time, offsetting periods with negative outcomes.

A significant and growing literature in the field of financial economics seeks to understand the investment decisions and the subsequent performance of institutional investors (Lerner et al., 2007).

Traditionally, institutional investors have been seen as long-term capital sources with investment portfolios built around the two main classes of assets (bonds and shares) and an investment horizon related to the often long-term nature of their liabilities (Della Croce and Yermo, 2013).

I. Private pension system in Romania

With the emergence of the aging population in Romania that was already analyzed by J. Shoven (2008), overlapping with the tendency to reduce the population, there has been a reform of pensions, which is to change the mentality of the Romanians through education for a better money management when they are looking at the future and the desire to have a decent living at retirement.

This reform, supported and promoted by the World Bank, led to the extension of the pension system, which was limited to the public system (pillar I), by supplementing with two other sources of pensions: the second pillar and the third pillar.

Thus, the current situation of the pension system is based on three pillars:

A. Public system (Pillar I):
- about 80% of the mandatory contributions (administered by the State);
- the replacement value (basically the value of the pension point) are about 30-35% of the gross average salary in the economy.

B. Private mandatory system (Pillar II):
- about 20% of the mandatory contributions;
- pension funds are regulated by the Financial Supervisory Authority (ASF);
- there are used restrictive investment portfolio;
- undefined replacement value (fund-remittance).

C. Private pension system (Pillar III)
- consists in optional contribution from collective or individual employment contracts, encouraged by tax deductibility;
- practically, Pillar III is the extra saving potential that is materialized in the insurance of old-age risk;
- pension funds are regulated by ASF
- investment portfolio more freely than Pillar II.

The two directly concerned groups are, in fact, the main actors of this type of social contract based on solidarity between generations: employees and retirees.

Currently retired pensioners (on the market): for them, the pension comes only from Pillar I (state) and is departed from the pension point established (politically) annually in the law of the social insurance budget.

Future pensioners (current employees and their assimilation): for them, the pension would represent a cumulating of the three pillars, two of which are mandatory. The amount of replacement of their pension in relation to the last salary will therefore be dependent on the company's economic performance and average wage developments, as well as on the performance of mandatory and optional pension funds.

Any discussion about pensions cannot ignore the problem of dependency ratio between employees and retirees; the deterioration of this report is the main cause of the huge deficits registered by pension funds around the world, but especially those in the European Union and, of course, also from Romania.

Now, in Romania, each taxpayer maintains more than 1 pensioner, and the data show that this report changes with the passing of the years, reaching 2050, with 1 taxpayer will maintain more than two pensioners. Then there will be a 90% contribution to the gross wage to get a 45% replacement rate without subsidies.

II. The role of Pillar II in the light of capital market investments

The pension pillar II was thought from the beginning to help the state pension as a supplement to it, as an additional source of income. Therefore, all investment decisions must be well thought out so that at the end of the contribution period, i.e. at the time of retirement, the taxpayer receives the due amount.

In Romania, there are 7 pension fund managers active on the capital market. For market investments, they use 16 asset classes according to their portfolio structure. In Table 1 there are the classes of assets in which pension funds can invest.

**Table 1.** *Allowed asset classes for Pillar II*

Pension funds
Bank deposits
Government Securities/Municipal Bonds
Government Securities
Corporate bonds
Supranational bonds
Shares
Undertakings for Collective Investment in Transferable Securities – UCITS
Other Collective Investment Undertakings – non UCITS
Commodities and Precious Metals
Commodities and Precious Metals Funds
Instruments for hedging risk
Private Equity
Infrastructure
Other financial instruments
Amounts in settlement at the end of reporting date

Source: Data from "Pension savings: The Real Return".

Romanian mandatory pension funds invest most in government securities and bonds, according to data taken from the ASF (Financial Supervisory Authority) database. The second asset class (in terms of portfolio structure) is that of shares and the third is that of bank deposits. The following three classes considered have a minimal impact on the performance of pension funds.

Figure 1. *Structure of private fund pension Pillar II (million RON)*
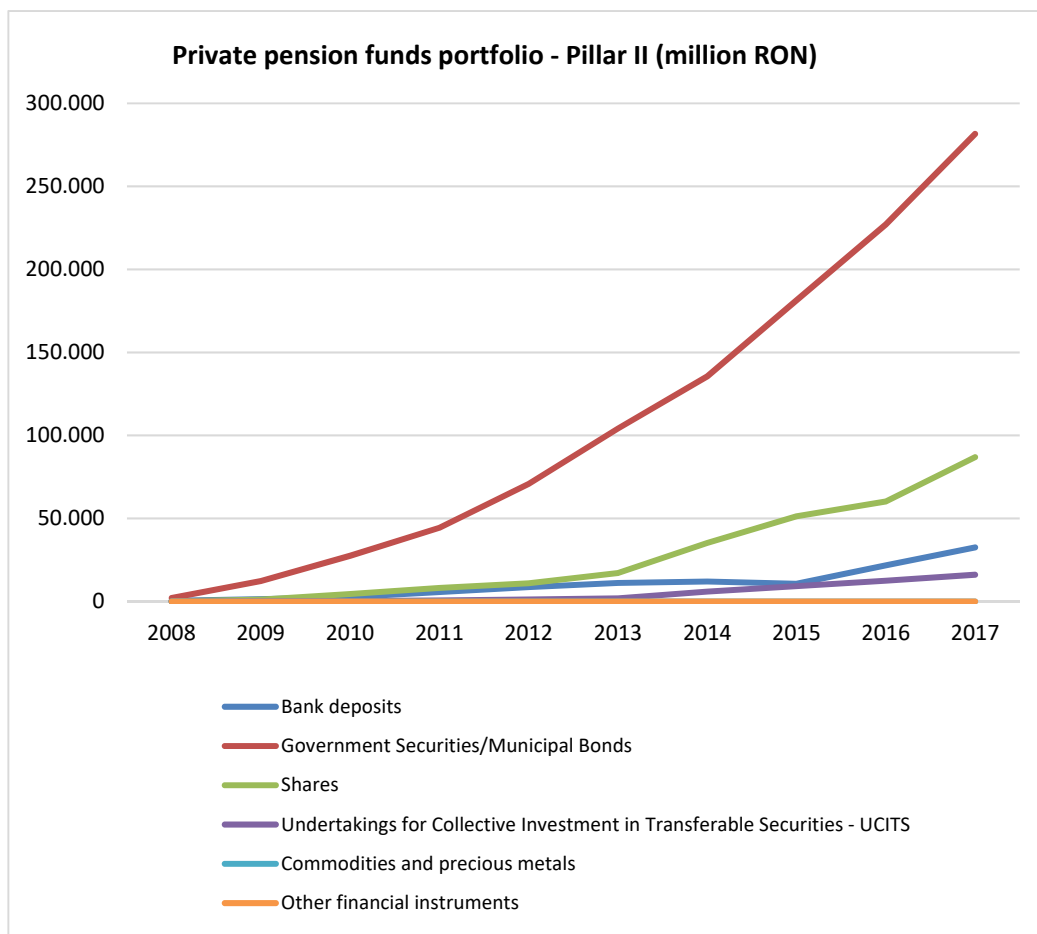
Source: Own calculation based on data available on www.asfromania.ro

After almost 10 years of Pillar II in Romania, the figures show very well in terms of the amount accumulated in the accounts of the private pension funds, of over RON 39 billion, and the total earnings are of approx. RON 7 billion at the end of 2017 according to the data provided by the Financial Supervisory Authority. According to data, currently about 70% of total investment by Pillar II pension funds are bond investment and about 18.7% are equity investments, followed by bank deposits, securities, commodities and precious metals and other instruments (Figure 1).

On the other hand, according to a report of Better Finance, the law imposes some strict rules on the classes of assets that mandatory funds must observe about the investment action:

- Pension funds can invest up to 20% in monetary policy instruments.
- Pension funds can invest up to 70% in government securities of Romania or the EU.
- Pension funds can invest up to 30% in bonds and other transferable securities issued on a market regulated by local public authorities from Romania or the EU.
- Pension funds can invest up to 50% in securities traded on a regulated market from Romania or the EU.
- Pension funds can invest up to 15% in bonds issued by third countries traded on a regulated market.

Over the years, we have seen that private pension funds have become major shareholders in the most liquid companies listed on the Bucharest Stock Exchange (BSE) and have shown willingness to subscribe to the initial public offers made so far. Through its continued presence on the capital market, it provides an alternative source of funding to the banking system for companies that choose to become public, thus encouraging the development of the local stock market.

Pillar II pension funds are the largest local institutional investors in shares listed on BSE with local investments in shares of over EUR 1.3 billion at the end of 2017. The attractiveness of the investment in shares listed on the BSE for international and local investors also resides in the existence of a segment of investors such as the Pillar II pension fund that acquires monthly shares and has a long-term investment horizon.

Figure 2. *Shares investments on the stock market*
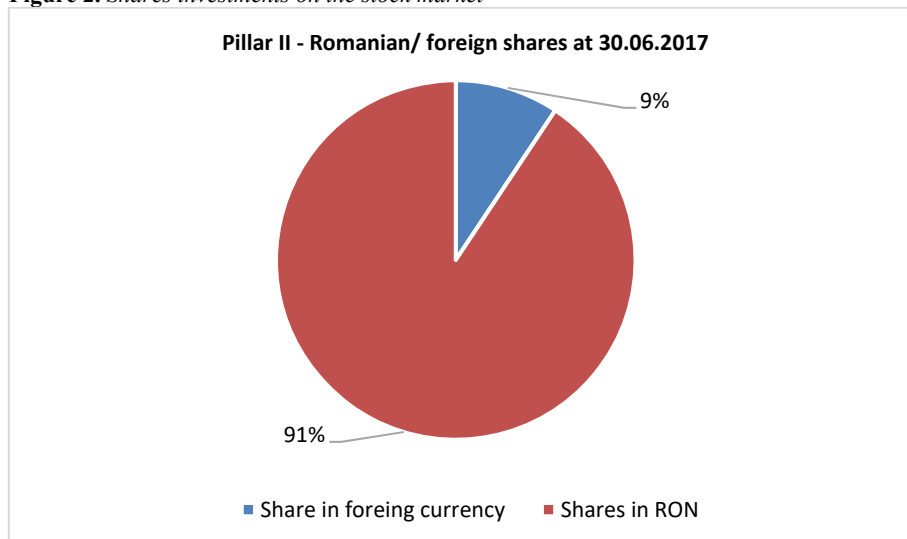
Source: The Financial Supervisory Authority.

The majority of Pillar II pension funds choose to invest their assets in Romanian stocks listed on the BSE, about 91% and the remaining 9% in foreign shares, according to the data received from the Financial Supervisory Authority (Figure 2). According to them, Pillar II pension funds had an essential role in the success of listing the BSE, buying up to 20-25% of the value of the offers.

As for the issuance of Romanian shares, on the first three places were: Transilvania Bank (15.84%), Fondul Proprietatea SA (13.70%) and Romgaz SA (13.28%), and regarding the issuance of foreign shares there are: Erste Group Bank AG (9.52%), Siemens AG (5.21% and DeutscheTelekom AG (4.96%), according to a study of the Financial Supervisory Authority.

As a result of these investments on the stock market, but not only, the return on pension funds pillar II is very good, according to data taken from the ASF. For the third consecutive year, Romania was on the first place in terms of return on investments made by pillar II pension funds, obtaining excellent results, with a solid real yield of 5.3% over a period of 9 years, according to a study of Better Finance.

According to ASF, at the end of 2017, the nominal rate of return on privately managed pension funds (Pillar II) was 3.95% (calculated for the last 24 months), and the net asset value had an annual growth rate of over 30%. Return on equity allows the assessment of the equity investments efficiency of shareholders and the opportunity to maintain them (Table 2).

Table 2. *Annualized rate of return*

Risk rate	Private managed pension fund	Annualized rate of return at 31st December 2017
Balanced	BRD	3.12%
	METROPOLITAN LIFE	4.25%
	BCR	4.80%
	VITAL	3.86%
	AZT VIITORUL TĂU	3.50%
	NN	4.07%
Dynamic	ARIPI	3.93%

Source: The Financial Supervisory Authority.

In table no. 2 we can also see a classification of each pension fund in a certain degree of investment risk calculated according to the formula established by the Private Pensions Supervisory Commission (CSSPP). Starting in mid-2012, the mandatory private pension fund legislation has determined the degrees of risk to which each of the pillar II pension funds can fit. These are:
- CONSERVER: < 10% (inclusive)
- BALANCED: 10 - 25% (inclusive)
- DYNAMIC: 25 - 50% (inclusive)

2. Research methodology

For the present work, two data analysis options were used.

The first option was to apply a linear model of verification of the indicators used, namely the Regression procedure, using Excel. This procedure uses a linear regression equation written as:

$$y = X\beta + \varepsilon \qquad\qquad\qquad (1)$$

where:

y is dependent variable.

X is independent variable vector (explanatory, exogenous) of $1 \times p$ dimension.

β is the vector of coefficients, of $p \times 1$ dimension, the parameters of the model.

ε is a variable, interpreted as error (disturbance, measurement error).

Therefore, we used as a dependent variable the net asset of pension funds Pillar II, and the VUAN and the number of participants as independent variables. I mention that the observation period for this analysis was May 2008 - December 2017, and the series of data were not stagnated because of the fact that the amounts are very large and not comparable, but they are in trend.

Figure 3. *General statistics of the regression*

| SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0,963158
R Square	0,927673
Adjusted R Squa	0,926393
Standard Error	3147475
Observations	116

Source: Own calculation based on ASF data.

Given that R Square is 0.92% (Figure 3) (value very close to 1), it expresses a direct correlation of the VUAN (the unit value of the net asset) and the number of pension fund participants at the Pillar II with their net assets.

In Figure 4 it is noticed that the number of participants at Pillar II had an impressive growth trend since the launch of the private pension system Pillar II, reaching approx. 7 million participants at the end of 2017, which means that the accumulated amount has also increased constantly, with net assets of more than 39 billion lei at that time.

Figure 4. *The evolution of the contributors and the net assets 2008-2017*
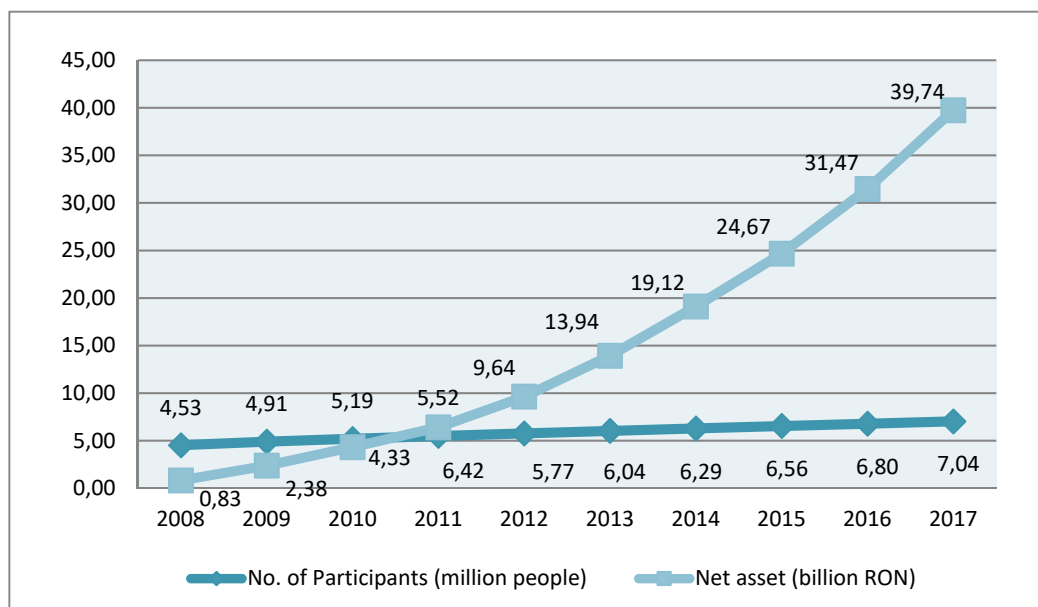
Source: Own calculation based on ASF data.

For the second option, the analysis was made on some possible factors of influence on the total assets of the privately administrated pension funds (Pillar II) (cumulated at market level) to determine the extent to which the investments made on the Romanian capital market by these funds are major players on the market. For this, Eviews was used as a tool of analysis.

The following aggregate variables were used in the analysis for the May 2008-December 2017 period (116 observations):
- Total market assets.
- Number of participants.
- Monthly yield index (calculated as the arithmetic mean of each month's returns for the seven funds that continued to exist for the entire analyzed period).
- Value of total investments.
- Investments in government securities.
- Investments in foreign non-government bonds.
- Investments in corporate bonds.
- Investments in municipal bonds.
- Investments in commodity funds.
- Investments in UCITS.
- Investments in shares.
- Investments in bank deposits.
- The value of instruments used for hedging.

All series were stagnated by applying the first difference, except for the monthly return series that was found to be stagnant at level.

Several linear regression variants (OLS) have been tested in various combinations of explanatory variables.

Figure 5. *The result of the regression in Eviews*

Dependent Variable: D_ACTIV_TOTAL
Method: Least Squares
Date: 02/22/18   Time: 12:22
Sample (adjusted): 2008M08 2017M12
Included observations: 113 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	53340958	12848732	4.151457	0.0001
D_INVESTITII	0.847184	0.028836	29.37979	0.0000

R-squared	0.886057	Mean dependent var		3.49E+08
Adjusted R-squared	0.885031	S.D. dependent var		2.50E+08
S.E. of regression	84769658	Akaike info criterion		39.36631
Sum squared resid	7.98E+17	Schwarz criterion		39.41459
Log likelihood	-2222.197	Hannan-Quinn criter.		39.38590
F-statistic	863.1721	Durbin-Watson stat		2.792201
Prob(F-statistic)	0.000000			

Source: Own calculation in Eviews based on ASF data.

The most relevant result obtained is a statistically significant correlation between the value of the investments and the value of the total assets (Figure 5). Residue tests indicate an acceptable level of autocorrelation of residues, but their distribution is not normal. Therefore, investments made by Pillar II pension funds have contributed to an increase in their assets.

The other combinations of regressions did not show statistically significant results, or if the coefficients are still statistically significant, the coefficient R2 is very low and the level of autocorrelation of the residues is very high, so overall these results cannot be accepted.

3. Conclusion

Taking into account that the issue of the pension system is a problem of Europe, and Romania cannot make an exception, it is important to understand that a population with a high level of financial education, in order to become informed decision-makers, can be a solution in this regard. Globally, we can see that in the Western European countries, but also at the level of the United States of America, the pension system has a different structure, focused on the occupational pension system, which could also be a solution for Romania.

Occupational pensions are an effective way to save, and according to a study by EIOPA (European Insurance and Occupational Pensions Authority), 90% of the 140 occupational schemes have benefited from specific tax incentives.

The retirement crisis is globally, so the pension system of each country should be open to changes, taking into account that most countries rely on the existence of a multi-pillar system. In order to face with this crisis, many countries have already implemented additional measures such as: increasing retirement age, limiting early retirement or offering other benefits in return for retirement, as is the case of Estonia, where a retired that look after a child under three-year-old earns an extra income.

According to a study by the OECD in 2012, the reform of the Pillar II pension from the Central and Eastern European countries included country-specific changes and led to imbalances in the pension system due to the redirection of a part of Pillar I to Pillar II. Thus, in 2011, Hungary has given away the Pillar II pension, many countries even lowering their contribution to the pension system.

According to the activity on the Romanian stock exchange, we can say that the stock market needs liquidity, and the mandatory private pension funds invest approximately 18% of the assets in shares, thus generating stability and reducing price volatility. At the same time, the share of assets of private pension funds-Pillar II in GDP was approx. 4.63% at the end of 2017 in Romania, this indicator having higher values in the others European countries.

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