PRIVATE PENSIONS IN ROMANIA - ECONOMIC AND SOCIAL SUPPORT MECHANISM

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Abstract

The private pension system, along with the public one, is an integral part of the pension system in Romania and aims to ensure a private, distinct pension, which supplements the pension granted by the public system. The social role of the private pension system in Romania derives from the budgetary relief of state social insurance, taking into account the demographic forecasts regarding the aging of the country's population, the continuous decrease of the birth rate, the decrease of the active labor force, the massive increase of pensioners and the increase of life expectancy. At the same time, another important role of the private pension system is the formation of domestic capital and its investment in the national economy.

The massive increase in the number of pensioners, at the same time as the reduction in the number of employees means that the amounts that will be transferred from active employees to the state social insurance budget in the future will not be able to fully cover the amounts to be paid to current and future pensioners. At the same time, based on the progress made in the field of medicine and technological development, it is estimated that life expectancy will increase. Under these conditions, the authorities need to identify sustainable solutions to ensure a decent standard of living for the population after retirement. This fact is also highlighted at the level of the European Union, by paying additional attention to the elderly population.

Keywords: *private pension, personal asset, participant, fund, administrator, contribution*

JEL Classification: *J11, J32*

1. Introduction

Currently, the private pension system in Romania consists of three components, namely: privately administered pensions (Pillar II), voluntary pensions (Pillar III) and occupational pensions.

The functioning mechanism of Pillar II consists in diverting a share of the contributions due to the state social insurance by each employee, to the privately administered pension system (currently 3.75%). In this way, a part of the amount paid monthly to the public pension system will be better used and capitalized through investments, made by pension fund managers. They will manage the accumulated amounts deposited by each participant and increase them through the returns obtained.

In the case of voluntary pensions, the participant and/or the employer for his employees have the possibility to choose to contribute in an individual account with an amount between a minimum value, established by each voluntary pension fund and a maximum of 15% of the monthly gross salary or from the income assimilated to it. By way of action, voluntary pensions are a long-term savings product.

The development of the private pension system continued with the introduction, at the beginning of 2020, of the occupational pensions, which are pensions related to employeer.

2. Literature review

Adăscăliței (2017) conducted a comparative study of public pension reforms in Romania and Bulgaria, presenting the differences regarding the management of these systems. Anghel and Hașegan (2020) conducted a comprehensive analysis of the voluntary pension system in Romania, using in this sense diffrent statistical tools. Anghel and Hașegan (2019) studied the main indicators that characterize the performance of the privately administered pension system. Chen, Beetsma, Ponds, and Romp (2016) analyzed the benefits of risk sharing between generations in the case of privately funded and publicly funded pensions. Croitoru (2015) emphasized the importance of knowing and understanding the image of demographic dynamics for the analysis of the pension system and its future. Dragotă and Miricescu (2009) highlighted how privately managed pension funds can be a solution to the crisis in the Romanian labor market, analyzing the indicators life expectancy, standard retirement age, and the difference between them. Durac (2016) addressed a number of issues regarding the dynamics of assets and investments of voluntary pension funds. Hașegan (2020) analyzed how the occupational pensions work, as well as their role in protecting future retirees. Orenstein (2011) presented a number of issues regarding the benefits of people who save for retirement during their working life. St. Clair and Martinez Guzman (2018) focused their research on public pension reform. Thomas and Spataro (2016) referred to the extent to which pension funds influence market performance. Vogel, Ludwig and Börsch-Supan (2017) studied the need for pension reform in the context of an aging population.

3. Research methodology, data, results and discussions

- **Privatly administrated pensions**

The legal framework that regulates the organization, functioning and participation in the privately administered pension system is Law no. 411/2004 on privately administered pensions, republished, with subsequent amendments and completions. According to the legal stipulations in effect, participation in Pillar II is mandatory for people up to 35 years old and optional, for those aged between 35 and 45. The objective of implementing this system is to accumulate assets, through regular contributions until retirement, asstes which will be multiplied by investments, to ensure an increase in the pension, in addition to what would have happened if that share had remained in the public system.

As it can be seen from the analysis of the data contained in Table no. 1, the number of participants has increased constantly. In 2008, 4.53 million people were registered, while in December 2019, there were to 7.46 million.

Table no. 1. Number of participants in Pillar II, in the period 2008 -2019 (thousand people)

Year*	Participants	Absolut increase	Relative increase (%)
2008	4.531,86	-	-
2009	4.913,15	381,29	8,41
2010	5.186,37	273,22	5,56
2011	5.516,04	329,67	6,36
2012	5.772,51	256,47	4,65
2013	6.039,26	266,75	4,62
2014	6.293,14	253,88	4,20
2015	6.556,38	263,24	4,18
2016	6.798,44	242,06	3,69

2017	7.042,18	243,74	3,59
2018	7.250,30	208,12	2,96
2019	7.462,36	212,06	2,92

Source: Financial Supervisory Authority, own systematization
*Note: *Number of participants registered on December 31*

The analysis shows a more consistent increase in the period 2009-2015, between 4.18% and 8.41%. In 2019, the growth rate was 2.92%.

Regarding the distribution of participants according to their age in Pillar II, in the period 2008 - 2019, the age group under 35 years old had a downward trend, the number of people under 35 years old falling from 65% at the level of 2008 to 43% at the end of 2019.

If, within 4 months from the fulfillment of the legal conditions, the eligible persons have not joined a privately managed pension fund, they will be randomly allocated to a privately managed pension fund by the National House of Public Pensions (CNPP), which acts as the record keeping institution.

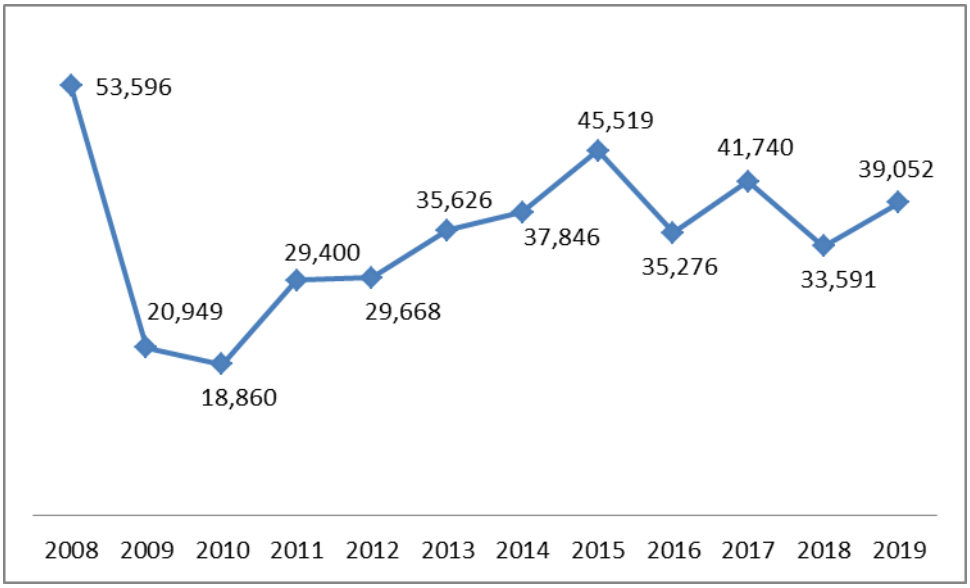

Figure no. 1. The evolution of the number of persons randomly assigned in Pillar II, between December 2008 and December 2019

Source: own representation based on data published by the Financial Supervisory Authority

The previous figure graphically represents the evolution of the number of people randomly assigned within the privately administered pension system in Romania, in December, each year from 2008 to 2019. A fluctuating evolution is observed, this number being 53,596 in 2008, 33,591 in 2018, and respectively 39,052 in 2019. The data for the entire period are presented in Figure no. 1.

The value of the total monthly contributions in Pillar II, in December 2008 (the first year of the system), was 110.6 million lei, with an average contribution per participant of 32.2 lei. It increased from one year to another, reaching, in December 2019, 700.1 million lei, which means 180.57 lei average contribution per participant. In the case of both indicators analyzed, the maximum value was recorded in 2019.

Another indicator analyzed is the total assets, which increased from 832.43 million lei at the end of 2008 to 61.99 billion lei at he end of 2019, as can be seen in Figure no. 2. The significant increase of the total assets in 2019 compared to the previous year (30.24%) was generated by the

increase in the number of participants, in the average monthly contribution and the returns achieved by investing the funds' assets.

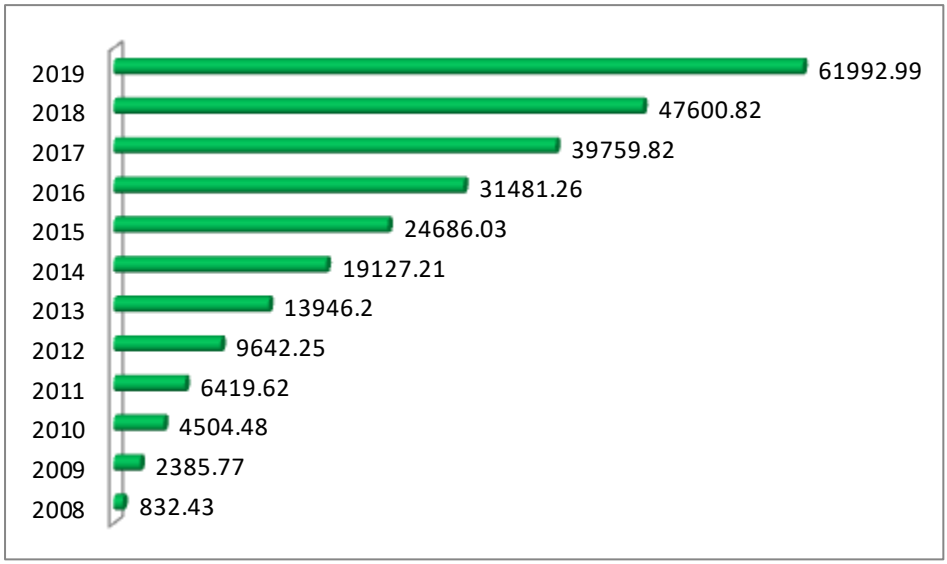

Figure no. 2. The evolution of Pillar II total assets expressed in millions of lei, December 2008 - December 2019

Source: own representation based on data published by the Financial Supervisory Authority

Pillar II in Romania is a defined contribution pension type, thus the level of pension to which the participants will be entitled depends on the investment results achieved by the administrator. Basically, the participants are those who bear the investment risk, specific to the financial markets. In order to prevent the deterioration of the pension funds assets' value, the legislator has established certain investment limits and qualitative requirements, as well, specific guarantees. According to the law, a pension fund cannot be declared bankrupt. Pillar II aims to ensure a balance between safety and investment performance, for the benefit of future retirees. At the same time, it aims to protect the interests of the participants, as well as to cover the risks that may arise.

The profitability of privately managed pension funds is a very important aspect in the evolution of the system, as it provides to the participants in these funds (future retirees) the prospects of increasing the value of their individual assets. Pension fund management companies invest the monthly contributins in order to increase their value. The Financial Supervisory Authority constantly monitors the activity of the aforementioned companies.

Currently, the annualized rate of return of a privately managed pension fund takes into account the results of the last 60 months. In order to highlight the long-term nature of Pillar II pension funds, in 2020, the annualization period has been increased from 24 months to 60 months. Under these conditions, the rate of return on privately managed pension funds is calculated according to the following relationship:

$$R_{ra}^{fx} = \sqrt[5]{(1 + R_{r\,60l}^{fx})} - 1 \qquad (1)$$

where:

R_{ra}^{fx} = annualized rate of return on a privately administered pension fund measured for the last 60 months prior to the calculation;

$R_{r\ 60l}^{fx}$ = the rate of return on a privately managed pension fund measured for the last 60 months prior to the calculation.

The rate of return on a privately managed pension fund measured for the period of the last 60 months prior to the calculation is determined on the basis of the following formula:

$$R_{r\ 60l}^{fx} = \ln\left[\frac{VUF_{zt}^{fx}}{VUF_{zo}^{fx}}\right] \quad (2)$$

where:

VUF_{zt}^{fx}= the value of the unit of the pension fund „x" on the last working day of the period for which the calculation is performed;

VUF_{zo}^{fx} = the value of the unit of the pension fund „x" on the last working day preceding the calculation period.

A summary of the main indicators that characterize the privately managed pension system shows that as of December 31, 2019, the number of participants in Pillar II was 7.46 million people, with the net assets worth 61.99 billion lei. The average monthly contribution per participant was 180.57 lei in December 2019, compared to 32.2 lei in December 2008.

- **Voluntary pensions**

The legal framework that regulates the organization, functioning and participation in the voluntary pension system is Law no. 204/2006 on voluntary pensions, with subsequent amendments and completions.

The number of participants in Pillar III has registered a continuous increase since inception, from 50,887 at the end of 2007 up to 501,124 at the end of 2019, as shown in Figure no. 3. More and more people are convinced of the benefit this system offers, i.e. to increase income after retirement.

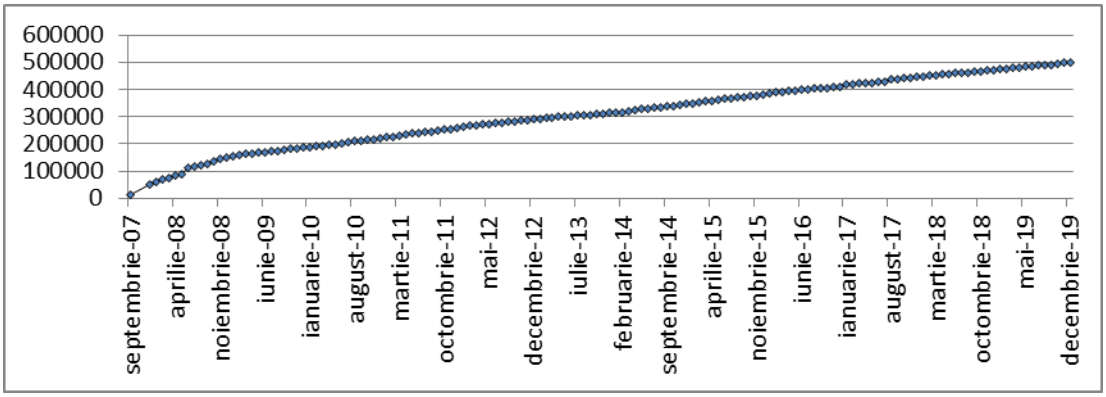

Figure no. 3. The evolution of the number of participants in the voluntary pension funds in Romania, during September 2007 - December 2019

The data of the numerical series regarding the number of participants in the voluntary pension funds were introduced in the STATISTICA economic analysis program. The results regarding the frequency of oscillations, the Euler-Fourier coefficients, as well as the values of the periodogram and the density are presented in the following table (Table no. 2).

Table no. 2. Spectral analysis results for PII

Spectral analysis: VAR1 (Spreadsheet6) No. of cases: 146 Largest Periodog. values

	Frequency	Period	Cosine - Coeffs	Sine - Coeffs	Periodogram	Density
1	0,006849	146,0000	-10328,9	6058,27	1,046739E+10	6,661591E+09
2	0,013699	73,0000	-9322,1	-1278,54	6,463096E+09	5,920456E+09
4	0,027397	36,5000	-6753,9	-1937,93	3,604089E+09	2,610534E+09
3	0,020548	48,6667	-4605,6	744,22	1,588906E+09	3,560816E+09
5	0,034247	29,2000	-3820,5	-2205,54	1,420621E+09	1,902322E+09
6	0,041096	24,3333	-2951,2	-2939,19	1,266439E+09	1,315339E+09
7	0,047945	20,8571	-2039,0	-3181,23	1,042280E+09	1,023103E+09
8	0,054795	18,2500	-2024,5	-2540,48	7,703353E+08	7,607320E+08
9	0,061644	16,2222	-1151,2	-2198,32	4,495259E+08	5,152858E+08
10	0,068493	14,6000	-1198,9	-1775,99	3,351749E+08	3,637045E+08

The values of the periodogram related to the oscillation frequency are presented in Figure no. 4.

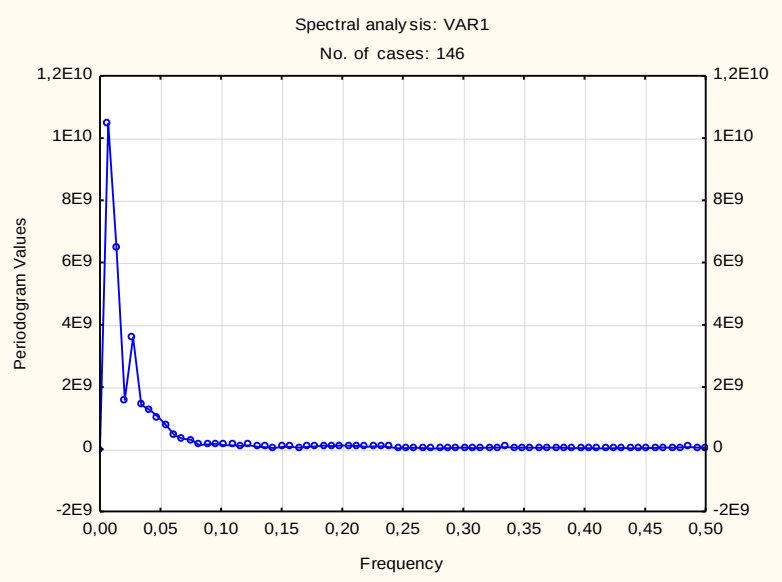

Figure no. 4. The representation of the periodogram according to frequency

In Figure no. 4, we identify on the horizontal axis the basic frequency with its harmonics up to =0.5, while the values of the periodogram are recorded vertically. The most important oscillations appear at 146th months, in which case the size of the periodogram related to it has the value of 1.046739 multiplied by ten to the tenth power and at 73rd months, in which case the size of the periodogram related to it has the value of 6.463096, multiplied by ten to the ninth power. Therefore, we note that the peaks of oscillations in terms of the evolution of the number of participants in voluntary pension funds in Romania are recorded at 146th and 73rd months, respectively. Given the fact that the amplitude is high for periods longer than 12 months (in the case analyzed at 146 and 73 months), it suggest that we cannot signal a strong influence of seasonality. In view of the large amplitudes recorded for periods longer than one year (146 months, 73 months, 36 months), we can confirm the presence of cyclicality of the evolution of the number of participants in voluntary pension funds.

One of the indicators that provides information on the overall evolution of a voluntary pension fund is the total value of the assets of that fund. This is calculated by summing the value of all assets in the fund's portfolio, which can be cash and financial instruments, resulting from the investment of participants' personal assets.

The net value of the assets of a voluntary pension fund is calculated as the difference between the total value of its assets and the value of the fund's liabilities, applying, for this purpose, the calculation ratio below:

$$VAN_{(i)} = VAT_{(i)} - VO_{(i)} \quad (3)$$

where:

$VAN_{(i)}$ = the value of the net assets of the voluntary pension fund „i";
$VAT_{(i)}$ = the value of the total assets of the voluntary pension fund „i";
$VO_{(i)}$ = the value of the obligations of the voluntary pension fund „i".

An important aspect of the assets accumulated in Pillar III is the profitability with which they are invested in order to increase their value. Thus, the weighted average rate of return of all voluntary pension funds was analyzed, which is calculated differently by risk categories, respectively low, medium and high, according to the statement on investment policy and the provisions of the prospectus of the voluntary pension scheme.

The weighted average rate of return of all pension funds for each risk category is the sum of the products between the rate of return of each fund in that category over a period of time and the average share of the fund in total funds in that category over the same period of time. The calculation relationship is as follows:

$$\bar{r}_r^{FP} = \sum_{i=1}^{n} r_r^{FP_i} \cdot \bar{p}^{FP_i} \quad (4)$$

where:

$\bar{r}_r^{FP}$ = weighted average rate of return of all voluntary pension funds in a risk category over a time period;
n = the total number of voluntary pension funds in a risk category;
r_r^{Fpi} = the rate of return of the voluntary pension fund "i" measured over a period;
$\bar{p}^{FP_i}$ = the average share of the pension fund "i" in the total of the voluntary pension funds from a risk category, for the respective period, which is determined as the arithmetic average of the daily weights of the pension fund for the period considered, applying the following calculation relation:

$$\bar{p}_{FP_{(i)}} = \frac{\sum_{t=1}^{n_z} \bar{p}_{zFP_{(i,j)}}}{n_z}$$

where:

$\bar{p}_{FP_{(i)}}$ = the average share of the voluntary pension fund "i" for a certain period;
$\bar{p}_{zFP_{(i,j)}}$ = the daily weights of the pension fund "i" in the total of the voluntary pension funds from a risk category, during that period;
n_z = the number of calendar days of the period for which the calculation is performed.

The following graph shows the evolution of the weighted average rate of return of all voluntary pension funds with medium risk, in the period 2009 - 2019.

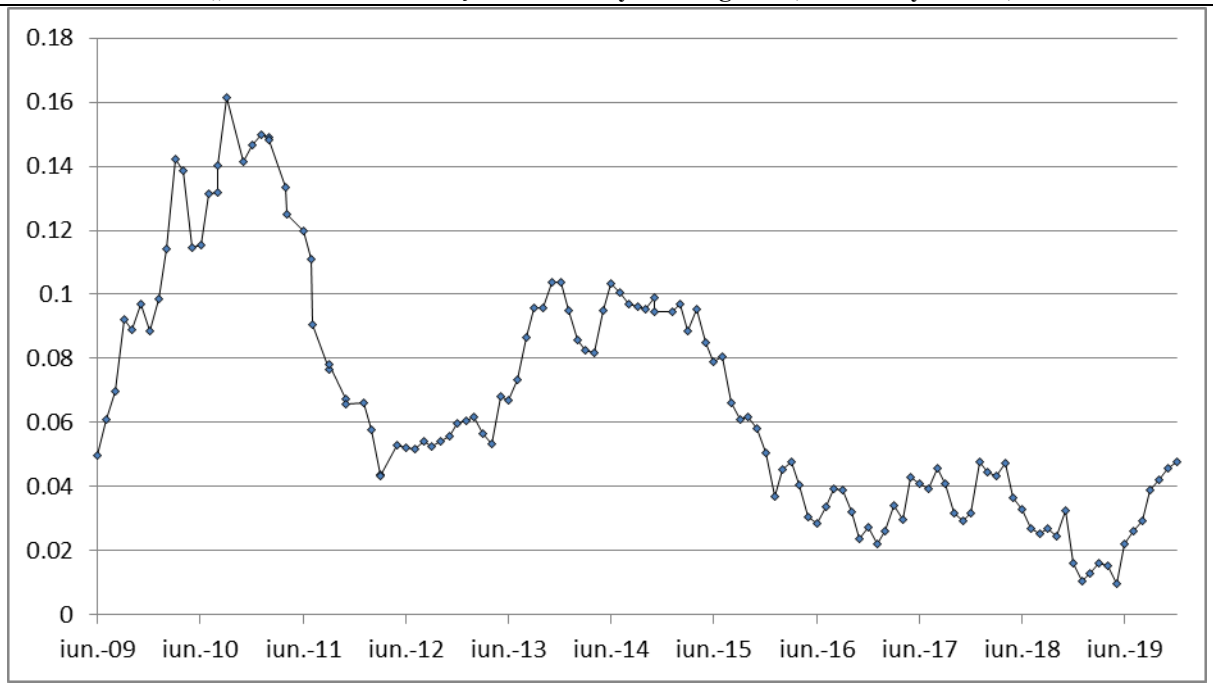

Figure no. 5. The evolution of the weighted average rate of return of all voluntary pension funds with medium risk, June 2009 - December 2019

For this indicator, in order to study the intensity of fluctuations generated by the oscillations of the analyzed process, the data of the numerical series were introduced in the economic analysis program STATISTICA, the results on the frequency of oscillations, Euler-Fourier coefficients and periodogram and density values being centralized in the following table:

Table no. 3. The results of the spectral analysis for Pillar III

Spectral analysis: VAR1 (Spreadsheet11) No. of cases: 126 Largest Periodog. values

	Frequency	Period	Cosine - Coeffs	Sine - Coeffs	Periodogram	Density
3	0,023810	42,00000	-0,022258	0,006986	0,034287	0,020251
2	0,015873	63,00000	0,012618	0,009443	0,015648	0,015605
5	0,039683	25,20000	0,001011	-0,008187	0,004288	0,004430
4	0,031746	31,50000	-0,007124	-0,003784	0,004099	0,011728
9	0,071429	14,00000	-0,001548	-0,005049	0,001757	0,001130
14	0,111111	9,00000	-0,001125	-0,004369	0,001282	0,000718
11	0,087302	11,45455	-0,002822	-0,003219	0,001154	0,000965
6	0,047619	21,00000	0,001726	-0,003843	0,001118	0,001918
7	0,055556	18,00000	0,002346	-0,003044	0,000931	0,001001
23	0,182540	5,47826	-0,000955	-0,003658	0,000900	0,000701

The amplitude is high for periods longer than 12 months (63 months, 42 months), meaning that we cannot signal a strong influence of seasonality. The existence of the trend is signaled by the high values of the amplitude (periodogram found in column six of the previous table) for frequencies lower than the unit value (column two). In addition, the downward trend of the series is confirmed by the values recorded and presented in Figure no. 5. The large amplitudes recorded for periods longer than one year (63 months, 42 months, 31 months) lead to the conclusion that the presence of cyclicality of the evolution of the weighted average rate of return of all medium-risk voluntary pension funds can be confirmed. This aspect also emerges from Figure no. 5, where it

can be seen that the weighted average rate of return decreases in periods of difficult economic development and increases in periods of economic recovery.

The following graph shows the evolution of the spectral density depending on the size of the frequency.

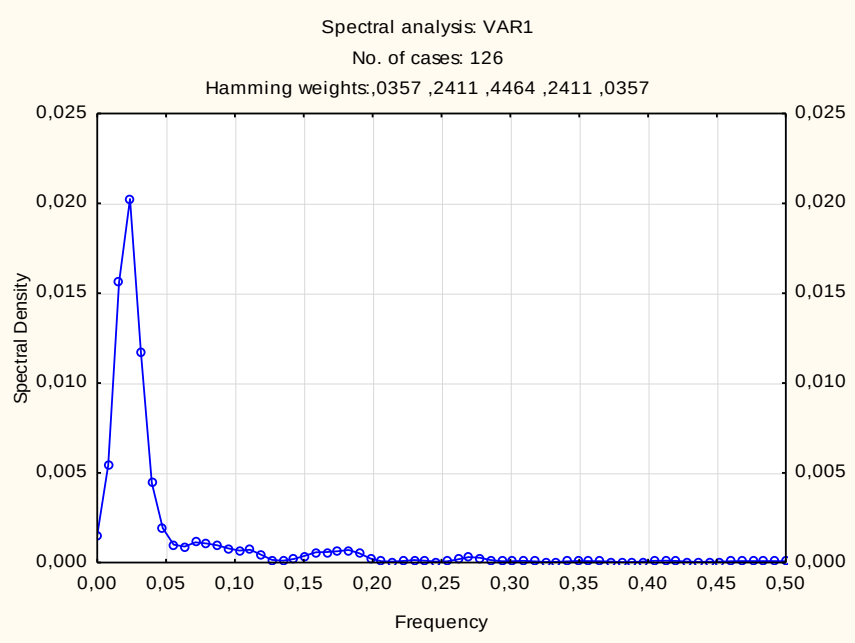

Figure no. 6. The representation of spectral density as a function of frequency

Interpreting the data presented in Figure no. 6 and in Table no. 3, we find that the maximum peaks recorded by the spectral density as a function of frequency are at 63 months and 42 months.

An incentive for the contribution to the voluntary pension funds is represented by the tax deductibility, which, at present, has the value of 400 euro/year for each employee, while the employer has full deductibility to the calculation of the profit tax.

- **Occupational pensions**

The pension reform in Romania continued with the introduction of occupational pensions, aiming, as well, at ensuring an additional level of security for future pensioners, through the contributions made by employers to employees' accounts during their working lives and through efficient investment. The legal framework that regulates the organization and functioning of occupational funds is Law no. 1/2020 on occupational pensions, with subsequent additions, transposing Directive (EU) 2016/2341 of the European Parliament and of the Council of 14 December 2016 on the activities and supervision of institutions for occupational retirement provision (IORP).

The right to propose an occupational pension scheme belongs exclusively to the employer, who has the possibility to establish differentiated amounts of own contribution for his employees on the basis of seniority, function or salary rights.

The mode of action of occupational pensions is as follows: the employer who intends to offer his employees benefits in the form of occupational pension packages establishes the pension scheme. We emphasize that this pension system is based exclusively on the choice of the employer, not the employee.

Under current law, a participant in an occupational pension fund can contribute on his own behalf, in addition to the contribution paid by his employer. In this case, the employee's contribution is specified in the individual act of adherence.

Contributions to occupational pension funds in Romania are tax deductible in accordance with the tax legislation in force.

The legislator offers the employer the option to include a vesting clause in the occupational pension scheme. The vesting clause means the postponement of the employee' property right over the personal asset, i.e. of the amounts transferred by the employer to the occupational pension fund (provided, however, that the employment relationship on the basis of which the respective contributions are paid is in force). This clause can be used for a maximum of 3 years. During this period, the employee (participant) may not contribute in his own name to the respective occupational pension fund.

4. Conclusions

The pension reform in Romania, by implementing the private pension system, aimed to reduce the pressure on the public pension system, caused by future demographic evolution: aging population, declining birth rate and declining share of active labor force, contributing to its development and sustainability.

The evolution of the private pension system is positive since incepton, both the number of participants and the value of accumulated assets growing continuously. In December 2019, the share of private pensions (Pillars II and III) in the Gross Domestic Product was 6.12%, while in December 2018 it was 5.22%.

The main indicators that characterize private pensions registered, at the end of 2019, the following values: 7,963,482 participants, 64,474,169,643 lei net assets, 10 administrators, 17 private pension funds, 3 depositories and 5 auditors.

Privatly manage pensions, voluntary pensions and occupational pensions are components of private pensions system, and stimulate savings, in order to achieve a certain income level to ensure a decent living standard for future retirees (participants in these funds), in addition to the monthly payments obtained from the public pension system.

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