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Full Length Research Paper

Situation and possibilities of improvement of voluntary pension insurance in Serbia as a developing country

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Like many other countries, Serbia, too, has faced the necessity of introducing changes into the voluntary pension insurance. However, reforms of pension insurance in Serbia started with significant delay in comparison with almost all other countries of Eastern Europe. The key reasons for this were disintegration of previous state followed by several wars during the 1990s, the UN sanctions, and hyperinflation. All these brought the country's economy to the verge of collapse. The Serbian insurance companies introduced voluntary pension insurance in 2002. A special law that exclusively arranges voluntary pension insurance was passed in 2005. The last five years gave us the opportunity to evaluate the performance of voluntary pension fund management companies, and this is done in this paper primarily through researches of trends of the value of the voluntary pension funds investment units. As the value of investment unit in domestic currency, dinar, does not reflect a real picture, this paper presents the calculation of the value for this indicator in euros, and in constant prices in dinars. A general conclusion is that in Serbia there is a tendency towards decreasing the real value of investment units, which has not been a stimulus both for the current and possible insureds. The paper also provides suggestions for improvement of voluntary pension system in Serbia.

Key words: Voluntary pension insurance, voluntary pension fund management company, voluntary pension fund, pension plan, voluntary pension insurance in developing countries.

INTRODUCTION

During the last several decades, both developed countries and countries in transition were faced with the necessity to reform the pension insurance system. The current pension insurance systems proved insufficient to provide for the needs of the present and future generations. Since the state pension insurance mostly relied on flowing financing patterns (the pay-as-you go funding schemes), a decrease in the number of employees in comparison to the number of pensioners, and extension of the population's life span forced many countries to decrease the amounts of pensions. The reforms included creating possibilities for market insurers to offer additional programs, either through compulsory private or voluntary pension insurance (VPI) (Cummins and Venard, 2007). Serbia also experienced similar difficulties and necessity of reforms, since it is located in the South-East Europe.

However, the Serbian insurance market has developed under extremely difficult circumstances in the last twenty years. The break up of the former Socialist Federative Republic of Yugoslavia, civil war and over four years of UN sanctions on Serbia and Montenegro during the 1990s have drastically affected its insurance industry. The insurance funds were totally destroyed, while reinsurance was reduced to an almost non-existent level during the 1992 - 94 period of hyperinflation. Fortunately,

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Abbreviations: VPI, voluntary pension insurance; **VPFMC,** voluntary pension fund management company; **VPF,** voluntary pension fund; **RSD,** Serbian dinars.

there were no catastrophic losses (Zarkovic, 1998).

During the bombing of the country in spring 1999, which lasted for two and a half months, insurance in Serbia found itself in completely new and unprecedented circumstances. Still, this industry quickly adjusted to war conditions. Insurance companies continued writing all lines of insurance under the then-valid terms and quotations. It was necessary to do a new premium calculation for contracts which were in force then, and where certain damages to or destructions of one part of insured items occurred due to the war actions. However, for the property given for defense purposes, it was decided that the insurance protection would be dormant. In cases where there were no damage to the insured items put out of their basic use, or used to a lesser degree, the insurers granted a special discount (Marovic and Zarkovic, 2000).

The market now appears to be enjoying a period of relative stability. Total market premium increases from year to year. Although the 2004 insurance law has helped bring more order into the market, insurers still face several problems. Slow growth of the economy as a whole and the lack of corporate liquidity have greatly reduced demand for insurance cover. Premium payment terms have to be very flexible. Low level of living standard additionally aggravates development of life insurance.

From the western European point of view, the Serbian insurance market is still underdeveloped, and many classes of business do not exist. Insurance penetration (premium/GDP) is only about 2%, and insurance density (premium per capita) is US$126. The market is insignificant in global terms, with a world market share of just 0.02% (Swiss Re, 2009).

The above circumstances stated have and still do influence carrying out of VPI in Serbia. This paper evaluates its organization, performance of voluntary pension fund management companies (VPFMC) through the trend of the values of investment units, and presents views on how further development can be encouraged.

Difficulties in functioning of state pension insurance in Serbia and necessity of introducing reforms into the overall pension system

The compulsory state pension insurance in Serbia is functioning as the pay-as-you-go system, namely, the active working population finances pensions of current pensioners by way of contributions. After Serbia had started a transition process ten years ago, the problem of financing pension systems through the principle of inter-generation solidarity became very prominent. This was not a specific feature of the domestic market, but rather a situation in which many other countries have found themselves, too (Swiss Re, 1998). Financial status of insureds in Serbia became worse over time, and the functioning of pension funds became an increasing burden for the state budget. This kind of financing system calls into question the existence of any kind of fund, because the paid contributions are immediately directed to the payment of pensions, through a temporary account.

The pension insurance situation was significantly influenced by negative demographic dynamics as well as developments in national economics.

Although the negative trends of natural population movement (decrease in level of fertility, increase of mortality rate) have been present in Serbia for some decades, they have become even more noticeable in the last several years. The fact that current rate of fertility is not sufficient for generation change is more than overwhelming.

In the last thirty years, our economy has been distinguished by the weakening of overall business activity, decrease of standard of living, increase of unemployment, underdevelopment of labor market and inefficiency in enforcement of legislation. The Serbian economy was additionally affected by the world economic crisis.

These earlier stated demographic movements and the state of economy had a negative impact on the compulsory pension insurance processes.

Constant increment in the number of pensioners

In 2005, when the law that regulates the VPI was passed, the ratio between the number of active insureds and pensioners was 1.6:1. At this moment, this ratio is almost 1:1. Such ratio is as a result of not only the unfavorable natural population movement and liberal retirement conditions, but also the increasing number of population capable of work that are engaged in shadow-economy activities (population that are not registered and do not pay contributions). There is also a fact that the share of disability and family pensioners in the total number of pensioners was rather high, namely 31.6 and 24.0%, respectively. It is also important to mention that the ratio of active insureds and pensioners that ensures proper functioning of the pension system is 3.5:1. In our country, this ratio was registered as far back as 1981, and there has been a permanent decline since then.

One of possible solutions for this problem would be to increase the retirement age. However, this kind of solution would cause problem of employment for the younger population, that is, unemployment problem.

A very high ratio between average pension and average salary

Prior to passing of the law on VPI, the ratio between average pension and salary in Serbia was over 70%, which was extremely high in comparison to other countries (Germany 45.2%, Macedonia 42.8%, Great Britain 38.0%, USA 34.7%).

A special problem is the fact that today, a significant portion (around 40%) of the overall amount for pensions is paid directly from the budget, and the remaining 60% from contributions paid by insureds and employers. Considering the fact that significant part of the budget from previous years was ensured from the assets that were generated from the privatization of companies, a logical question has to be posed – what will happen when privatization is finished, and a significant source for filling budget gaps disappears?

The ratio between pensions and average salary could be decreased by changing the manner of pension indexation.

Extremely low pensions

Pensions are at the level of existential minimum. In 2002, when the state authorities became aware of the need to regulate VPI, about 60% of pensioners received lower than average pensions. In addition, it is necessary to mention that pensions are often late.

High contribution rates

Pursuant to the 2003 Law on State Pension and Disability Insurance, the contribution rate was increased from 19.6 - 20.6% (10.3% is borne by employer and 10.3% by employee). However, the rate of increase did not solve the problem with the financing of funds, but had a completely opposite effect – evasion of contributions due to more difficult functioning of a great number of companies that have serious difficulties in payment of salaries.

As far as the functioning of Serbian pension insurance in the earlier stated conditions is concerned, it became obvious several years ago that the current system was in crisis, and that introducing reforms were necessary. A limiting factor, which emerged in Serbia in the second half of 2008, was the world economic crisis. As in many other countries (Daykin, 2009), it had an extremely negative impact on changes to the pension system.

A general opinion is that the reform of pension insurance in Serbia should encompass:

1. Implementation of a package of measures that would turn the system of compulsory insurance into economically sustainable and fiscally bearable system which will function in favor of economic development. Among other things, these measures would refer to change in calculation of pensions and increase of the retirement age.
2. Introduction of a pension insurance system with three pillars:

a) Pillar – compulsory state pension insurance based on the principle of inter-generational solidarity;
b) Pillar – compulsory private pension insurance based on the principle of individual capitalized saving; the conditions for introduction of this system into Serbia have not yet been met;
c) Pillar – VPI, which started in 2002.

THE OBJECTIVES OF SERBIAN PENSION INSURANCE REFORMS

As previously stated, reforms in the pension system of Serbia need to be made, but there should be no illusion that these reforms are not necessary in other transition countries, too. The reforms are also necessary in most developed countries, and this is pointed out in the following theoretical standpoint.

The main objective of a pension reform is the creation of a pension system that is (USAID, 2006):

1. Adequate – ensures pensions that can provide for the basic needs and prevent impoverishment of older population;
2. Resistant to demographic and economic changes;
3. Bearable – financially bearable for both the individual and society, that is, to ensure adequate balance between public and private pensions;
4. Sustainable – financially solid and stable in the long run;
5. Flexible and capable to take into consideration individual needs, resources and affinities, and encouraging an individual to take responsibility for saving for his pension;
6. Less dependent on the state, and providing the necessary incentives for the employees to pay contributions;
7. To be fairer – namely that the pension match the contributions.

According to the same theoretical approach, the reform objective is to ensure adequate and long-term stable pension, establish a more solid relationship between contributions and pensions, and planning of long term saving that will stimulate development of financial market.

REFORMS OF PENSION SYSTEM IN EU COUNTRIES

Reforms of pension system in Serbia should take into account the objectives of change of the pension system in the EU countries (Fultz, 2002):

1. Balance between public and private pensions along with a significant self-financing component;
2. Increasing the retirement age and stimulating older workers to continue to work after their full retirement age;
3. Opening of private pension market and stimulation of higher competition between the subjects which provide private pensions;
4. Encouraging individuals to take responsibility of saving for their own pension;
5. Providing tax incentives for contributions payable by employees.

EU directive on pension funds

At the meeting of the Council for economic and financial business in 2002, the governments of the EU member states reached the agreement about the directive on compulsory private pension funds, which was also verified by the European Parliament (EU, 2003).

In explaining the regulation content in the EU, we would like to point out that the directive sets the unique market as one of the main goals. It is emphasized that the market of companies for compulsory private pension funds in Europe has traditionally been divided and are, consequently, less functional. Creation of a unique market in this area is said to represent one of the last obstacles for unification of financial markets into one unique market, and to make this possible, it is necessary to harmonize collection of commissions, the manner of administration and supervision of compulsory private pension funds.

Taking these into account, it was concluded that the implementation of this directive was expected to bring about certain economic advantages, such as:

1. For employers, because a more efficient system enables them to ensure equal pensions at lower expenses (or higher pensions at equal expenses);
2. For employees, because the new system offers them higher pensions and security (due to higher number of possibilities and better diversification);
3. There are fewer obstacles for movement of workers within the EU;
4. Expenses for public pensions are lower;
5. Improvement of financial market, and the economy in general.

VOLUNTARY PENSION FUND MANAGEMENT COMPANIES IN SERBIAN MARKET

The 1996 Law on Insurance of Property and Persons introduced the possibility that insurance companies, along with other business, should engage in VPI. This insurance was stated in the law along with voluntary health insurance. Companies that intended to engage in this insurance line, had to ensure that the initial security fund amounted continuously to at least half million USD dollars in dinar counter value.

The first company that offered VPI on the Serbian market was Dunav-TBI, a Dutch-Serbian insurer, registered in 2002 exclusively for this business. In this company, the leading Serbian insurer, Dunav insurance, and the foreign owner had a share of 49 and 51% respectively. Soon afterwards, the second and third biggest insurance companies, DDOR Novi Sad and Delta Insurance, started VPI business, then the 2004 law on insurance finally defined VPI as a separate line of life insurance. The lawmakers prescribed the minimum amount of pecuniary portion of the initial capital in the amount of three million euros in dinar counter value as a precondition to engage in VPI business. There have been no new insurance companies that have registered for VPI business in line with the provisions of this law.

The law on Voluntary Pension Funds (VPFs) and Pension Schemes was passed in 2005. As its name shows, it regulates only the VPI. This law became effective on April 1, 2006. It is interesting to mention that the law prescribes that VPFMC's minimum amount of pecuniary portion of the initial capital is one million euro in dinar counter value, which is three times lower in comparison to the previous solution.

According to the new legal solutions, voluntary insurance can no longer be written by an insurance company. It can only be done by a VPFMC. Dunav insurance bought out the foreign share in Dunav TBI, and it was reregistered into VPFMC. DDOR Novi Sad and Delta Insurance founded separate VPFMCs.

The law on VPFs and Pension Schemes was passed in October 2005. It gave the VPFMCs six months to harmonize with the new law provisions. However, due to the late adoption of some bye-laws, three companies that were providing VPI failed to harmonize their business with the law for up to March 31, 2006. They were permitted to collect contributions from the current insureds, but not to conclude new contracts.

This led to a paradoxical situation where a person cannot arrange for a VPI and this situation lasted for more than five months. The first VPFMC, Delta Generali, obtained license as late as September 8, 2006, and the first publishing of investment unit value was on November 15, 2006. By the end of 2006, licenses were issued to three more companies.

At the moment, there are eight VPFMCs operating in Serbia. By mid-February 2010, there were nine voluntary pension fund management companies operating on the Serbian market (Table 1). The National Bank of Serbia, as a supervisory body for insurance business, then gave license for merging Garant to the Hypo Company, which resulted in setting up of Hypo-Garant Voluntary Pension Fund Management Company. There are some

Table 1. VPFMCs in Serbia and some indicators of their business, as at the end of January, 2010.

VPFMC	Number of funds managed by the VPFMC	Number of fund members	Fund's net assets (EUR mil.)
Delta Generali	1	47,067	18.65
Raiffeisen Future	1	12,993	6.74
Garant	1	21,153	4.06
DDOR Pension Plus	1	29,856	11.53
NLB New Pension	1	6,102	1.59
Dunav	1	89,049	31.54
Triglav	1	4,683	0.47
Hypo	1	3,053	0.62
Societe Generale Pensions	2	1,225 + 879	0.17 + 0.11
Total	10	216,060	75.48

Source: National Bank of Serbia, www.nbs.rs.

indications that two more companies will merge, which would additionally decrease the number of voluntary pension fund management companies on the Serbian market. This points to the difficulties in which management companies have found themselves in, primarily due to the insufficient number of members, who, also, do not pay their contributions regularly.

GENERAL REGULATION INVESTMENT PRINCIPLES OF PENSION FUNDS ASSETS

OECD recommendations and regulations in the EU states put into focus two objectives that have to be achieved in the process of regulating the investments assets of insurance companies and private pension funds (Bonoli, 2003):

1. Maintenance of liquidity and solvency and
2. At the same time ensuring conditions for creation of financial revenues through investment from collected assets in financial market.

Investment of insurance assets is based on the principles of safety, liquidity, profitability and stability.

Pension insurance provides economic and social security, which entails a component of continuity over-time. That is why pension fund assets have to be invested primarily in line with the principle of safety. The assets are invested into secure placements in order to maintain the aggregate value of these assets. This principle has precedence over the profitability principle, but since the profitability principle is a precondition for development and survival on the market, it is not always easy to fully apply the principle of safety.

Maintenance of liquidity and solvency is needed in order to enable companies to meet their liabilities both in the short (regulation of liquidity) and long run (regulation of solvency; that is, maintaining a sufficient level of capital in accordance with liabilities and risks).

A liquidity principle implies that an insurer has to be able to meet his obligations stemming from the insurance contract at all times. This means that maturity of invested assets has to be in accordance with the expected liabilities and maturity of these liabilities.

According to the stated recommendations, basic principles of investment rules should always include:

1. Diversification (into several categories) and dispersion (within the same category);
2. Maturity adjustment;
3. Currency adjustment.

Maturity adjustment of assets and liabilities is essential; in order to achieve it, it is necessary to establish a framework of general principles. This is why it is important that regulation of investment portfolio takes into consideration the liabilities portfolio.

Investment activities of insurance companies and pension funds need to be regulated primarily to provide protection to their users.

Risk management is a complex process, which includes:

1. Identification and risk evaluation;
2. Existence and application of appropriate regulations.

Classification of pension insurance risks and finding their indicators create prerequisites for risk control. Risk Identification is a basic element of risk management assessment.

There are different risk classifications that are related to operations of pension funds. According to one of these, risks are classified as follows: (1) organizational risks, (2) operational risks, (3) risks related to control of expenses, (4) actuarial risks, (5) liquidity risks, (6) risks ensuing from the membership structure of a pension fund, (7) investment risks, (8) risks of pension fund markets and (9) external risks (OECD, 2004). Since the methods of risk management in pension insurance involve the combination of methods of financial control of risks and life insurance risks management, classification of these risks is often compressed into several or more general groups. So, these risks are grouped into three categories: 1) Portfolio or investment risk, 2) System risk and 3) Management risk (Srinivas et al., 2000).

Portfolio or investment risk refers to market and portfolio risk, namely to the risk of those instruments that constitute it. This risk can be decreased by adequate diversification of the portfolio. In this case, the role of the state would imply regulation of diversification of the portfolio, along with limitation of investment into certain forms.

Pension fund assets should be in the prescribed forms of assets, which would ensure:

1. Maturity adjustment of assets and liabilities,
2. Currency adjustment,
3. Variety and dispersion of deposits and investments and profitability, that is, marketability of deposits and investments in accordance with the rules of control and risk management.

The risk of market itself which can be caused by different changes (inflation, interest rates, exchange rates, etc.) is always present, and can be limited and managed only partially (Camfield, 2000).

System risks are derived from the relationship between pension system and other segments of the financial system, that is, the overall economy of one country. As the pension industry is part of the financial industry, the risk in the decrease of value of the assets is derived from banking risks and capital market on the whole.

Management risk ensues from a possible conflict of interests between a management structure and portfolio manager on one hand, and members of a pension plan, that is, the fund, on the other.

Pension fund assets, the ones based on the system of capital accumulation are stable in the long run with predictable changes, which is why pension funds are among the most important institutional investors on the financial market. A relatively stable flow of contribution payments and predictability of payments of pensions (through actuarial methods) provide a wide choice of investments for pension funds. Inflow stability of assets of a pension fund and predictability of pension-related expenses enable investment portfolio with long-term maturity to be defined. That is why the intention of pension funds is similar to that of life insurance companies, namely they both prefer long-term investments.

In order to improve the investment function of pension funds, it is important they become institutional investors and have a developed financial market that offer a wide range of quality financial instruments for investments. Creation of the investment portfolio along with the set limits of risk dispersion and diversification requires liquid and efficient financial markets, with wide range of financial instruments to invest in. At the same time, it is a significant initiator for creation of such a market.

In countries in transition process, majority of pension insurance assets must be invested into state sector. In this way, the functioning of pension funds is mostly determined by the state's investment activity. Insufficient number of quality securities in transition states has also been a limiting factor for the investment activity of pension funds. Quality securities are important for the creation of efficient, liquid and qualitative stock market, which will provide a solid base for development of a healthy financial market. In this way, we could avoid enormous price fluctuations that are not as a result of new information on the performance of companies or events on the market.

EFFICIENT INVESTMENTS OF VOLUNTARY PENSION FUNDS' ASSETS IN SERBIA

The world economic crisis first affected the banking sector, and then the insurance sector, where the effect on the decrease of value of private PI funds' assets was most notable.

In 2009, there was a decrease on total assets of private pension funds. Funds that had significant investments in shares recorded the biggest losses. The states, in which their regulations of private pension insurance adhered to the safety principle along with the conservative investment politics, suffered fewer losses. As far as VPI is concerned, the regulations in Serbia lay emphasis on the principle of safety.

Nevertheless, the value of the VPFs investment units dropped on the VPI market in Serbia. These trends could not have been observed clearly, if they were presented in domestic currency, dinar (Figure 1). The unfavorable trends were clearly observed only after the value of investment units were reduced to more real indicators – euro or in dinars but adjusted by the changes in retail prices (Figures 2 and 3).

The decrease on the value of investment units is in direct correlation with the increased number of the VPF members, who do not pay contributions any more. At the beginning of 2010, only one third of members, around 70,000, paid their contributions regularly. If the yields on investment are to improve, this number would have to increase significantly.

The manner of preserving and increasing the assets of private pension insurance is a serious problem not only in

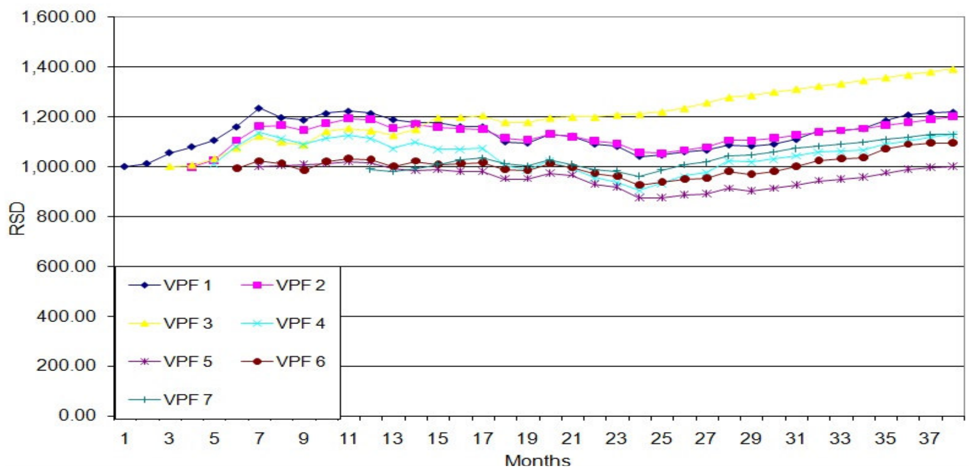

Figure 1. Value of investment units of VPFs in Serbian dinars (RSD).

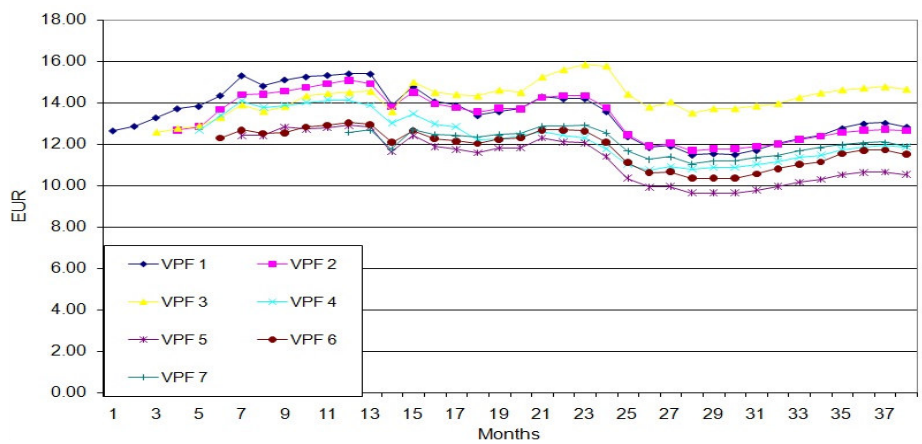

Figure 2. Values of investment units of VPFs in EUR counter value.

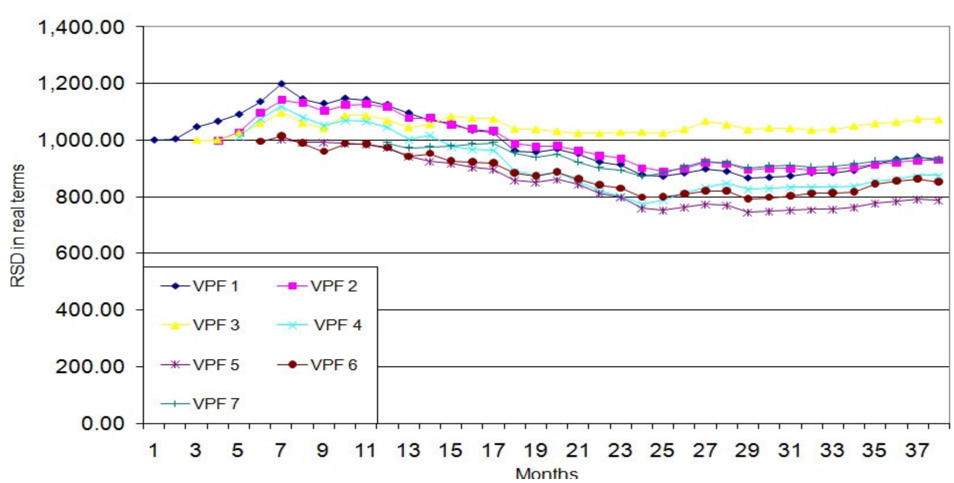

Figure 3. Value of investment units of VPFs in RSD adjusted by the changes in retail prices.

Serbia, but worldwide. There are numerous suggestions for improvement needed to be explored, and then solutions are suggested in accordance with the situation in every country.

Depending on the offered solutions, the present potential solution will be used to increase the number of active insureds. People are getting clear signals that additional saving is needed to provide for their future. In the period to come, they will have to choose one of the offered models of saving for old age, either through traditional banking services, or life insurance services, that is, by using the possibilities offered through VPI.

DISCUSSION

Based on this research, and especially taking into account the unfavorable trend of the investment unit value, we are hereby suggesting solutions for improvement of further development of VPI in Serbia:

1. Amendments to the law on VPFs and Pension Plans would enable payments into VPFs to be made in foreign currency, primarily in euros. At the moment, only life insurance premium can be paid in foreign currency, the key argument is that long-term saving is the main feature of endowment life insurance. The same argument should be applied to the VPI system, because inflation in both cases has an unfavorable effect on saving. Utilizing the same argument for the VPI system would ensure not only the preservation of the real value of the paid assets, but also their increase, which is presented through the increase of the investment unit.
2. Amendments to tax laws and adoptions of insurance bye-laws would introduce additional tax reliefs for citizens paying contributions to VPFs. Having this in mind, it is important to create conditions such that the individuals, who pay tax obligations regularly, can get a refund of one part of the assets they paid for life insurance and for VPI in the preceding year. In this way, citizens would be encouraged to invest more into all lines of life insurance, including the VPI.
3. It is necessary to educate the population in Serbia now much more than before, because they are not acquainted enough with the comprehensive system of pension insurance, particularly its voluntary part. For decades, the population was used to the state taking care of their social security at old age. Today, every person has to take steps and contribute to solving this open issue by themselves.
4. Expanding and strengthening the financial market in Serbia, which is a developing country, would increase possibilities for investment of resources of VPFs into different instruments. This process would have a retroactive effect on more complete development of the domestic financial market.

Conclusion

Pension reform in Serbia, as a state in transition, should first of all imply making changes and improving basic state pension system. Development of voluntary private pension insurance should be considered as a supplement to the state form of pension care, making it sustainable in the long run. The consequences of the world financial crisis additionally show that this attitude is correct, as relying solely on one of these systems carries significant risks for social security.

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APPENDIX

Appendix A. Data on flow of investment unit value for VPFs in RSD.

Date	VPF 1	VPF 2	VPF 3	VPF 4	VPF 5	VPF 6	VPF 7
15.11.2006	1,000.0000						
01.12.2006	1,011.9542						
03.01.2007	1,056.2368		1,000.1085				
01.02.2007	1,080.2335	998.7942	1,005.4429				
01.03.2007	1,106.1892	1,027.3522	1,030.8986	1,011.4513			
02.04.2007	1,160.7378	1,106.5297	1,075.0753	1,083.0616		994.7102	
03.05.2007	1,236.4921	1,162.2837	1,122.9039	1,138.3158	1,001.5918	1,023.7189	
01.06.2007	1,198.5143	1,166.5555	1,099.4370	1,113.0287	1,004.0523	1,012.7696	
02.07.2007	1,188.5046	1,146.4978	1,086.7086	1,090.7823	1,009.2733	987.5989	
01.08.2007	1,214.8452	1,174.9036	1,141.2491	1,115.4058	1,012.0060	1,022.5264	
03.09.2007	1,224.3883	1,192.9222	1,154.5283	1,126.7955	1,020.9287	1,032.1049	
01.10.2007	1,214.9550	1,190.8829	1,144.2976	1,113.9354	1,017.7938	1,028.7555	990.4319
01.11.2007	1,190.2258	1,154.3412	1,125.4829	1,073.0494	991.6884	1,001.7913	979.0151
03.12.2007	1,176.0369	1,169.6215	1,149.4012	1,100.4598	984.1141	1,023.2618	994.3443
03.01.2008	1,178.5004	1,157.6990	1,196.0173	1,071.6154	989.3215	1,009.0206	1,010.2433
01.02.2008	1,161.2397	1,152.4331	1,198.3615	1,071.8595	981.2495	1,013.4935	1,027.0063
03.03.2008	1,160.6584	1,152.2437	1,205.3109	1,074.9534	981.5590	1,017.2182	1,036.5682
01.04.2008	1,100.4294	1,114.9985	1,179.0746	1,004.8852	951.6296	989.2801	1,012.9313
05.05.2008	1,094.7937	1,108.0679	1,178.5490	987.9066	951.5030	986.4331	1,003.4545
02.06.2008	1,131.9026	1,130.5298	1,195.8761	1,022.6555	973.9855	1,014.9205	1,028.8094
01.07.2008	1,123.7498	1,121.2604	1,199.5089	993.4725	966.9163	996.9585	1,009.3499
01.08.2008	1,090.6901	1,103.0374	1,199.0276	955.2405	929.6167	974.7264	988.5891
01.09.2008	1,081.4620	1,093.7137	1,207.3262	937.0356	917.6803	961.8693	982.0109
01.10.2008	1,041.2210	1,056.7610	1,210.8633	904.7268	874.4698	927.4230	961.0442
03.11.2008	1,045.8500	1,053.8171	1,219.7886	933.2792	875.2752	940.2148	986.0388
01.12.2008	1,059.4940	1,067.2078	1,234.3992	962.6869	886.8654	951.3733	1,007.8949
05.01.2009	1,065.9790	1,078.9519	1,257.5740	977.5900	890.7258	954.5945	1,018.8276
02.02.2009	1,087.2931	1,106.3162	1,279.3145	1,023.4100	912.1047	981.9006	1,044.1536
02.03.2009	1,083.0073	1,104.7234	1,286.4604	1,019.9746	903.8561	971.0362	1,047.6259
01.04.2009	1,090.9755	1,116.2703	1,300.9856	1,030.9084	912.5017	982.3594	1,060.0024
01.05.2009	1,109.4315	1,128.0399	1,312.8860	1,044.9086	926.4072	1,000.9090	1,073.7383
01.06.2009	1,141.0244	1,138.9340	1,324.0934	1,059.4297	943.6606	1,026.0061	1,083.0352
01.07.2009	1,145.8674	1,144.7550	1,334.5382	1,063.6958	949.7866	1,032.5797	1,091.1771
01.08.2009	1,153.5896	1,152.5913	1,346.8060	1,068.0033	956.6963	1,036.1173	1,099.7228

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01.09.2009	1,185.8672	1,167.1430	1,359.2494	1,090.5427	975.0479	1,072.1422	1,110.1660
01.10.2009	1,208.9888	1,178.3677	1,369.6036	1,104.3871	988.4418	1,089.6280	1,119.5621
01.11.2009	1,218.3080	1,189.4500	1,382.5594	1,117.6900	995.4288	1,095.8494	1,129.4976
01.12.2009	1,220.0435	1,202.2268	1,393.7681	1,129.3428	1,000.0589	1,094.0431	1,130.3618
01.01.2010	1,225.7278	1,212.5505	1,407.6595	1,144.5558	1,006.2340	1,100.8265	1,133.7085
01.02.2010	1,243.3506	1,230.7554	1,423.8257	1,174.5378	1,018.4664	1,115.9266	1,153.7522

Source: National Bank of Serbia, www.nbs.rs.

Appendix B. Data on flow of investment unit value for VPFs in EUR counter value.

Date	Exchange rate	VPF 1	VPF 2	VPF 3	VPF 4	VPF 5	VPF 6	VPF 7
01.11.2006	79.0500	12.65022138						
01.12.2006	78.6500	12.86655054						
03.01.2007	79.5300	13.28098579		12.57523576				
01.02.2007	78.7550	13.71637991	12.68229573	12.76671830				
01.03.2007	80.0000	13.82736500	12.84190250	12.88623250	12.64314125			
02.04.2007	80.9194	14.34436983	13.67446743	13.28575471	13.38444922		12.29260474	
03.05.2007	80.7817	15.30658676	14.38795792	13.90047375	14.09125829	12.39874625	12.67265854	
01.06.2007	80.9148	14.81205292	14.41708439	13.58758843	13.75556388	12.40875958	12.51649389	
02.07.2007	78.6667	15.10810292	14.57411840	13.81408652	13.86587082	12.82973990	12.55421799	
01.08.2007	79.6578	15.25080030	14.74938550	14.32689705	14.00246806	12.70441815	12.83648808	
03.09.2007	79.8937	15.32521713	14.93136755	14.45080526	14.10368402	12.77858830	12.91847668	
01.10.2007	78.8946	15.39972317	15.09460597	14.50413083	14.11928573	12.90067761	13.03961868	12.55386173
01.11.2007	77.3363	15.39026046	14.92625326	14.55309990	13.87510652	12.82306498	12.95370091	12.65919238
03.12.2007	84.6776	13.88840614	13.81264349	13.57385188	12.99587848	11.62189410	12.08420881	11.74270763
03.01.2008	79.7577	14.77600783	14.51520041	14.99563428	13.43588644	12.40408763	12.65107444	12.66640462
01.02.2008	82.6286	14.05372595	13.94714542	14.50298686	12.97201574	11.87542207	12.26565015	12.42918675
03.03.2008	83.7004	13.86682023	13.76628666	14.40030036	12.84287052	11.72705268	12.15308648	12.38426818
01.04.2008	82.2641	13.37678769	13.55388924	14.33279644	12.21535518	11.56798166	12.02566004	12.31316334
05.05.2008	80.6571	13.57343247	13.73800819	14.61184446	12.24822861	11.79689079	12.22995992	12.44099404
02.06.2008	82.4670	13.72552172	13.70887507	14.50126839	12.40078456	11.81060909	12.30698946	12.47540713
01.07.2008	78.6555	14.28698311	14.25533370	15.25015924	12.63068063	12.29305389	12.67500048	12.83254064
01.08.2008	76.8574	14.19108765	14.35173972	15.60067866	12.42873816	12.09534410	12.68227132	12.86264042
01.09.2008	76.1816	14.19584257	14.35666486	15.84800267	12.30002520	12.04595729	12.62600549	12.89039479

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01.10.2008	76.7350	13.56904933	13.77156448	15.77980452	11.79027562	11.39597055	12.08604939	12.52419626
03.11.2008	84.5998	12.36232237	12.45649635	14.41833905	11.03169511	10.34606701	11.11367639	11.65533252
01.12.2008	89.5083	11.83682407	11.92300379	13.79089090	10.75528080	9.90819175	10.62888358	11.26035127
05.01.2009	89.5436	11.90458056	12.04945859	14.04426447	10.91747484	9.94739769	10.66066698	11.37800580
02.02.2009	94.7192	11.47912039	11.67995718	13.50639047	10.80467318	9.62956507	10.36643679	11.02367419
02.03.2009	93.8017	11.54571079	11.77722152	13.71468108	10.87373257	9.63581790	10.35201068	11.16851720
01.04.2009	94.8637	11.50045275	11.76709637	13.71426162	10.86725903	9.61908190	10.35548266	11.17395168
04.05.2009	94.8182	11.70061760	11.89687106	13.84635017	11.02012694	9.77035211	10.55608522	11.32417932
01.06.2009	94.8363	12.03151536	12.00947317	13.96188379	11.17114122	9.95041561	10.81870655	11.42004907
01.07.2009	93.6463	12.23612038	12.22424164	14.25083746	11.35865272	10.14227578	11.02638011	11.65211119
03.08.2009	93.0408	12.39874980	12.38802009	14.47543443	11.47887056	10.28254594	11.13616070	11.81979089
01.09.2009	92.9338	12.76034338	12.55886448	14.62599614	11.73461862	10.49185442	11.53662284	11.94577215
01.10.2009	93.0862	12.98784138	12.65888714	14.71328296	11.86413346	10.61856430	11.70558042	12.02715440
02.11.2009	93.5591	13.02180119	12.71335445	14.77739098	11.94635263	10.63957221	11.71291088	12.07255735
01.12.2009	95.0682	12.83335016	12.64594049	14.66071831	11.87929087	10.51938398	11.50798164	11.89000949
04.01.2010	95.9679	12.77226864	12.63495919	14.66802441	11.92644415	10.48511013	11.47077825	11.81341365
01.02.2010	98.4716	12.62648926	12.49858233	14.45925221	11.92768067	10.34274248	11.33247149	11.71659849

Source: Self-made calculation.

Appendix C. Data on flow of investment unit value for VPFs in RSD in real terms (adjusted with changes of retail prices, as at the first day of publishing investment unit).

Date	VPF 1	VPF 2	VPF 3	VPF 4	VPF 5	VPF 6	VPF 7
15.11.2006	1,000.00000000						
01.12.2006	1,003.92281746						
03.01.2007	1,046.80716109		1,000.10850000				
01.02.2007	1,066.32433130	998.79420000	1,001.43715139				
01.03.2007	1,090.85496876	1,026.32587413	1,025.76566859	1,011.45130000			
02.04.2007	1,135.56290120	1,096.65106719	1,061.23254868	1,074.46587302		994.71020000	
03.05.2007	1,198.88423052	1,141.63262524	1,098.55827947	1,119.20866959	1,001.59180000	1,014.58761150	
01.06.2007	1,146.01728219	1,130.00840760	1,060.74966873	1,079.23671072	990.18964497	989.87768857	
02.07.2007	1,129.66801642	1,103.95536439	1,042.21586445	1,051.35757473	989.40214727	959.51881597	
01.08.2007	1,147.81772612	1,124.55976807	1,087.99535940	1,068.67902034	986.16405995	987.52806513	
03.09.2007	1,143.11689548	1,128.26707819	1,087.60367229	1,066.79009979	983.06216953	984.95920828	
01.10.2007	1,125.30729270	1,117.39911319	1,069.41073019	1,046.24488146	972.26542049	973.97103778	990.43190000

Appendix C. Cont'd.

01.11.2007	1,095.82781568	1,076.65231586	1,045.55400646	1,001.83240680	941.67771193	942.78604984	973.17604374
03.12.2007	1,070.98343359	1,079.03484559	1,056.15597475	1,016.24491756	924.31788592	952.51428576	977.65956192
03.01.2008	1,059.45397151	1,054.32945489	1,084.88681292	976.90808769	917.28418230	927.20405835	980.54470132
01.02.2008	1,034.62523707	1,040.17219102	1,077.31734054	968.41488068	901.68478091	923.00720791	987.92359912
03.03.2008	1,026.91888625	1,032.77183800	1,076.03256722	964.45897711	895.69929004	919.95964334	990.19028921
01.04.2008	962.08489157	987.53799823	1,040.12875554	890.90225787	858.09080863	884.08376376	956.13729871
03.05.2008	957.15770422	977.48970751	1,038.62646743	874.97454589	850.32373891	874.54315780	939.67445734
02.06.2008	968.18412211	979.62359188	1,032.11881387	887.03479698	859.24198209	887.36818808	950.10779565
01.07.2008	951.69360765	961.97177894	1,025.00411527	853.19003566	844.55999218	863.03326829	922.90782537
01.08.2008	922.77287192	945.39218463	1,023.56926562	819.53701665	811.16921924	842.94474620	903.02198605
01.09.2008	913.13920593	935.52996039	1,028.59630686	802.31371577	799.15538961	830.16557708	895.22271528
01.10.2008	877.40665250	902.11749195	1,029.55068105	773.10389160	760.00582009	798.83815214	874.36029026
03.11.2008	870.85709107	888.93714843	1,024.84142466	788.04583574	751.68557018	800.25336116	886.46288197
01.12.2008	883.10126146	901.13387683	1,038.15510695	813.69091207	762.40162535	810.56135558	907.01884505
05.01.2009	897.48140264	920.25294396	1,068.32887902	834.63378262	773.45480009	821.52099852	926.11852129
02.02.2009	888.76351156	916.10906070	1,055.14347134	848.30424519	768.95048654	820.40829278	921.49510729
02.03.2009	865.35704663	894.22297967	1,037.18202683	826.44833152	744.86461262	793.08968804	903.77273737
01.04.2009	867.38695538	899.07429473	1,043.67429671	831.15183294	748.24818007	798.34613283	909.90027565
01.05.2009	872.46341705	898.66849549	1,041.76163591	833.27324319	751.38540168	804.57078646	911.66280638
01.06.2009	884.04754512	893.93835471	1,035.12767821	832.36772964	754.06817454	812.55649431	905.96688201
01.07.2009	884.26277335	894.92749172	1,039.13649396	832.38993921	755.93963114	814.50450904	909.14107673
01.08.2009	892.00598617	902.85934246	1,050.79038179	837.43562349	762.96502398	818.93285295	918.09733183
01.09.2009	916.04839131	913.34478084	1,059.43939709	854.25481266	776.82359610	846.55987819	925.88988813
01.10.2009	931.11581654	919.37052963	1,064.31681798	862.51201047	785.13913912	857.79322743	930.93353179
01.11.2009	939.23233167	928.94596176	1,075.46021013	873.77517812	791.48053384	863.55448534	940.13519183
01.12.2009	931.25770667	929.62820489	1,073.44474492	874.14353829	787.28910551	853.59512819	931.53911591
01.01.2010	934.66186402	936.67438590	1,083.06048744	885.03380040	791.35904908	858.02964797	933.36379114
01.02.2010	948.09988762	950.73735773	1,095.49884519	908.21753980	800.97929689	869.79928968	949.86544375

Source: Self-made calculation.