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CAPITAL PENSION SCHEMES IN BULGARIA, HUNGARY AND SLOVAKIA UNDER THE IMPACT OF THE ONGOING FINANCIAL CRISIS

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ABSTRACT: This article describes how the recent financial crisis has affected capital pension schemes in three EEC countries: Bulgaria, Hungary and Slovakia. These countries were not selected at random. The pension systems in each of them have been reformed in recent years by the introduction of defined contribution schemes. The primary difference between each case comes from the period in which a multi-fund system (the ability for the insured individual to choose the risk profile of the asset portfolio into which he or she will invest) has been or will be adopted. In Slovakia, such a system has been employed since 2005, several years before the occurrence of the crisis. In Hungary, a multi-fund system was initiated in 2008, at the beginning of the crisis period. In Bulgaria, the project is still under discussion and has not yet been implemented. We evaluate whether the structuring

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of portfolios with different risk profiles leads to a reduction in the effects of the crisis. The article is organized as follows: first, the basic characteristics of the current funded pension schemes in Bulgaria, Slovakia and Hungary are described; second, the structures of the investment portfolios and the results achieved by the pension companies are analyzed; third, reflex ions about the basic risks facing capital pension schemes are made.

KEYWORDS: Pensions funds, New EU members states, Financial crisis

JEL Classification: G01, G23, P34

Introduction

Capital pension schemes have been significantly affected by the ongoing financial and economic crisis. In response to the processes of population aging and the recommendations of the World Bank, most countries in Central and Eastern Europe have reformed their pension systems, introducing second and third pillars built on a funded base. The ultimate aim of the undertaken reforms is to remove a portion of the financial burden from state pay-as-you go systems while reducing the political risk that typically accompanies them.

Authorities in most of these countries introduced defined contribution pension schemes. In such schemes, the insured person knows the exact size of the contribution that goes into one's own account, but does not know the exact amount of his or her future pension benefit (Davis, 1995: 230-231). This all-important figure depends upon contribution size, contribution period and the yield achieved by the pension company. Thus, the insured individual bears all of the investment risk; the size of his or her pension will be small or large, depending entirely upon the results of investments made by the pension company.

The second type of schemes referred to as the defined benefit scheme. In this arrangement, the future retiree knows the percentage of his or her final salary that will be received as a pension, but does not know the size of contributions needed to support that payment. The company sponsor of the scheme or the employer of the insured person - plays a major role in this type of insurance as it alone bears the investment risk. In the case of poor investment results, the employer must make additional contributions in order to ensure that the scheme is fully funded. This type of insurance is more typical for countries with legislation that is Anglo-Saxon in character. In the last few years, defined contribution schemes have been receiving more recognition than defined benefit schemes. This means that the pensions of an increasing number of people have become more vulnerable to market fluctuations. The issue of investment risk management has therefore become all the more significant (Blake, 2006: 122-123).

This article describes research into the manner in which the recent financial crisis has affected capital pension schemes in three EEC countries: Bulgaria, Hungary and Slovakia. These countries were not selected at random. The pension systems in each of them have been reformed in recent years by the introduction of defined contribution schemes. The primary difference between each case comes from the period in which a multi-fund system (the ability for the insured individual to choose the risk profile of the asset portfolio into which he or she will invest) has been or will be adopted. In Slovakia, such a system has been employed since 2005, several years before the occurrence of the crisis. In Hungary, a multi-fund system was initiated in 2008, at the beginning of the crisis period. In Bulgaria, the project is still under discussion and has not yet been implemented.

The aim of this research is to evaluate whether the structuring of portfolios with different risk profiles leads to a reduction in the effects of the crisis. The article is organized as follows: first, the basic characteristics of the current funded pension schemes in Bulgaria, Slovakia and Hungary are described; second, the structures of the investment portfolios and the results achieved by the pension companies are analyzed; third, conclusions about the basic risks facing capital pension schemes are made.

Evolution and design of pensions systems in Bulgaria, Slovakia and Hungary

Bulgaria

The Bulgarian pension system was significantly reformed with the ratification of the Code of Social Security in 2000. A three-pillar pension model was implemented in an attempt to combine the solidarity principle typical of the first pillar of the system with the funded principle typical of the second and third pillars. The long-term goal of this reform is to achieve an income replacement rate between 70%-80% of the final salary of the insured person. The second pillar of the system is so-called supplementary mandatory pension insurance. It takes the form of two types of pension funds: universal and occupational. All people born after 31.12.1959 must insure themselves in a universal pension fund, while all people working under the first and second labor category must insure themselves in the occupational pension fund. The third pillar of the system is supplementary voluntary pension insurance, wherein all participants choose to make contributions for supplementary benefits. The contribution rates for universal pension funds have been adjusted several times in recent years. They were increased gradually from an initial rate of 2% in 2002 to 3% in 2004, 4% in 2006 and finally 5% in 2007. The contribution rates for occupational pension funds are 12% for people working under the first labor category and 7% for people working under the second labor category. Each person may choose only one universal and/or one occupational pension fund.

Insurance in a universal pension fund gives an individual the right to:

- A supplementary lifetime retirement pension;
- A lump sum of up to 50% of the amount accrued in the individual account in the case of permanently reduced working capacity by more than 70.99%;
- A lump sum or deferred payment to the heirs of the deceased insured person.

Insurance in an occupational pension fund gives an individual the right to:

- A term occupational pension for early retirement;
- A lump sum of up to 50% of the amount accrued in the individual account in the case of permanently reduced working capacity by more than 70.99%;
- A lump sum or deferred payment to the heirs of the deceased insured person.

In order to better protect the funds of the insured, legislation in Bulgaria states that pension funds are separate legal entities from the pension insurance companies that manage them.

The contributions of insured individuals are applied to their personal accounts in the pension fund of their choosing; the managers of the pension company decide how to invest a fund's assets in accordance with national legislation. The pension company charges certain investment fees and commission rates which are also strictly regulated by the Social Insurance Act: an investment fee of up to 1% per year on the net assets of the fund; and no more than 5% on each incoming contribution. The assets of pension funds cannot be used to cover losses which occur as a result of activities undertaken by managing companies. Bulgarian legislation concerning pension fund investments is based on strictly defined rules. This means that pension fund managers in Bulgaria know exactly which types of investments are appropriate and the amount of risk that is acceptable. This type of investment regulation is quite sensible for a country where there is no long tradition of managing such financial institutions and where there has been insufficient liquidity and diversification of financial instruments on the stock market.

Some of the investment limits concerning second-pillar pension funds are given in Table 1.

Table 1. Investment limits for second pillar pension funds in Bulgaria

№	Investment instrument	Limit
1	Shares traded on a regulated securities market	20%
2	Corporate bonds	25%
3	Bank deposits	25%
4	Mortgage bonds	30%
5	Municipal bonds	15%
6	Investment properties	5%
7	Assets in denominations other than the lev or euro	20%

Source: Code of Social Security 2010

The investment limits for second-pillar pension funds were significantly liberalized in 2006, just before Bulgarian accession into the EU. Some of the changes that have been made concern investments in government bonds and euro-denominated assets issued by EU companies and states. Until 2006, Bulgarian pension funds providing supplementary mandatory pension insurance had been obliged to invest at least 50% of their assets in government bonds. This requirement is no longer applicable. Additionally, euro-denominated financial instruments issued by EU companies or states were made equal in standing to Bulgarian instruments. The only requirement which is still in force concerns instruments denominated in currencies other than the lev or euro. Some other normative changes affect investments in corporate shares and bonds. The investment limits on both of these instruments have been relaxed.

The investment constraints for voluntary pension funds have been liberalized to an even greater degree. Some of the limits are shown in Table 2.

Table 2. Investment limits for third pillar pension funds in Bulgaria

№	Investment instrument	Limit
1	Shares in a single issuer	5% of assets
2	Deposits in a single bank	5% of assets
3	Instruments in denominations other than the lev or euro	30%
4	Investment properties	10%

Bulgarian pension fund managers now have significant freedom in selecting assets in which to invest. Optimal portfolio structuring was hampered by the requirement of holding a minimum of 50% of a fund's assets in government bonds. As a result, some pension funds allocated nearly 80%-90% of their funds in government bonds. This cast a long shadow on the implemented reforms. Due to the approved normative changes that relaxed this requirement, all pension companies restructured their investment portfolios, incorporating investments in corporate stocks and bonds. Bulgarian pension companies can at present establish only one portfolio of assets for each of its managed funds. The multi-fund system has been discussed in the professional community for several years, but obstacles remain to its implementation. With the onset of the financial crisis in 2008, pension companies have not been able to structure different portfolios in accordance with its investors' varying ages and preferences regarding risk. This limitation has most seriously impacted the third pillar of the system, whose investors expect to retire in the next two or three years. Bad investment results have been observed in the second pillar as well. Fortunately, the investment horizon for the insured within this pillar is quite far off, which means it will be possible for losses to be recovered in the coming decades.

Slovakia

The pension system in Slovakia was reformed in 2005. At the time, the system was organized solely on a pay-as-you-go basis. The implemented reforms enabled insured individuals to invest in a pension paid out from the second and third pillars of the system. The first and second pillars of the system are mandatory and constitute the basis of the Slovakian pension system. The third pillar is voluntary, which means that anyone who so wishes may invest in an additional pension. At the start of the reform, working people under 52 years of age had the option to choose whether to join the second pillar of the system or to invest only in the first pillar. They were given a period of 18 months between 01.01.2005 and 30.06.2006 in which to make their decision. Those who chose to join the second pillar could not back out. Furthermore, individuals starting their first job now have no choice but to invest in both a first-pillar and second-pillar pension scheme. People who are insured only in the first pillar of the system pay a contribution rate of 18%; 14% to be paid by the employer and the remaining 4% to be paid by the insured individual. Those who are also insured in the second pillar of the system owe a contribution of 9% to that pillar, which is paid by the employer and goes directly into the insured individual's personal account. If an individual is insured in both the first and second pillars, the employer may reduce the size of its payment into the first pillar of the system.Insured individuals in Slovakia were given the opportunity to choose the risk profile of their asset portfolio from the very beginning of the reform.

Slovakia is one of just a few countries in Europe that employs the multi-fund system. Each pension company must establish three portfolios: a conservative portfolio - with the lowest risk level; a balanced portfolio - with an average risk level; and a growth portfolio - with the highest risk level. Investments made with a conservative fund can only include fixed income instruments. Those made with a balanced fund can include up to 50% in variable income instruments, the remainder being placed in fixed income instruments. The assets of a growth fund can include up to 80% in shares and other variable income instruments, the remainder being invested in fixed income instruments. All funds have no limits on investment in foreign instruments.

Investment limits on second-pillar funds in the Slovakian pension system

Fund	Variable Income instruments	Instruments in denomintions other than the euro	Fixed income instruments	Foreign investments
Conservative	0%	0%	100%	No limit
Balanced	Up to 50%	Up to 50%	Minimum 50%	
Growth	Up to 80%	Up to 80%	No limit	

Source: Association of Pension Funds Management Companies (ADSS), Slovakia

Each individual who makes contributions to a pension fund must choose the risk profile of his or her assets portfolio. An insured person cannot be assigned to a fund by default. Pension companies in Slovakia charge two types of fees: a management fee of up to 0.065% of the fund's monthly assets; and a pension account supporting fee of 1% of the contributions received during the month. Each individual may choose and participate in only one fund.

The third pillar of the Slovakian pension system is voluntary pension insurance. All Slovakians could make contributions to an additional pension. Voluntary pension insurance has existed in Slovakia since 1996. Each pension company operating within this pillar must found and manage a minimum of two pension funds, one for the accumulation phase and one for the pay-out phase. Each company determines its own investment strategy, but even these funds are subject to constraints concerning investment activity. This mostly concerns pay-out funds, which legislation requires being as liquid as possible.

Hungary

The pension system in Hungary was reformed in 1998. Similar to other countries from Central and Eastern Europe, second and third pillars were introduced which function on a funded base. The second pillar is mandatory for individuals who are beginning their first job. For those who were already working a period of 18 months was given in which to decide whether to stay in the old system or to transfer part of their contribution into one of the newly created pension funds. Nearly 80% of people younger than 40 years of age chose to participate in the new system. The Hungarian pension system allows older fund members who chose to participate in the new system but have a contribution period of less than 120 months to switch back to the old system if the retirement benefit provided by the private pension fund is less than 25% of pension received by the first pillar pension fund. This period expires in 2012. In this way the state is attempting to guarantee that people who are going to retire in the next few years will not suffer any loss due to their very short contribution period. At the same time, however, the state budget is burdened with additional liabilities which are very difficult to be evaluated and planned for in advance. It is very difficult to assess what kind of investment performance pension companies will achieve and how many people will switch back to the old system at a later stage.

Insurance in a Hungarian pension fund gives an individual the right to:

- A supplementary lifetime retirement pension;
- A supplementary pension for a fixed period, paid to the insured person or his or her heirs;
- A supplementary lifetime pension for the insured person and a supplementary pension for a fixed period, paid to the heirs of the insured;
- Two or more lifetime pensions paid as long as one of the individuals is still alive.

Table 4. The limits of each investment option in the Hungarian pension system

Fund	**Variable income instruments**		**Derivative instruments**	**Real estate**	**Foreign securities**
	Minimum	*Maximum*			
Conservative	-	10%	0%	0%	No limit
Balanced	10%	40%	0%	10%	
Growth	40%	-	5%	20%	

Source: Hungarian Financial Supervision Authority (HFSA), Hungary

The sums accumulated in a pension fund in Hungary may be inherited by the heirs of a deceased person. A significant reform concerning supplementary pension insurance was implemented in 2008. Insured people were given the option of choosing the risk profile of their investment portfolio in a manner similar to that given to Slovakians. Initially, the multi-fund system was introduced on a voluntary base, i.e. the managers of each pension fund could choose whether to propose different portfolio options to the insured. Since 2009, the system has been mandatory and each fund is obliged to propose three portfolio options: conservative, balanced and growth.

Table 5. Allocation of insured individuals by fund in Slovakia (2008)

Fund	Number of insured individuals	%
Conservative	68 677	5
Balanced	381 212	26
Growth	1 033 137	69

Source: Description and Analysis of the Multi-fund Systems in the Latin American and Eastern European Pension Systems, 2010, FIAP

Table 6. Allocation of insured individuals by fund in Hungary (2008)

Fund	Number of insured individuals	%
Conservative	20 053	1
Balanced	232 082	8
Growth	1 553 051	52
Funds without investment options	1 142 412	39

Source: Description and Analysis of the Multi-fund Systems in the Latin American and Eastern European Pension Systems, 2010, FIAP

The insured individuals in Hungary may choose into which fund to invest their contributions. Some constraints have been introduced that are only applicable to people over 57 years of age, who have less than 5 years until reaching the legally defined retirement age of 62. They are restricted from selecting the growth portfolio as an investment option. They may choose between the two remaining alternatives: the conservative and balanced portfolios. People who have not made a choice are entered into a fund by default, depending upon the number of years that remain until they reach retirement age. Those who have a minimum of 15 years until retirement are enrolled in an aggressive fund. They have enough time to recover from adverse fluctuations in the value of stock market shares. People who have between 5 and 15 years until retirement are enrolled in the balanced fund, while those with less than 5 years are entered into the conservative fund. The annual management fee may not exceed 0.8% of the value of the fund's assets. Comparisons between the distribution of participants into the different types of funds in Slovakia and Hungary and elsewhere reveal regional differences in individuals' preferences regarding risk. For example, in Latin American countries it is observed that most insured individuals choose a balanced portfolio. Slovakians and Hungarians, however, prefer a more aggressive investment structure.

Facing the financial crisis

With the onset of the financial crisis and the resulting plunge in stock market prices, pension systems in the three countries in question responded quite differently. Presumably, systems with multi-fund options should be more successful and resistant to market fluctuations than systems without them. Enabling the structuring of portfolios with different risk profiles should help protect the savings of the insured. In order to determine the influence the crisis has had on the yield realized by pension companies, figures from three consecutive years (2007, 2008 and 2009) have been analyzed. For each year, changes in the main stock exchange indexes of the three countries and the yield realized by the largest pension funds in these countries have been studied.

In Bulgaria, changes in the main stock exchange index, Sofix, during the years in question are shown in Table 7.

Table 7. Change of SOFIX index

Year	% change in Sofix
2007	42.68%
2008	-79.71
2009	19.13%

Source: http://www.bse-sofia.bg/

These sharp market fluctuations significantly influenced the yields realized by pension funds. The multi-fund system has not been introduced in Bulgaria, which means that for the given period managing companies needed to oversee just one portfolio of assets for all insured people.

Data for the three largest pension companies in Bulgaria - PIC “Doverie” JSC, POD “Alianz - Bulgaria” JSC and PIC “Saglasie” JSC – show (Table 8) the highly negative yield realized in 2008 for each of these pension funds. Only when compared to the depressed stock market do these losses not seem so bad. The inability of pension companies to structure portfolios with different risk profiles led to serious difficulties. The only positive news in this case is that the investment horizon for people insured by these universal pension funds is quite far off. The first people to start receiving a pension benefit from the second pillar of the system will be women born in 1960. They will to retire in 2020 if the current pension model remains the same for the next ten years. This is a quite long period in which to recoup the losses suffered in 2008. The situation was far more serious for voluntary pension funds, through which many individuals were insured whose retirement was expected to begin in the next few years. It would be very difficult for the negative yields realized in 2008 to be compensated in these latter funds in such a short period of time. Managing companies were faced with a difficult dilemma: whether to protect the interests of the older fund members or those of the younger ones. If the first group was given preference, the portfolio should then have been restructured giving preference to fixed income instruments, which are more stable in a period of financial distress. If the second group was given preference, the share of variable income instruments should have been kept unchanged as they have a higher yield in the long term. A higher yield in the long term means better retirement conditions for the younger fund members.

Table 8. Yield realized by the three largest universal pension funds in Bulgaria

№	Pension fund	Year		
		2007	2008	2009
1	PIC “Doverie” JSC	13.51%	-18.62%	9.05%
2	POD “Alianz - Bulgaria” JSC	15.73%	-21.72%	6.72%
3	PIC “Saglasie” JSC	15.33%	-24.51%	8.64%

Source: Financial Supervisory Commission, Bulgaria

Managing companies reduced the rate of buying new shares in their portfolios, but at the same time abstained from massive sales. This was likely the only reasonable course of action given the situation, although people whose retirement was approaching lost a considerable part of their savings.

What happened in the other two countries, Hungary and Slovakia?

In Hungary, the crisis reached its peak in 2008, which can be seen (Table 9) from stock exchange data and the severe drop in the main index (BUX):

Table 9. Change of BUX index

Year	% change in BUX
2007	5.6%
2008	-53.34%
2009	73.4%

Source: http://www.bse.hu/

The data shows that unlike the Bulgarian capital market, the Hungarian market has been recovering much faster. After the sharp drop of over 50% in 2008, the capital market recovered a substantial part of its value (over 70%) in 2009. However, the pre-crisis level has not yet been reached, although the rate of increase is greater than that of decline. How were Hungarian pension funds affected by these circumstances?

From the registered yields (Table 10) it is apparent that in Hungary, as in Bulgaria, the crisis negatively impacted the realized returns on pension funds. At the beginning of 2008, however, managing companies in Hungary were given the ability to structure three portfolios with differing levels of risk, a change in policy that had an immediate impact on the results achieved. These results fall inside a wide margin, ranging from -3.80% for the conservative profile of OTP to -32.9% for the aggressive profile of the same company. There is only one pension fund column for AEGON in 2008, as that company did not take advantage of the new rules to structure three portfolios; as expected, its yield is very close to that of the balanced portfolios of the other two companies. The multi-fund system enables risk to be better managed. Conservative portfolios manage to retain almost all of the value of their investments even during crises when the stock market drops by more than 50%. A problem for the Hungarian pension funds was the moment at which reforms themselves were made to the system. They were implemented in the year when the stock market was at its peak. Perhaps this is the reason why a very large portion of those insured by supplementary pensions chose to enroll in their pension company's growth portfolio. The managed assets of the two largest pension funds in Hungary are shown in Table 11.

Table 10. Yield realized by three pension funds in Hungary

№	**Pension fund**	**Year**						
		2007	2008			2009		
			Conservative	Balanced	Growth	Conservative	Balanced	Growth
1	PPF OTP	6.69%	-3.80%	-16.80%	-32.9%	10.11%	21.72%	33.51%
2	PPF ING	4.44%	-12.68%	-17.18%	-22.9%	16.46%	22.48%	31.98%
3	PPF AEGON	4.85%	-17.18%			11.65%	17.34%	22.97%

Source: Hungarian Financial Supervision Authority (HFSA), Hungary

Table 11. Allocation of insured individuals by fund in Hungary

Fund	**Conservative**	**%**	**Balanced**	**%**	**Growth**	**%**
PPF OTP	15 744 671	1%	278 592 492	18%	1 259 472 181	81%
PPF ING	19 529 273	2%	308 301 303	25%	881 819 450	73%

Source: Hungarian Financial Supervision Authority (HFSA), Hungary

It can be seen that the overwhelming majority of assets went into the growth portfolios, while conservative portfolios only received between 1% and 2% of assets. In recent years, more and more research has been conducted into understanding why a person makes a given choice regarding purely financial matters. It has been shown that in many cases people put their trust in recent experience, as they are inclined to disregard lessons learned longer ago in the past. The growth in stock prices during recent years could only encourage most people to choose aggressive portfolios, even though history shows that a period of growth in a capital market is always followed by a period of decline. Of course, investors in growth portfolios have their own logical explanation for people whose investment horizon is longer. After all, stocks themselves surpass fixed income instruments in profitability in the long term. And when we speak of pension schemes with defined payments, realized profitability is among the most important fators, along with the size of insurance payments and the period of an individual's participation. During 2009, the stock market in Hungary recovered a large part of its losses sustained in 2008, unlike the stock market in Bulgaria. It was only natural that this would be reflected in the investment results achieved by pension funds there. Some growth portfolios achieved yields above 30% in 2009, thus making up for much of the loss in 2008.

In Slovakia, the multi-fund system was introduced in 2005, which meant that insured individuals had a sufficiently long period of time prior to the crisis in order to familiarize themselves with the differences between available pension funds and determine the level of risk appropriate for their investment horizon. The capital market in Slovakia dropped in 2008, but to a lesser degree than that of other countries in the region, though profitability continued to be weak during 2009. Information about the main index of the Slovakian stock market can be seen in the Table 12.

Table 12. Change of SAX index

Year	% change in SAX
2007	7.90%
2008	-19.78%
2009	-25.67%

Source: http://www.bsse.sk/

The drop in the stock market in Slovakia contrasts to a large degree from the fate of pension funds there. Unlike those in Bulgaria and Hungary, pension funds in Slovakia succeeded in maintaining the value of their investments.

Fluctuations in the yields of the three largest pension funds in Slovakia in terms of the value of managed assets are far smaller than those observed in Bulgaria and Hungary. Yields indicated in the table for 2007 and 2008 are based on changes in the value of a pension unit declared in korunas, whereas yields for 2009 are based on changes in the value of a pension unit expressed in euros, since Slovakia was officially recognized as a member of the eurozone on 01.01.2009. From the data it is evident that Slovakian pension funds lost a comparatively small part of their assets during 2008. Yields in conservative management portfolios are positive and the balanced portfolios vaccilate between -4.5% and -6%, while the agressive portfolios show changes of between -7% and -8%.

In order to properly juxtapose data before and after 2009, it is useful for calculated returns to reflect changes in the exchange rate prior to 2009. It is interesting to note that during 2008 the exchange rate for the koruna significantly increased against the main currencies, including the euro. Two reasons for this were the strong state of the Slovakian economy and the announcement that the country would join the eurozone in 2009. In the Table 14, pension units are recalculated in euros and their yields are now shown to actually have been positive. The value of Slovakian pension funds' assets declared in euros even increased in 2008, the year of the crisis.

Table 13. Realized yields by the three largest pension funds in Slovakia (in korunas)

№	Pension fund	Year								
		2007			2008			2009*		
		Conservative	**Balanced**	**Growth**	**Conservative**	**Balanced**	**Growth**	**Conservative**	**Balanced**	**Growth**
1	Allianz-Slovenská d.s.s., a.s.	4,42%	3,74%	3,53%	2,31%	-4,84%	-6,99%	1,93%	1,50%	1,54%
2	AXA d.s.s., a.s.	3,89%	3,91%	3,72%	2,80%	-5,12%	-7,12%	1,32%	0,57%	0,66%
3	VÚB Generali d.s.s., a.s.	3,87%	4,16%	4,23%	2,50%	-5,93%	-8,02%	2,17%	2,18%	2,18%

Source: the author's own calculations

***Note:** For 2009, the indicated yield is based on the value of a pension unit declared in euros

Table 14. Realized yields by the three largest pension funds in Slovakia (in euro)

№	Pension fund	Year								
		2007			2008			2009		
		Conservative	**Balanced**	**Growth**	**Conservative**	**Balanced**	**Growth**	**Conservative**	**Balanced**	**Growth**
1	Allianz-Slovenská d.s.s., a.s.	7,40%	6,70%	6,49%	13,71%	5,77%	3,38%	1,93%	1,50%	1,54%
2	AXA d.s.s., a.s.	6,86%	6,87%	6,68%	14,27%	5,45%	3,24%	1,32%	0,57%	0,66%
3	VÚB Generali d.s.s., a.s.	6,83%	7,13%	7,21%	13,93%	4,56%	2,24%	2,17%	2,18%	2,18%

Source: the author's own calculations

Conclusion

Due to this worldwide financial and economic crisis, supplementary pension funds that functioned on funded base in Bulgaria, Hungary and Slovakia reacted in different ways. The value of pension assets dropped to the greatest degree in Bulgaria. There are two main causes of this phenomenon. First, a significantly reduced stream of foreign investments reflected very unfavorably upon the country's capital market, which dropped to a greater degree than in the other two countries in question. Bulgarian pension funds had significant assets invested in the capital market. Second, pension companies in Bulgaria did not have the ability to construct portfolios with different degrees of risk, which could have protected a portion of the savings of individuals choosing more conservative types of investments. Pension funds in Hungary also experienced a drop in the value of their assets, although to a lesser degree than that observed in Bulgaria. The main reason for this was a less profound drop in the Hungarian capital marked in 2008 and its comparatively rapid rebound in 2009.

The introduction of the multi-fund system in the beginning of 2008 had a very weak effect on preserving the value of pension fund assets. Growth in the capital market lasting several years had encouraged people to invest more in it, that is, to choose an growth portfolio with its increased risk and potential for higher yields. Still, the 1% of individuals who chose a conservative portfolio preserved their savings during the year of the largest drop in the market. The opportunity to choose played a positive role, even if only a small group of people benefited from it. In the best case, this freedom of choice proved invaluable in protecting the supplementary pensions of some Slovakians. Of the three countries studied, Slovakia experienced the smallest drop in its capital market and at the same time the multi-fund system had been introduced several years earlier, so that a larger portion of the insured had familiarized themselves with their options and chosen a conservative portfolio.

The multi-fund system had a positive role in decreasing the total risk of the system. In order to achieve this effect two things are essential: first, the moment of its introduction and second, the financial literacy of people saving for supplementary pension. Taken as a whole, it is important not to overestimate the capacity of the mult-fund system to mitigate risk, since pension fund yields are always subject to the overall state of the respective country's economy. Economic recessions and drops in the markets reflect unfavorably on each and every structured portfolio. In such a situation, insured individuals can rest assured that the value of their savings will be preserved only if they had invested in a conservative portfolio. However, they risk losing the opportunity to achieve greater growth in the years following a crisis; after all, realized yields play an important role in determining the size of an insured individual's future pension, particularly when his or her investment horizon is longer, as it is typical for most people who invest in pension funds.

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