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PAY-OUT PHASE FOR THE UNIVERSAL PENSION FUNDS IN BULGARIA – NEW RISKS AND OPPORTUNITIES FOR THE INSURED INDIVIDUALS

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Abstract

The universal pension funds in Bulgaria are going to enter a new phase in 2021. Women born at the beginning of 1960 are going to receive part of their pension benefit from the universal pension fund of their choice. The so-called pay-out phase is knocking on the door which means that some new risks and opportunities arise for the insured individuals born after 31.12.1959. The article examines the proposed changes in the normative rules concerning the pay-out phase for the universal pension funds and analyses some of the risks that currently appear on the surface. There is a clear need for some additional reforms in the supplementary compulsory pension insurance in Bulgaria if policymakers really want fully funded private pension schemes to support the financially constrained pay-as-you-go column of the social security system in the long term. The article suggests some measures that would be beneficial both for the insured individuals and for the pension system in Bulgaria.

Key words: pension funds, pay-out phase, insured individuals, risks

JEL: G22, G23, G28

Introduction

Bulgarian pension insurance system has three pillars – the first one functions on a pay-as-you-go principle, the second and third one on a fully funded principle. The pay-as-you-go column of the pension system is the dominant one where current workers' social security contributions are used for the payment of the current pensioners' benefits. The second and third pillars are supplementary ones where insured individuals have individual accounts used for accumulation of resources. The pension benefit is proportionate to the amount accumulated to the date of retirement. The mature state of the second pillar is coming closer since some of the insured individuals born at the beginning of 1960 are going to retire in 2021. The current legislation envisages part of their pension benefit to be paid by the universal pension fund of their choice. The so-called pay-out phase is an important stage of the development of the pension funds in the country. Its

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effective regulation is crucial for the future of the pension funds in Bulgaria. After implementing pension reforms in the late 1990's, many countries in Central and Eastern Europe now face the challenge to regulate the distribution phase of their fully funded pension columns. Insured individuals could take full advantage of their accumulated savings only if some additional reforms are accomplished. A common feature of the insurance markets of all these countries is the scarcity of annuity products – the basic instruments, used for payment of pension benefits in many of the Western countries that have serious tradition in managing fully funded pension schemes. Many risks exist for insured individuals, pension insurance companies and the State during the pay-out phase of a defined contribution pension scheme.

The first part of the research is trying to describe the most serious of them faced by insured individuals; the second part is putting some light on the proposed regulation of the pay-out phase for the Bulgarian universal pension funds, the conclusion summarizes the basic implications from the conducted research.

The pay-out phase of the defined contribution (DC) pension schemes and the risks faced by insured individuals

Following the model proposed by the World Bank in the mid 1990's many countries in Central and Eastern Europe reformed their pension systems introducing defined contribution pension schemes. These are pension schemes established on a fully funded principle, where insured individuals accumulate resources in individual accounts and bear significant risks during both the accumulation phase and the distribution phase. The basic risks during the accumulation phase are related to the investments made by the pension insurance companies since any bad performance directly affects the amount accrued into the individual account and the resulted pension benefit. The pay-out phase also brings significant risks not only for the insured individuals but also for the pension insurance companies and for the State. Rocha and Vittas (2010) define several risks concerning the insured individuals – longevity risk (the risk of outliving the accrued resources), investment risk, inflation risk, liquidity risk, bequest risk and bankruptcy risk. Blake (2006) points out also interest rate risk (the risk of retiring when interest rates are low), income risk and inflation risk. Each of them depends on the specific type of annuity the pensioner purchases. Rocha, Vittas and Rudolph (2010) note that the regulation of the pay-out phase directly influences the choice of the insured individual about the type of the received pension benefit. Asher and Nandy (2006) in a research regarding DC pension schemes in India along with the longevity, investment and inflation risk pay specific attention to the survivors' benefits and disability insurance since "life-time labor force participation of women is relatively low" in this country. The importance of the

right regulation of survivors' and disability pension benefits in a DC scheme is pointed out also by James and Vittas (1999). Antolin (2008) stresses also on the aging of the population as a specific risk factor for the future asset valuation and its impact on the pension benefits paid by fully funded pension schemes. Providers of the pension benefits (pension insurance companies, life insurers etc.) also face risks during the pay-out phase. In addition to longevity risk, investment risk and inflation risk, providers of retirement payments must manage liquidity risks, credit risk and underwriting risk (Rocha, Vittas, 2010). Governments could also experience certain risks mainly in cases of implicit or explicit guarantees given to the providers of DC pension benefits. The efficient regulation is crucial in the process of mitigating all these risks and raising the stability of the pension institutions that operate DC pension schemes.

During the distribution phase of a defined contribution pension scheme, pension benefit could be paid by using different products (Данева, 2018). Each of them has different risk characteristics. One of the most important features of a pension scheme is that it must provide the recipient with a regular stream of cash until the end of his/her life (Davis, 1995). From this point of view longevity risk is perhaps the most important type of risk. This is the risk of depleting the resources accrued into the individual account prior to the death of the insured individual. There are several different products that address this type of risk. Maybe the most common and widely known product is the so called level annuity (Blake, 2006) or fixed nominal life annuity (Rocha and Vittas 2010). This is fixed amount of money paid to the insured individual until his/her death. The amount of the annuity payment depends on three factors: the amount accumulated into individual account, the current interest rate and the average life expectancy. Using this product, the insured individual effectively addresses the longevity risk. There is no risk of depleting money prior to one's death. The insured individual is not exposed to investment risk as well since the pension benefit is not related to the investment performance of the insurance company. At the same time some other types of risks continue to exist. Maybe the most important one is the inflation risk. Pension benefit loses its purchasing power if economy experiences significant inflation rates. The average life expectancy rises continuously so that the number of years after retirement can reach 15 – 20 years and more. For this prolonged period, the pension benefit paid as level annuity could lose 1/3 of its purchasing power under certain normal circumstances. The next type of risk related to this product is interest rate risk. In order to estimate the pension benefit as annuity payment, one must use annuity factor determined for specific number of years and fixed interest rate. There is an inverse relationship between the annuity factor and the pension benefit – the higher the annuity factor, the lower the benefit. If current interest rates are low, all other things being equal, the annuity factor is going to be high and the pension benefit is going to be low. So, two persons with one and the

same accumulated sum into the individual account and one and the same average life expectancy can receive significantly different pension benefits if retired in different years with different interest rates. The next type of risk related to the fixed nominal life annuity is the so called bequest risk. This is the risk of leaving the dependents of a deceased person without income. It is a widespread practice when paying life- time annuities, insurers to form a common pool of savings of the insured individuals. In this way they can manage efficiently the longevity risk since the average life expectancy of a wide group of people is a known number. So, if the insured individual chooses to receive life-time payment and in this way to eliminate the longevity risk, he/she risks leaving his/her dependents without income if he/she dies shortly after retirement.

Table 1: Types of risk associated with Fixed nominal life annuity

Type of risk	Fixed nominal life-time annuity (Level annuity)
Longevity risk	No
Investment risk	No
Inflation risk	Yes
Interest rate risk	Yes
Bequest risk	Yes

The next type of annuity used in payment of pension benefits is index-linked annuity (Blake, 2006) or fixed real life annuity (Rocha, Vittas, 2010). This is a specific type of annuity where the payments are increased in line with a certain index, most commonly – the consumer price index (CPI). This product offered by some life insurers mostly in western countries tries to protect pensioners from their exposure to inflation risk. The other characteristics of this annuity are similar to those discussed in the previous section concerning the level annuity. The inflation risk is quite important especially in the long term, but to be managed effectively, life insurers need special investment vehicles. Most commonly governments step in by offering inflation-linked bonds. A negative feature of this bond is that in many times the return on it lags behind the return of other types of government bonds. The reason stems from the guarantee given by the issuer to cover the inflation rate. However, in times of low inflation the return on this type of instrument is low as well. In emerging economies, this type of bond is missing, so this annuity is not a proper instrument for the pension companies in Central and Eastern Europe. In addition, most of the countries that reformed their pension systems by introducing funded components, have been trying to support financially their pay-as-you-go pillars in the long term. So, if governments issue inflation linked bonds to cover the liabilities of the pension funds during the pay-

out phase, many of the advantages of the fully-funded pension system would disappear. A variety of index-linked annuity is the limited price index annuity (Blake, 2006). It compensates for the inflation up to a certain limit (for example: 1.5% or 2.0%).

Table 2: Types of risk associated with Index-linked annuity

Type of risk	Index linked annuity
Longevity risk	No
Investment risk	No
Inflation risk	No
Interest rate risk	Yes
Bequest risk	Yes

The next type of annuity is escalating annuity (Blake, 2006) or escalating nominal annuity (Rocha, Vittas, 2010). A typical feature of this instrument is that it increases by a certain percentage each year. Normally the percentage is between 3% and 5% per year. It effectively covers longevity risk, investment risk and to a certain extent inflation risk. If inflation rate is below the rate of escalation, the insured individual is fully compensated. Otherwise, there is a partial compensation. A variety of this instrument is escalating real annuity. It fully covers inflation risk and offers an increase of the pension benefit in real terms. However, in the beginning, this instrument is priced quite low and usually this makes it unattractive to the recipients, especially those with short life expectancies.

Table 3: Types of risk associated with escalating annuity

Type of risk	Escalating annuity
Longevity risk	No
Investment risk	No
Inflation risk	To a certain extent
Interest rate risk	Yes
Bequest risk	Yes

Other types of annuities are variable income annuities. A significant disadvantage of the products discussed by now is that the cover of the investment and inflation risk comes at a significant cost. The average life expectancy tends to increase, and this means that the retired individual could have an investment horizon of 20 – 25 years after retirement. It sounds reasonable to invest, at least

part of the accumulated capital at the date of retirement in more risky assets promising higher returns. So, assuming part of the investment risk, the insured individual could realize better returns and receive higher pension benefit in the late years. The most common types of variable income annuities are: unit-linked annuities (Blake, 2006; Rocha, Vittas 2010) and with-profit annuity (Blake, 2006) or bonus and guarantee annuity (Rocha, Vittas 2010). The former is an annuity where the accumulated capital or part of it is invested in units from a diversified portfolio of assets. The annuity payment is expected to rise when the value of the asset portfolio is going up. Otherwise the annuity payment may decline. Most commonly insurance companies offer a certain protection in case of realized losses for a given year, but of course this also comes at a price. Usually, this type of annuities transfer part of the investment risk and part of the longevity risk to the pensioner. At the same time, choosing this product, the recipient is not exposed to interest rate risk or annuitization risk. This means that the value of the annuity payment is not so much influenced by the predominant interest rates at the time of retirement.

Table 4: Types of risk associated with unit-linked annuity

Type of risk	Unit-linked annuity
Longevity risk	To a certain extent
Investment risk	To a certain extent
Inflation risk	To a certain extent
Interest rate risk	No
Bequest risk	Yes

Bonus and guarantee annuities are similar to the unit-linked annuities but here the bonus could come in two forms – first, if the investments made rise in value and second, if participants of the fund live shorter than expected – the remaining part of the funds are redistributed among the other participants. The insurer bears the longevity risk and the investment risk up to a certain threshold and this is the "guarantee" part of the annuity. The "bonus" part is determined by the whole performance of the insurer. There is a risk of declining profits and this is the reason why this type of annuity generally is priced lower than fixed income annuities discussed above.

Table 5: Types of risk associated with guarantee and bonus annuity

Type of risk	Guarantee and bonus annuity
Longevity risk	To a certain extent
Investment risk	To a certain extent
Inflation risk	To a certain extent
Interest rate risk	No
Bequest risk	Yes

Special types of annuities with increasing popularity in the recent years are joint-life annuities and annuities with guaranteed periods of payment. These are annuities that cover to a certain extent bequest risk. Joint-life annuities are products destined for married couples. If one of the spouses dies earlier, the other could continue to receive part of the pension benefit. This type of annuity corrects to a certain extent the usage of unisex mortal tables that are mandatory for all EU countries. The annuity with a guaranteed period of payment allows for survivor's benefit if the annuitant dies during the pre-specified period, for example during the first ten years of receiving pension benefit. Programmed withdrawal and lump sum payments are other types of benefits that address bequest risk, but at the cost of neglecting longevity risk.

These are the basic types of annuities known at the market. Each of them has specific risks that cannot be fully eliminated. The regulators are facing many challenges when elaborating the design of the pay-out phase. There are many options for receiving pension benefits from a DC scheme, but if many of them are opened for the insured individuals, the last must be ready to take the responsibility for the decisions made. On the other hand, if the State limits the choice, the system flexibility would be deteriorated so that many of the future retirees would not be able to find the suitable solution for them. The regulators should try to prevent individuals from misusing the accumulated funds and at the same time give them enough options for receiving their pension benefit. Using different products in different retirement periods also sounds reasonable.

Bulgarian universal pension funds and the pay-out-phase – risks and challenges

The universal pension funds in Bulgaria are expected to start paying pensions in 2021. Women born in 1960 who have individual account in such fund [1] are going to receive retirement benefit from the second pillar of the social security system in the country. The exact regulation of the pay-out phase was delayed in time and in the mid 2020 there is only draft amendment to the Social security

code. However, most of the known proposals are going to come into force in 2021 so that some important implications could be made about the future development of the universal pension funds in Bulgaria.

These funds were established in 2002 as fully funded DC pension schemes. Still from the very beginning, their role is assumed as supplementary one in the pension system (Горчев, Манов, 2003). They were created to support the dominant pay-as-you-go pillar in the long term. The contribution rate was fixed at 2% in 2002 and after a couple of increases it reached 5% in 2007. The percentage was expected to rise to 7%, but it was left unchanged at 5%. In addition to the low contributory rate there are at least two other factors that determine comparatively low accumulation of resources into the individual accounts of the insured individuals. These are: low contributory income and short period of accumulation. The contributory income constantly rises for the whole period between 2002 and 2020 but the extremely low basis at the beginning, influences the low accumulation of funds, especially at the start of the reform. In 2002 the average contributory income equals 259,75 BGN (132,81 euro). With contributory rate of 2%, the contribution amount for the universal pension fund is: 5,20 BGN (2,66 euro). In May 2020 the average contributory income is 1064,24 BGN (544,14 euro) which determines contribution amount of 53,21 BGN (27,21 euro). The accumulation period is comparatively short – 19 years. This is nearly half of the whole length of service (36 years) of the women who have the right to apply for pension benefit in 2021. The absolute accumulated amount into one's individual account is important because it affects the choice of the payment option in the pay-out phase. The first insured individuals with the right of receiving pension benefit from universal pension fund are supposed to choose from three options – all of them hugely depend on the amount accrued during the accumulation period. The first option: individuals may get retired one year before the official statutory age if the accumulated funds into the individual account allow for the payment of the minimum amount of the length of service and old pension benefit due by the pay-as-you-go part of the system. The minimum amount valid for the second half of 2020 is 250 BGN (127,82 euro). There will be no individual within the group of the first receivers to benefit from this first option. The reason is that the accumulated resources are not enough to support such payment. The following table shows the pension amount that could be paid by different universal pension funds assuming that the insured individual has been contributing on the maximum contributory income during the whole period between 2002 – 2020 [2].

Table 6: Pension amounts due if the insured individual contributed on the maximum contributory income for the period 2002 – 2020.

UPF	Doverie	Saglasie	DSK-Rodina	Allianz Bulgaria	En En	CCB – Sila
Accumulated sum	24 108,76	26 561,07	24 063,49	23 129,40	24 129,02	25 338,18
Yield in BGN	4 958,86	7 411,17	4 913,59	3 979,50	4 979,12	6 188,28
Pension amount	138,61	152,71	138,35	132,98	138,73	145,68

*There is no information about three of the universal pension funds (Budeshte, Toplina and POI) since they do not have full period of operation between 2002 – 2020.

*The pension amounts are calculated as annuities for a period of 18.98 years and 3% technical interest rate [3]

The figures in the above table show that 250 BGN is quite far from the actual amounts that universal pension funds can afford to pay to the first receivers. Even individuals who were able to contribute on the maximum amount of the contributory income during the whole period cannot reach such benefit. Rough calculations show that the accrued amount must be at least 45 000 BGN to allow for the payment of a benefit close to 250 BGN per month. This would be possible for the next generation retirees with longer periods of accumulation. The second option envisages the payment of a life-long annuity to those individuals who have accumulated enough resources for disbursement of amount equal to at least 15% of the minimum length of service and old age pension benefit. In 2020 fifteen percent of this type of pension benefit equals 37.50 BGN (15%*250 BGN). The following tables show what amounts would be paid to individuals if contributed on average contributory income and on minimum contributory income during the whole period between 2002 and 2020.

Table 7: Pension amounts due if the insured individual contributed on the average contributory income for the period 2002 – 2020.

UPF	Doverie	Saglasie	DSK-Rodina	Allianz Bulgaria	En En	CCB – Sila
Accumulated sum	7 180,83	7 892,40	7 168,73	6 798,17	7 072,92	7 542,84
Yield in BGN	1 488,29	2 199,86	1 476,19	1 105,63	1 380,38	1 850,30
Pension amount	41,29	45,38	41,22	39,09	40,67	43,37

Table 8: Pension amounts due if the insured individual contributed on the minimum contributory income for the period 2002 – 2020.

UPF	Doverie	Saglasie	DSK-Rodina	Allianz Bulgaria	En En	CCB – Sila
Accumulated sum	3 519,03	3 847,04	3 520,31	3 347,25	3 467,94	3 685,20
Yield in BGN	643,66	971,66	644,94	471,88	592,57	809,83
Pension amount	20,23	22,12	20,24	19,25	19,94	21,19

The tables above show that individuals who managed to pay contributions estimated on average and above average contributory income for the whole period between 2002 – 2020 have pretty good prospects to receive life-long pension benefit from their universal pension fund. The draft amendments of the Social security code also envisage the payment of life-long annuity with guaranteed period of payment and a combined payment of phased withdrawal and life-long annuity that starts on a pre-defined future date. These two variations of the second option aim at better management of bequest risk. If insured individual dies during the guaranteed period of payment or during the phased withdrawal part of the life-long annuity, the resources still available into his individual account would go to his heirs. Table 7 shows that all funds managed to add certain yield into insured's individual account so that to support the accumulation of resources needed for the payment of at least 37,50 BGN. However, those individuals who contributed on income below the average contributory income could hardly rely on life-long pension benefit paid by universal pension fund. Individuals who fall into that group and those who have prolonged periods without paying any contributions most probably would stay with the last option. Option three has two sub-options – the first one regards those individuals who were able to accumulate resources amounted to at least three times the minimum length of service and old age pension benefit (3*250=750 BGN) but still not enough for payment of life-long benefit of at least 37,50 BGN. They would have the opportunity to withdraw their money for a predefined period – phased withdrawal. The second sub-option concerns those individuals who were not able to accumulate resources equal to at least 750 BGN. They would receive their money as one-time payment (lump sum).

Bulgarian pension market is still an underdeveloped one and this is a fundamental risk when analyzing the pay-out phase of a defined contribution fully funded pension scheme. There is no active annuity market in the country. Pension funds have no history and traditions in managing different payment options and there is no efficient stock exchange which means that many of the financial instruments are not enough liquid to effectively support the payment of the pension benefits. These are basic risks which pension funds should minimize

as much as possible during the pay-out phase. At the same time there are a few additional risks concerning each of the envisaged payment types during the distribution phase. Life-long annuities are good products when trying to mitigate the longevity risk. The universal pension funds in Bulgaria are supposed to pay such benefits to their clients. At the same time this type of pension benefit is exposed to bequest risk. This is a significant risk especially for those individuals who have impaired health and short life expectancy. In order to manage longevity risk, pension funds are going to structure a common pool of savings for those insured individuals who reach pension age. If the insured dies earlier than expected he/she may have unexhausted funds that will not go to his/her successors. So, the option of receiving life-long annuity with guaranteed period of payment is a good opportunity especially for the unhealthy individuals. However, one should have in mind that the guaranteed period of payment is not costless. The implicit price will come under the form of lower annuity payment after the guaranteed period. Another risk related to life-long annuities is interest rate risk or annuitization risk. If the insured individual retires when interest rates are low, the annuity payment is going to be low as well. There is no active annuity market in Bulgaria and the interest rate needed for estimating the value of life-long pension benefits will be fixed administratively. The Financial supervisory commission (FSC) is expected to announce the technical interest rate that must be used in the calculation of the annuity factor. This raises another specific risk – the interest rate could be fixed at a rate inconsistent with the current market conditions. The risk here is mostly for the pension funds since interest rate may be determined too high. Interest rates worldwide tend to be extremely low for the period following the financial crises of 2008. Currently [4], the technical interest rate that must be used by pension funds for estimating their pension reserves is three percent. It seems high if we look at the predominant yields of the government bonds in most of the EU countries. During the distribution phase, pension funds are obliged to follow a conservative strategy in investing the funds of the retired individuals. So, government bonds are going to be among the first choices. If pension funds realize rate of return below technical interest rate for prolonged period of time, they could face severe financial troubles. A possible solution to this challenge could be a permission for following more aggressive investment strategy during the pay-out phase. In this case, however, pension funds would bear more risk. Another challenge during the distribution phase concerns the requirement of using unisex biometrical tables. EU regulations in this direction are straightforward – non-discrimination between sexes when estimating the value of life-long annuities. The average life expectancy of men is shorter than that of women which means that men are in clear disadvantage when determining their life-long pension benefit. This is also a stimulus for pension funds to attract more men than women into their insurance set. A possible solution to this challenge is to allow for the payment of pension

benefits under the form of joint life annuities. These are special products mostly used for the payment of surviving benefit of the one spouse in case of early death of the other. There is no such option envisaged into the still draft amendments of the Social security code [5] in Bulgaria.

The other two types of products envisaged for the payment of pension benefits from the universal pension funds in Bulgaria concerns those individuals with relatively low accumulation of resources – phased withdrawal and lump sum. The basic risk here stems from the opportunity to outlive the accumulated funds. However, as far as these two types of products are going to be used by individuals with low savings means that insured individuals must be prepared for this option.

Conclusion

Bulgarian universal pension funds are going to enter the pay-out phase in 2021. This will confront them with some new risks and challenges. In the mid 2020, the Social security code is still in its draft version about the specifics regarding the distribution period. However, many of the proposals currently discussed are expected to take effect for the future retirees born after 1960. There are several options to choose from but each of them has its own risks that both insured individuals and pension companies should tackle. The lack of developed market for annuity products, traditions in pension insurance built on fully funded principle and efficient capital market are fundamental problems for the pension funds in the country. At the same time, pay-as-you-go part of the pension system needs support in the middle and long term due to the adverse effect of the demographic trends and the aging of the population. Despite the many difficulties pension funds faced during the accumulation phase, they managed to support the process of saving for the past 19 years. Now they must enter a new stage of their development. If they continue to effectively support insured individuals by paying them pension benefits during the pay-out phase, this would be a clear sign that these financial institutions have their place both in the pension and in the financial system in the country.

Notes

[1] Some of the insured individuals opted out from the second pillar of the pension system after the reform implemented in 2015. They do not have individual account into universal pension fund and will not receive pension from them.

[2] The exact period is 01.01.2002 – 30.06.2020. The yield realized by pension funds is calculated on the basis of the official information about the change of one pension unit for the period 01.07.2004 – 30.06.2020. For the period 01.01.2002 – 30.06.2004, the yield is calculated on the basis of the official information shown at www.fsc.bg (the official site of Financial supervisory commission).

[3] The period of 18,98 years is the expected remaining life of individuals reached 61 years. It is taken form the biometrical tables of National statistical institute. 3% technical interest rate is the rate determined by Financial supervisory commission that must be used by the universal pension funds in Bulgaria in 2020.
[4] This is the technical interest rate fixed in 2019 by FSC
[5] The article is written in the mid 2020

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