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Designing the Payoff Phase in the Framework of Open Pension Schemes

Abstract

Fully funded part of the Polish system exists already since 1999 pension reform, but payoff modes are still under debate. Our project assumes that benefits are paid by life annuity funds, possibly managed by existing Pension Societies. So far the Pension Societies are dedicated exclusively to service the accumulation phase of the Polish pension system by managing Open Pension Funds.

Our project assumes that both investment risk and longevity risk are shared between Pension Society and annuitants. The initial level of payoffs are set conservatively, and their annual indexation depends on investment returns and longevity improvements. However, risk is substantially reduced through a buffering fund that absorbs a substantial part of volatility of investment returns and observed deviations of realized mortality from projected mortality. The mechanism of the buffering fund is an important element of the project and is presented in detail.

Another novel solution is a mechanism of clearing of mortality effects between annuity providers. The clearing mechanism removes interest of annuity providers in attracting clients with shorter life expectation, and thus is a radical remedy against adverse selection. This is also presented in detail.

Keywords: pension reforms, risk sharing, annuity fund, adverse selection.

The scope of the problem

Several central and eastern European countries have launched ambitious pension reforms during the last decade. They generally aimed at two main goals: (1) transforming the benefit defined scheme into the notional contribution defined (NCD) framework and (2) replacing a part of the pay-as-you-go financing by the capital funded pension schemes provided by private institutions. The second pension pillar is just about to start paying the first pensions from the capital accumulated by pension funds. Thus, designing the payout phase becomes an urgent issue in several countries.

Initial enthusiasm for pension reforms turned into bitter disappointment: The NCD scheme reveals relatively low replacement rates and the pension investment funds demonstrate unsatisfactory efficiency. In addition to that a few supplementary reforms have been abandoned or postponed so the costs of transition from

PAYG to capital funding became a heavy burden for state budgets. After the financial crisis, the pension funds were the best candidate for whipping-boy and their assets the easiest remedy for all budgetary hardships. In Hungary, pension funds have been cannibalized at one stroke, in Poland the same may be achieved in the longer perspective. That kind of policy is contagious, so the second pension pillar is going to disappear during the next decade in central and eastern Europe unless it demonstrates its efficiency during the payout phase.

The private pension schemes are well-known institutions supplementing, in western countries, the public provision of pensions for over a half century. Most problems they have to cope with have been defined and settled. That experience is, however, only partially transferable to the emerging multi-pillar systems because they create a completely different environment for the private pensions providers. Three features are the most distinctive:

(1) the accumulation phase and payment phase are split into two separate arrangements,
(2) either investment funds and pension providers offer open access, i.e. a membership cannot be conditional on employment by the specific employer,
(3) as an aftermath of a reduction in public pensions, the mandatory second pillar has to accommodate some provisions linked to public pensions, even if they are risky and costly for a private provider (for example: unisex principle or indexation targeted on inflation rates).

All that creates an environment which is much more unstable for providers to control demographic risks (predicting the longevity trends in the current mortality tables; matching the annuitants with the proper mortality tables; balancing the systematic mismatch with unisex tables), as well as, to control investment risks.

In our paper we try to design a market for pensions where private providers offer the whole life annuities to those who have just got retired in the public pillar and have accumulated a given amount of capital in the investment institutions of the second pillar. Doing so we will aim at few postulates. The projected system should:

- fulfil the modern solvency requirements (say: confidence at the level of 0,995 quantile),
- preserve annuitants from volatile payments,
- operate at relatively low solvency capital and risk premiums,
- strengthen the competition among the providers,
- be in line with the Gender Directive (unisex mortality tables),
- be comparable with the payments provided by the public pillar,
- offer the annuitants a smooth transition from the accumulation to payoff phase (in terms of investment portfolio and entitlements to bequests).

Some postulates seem to contradict each other, but we shall argue further on that it is possible to balance them and make the system workable. The main features of the proposed solution are as follows:

- whole life annuity is split into temporary and deferred (whole life) annuity,
- a temporary part may be optionally offered as the term withdrawals, with the bequest entitlement on capital-to-be-withdrawn,
- the mechanism of a Buffering Fund is established to absorb a substantial part of the volatility of investment returns and to follow the observed deviations of the realized mortality from assumed life tables,
- the Clearing Mechanism is launched to bring the short term (annual) mortality rates by each provider in line with average mortality rates on the market,
- at inception, annuity pricing rules are aligned with parameters applied by public pillar (same mortality tables and technical interest rates),
- pensions are indexed, however, the indexation rules reflects transfers to the Buffering Fund and to the Clearing Mechanism; Indexation cannot be negative, but there is no guarantee on inflation rate,
- annuitants are not restricted on changing providers,
- annuitants are allowed to converse the term withdrawals into the term annuity. The opposite move is not permitted,
- a commission on the current balance of the Buffering Fund is a kind of success fee for providers.

Further on we are going to explain the meaning and the importance of the above provisions and restrictions. We will concentrate on the Buffering Fund and the Clearing Mechanism – two innovative instruments which radically redefine the risk-sharing problem for private pension markets.

Who should bear the pension risks?

Investments risks and demographic risks are the main source of concern for solvency in the private pension markets. Financial markets deprive some cohorts from resources to the remarkable extent, whereas other cohorts are benefited in a very generous way. Among the demographic risks, the longevity trends are the main woe for pension providers. Statistical data and modelling methods barely suffice for prediction of the mortality process which will determine the lifetime of those who are just retiring. In addition to that, a risk of mortality table mismatching arises if providers are impeded in their capacity to distinguish main risk factors like gender, occupation, education, etc., and age is the sole factor eligible for recognizing the demographic risks. Open access to providers may magnify the potential mismatch.

Traditionally, there is no doubt about who the main bulk of investment and demographic risks should be attributed to. Pensioners are deemed vulnerable and risk averse, so the major risk should be transferred to the provider and several regulatory measures try to refrain them from reckless risk handling. The traditional way to control risk puts emphasis on prudent reserving: annuity reserves should be systematically overestimated in order to meet the solvency standards. The modern strategy involves the provider's capital as a solvency guarantee, whereas reserves should follow the neutral standard of the best estimate. The advantage of that method is that it motivates providers to perform better and to avoid bankruptcy, but the cost of risk hedging may be higher. Regardless on the hedging method annuitants pay a remarkable price for placing the major risks on the provider's side. Less demanding are requirements that are usually imposed on pension schemes linked to the employer. The justification is a value of the sponsor's covenant as a source of flexibility in coping with assets and liabilities mismatches. Another concept under debate is the "soft" character of pension promise being a result of arrangement between social partners, which in hard times could be renegotiated.

We opt for abandoning this paradigm that all risks have to be transferred to the provider and/or sponsor[1]. Instead of that we propose that individual cohorts of annuitants transfer the dominant part of the risks to a virtual institution of mutual insurance. According to risk profiles, two separate mechanisms of mutual transfers are needed: the Buffering Fund and the Clearing Mechanism. The first one is an internal institution launched by each provider, aiming at diversification in times of volatile returns on investment and of mortality improvements. Smoothing may appear as a technical device invented to reduce short-term volatility of indexation rates, however, in the longer run it also serves as a vehicle for inter-cohort redistribution. The Clearing Mechanism is an external institution servicing all providers, and equalizing different mortality profiles of their portfolios of annuities. The Clearing Mechanism is primarily an aftermath of restricted possibilities for the risk-based rating of annuities, but it also effectively removes the main barrier to market competition. Once the provider is invulnerable to demographic factors of longevity, there is no reason to put a ban on annuitants migrating among providers. This should enormously strengthen market competition, compared to the typical situation of non-portable annuity contracts.

[1] In the accumulation phase, a bulk of investment risk is transferred to the members of the contribution-defined plans. We confine here on payoff phase where the idea of risk sharing is generally deemed unfounded and there are only few risk sharing schemes put into practice. See Valdes-Prieto (1998).

Basic solutions

Two separated sub-funds dedicated to serve the payoff phase will be launched by each existing Pension Society (PTE). So far PTEs service exclusively the accumulation phase by managing Open Pension Funds (OFE). One new sub-fund called DEK will pay lifelong annuities. Another sub-fund called GDEK will pay lifelong annuities with a period of guaranteed payments over the first n years[2]. Lasting guaranteed payoffs are bequeathed in case of premature death, so this is in fact a combination of phased withdrawals for n years with deferred (by n years) life annuity. The aim is to combine protection against a loss of the whole accumulated capital in case of early death with protection against longevity risk.

At inception the amount E_x^{DEK} of payoff from DEK (per year) for the individual aged x is set by subdividing the amount of accumulated capital K_x by the average lifetime:

$$E_x^{DEK} = \frac{K_x}{\sum_{t=0}^{\infty} {}_t p_x}.$$

Survival probabilities are based on the last available unisex calendar-year life-tables published by GUS, the Polish Central Statistical Office. Together with an assumed zero rate of interest this makes the calculation identical to the definition enacted for the 1st pillar NCD pensions. The formula used for both pillars is in fact a bit more sophisticated as the age of an individual as well as the survival probabilities are measured in months.

Assumptions seem to be very conservative, as it should be quite easy to offset the difference between assumed and experienced mortality by net investment returns. However, excess returns at the end of each accounting year are used to increase payouts by an indexation rate. The rate is the same for old DEK's members, and reduced *pro rata temporis* for newcomers. The provider's risk comes from the guarantee that the indexation rate never falls below zero. This risk (as well as the volatility of indexation rates) is mitigated by the Buffering Fund and the Clearing Mechanism.

The starting amount E_x^{GDEK} of payoff form GDEK is calculated on the basis of the same assumptions, except that survival probabilities for the first n periods are replaced by ones:

$$E_x^{GDEK} = \frac{K_x}{n + \sum_{t=n}^{\infty} {}_t p_x}.$$

Indexation rules are similar, and the main difference is that in the case of GDEK risk coming from the difference between experienced and assumed mortality does not concern the conditional distribution of the date of death, under the condition that death occurred within the period of the first n years.

[2] Abbreviations originate from Polish names of institutions or sub-funds, respectively.

Setting indexation rates and the Buffering Fund for life annuities

At the beginning of each accounting year DEK is balanced, which means that the following equality holds:

$$A_t^{BOY} = RC_t^{BOY} + RB_t^{BOY},$$

where:

- A_t^{BOY} denotes value of assets at the beginning of year t,
- RC_t^{BOY} denotes members' account (expected future payoffs provided no indexation),
- RB_t^{BOY} Buffering Fund.

In the course of a year both assets and liabilities change. Newcomers change both sides equally due to the assumed rules of setting the initial level of payoffs. Other changes on the asset side are investment returns and current benefit's payoffs. Changes on the liability side come from cancellations of the accounts of deceased members and the reduction of survivors' accounts due to ageing. At the end of the year we recalculate survivors' accounts according to life tables newly published by GUS, which is yet another source of change.

Let us denote by A_t^{EOY} the value of assets, and by RC_t^{EOY} members' account set at the end of the year under the assumption, that benefits remain the same in the coming year. In order to keep the balance of DEK the following equation should hold:

$$A_t^{EOY} = (1 + w_t)RC_t^{EOY} + RB_t^{EOY}.$$

The balance could be cleared by setting various possible couplings of indexation rate w_t and amount of the Buffering Fund RB_t^{EOY}. If we assume for instance no transfers between Buffering Fund and Members' Account, then the Buffering Fund is uniquely set at $RB_t^{EOY} = RB_t^{BOY}(1 + i_t)$, where i_t is the rate of return on DEK's assets. This determines in turn the indexation rate w_t. Indexation rates w_t set this way will be (on average) smaller than rates of return i_t by about 1.25 percentage points, but also highly volatile due to volatility of both i_t and mortality experience of DEK as well as mortality experience for the whole population observed by GUS. Nothing can be done with the average w_t, but volatility could be substantially reduced by carefully designed rules of indexation, and resulting transfers in between Buffering Fund and Members' Account.

In order to make the explanation easier let us take the following notations:

- wp_t for the preliminary rate set under the condition $RB_t^{EOY} = RB_t^{BOY}(1+i_t)$,
- wf_t for the final rate, used finally to set the new level of benefits in year $(t+1)$.

Setting the final rate determines also the new level of the Buffering Fund:

$$RB_{t+1}^{BOY} = A_t^{EOY} - (1 + wf_t)RC_t^{EOY},$$

which means that DEK is again balanced as $A_{t+1}^{BOY} = A_t^{EOY}$, and $RC_{t+1}^{BOY} = = (1+wf_t)RC_t^{EOY}$. This means that the balance of DEK as a starting condition for a new cycle is restored.

The explanation of the setting rule for the final rate of indexation needs some additional notations:

- $rb_t := \dfrac{RB_t^{BOY}(1+i_t)}{A_t^{EOY}}$ is the share of the Buffering Fund in DEK assets just before transfers between members' account and the Buffering Fund,
- zus_t – is the indexation rate used in the 1st pillar serving as a kind of benchmark; it equals the sum of CPI rate and 20% of the growth rate of real wages (if positive).

Now the final rate of indexation is set in two steps. First step represents the main smoothing mechanism and is given by the equation:

$$wf_t^* := wp_t + \max\{zus_t - wp_t; 0\}\frac{rb_t}{10\%} - \max\{wp_t - zus_t; 0\}\left(1 - \frac{rb_t}{10\%}\right).$$

The second step imposes the non-negative indexation guarantee (first priority), and the rule that positive indexation is granted only after filling the deficit of the Buffering Fund (second priority):

$$wf_t := \max\{0; min[wf_t^*, wp_t + rb_t]\}.$$

Under normal circumstances (when rb_t is located within the range of 0% and 10%) the smoothing mechanism shifts the primary rate wp_t towards the benchmark rate zus_t. The shift is large when it results in reduction of the relatively full Buffering Fund as well as when it results in filling the empty BF. To the contrary, the shift is small when the resulting change happens to reduce the small BF or to magnify the large BF. Dependence of the length of shift on the state of the Buffering Fund reduces slightly the smoothing effect, but, on the other hand, stabilizes the share of the BF within the imposed range of 0% and 10%.

Of course introduction of the non-negative indexation guarantee could potentially destabilize the share rb_t again. That is why the guarantee is supplemented by the second-priority rule built-in to the formula for the final indexation rate wf_t. The second-priority rule does not prevent the deficit of BF, but results in reducing the number of consecutive years with negative values of rb_t.

Setting indexation rates for combination of phased withdrawals and deferred annuity

Indexation rates in the sub-fund GDEK are set on the basis of the same rules as in DEK. The difference is that member's accounts are calculated (as well at

inception as later on) by replacing survival probabilities over first n years by ones. The obvious consequence is that the initial amounts of benefits are lower. On the other hand, indexations are (under the same returns on investment) higher on average than in DEK. This is due to the limited effect of differences between experienced and assumed mortality, being a result of certainty in respect of payoffs during first n years.

What should be emphasized is that DEK and GDEK managed by the same PTE are separated, and so the Buffering Funds being their internal parts are separated as well.

Commissions and penalties

The proposed system of commissions and penalties is very simple. One commission is set as a fixed rate of DEK's (or GDEK's) assets. Another one is set as a rate on the Buffering Fund. The last one plays the role of a success fee when BF is positive, and the role of penalty when BF is negative. Assumed rates are as follows:

- 0.24% yearly commission on total sub-fund assets,
- 1.20% commission on BF of DEK when positive (0.96% for GDEK),
- 6.00% penalty on BF of DEK when negative (4.80% for GDEK).

If for instance DEK assets amount to 1 billion PLN, out of which the BF accounts to 100 million PLN, and members' accounts to 900 million, then PTE is rewarded by the amount: $1000\,\text{mln} \times 0,240 + 100\,\text{mln} \times 1,2\% = 3,6$.

However, when the same value of assets is split into members' accounts of 1040 million and BF of minus 40 million, then the commission on assets and penalty on the BF deficit cancel each other out: $1000\,\text{mln} \times 0,240\% - 40\,\text{mln} \times 6\% = 0$.

The Clearing Mechanism

Providers may observe quite different mortality rates. Those who realize high mortality will boost their Buffering Funds and, as a consequence, will benefit their annuitants with high indexation rates and benefit themselves with profit. The opposite will happen to those, who realize low mortality rates. Thus, deviation from the market average mortality rates results in differentiation of benefits for annuitants and providers. The reason for that is not only that mortality differs across the market, but also the fact, that providers are prohibited to recognize important demographic risk factors while rating annuities. Otherwise, they would neutralize all effects of systematic reasons for being good or bad risk by adequate rates and mortality differences among providers would not matter.

The purpose of the Clearing Mechanism is to mend distortion caused by impediments to risk-based rating in the marketplace. In fact, the Clearing Mechanism unifies the provider-specific mortality at the level of the market average and thus, removes either systematic and random reasons for mortality to differ across providers. The Clearing Mechanism totally removes the short-term components of demographic risks. This, in turn, makes the migration among providers completely harmless.

While presenting the Clearing Mechanism, we confine ourselves to sub-fund DEK. Assuming, there are n providers, and clearing takes place once a year, shortly prior to the settlement of the indexation rate. We need to denote as follows:

- $A_{t,i}$ – value of assets in DEK i, by the end of year t, just before clearing,
- $A_{t,i}^{EOY}$ – value of assets in DEK i, by the end of year t, just after clearing,
- $RC_{t,i}^{EOY}$ – total balance in DEK i, on accounts of members who live by the end of year t, before indexation,
- $RCD_{t,i}$ – total balance in DEK i, on accounts of members who died during year t.

Transfers concerning provider i are determined by the formula:

$$PW_{t,i} = RCD_{t,i} - (RC_{t,i}^{EOY} + RCD_{t,i}) \frac{\sum_{j=1}^{n} RCD_{t,j},}{\sum_{j=1}^{n} (RC_{t,j}^{EOY} + RCD_{t,j})},$$

where a positive value means a decrease in assets of the provider i. Thus, after the clearing transfers, the value of assets amounts to:

$$A_{t,i}^{EOY} = A_{t,i} - PW_{t,i}.$$

The adjusted value of assets $A_{t,i}^{EOY}$ and the total balance on annuitants' accounts $RC_{t,i}^{EOY}$ are used then by provider i to calculate the indexation rate, as described in the previous section. The Clearing Mechanism is neutral for the whole market since:

$$\sum_{i=1}^{n} PW_{t,i} = 0,$$

however, some transaction costs may arise.

Lack of the Clearing Mechanism implies a conclusion, that the market should be reduced to one, sole provider. This, in turn, means cannibalization of the private pillar by the public one.

Competition

Equalizing mortality across providers makes them indifferent of the demographic structure of their portfolios. The same concerns members, when consid-

ering the choice of a provider. This make providers focus on the competition of returns on investment.

The competition on this area is additionally strengthened by the fact that members have a much better reason to prefer one provider over another. Typically choice of mutual investment providers is based on high rates of returns achieved in the past, that might possibly signal the potential for achieving high rates of return in the future as well. In case of DEK a high share of the Buffering Fund is also a result of high returns on investment in the past – however, this is a source of much more certain expectations for the future. The high value of the coefficient rb_t means greater excess of indexation over the rate resulting from poor investment returns, and smaller reductions of indexation below the rate resulting from high investment returns.

Additional incentives come from the portability of member's accounts between providers. Of course, in order to avoid undesired effects some regulations are needed. Transfer of a member's account should be followed by the transfer of assets between respective Buffering Funds. The transfers should be admitted once a year, just after setting the new level of benefits and amounts of member's accounts. Transfer of a given member and his account should be followed by the additional transfer of assets between respective Buffering Funds. The amount of additional transfer should be calculated as a product of the amount of the member's account multiplied by the coefficient rb_t characterizing the abandoned DEK. This ensures that the abandoned DEK does not suffer from adverse changes of rb_t resulting from transfers, and is especially important when the coefficient is negative. Of course, usually members will move from a DEK with lower rb_t to a DEK with higher rb_t. Thus the rule leads to a slight reduction of rb_t in the target DEK. The high intensity of transfers renders partial equalization of coefficients rb_t across providers, but nevertheless the remuneration of providers whose DEK's achieve highest rb_t is generous. In order to avoid transaction costs, the intensity of transfers should be limited, possibly by administrative restrictions. Rules governing transfers between GDEK's are the same, as well as rules for transfers from GDEK to DEK.

Simulation results

Simulations have been done to test how the system performs under a set of modest scenarios in terms of demography (longevity improvements) and economy (financial markets, inflation, wages, etc.). The basic scenario assumed strategic allocation of 10% in equities and 90% in bonds. After the system's maturity, a representative provider was observed for a period of 1000 years to allow for crises, shocks and other economic turbulence. Simulations assumed uniform re-

tirement age of 65, and for the case of GDEK the guaranteed period was set at $n = 12$ years. Transfer of members in and out of observed sub-funds has been neglected. As a reference, indexation in the public pensions was observed.

On average, 1,25 percentage points out of investments returns are needed to offset longevity improvements in case of DEK, and about 0.95 p.p. in case of GDEK. It means that the indexation potential is lowered to keep the system intact and up-to-date with the demography. The public pillar tends to miss that problem.

Returns on investment adjusted to demographic trends are still sufficient to meet a benchmark of the public indexation and even to exceed it by 0,35 p.p. on average. Indexation rates, however, are smoother in the public sector than in the private one (standard deviation 1,30 p.p. and 2,25 p.p. respectively). The Buffering Fund decreases the volatility of the indexation rates remarkably: un-buffered indexation would have standard deviation at 3,90 p.p. It is worthwhile noticing that the Buffering Fund aims not only at volatility reduction. At the same time it reduces radically the amount of capital required to guarantee the non-negative indexation, and so makes low commission rates acceptable for providers.

The Buffering Fund rarely has a negative balance and if such occurs, it tends to reach a positive value in the next period. A sequence of a few consecutive deficits happens once in a century. Lack of indexation generally coincides with negative balances of the Buffering Fund. However, zero-indexation periods tend to be a little bit longer than periods of deficit in the Buffering Fund.

The assumed penalty of 6% on the Buffering Fund deficit helps to fill it up, nevertheless, its prime goal is to motivate a provider to mitigate the investment risk, especially at the low levels of the Buffering Fund. Simulations demonstrate that the risk for the provider to bailout the Buffering Fund is low, and that the amounts involved are not larger than current solvency requirements imposed on institutions operating pension investment funds in the phase of accumulation. It simply means, that the current operators may extend their service on annuity payments without additional capital inputs.

Inspirations

Similar reforms in some countries of our region and in Latin America have been launched later or not much earlier than in Poland, and there are no well-established patterns of payoff modes to be followed. Nevertheless we can point out some indirect inspirations founding our proposals, inclusive those elements of the system design we deem being innovative.

An excellent analysis of arguments behind various payoff options is presented in Salvador Valdes-Prieto (1998). Especially inspiring analysis concerns annuities

offered to teachers in USA by TIAA-CREF (Teachers Insurance and Annuity Association and College Retirement Equities Fund). The design assumes the allocation of investment risk to individual funds, and passing longevity risk to a pool of funds. As a result, migrations of annuitants between funds of the pool are allowed. We also benefited from an inspiring analysis of sharing the combined investment and longevity risk presented by three British actuaries, Wadsworth, Findlater and Boardman in their paper submitted to the Staple Inn Actuarial Society (2001).

The Buffering Fund that allows smoothing indexation rates of an annuity fund seems to be a solution that has no prototype in the literature. The solution is in fact a response to great expectations, formulated in the course of public debate in Poland. Payoffs should be on average no smaller than those offered by 1st pillar, indexations should not be too volatile, and all that should be attained at a low cost, and without transferring too much risk to the government. Even partial hedging of the first pillar indexation by a portfolio that shall not be dominated by inflation-linked government bonds requires large buffer capital funded by a provider or sponsor. What we propose in fact is a replacement of external capital by inter-cohort mutuality.

Bibliography

[1] Valdes-Prieto S. (February 1998), *Risk in pensions and annuities: efficient designs*, Social Protection Discussion Paper No 20847, The World Bank.

[2] Wadsworth M., Findlater A., Boardman T. (January 2001), *Reinventing annuities*, paper presented to the Staple Inn Actuarial Society, London.

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Mechanizm rynku emerytur kapitałowych ze środków gromadzonych w OFE

Abstrakt

Chociaż kapitałowa część polskiego system emerytalnego istnieje od 1999 roku, wciąż nie zapadły ostateczne decyzje dotyczące fazy wypłat świadczeń. Przedstawiony w tym artykule projekt zakłada, iż wypłaty realizowane będą przez Fundusze Emerytur Kapitałowych, zarządzane najpewniej przez istniejące Powszechne Towarzystwa Emerytalne, które jak dotąd obsługują niemal wyłącznie fazę akumulacji, a wypłaty tzw. kapitałowych emerytur okresowych stanowią margines ich działalności.

Nasz projekt zakłada, iż zarówno ryzyko długowieczności, jak i ryzyko finansowe podlega podziałowi pomiędzy dostawcę świadczeń a emerytów. Początkowy wymiar emerytury jest ustalany w identyczny sposób jak w I filarze systemu emerytalnego. Doroczne indeksacje świadczeń opierają się na łącznym efekcie zwrotu z inwestycji funduszu oraz odchyleń, jakie zachodzą pomiędzy śmiertelnością zakładaną na początku roku a śmiertelnością

zrealizowaną w ciągu roku. Ryzyko z tym związane redukowane jest poprzez mechanizm rachunku buforowego, który absorbuje dużą część wahań stóp zwrotu z inwestycji i śmiertelności.

Projekt wprowadza mechanizm wspólnego rozliczania efektów śmiertelności przez wszystkie działające Fundusze Emerytur Kapitałowych. Dzięki temu znika interes zarządzających w pozyskaniu klientów o ponadprzeciętnej śmiertelności, co radykalnie usuwa problem negatywnej selekcji.

Oba innowacyjne rozwiązania – mechanizm rachunku buforowego oraz mechanizm wspólnego rozliczania śmiertelności – są dla efektywnego funkcjonowania fazy wypłat kluczowe. Konsekwencje ich wprowadzenia są więc w artykule szczegółowo analizowane.

Słowa kluczowe: reformy emerytalne, podział ryzyka, emerytury kapitałowe, negatywna selekcja.

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