Polish Pension Funds – Does The System Work?

Cost, Efficiency and Performance Measurement Issues

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ABSTRACT

After three years of operation of the new Polish funded system, the savings accumulated with the pension funds exceed only slightly the total premiums that have so far been paid into. The system's internal rate of return is lower than the rate of inflation. What are the reasons for such a situation? The paper investigates the system's costs and performance evaluation issues. It also points out the opportunities for cost savings and discusses necessary changes of fee structure and performance measurement regulation to achieve better incentives for active management. The study proposes some performance evaluation benchmarks for the Polish pension fund industry.

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1. INTRODUCTION

Funded pension schemes are becoming a key point for modern economics and economic policy. Increasing demographic pressure combined with the need of reforming the existing ineffective and politically vulnerable systems bring about the current trends to privatise the welfare state and to use capital market-based solutions in the old-age provision.

Poland is one of the first countries that introduced a fully funded pension fund system as a part of its public pension system. It has been three years since individual account system was introduced. Although to a great extent based on the Chilean model, the Polish solution attempts to avoid some of its weaknesses. Most of the European countries are currently considering their pension reform strategies and are facing similar problems, especially the demographic ones. Therefore, the Polish system has a lot of insights to offer.

The extensive performance analysis by Superintendence of Pension Funds (UNFE, 2000) is already out of date and due to its administrative angle, differs in various aspects. This paper is a part of the first wide evaluation research of the Polish system. In his performance evaluation research, Stanko (2002) presents facts concerning the positive efficiency of pension fund investment. This part analyses recent features and overall efficiency of the fully funded pension fund pillar from the participants' point of view. It contributes to the literature by proposing certain improvements in cost and public performance framework. Most of these suggestions are closely related to the overall state's economic and social policy and, more specifically, to the design of the pension funds system.

The paper is organized as follows. Section 2 briefly sketches the Polish retirement system. Section 3 investigates current issues concerning pension fund market. Section 4 provides an analysis of performance evaluation results and costs of the system. The problems of state's performance monitoring and its consequences are discussed in Section 5. The last section concludes.

2. POLISH PENSION SYSTEM

2.1. Reform[1]

The pension reform in Poland followed the World Bank (1994) proposal to balance the system's redistribution and insurance tasks by establishing the three-tiered old-age security framework. The change concerned people who were younger than 50 at the moment of introduction of the new system (January 1, 1999). Those below 30 had to join the reformed scheme. Persons in the age brackets of 30-50 were given an alternative to choose either the new system or stay within the old one. However, once taken, such a decision was irrevocable. The reform did not affect some social groups covered with other social insurance schemes, like farmers[2], priests, police or military personnel.

The previous state system was partly reformed and is now referred to as the first pillar. The two other pillars are individual accounts (second pillar of public pension funds) and private or occupation pensions (third pillar). The retirement age is 60 for women and 65 for men. Due to financial strains, social security premiums in all pillars are subject to taxation in the moment of payment.

The new system is supposed to bring in some quality improvements. The main ones include: tighter relation between pension and contributions, removal of earlier entitlement to pension benefits, creation of individual saving mechanism that encourages prolonging contributory period and late retirement, and removal of privileges for certain professional groups within the pension system.

A brief summary of the current Polish pension system is presented in Table 1.

Table 1 Current pension system in Poland

2.2. Pension pillars

The social insurance premium remains high. It is equal to 46.62% of gross monthly salary with an upper income ceiling of 30 average monthly salaries. The pension related premium is 19.52% of gross earnings. The bigger part (12.22% of

[1] Details of the pension reform are described, among others in Chlon, Gora, Rutkowski (1999) and Gora (2001).

[2] This is a numerous social group. The farmers belong to the Kasa Ubezpieczenia Rolniczego (Farmers' Insurance Office). At the moment there are 1.9 m retirees. Almost 1.5 m working farmers are subject to mandatory insurance; however only 1.05 m of them pay premiums. The system is financed principally by the state, or in other words, by other social groups. Premiums cover only less than 5% percent of the system's expenditures; the rest is financed in the form of direct transfers from the budget.

gross earnings) is allocated to individual accounts in the first pillar, while the rest (7.3% of salary) is transferred to pension fund accounts in the second pillar. Other social security risks covered by the system are: disability (13.00% of gross earnings), sickness (2.45%) and industrial accidents (1.62%). Employee and employer pay the pension and disability premiums in equal parts, while employee pays the sickness premium and employer finances the disability risk. National health insurance, paid by insured, is equal to 7.3% of personal income before tax (10% of gross earnings). There are four main legal acts that regulate the reformed pension system[3]:

- Act on social insurance system dated 13 October 1998 (reform)
- Act on retirement pensions and other benefits from Social Insurance Fund dated 17 of December 1998 (first pillar)
- Act on organisation and operation of pension funds dated 28 of August 1997 (second pillar)

Act on employee pension programs dated 22 of August 1997 (third pillar).

Two tiers out of three are mandatory. The first tier is the Pay-As-You-Go (PAYG)[4] system run by the state-owned Social Insurance Institution (ZUS). It has been organizationally reformed and now operates on the notional account[5] basis. The ZUS registers all work-related information. It also acts as a central collector of social security premiums and transfers contributions to individual accounts in the second pillar.

The notional account balance is indexed in line with the inflation rate plus 75% of real wage bill growth. That is why the rate of return here is the same for all insured. Accumulated assets are used at retirement to buy a life annuity.

The first tier acts mainly as a redistributive and insurance mechanism and it provides the safety net for all of the citizens. It is assumed that the main part of future retirement benefits will come from the funded component. However, since the premiums paid into the first pillar are still considerably higher than the fully funded premiums, for a long time the first pillar component is going to be the most important[6]. The real values of pensions from all free pillars are expected to increase.

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[3] The current law documents are listed in KNUiE, Quarterly Bulletin 2/2002.

[4] PAYG is the system, where the current contributions by the employed are used to finance the pension benefits of the current retired. It is therefore a system, which uses a form of contract between the generations.

[5] Within such system, each individual account is credited with some theoretical points to represent contributions paid by the insured. The points are subject to growth at the rate decided by the government. However, the notional accounts do not actually contain cash, stock, bonds or other securities.

[6] This fact is not recognized by most of the insured. Some commentators are worrying that

At the same time, there will be a decrease in the replacement ratio (expressed as a percentage of the wage before retirement).

The second pillar represents public pension funds run by private managing companies who invest savings of system participants in the capital market. In the case of death of the account owner, the resources are not lost[7]. Half of the assets are paid into the spouse's pension account while other, usually dependants, inherits the other part. At the moment of retirement, the accumulated capital will be used to buy a life annuity from the retirement company. The detailed regulations concerning that particular life insurance entity are yet to be decided. First payments are expected to take place in 2009 but detailed regulations are still to be decided.

The current number of opened accounts in the pension funds is 11.14 m (end of March 2002)[8] with some 2.26 m "inactive" accounts. These are the associates who has never paid or do not pay their premiums mainly due to unemployment (equal currently 18%). Therefore, only 8.8 m active accounts are active. However, this number can be even lower. The ZUS information on the number of premiums paid monthly into the pension funds reveals that there are on average 6 million transfers per month[9].

Even though the second pillar is expected to be an effective vehicle for pooling pension savings, the benefits from the first pillar will still be the most important source of retirement provision. Due to fiscal considerations[10] it has not been possible to free up more resources from the repartition tier.

The market of pension funds represents a mixture of state (whose role involves supervision and guarantees), public (savers) and private entities (managing companies). The funds themselves resemble loaded, semi-mutual funds whose investment portfolios have (or should have) a structure typical for the pension saving purpose and whose investment behaviour is limited by investment constraints imposed by the state and common sense prudent man[11] rules. State

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the future pensions from the funded scheme will fail up to expectations and that it will be the cause of political and economic problems.

[7] As opposed to the first PAYG tier.

[8] KNUiFE, Quarterly Bulletin 1/2002.

[9] For example, in May 2002 there were 6.272 m premiums transferred.

[10] Premiums directed to the second pillar are invested in the capital market and cannot be used for financing the retirement benefits of the current retirees. Therefore, a switch to the fully funded system creates an immediate budgetary deficit. This is the reason why the premium for the 1st pillar is still dominating.

[11] There is still no legal source for trust or prudent man law except that of commercial and civil codes. Some interesting discussion on these issues in the American context can be found

bears particular responsibility in the area of regulation, as it is the state that makes the participation in the system mandatory.

The third tier of social insurance is, according to the World Bank (1994) suggestions, a domain of individual thrift and cautiousness. Contributions are paid on an after-tax basis and pension benefits are tax-exempt. Under the Polish regulation, it is possible to save for additional retirement benefits either via individual savings or via occupational retirement schemes.

Private saving can have any of several forms; the most popular vehicles are mutual funds and life insurance policies. The freedom of savings is not supported by any tax preferential system. As a matter of fact, recent tax regulations introduced 20% tax on capital and interest incomes.

There are four legal entities for occupational plans: corporate pension fund, mutual pension fund, group life insurance, group life insurance in life insurance company or in mutual insurance society. The first two legal entities are more capital-based solutions, while the other two are predominantly of insurance character. However, once employer and employees decide on the occupational pension scheme it can be run only in one of those legal forms[12]. As of the end of August 2002 there were 131 corporate pension schemes.

3. POLISH PENSION FUND MARKET

3.1. Market structure

The reform started on 1st January of 1999, but the fund system itself took off officially on 1st of April 1999[13]. However, it took several months before the funds set out their real activity. First, the public had several months to take the final decision about their access to the system and to choose a particular fund. Also, the initial number of participants and accumulated assets had been too small to start the real

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in Del Guercio (1996), where the author argues that the prudent-man law has distorting effects on institutional investing.

12 Such limitation obviously comprises a barrier for development of occupational schemes. First, it constrains the freedom of choice amongst the workers. It also creates a huge obstacle for pension mobility. If an employee switches to another company where a retirement scheme is different, she is compelled to: either resign from the previous agreement (with considerable loss to her assets due to premature liquidation) or refrain from entering into the company's plan (with another opportunity cost).

13 The delay was caused by above-mentioned long-lasting problems with the implementation of software for the Social Security Institution database. Anecdotic enough, many commentators linked the intentions of the system designers with the start of the system on the April's Fool Day.

investment activity.

Most of the Polish pension funds started their activity by June 1999. Initially, 15 fund administrators were given the licences. Three others joined in September 1999 and by October 1999 all 21 fund administrators were operating. Despite intensive efforts exercised by the supervisory body, UNFE (Superintendence of Pension Funds, Urzad Nadzoru nad Funduszami Emerytalnymi), aimed at preventing mergers and acquisitions, four of the pension funds have already disappeared from the market. The Pekao fund absorbed three others: Epoka, Pionier and Rodzina on 9 April 2001, 23 July 2001 and 10 December 2001, respectively. The Pocztylion fund merged with Arka-Invesco on 14 December 2001. At the end of September 2002, there were 17 active pension administrators managing 17 public pension funds[14]. This number will surely decrease in the future, as the funds that are too small to operate with the profit will have to withdraw from the market.

As of the end of August 2002, which is only three and a half years after the funds started, their assets have accumulated up to 22.8 billion zlotys (approx. 6.6 billion USD). This amounts to 25.4 % of total capitalization of the Warsaw Stock Exchange and to 3.7% of the 2001 Polish GDP[15]. The economic importance of this class of institutional investors is rapidly increasing as their assets are expected to grow by 2-2.5 billion dollars annually. Some persons voice their opinion that the portfolio limits with regard to the foreign investment should be either abandoned or considerably limited. Otherwise there is the danger of saturation of domestic capital market in the not so-distant future.

On 1 April 2002 the UNFE was replaced by the KNUiFE (Committee of Insurance and Pension Fund Supervision, Komisja Nadzoru Ubezpieczen i Funduszy Emerytalnych). It became a new supervisory body for both insurance and pension fund sectors.

A characteristic feature of the Polish pension fund market is its relatively high concentration (Table 2 and Figure 1). One can distinguish four categories of funds with first two definitely dominating. The biggest two funds have half of the market. The next two are also big, for they constitute another quarter of the market. Hence, the Polish market is highly concentrated as the UK one, where the top five management houses administer over 80% of the voluntary individual pension assets

[14] The Polish pension law envisages that one operator can manage only one fund.

[15] Own calculations based on data from: www.money.pl/emerytury (pensions), http://www.gpw.com.pl/ (stock market) and Central Office of Statistics (GDP).

(Blake et al., 1998). The other 13 funds are severely sandwiched within the remaining quarter of the market. They can be labelled either as small (seven funds having less than 4 and more than 2 per cent shares) and very small (another six funds with shares lower than 2%, making up a total of seven percent). Such a situation definitely represents an oligopoly market.

Table 2 The net assets and the market structure of the pension funds.

Figure 1 Structure of the Polish fund market according to net assets

Somehow contrary to one's expectations, the companies who have biggest market shares are not the biggest institutions with respect to their capital bases. Table 3 demonstrates that their own capitals are relatively small. The administrators with the highest three share capital positions are ranked in the net asset ranking on the 13, 6, 11 and 8 places, respectively. It suggests, then, that the rationale for choosing the fund by the public was definitely not based on the size of the managing company[16]. As a matter of fact, it the historical perception of these financial institutions has been more important. Their advantage was that they had already been recognised by most of the Polish public in 1990-ties. Also, the biggest funds launched broad and costly marketing campaign. Therefore, previous presence of institutions at the market and marketing were the decisive factors in the process attracting clients to new pension funds.

Slow mobility of the insured between the funds (around 1% quarterly) represents another feature of the system. Changes of membership are expensive as the law imposes some financial consequences for those who do that before the two-year period[17]. Regardless of the good intensions, this impediment on mobility must be assessed rather critically. It does not contribute to competition of the system.

Table 3 Comparison of Polish pension fund administrators according to their share capital

3.2. Investment limits

The funds operate under the investment limits specified by the Polish law

[16] The own capitals of managing companies have not changed considerably since 1999.

[17] That rule originates from negative Chilean experiences in this matter. The Polish legislator tried to avoid the "marketing war" and frequent, economically irrational switching of membership between funds induced by promotion campaigns. As a rule, the insured have a right to change their pension fund every two years. If such decision is taken earlier, the member has to pay a transfer fee that decreases as the time approaches the next two-year period.

(Chapter 15 of the Bill from 28 of August 1997). Table 4 introduces the main rules. The most important constraints relate to stock and bond investment. Funds are allowed to invest up to 60% in stocks; max. 40% of assets may be hold directly in stock and another up to 20% indirectly with the use of mutual funds. In the later case (indirect stake holding), the pension manager does not receive management compensation for them.

There exist some bounds for a single investment. In the case of investment in closed or mixed investment fund, the ceiling is 2%. For investments in open funds, this value is higher (5%).

The above regulations put a constraint for the pension funds in their indirect stock exposure, since the mutual fund industry's assets in equity-related styles (balanced, shares, closed, growth) currently stand for only 10.5% of the pension assets. The limits for investments in single security or abroad are 5%.

Table 4 Investment limits

In the opinion of the author, the Polish pension funds should be allowed to invest more in international instruments when the covariance between the returns in Poland and foreign markets is negative. Foreign investments offer an opportunity to reinsurance and facilitate the problems of limited capacity of local financial market. In the case of positive but low covariance, investing overseas still has some sense because it provides a diversification against political and spatial risks (for example weather cataclysms). Investing abroad brings, of course, the exchange risk. However, there is no much other solution to the domestic market saturation problem; moreover, Poland will joint the EC before long and the currency problem will be considerably offset.

The problem of foreign investment limits concerns both the supervising agency and policy makers. It is difficult, for political reasons, to accept a situation where domestic savings go elsewhere and finance foreign economies, even though it can reduce the overall risk and improve the system's efficiency. Another problem relates to the public, and the way they may perceive such an action (the Feldstein-Horioka's (1980) domestic bias). It seems that from the purely organisational perspective, pension funds can easily and quickly implement the strategy. Most of the administrators are foreign-based companies and certainly they have a good market research at their headquarters. However, due to current law provisions, the costs of overseas operations are borne by the administrator, not by the fund. This is perhaps another major factor impeding a switch towards

international investments.

The recent bear market and built-in system disincentives (discussed in next sections) have shaped the current stock-bond asset allocation ratio as about 30:70. It is much lower, than the investment limits permit. However, it seems that the maximum equity-bond asset allocation ratio implied by the law is too strict, especially if some systematic barriers for more active management are removed. On the one hand, it is obvious that the system, especially at its infancy stage, should be well guarded. However, especially if the system deterrents are removed, the long-run character of the retirement saving process questions the feasibility of stock limitations. With high system costs, it seems impossible to achieve a decent replacement rate unless more investment in equity is allowed. It seems again, that the needs for budgetary financing were the main motives for constructing the 60:40 maximum asset allocation rule, which is nota bene an exact opposite to the common allocation strategy followed by the American corporate pension funds.

This suggests the hypothesis, that the primary reason why the stock investment is limited by investment law is not the safety considerations but rather the state's desire to make pension funds invest considerable part of their assets into Treasury bonds and other government debt instruments. Current legislation creates stable and predictable demand for Treasury Bills from institutional investors and makes financing of the state deficit cheaper and more operational. However, the cost of this is indirectly borne by citizens, especially the young ones[18]. Enforced investment in "safe instruments" lowers the expected rate of return of their pension portfolios and in effect endangers future pensions. The potential benefits of lower taxes due to reduced costs of financing the state deficit debt are quite illusionary as the state taxes and expenses usually are difficult to moderate. In addition, the cost of asset management becomes much higher in relation to the overall risk profile of managed portfolios (section 4).

3.3. Current problems

One of the most serious problems of the market relates to the scandal around the computerisation of the ZUS office. Even though the contract was concluded

[18] One can distinguish between market assets and human labour assets. In the case of the young, the expected value of income from labour is high. Thus, the risk-return profile of their investments (represented as a mix of risk free and risky assets) can and should be more aggressive in the earlier stage of the process of saving for retirement.

considerably early before the start of reform, the computer system has not been completed yet. The recording and transferring of above 6 million payments monthly between employers and funds, without properly working information system, seems to be a doomed task. As an immediate effect, part of the contributions paid in by employees stuck somewhere in the system and the pension fund administrators did not receive a considerable fraction of the payments. The state-run ZUS have had to pay penalty interests[19] and resorted to borrowing money from the commercial banks. Beside the cost of commercial loans, the ZUS had also to pay a penalty interest for transfers that it did not do on time. By the end of June 2002 this quota amounted to 101.7 m PLN (around 50 m USD), which is almost 0.5% of all the premiums, paid into the system so far. The penalty interests were and still are very expensive (21% for period of May 1999-October 2000, 30% for November 2000 – December 2001 and 20% for 2002). The ZUS has still not transferred to the funds around 7 bn PLN (including overdue interest)[20] and by the end of 2002 this sum is expected to reach 10 bn PLN. Not only the cost of reform has become higher but also the pension funds have had to adjust their financial strategy to the irregularity of transfers. It has had an adverse effect on their liquidity positions and definitely lowered the results of their active investment management.

Another important issue are dead accounts. Due to some scams during enrolment campaign, many of the participants applied to more than one fund. Others signed the contracts not being aware that they simply could not join the system. In effect, pension funds suffer from some void or non-working accounts. The ratio of such amounts was around 23.7% in 2000 with a slight decrease in to 20.6% in 2001 and 20.3% in 2002 (end of March)[21]. That means that roughly 2,3 million accounts have never received any contributions. The highest fraction of non-working accounts was around 60% (Polsat) and 50% (Pekao), while the lowest ranged at 7% (CU) and 9% (ING)[22]. For instance, the cost of inactive accounts in 2000 for the whole industry amounted to 20 m PLN (i.e. around 5 m USD, Wojciechowski, 2002).

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[19] According to the Social Insurance Institute, its debt to public pension funds is currently around 4 bn zlotys (1 USD bn). These estimates differ from the fund providers' calculations indicating a debt of 3 – 6 bn zlotys (0.75-1.5 bn USD). Only the interest due at the beginning of the year was around one billion PLN with its probable value at the end of 2001 at 1.5 – 2 bn PLN. The Finance Ministry wanted to pay an allowance payment but finally withdrew this proposal.

[20] Source: Chamber of Pension Fund Administrators, Bulletin 3/2002.

[21] ING fund (www.ing.pl) and KNUiFE, Quarterly Bulletin 1/2002.

[22] KNUiFE, Quarterly Bulletin 1/2002.

One more problem that the pension funds have begun to face is a high concentration of their investments in the stock market. A steady requirement for assets from the funds can, in light of foreign investment restrictions, distort the demand-supply balance in the long run. The pension funds hold currently around 17-18% of the stock market's free float. A small size of the stock market in comparison to constantly growing pension assets creates a problem with corporate governance[23]. Additionally, the funds bound to investment merely in Poland can create the effect observed in Chile where an artificially high demand from domestic pension funds triggered the foreign investors to close their investment positions. They resold their portfolio holdings to the Chilean pension funds at attractively high prices[24].

The barriers to foreign investment by the Polish funds are not only constituted by the current 5% ceiling. The costs of overseas operations are borne by the fund administrators, while the domestic operation costs are transferred on the funds themselves. Such a situation creates a strong disincentive to opening positions in foreign instruments. In addition, the current pension law does not offer clear regulations and ways to treat the exchange rate risk[25].

3.4. Overall investment result of the system

Comparisons of total premiums (plus penalty interest) that have been paid into the system with the accumulated assets lead to quite pessimistic conclusions. While there was over 23.6 bn PLN (in nominal terms) paid so far by the members, the total assets of the funds at the end of June 2002 comprised 25.1 bn PLN[26] During the first three years of functioning the system obviously created the economic deficit in real terms. The system produced the result of nominal 6.17% rate of return, or roughly 7.4% if one accounts for the fact that the premiums are transferred once a month to the funds. In real terms, the rates are – 17.23% and – 16.36%, respectively. Definitely, this result is a big disappointment for the participants and reform makers. The system lost with the most naïve passive vehicles like bank deposits or Treasury Bonds investment. For instance, the bank deposits brought at that time

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[23] That is, the situation when a company's majority stakeholders use their voting rights to achieve goals not in line with the company or/and minority holders' interests.

[24] Source: Mr. Chelchowski (a member of Board of Directors in the Credit Suisse Life & Pensions PTE S.A), Chamber of Pension Fund Administrators, Bulletin 3/2002

[25] Source: Mr. Mikuc (a member of Board of Directors of the Allianz managing house), Chamber of Pension Fund Administrators, Bulletin 3/2002

[26] Source: www.emerytura.hoga.pl.

roughly 40% (for PLN) and around 12% (for USD, appreciation effect included). A bit more sophisticated strategy for retirement saving based on investment in Treasury bonds would earn around 51% percent while 1-year Treasury Bills would have earned even a bit more (52.2%)[27].

Therefore, it is obvious that there is something wrong with the system. There are two main areas where one should seek an explanation. It might be the case that the investment process is not efficient due to several reasons. One of the possibilities is that the managers possess low investment skills. This issue is researched in Stanko (2002) and the results are briefly presented in the next section. Another group of explanations might relate to some more general flaws implied by the system's design. Such distortions can concern cost and efficiency issues or built-in agency problems and disincentives (performance monitoring, compensation system, level of competition). The cost and compensation system is a subject of the next section, while the performance and competition issues are discussed in section 5.

4. COST EFFICIENCY OF THE INDIVIDUAL ACCOUNTS RETIREMENT SYSTEM

4.1. Investment performance evaluation of pension funds

Stanko (2002, Table 9) reports the funds' abnormal returns achieved during period between 1 June 1999 and 28 June 2002. Almost half of the funds revealed abnormal returns[28] significant at 5% level. The industry's annualised alphas were also significant. For 14 funds that were present during all the period researched, the average alphas ranged between 3.7% and 4.0%, depending on the model. Funds that survived but started their activity later had lower average abnormal returns (2.8-3.3%). The variation of the cross-sectional alpha distributions, measured by the interquartile range[29], was computed. For the funds that were present during all the period, the variation of the cross-sectional raw excess returns was lower than the

[27] Calculations are based on the following sources: National Bank of Poland (bank deposits and inflation rate), Merrill Lynch Bank (GOPL index) and Internet sites (www.hoga.pl, www.money.pl, www.parkiet.com ; bond mutual funds returns).

[28] Abnormal return is the difference between the realized and expected return. The later is calculated on the basis of a market model that assumes that all the public information is reflected in the price of the security. Therefore, the non-zero abnormal return indicates positive or negative investment skills of the manager who uses additional, private information for her management decisions. Abnormal return is related to taking a diversifiable (non-market or idiosyncratic) risk.

[29] That is, the difference between top 75% and 25% results.

variation of the cross-sectional excess returns. It indicates that the unconditional performance models used were able to detect the abnormal performance.

However, the annualised interquartile ranges were very narrow, both for excess returns (1.6%) and alphas (1.8-2.1%). Such a clustering around the middle values suggests that the pension managers were inclined to follow the median manager. Blake et al. report the same effect (2001) for the UK pension funds.

Consequently, pension funds do produce additional value during the investment process and one cannot blame the pension funds' investment efficiency for the system's overall result. However, the clustering effect suggests, that the long run results in the future might be better if the investment policy is changed. The reason for the system's unsatisfactory rate of return, experienced during last three years must be therefore attributed to the state's overall regulatory framework. Blake et al. (2001) link the funds performance to the incentive effects of the fee structures, the performance evaluation environment and the degree of the industry concentration.

An additional important issue is that the financial claims offered by the pension systems (whatever PAYG or fully funded), can hardly be directly comparable with the returns from other investment vehicles[30]. While the "ordinary" financial claims might offer higher returns and can be managed freely, they are market contingences. Moreover, moral hazard, free raider or ignorance issues, not to mention the bad luck, might endanger saving for retirement. The pension systems eliminate those problems[31], although at the price of the liquidity and, sometimes, lower future returns.

4.2. Cost of the system from the perspective of the insured

Information about alphas is of primary concern for the pension administrators and for the managers themselves. It enables them to measure and compare the efficiency of the investment management. Thus, pension fund trustees mainly use this measure of management's performance. However, an efficient investment does not necessarily imply an efficiency of the overall process of saving for retirement. The efficiency for the insured is the net rate of return on pension fund investment. It is the rate achieved on investment reduced by administrative charges (Chlon, 2002), however one should also add opportunity costs caused by the system. The latter are the system-built costs and opportunity costs due to sub-optimal

[30] I thank Midori Wakabayashi for pointing out this problem.

[31] The bad luck might be partially eased by the insurance (redistribution) feature of the retirement framework.

investment portfolios. The following subsections provide more detailed discussion.

4.2.1. Charges

There are two main categories of costs that define the economic efficiency of retirement accumulation. The first one are the charges paid directly by the insured. The other type consists of the costs borne by pension administrators. These are the operational costs and system costs. The fund administrators' expenses usually have an indirect effect (via charges and reduced assets to be invested) on the results of pension fund members.

With respect to the fees imposed on fund members, Blake and Board (2000) remark that: "there is an ongoing debate as to whether personal pension plans deliver investment returns high enough to justify these charges". The same issue applies to the publicly mandated pension funds.

Charges can be categorized mainly as those based on contributions and those charged on accumulated assets (Blake and Board, 2000). The first type can involve up-load (entry) fees that may or may not be related to the size of contributions and regular charges that again, may depend or not, on the contributions amount. Within the second group, there are charges based on the intermediate value or on the final value[32]. Hence, the fees can be levied either on the flow of funds, or on the account balance. The former method is popular in Latin American countries while the later is widespread in Europe and USA. Other solutions are possible, for instance the Mexican system has also commissions based on the real rate of return, although this approach does not apply to all of the funds (Sinha et al., 1999).

The Polish system of individual accounts belongs to the retail-type market. Characteristic for such a system is: a direct relation between insured individuals and a fund (James et al., 2001) and a free choice of a fund. In the institutional market, there is an intermediary that aggregates individual contributions; the institutional investors are competing for management of huge money blocks. According to James et al. (2001) such a solution is twice as cheap as the retailed one. There is less choice and transparency, however, and greater danger of political influence.

Figure 2 presents the route of premiums in the Polish system. The contributions are sent once a month from the employer to the state entity (ZUS) keeping records of social insurance contributions for each individual. The ZUS allocates

[32] In the Polish system there are no explicit exit fees. However there is a hidden switch fee embedded in the charge (see section 3.2).

some part of the premium for each type of social risks. The premium designed for old-age protection is split between the state repartition scheme (first pillar, around 63% of pension premium) and the pension fund scheme (second pillar, 37%).

Figure 2 Flow of premiums and costs incurred during the retirement saving process

The cost of transferring premiums to the pension funds is currently 0.8%[33] of their total value. Such a high charge seems to be hardly justified, especially in the light that it lowers in a straight way the results of the future pensioners. The ZUS agency still has not sent some of the premiums to the funds (subsection 3.3). It represents an additional burden for the society as a whole because the arrears have to be ultimately paid out form the pockets of taxpayers.

The fund administrators impose front-loaded fees ranging between 6.5% and 10% of the premium. During the last three years the average was around 8.5%. Given that the longer the membership, the lower the fees, the average charge should be around 6.84% after 5 years, 6.8% after 10 years and 5.8% after 20 years of participation[34]. According to the recent news[35], the government intends to limit these charges considerably.

As an illustration, one might assume that, for each new stream of money entering the fund, the up-front fee should not drop the one-year net investment result below risk-free rate[36], that is:

$$x(1-E)(1+R)(1-M) \geq x(1+r_f)$$

where: x – premium, E – entry charge, R – investment return net of investment costs, M – management fee, r_f – risk-free return net of investment costs.

Therefore,

$$E \leq 1-\left[\frac{(1+r_f)}{(1+R)(1-M)}\right]$$

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33 The fee is decided every year in the budget law. In 1999 there was no charge, in 2000 it was 0.6 and during last two years it reached its statutory maximum of 0.8%.

34 Author's calculations based on emerytura.hoga.pl.

35 The Polish government is considering now decreasing the up-front fee to a max. of 2.5%. In exchange, the asset management fee would be increased from 0.05% to 0.083% per month but not more than 15 m PLN (PAP, Polish Press Agency).

36 Of course, there is no particular reason for the first year investment return to be at least equal to risk-free rate. In fact, there may be the cases when the first few years' return produced by a new stream of money entering the retirement account is much lower. With the long-run investment, it is the final return on the assets that counts. However, the above illustration gives some rough idea what should the higher bound for entry-fees be if the returns from the assets do not change considerably each year.

and for current situation with the funds earning on average 15% p.a., and risk-free rate 10%, the maximum bound is equal to:

$$E \leq 1 - \left[\frac{(1+0.1)}{(1+0.15)(1-0.006)} \right] = 3.77\%$$

If the initial fee brings down the two (three) year net return to risk-free rate, the bound values are 7.4% and 10.89%, respectively.

The argument against the current level of up-loaded charges becomes stronger when one analyses the structure of portfolio holdings. Stock or other instruments that commonly are believed to require high investment skills comprise merely 30% of all investments (end of August 2002). Bonds comprise over 65% and Treasury bills – several percent of pension portfolios. Whereas it might be argued, that such asset allocation strategy is a response to current market prospects, there is still no justification for the level of charges. Either the investment limits should be relaxed so that majority of assets could be invested in stock, or the charges should be lowered. Otherwise, the clients are overcharged since the mandatory savings make it impossible for them to resign from such costly investment services. Had been no compulsory participation they could have relatively easily replicated the low-risk holdings via much cheaper individual investment (naïve or index investment) while retaining in the pension account only a voluntary equity portfolio.

The costs related to the investment activity (brokerage fees, services, bills for depositary) and the remuneration for asset management are calculated and deducted directly from the assets of the fund. The typical brokerage fees at the Polish market for institutional investors (transactions from 0.5 m PLN) can be estimated roughly at 0.27% for stock and 0.09% for bonds operations[37]. The administrators of the fund charge the asset management fee at its maximum level of 0.05% of net assets per month, i.e. 0.6% annually. With the pension portfolio structured at 30:70 (shares/bonds) the asset management fee is comparable to prices of services that the large investment banks offer for wealthy individuals. For instance, CitiCorp charges its clients 0.8% for managing the WIG-related 10 m PLN portfolio. In the case of bond portfolios the prices are 0.25% (inflation-linked) and 0.4% (no-linkage), respectively. The Polish mutual funds charge around 1.75% and 0.8% pa, respectively (with upfront fees equal to 1% and 0%).

It seems that the management fee is acceptable[38], though there is still a room

[37] Information of Citi Bank on typical commissions of its brokerage partners (www.citibank.pl/poland/corporate/polish/hanza/oakcyjne.htm).

[38] The typical management fee for UK is 0.5% (small pension funds), 0.25% (fund of 100m

for improvement. It is so, because the pension fund administrators have clients with potential long membership and constantly growing assets. Furthermore, the customers have few funds to choose from. The mandatory savings represent a huge flow of assets and the competition between the operations is much lower than in the case of numerous mutual funds who must fight for voluntary funds. As it was mentioned, the pension market is ten times bigger than the mutual one and it is growing much faster.

Chlon (2002) uses 2000 Polish data to estimate that the up-front and management charges reduce the rate of return by approx. 0.88%, however does not provide the information about the effect of overall systematic costs on the net rate of return. The cost of administrator charges in Poland is comparable to the Latin American systems and is closer to the lower boundary (Chlon, 2002).

As it will be seen in the next subsection, the charges could be considerably reduced if one cut down the costs of the system. James et al. (2001) assess that one percent reduction in administration fees reduces accumulation and pension by 20%. There is also an alternative way of huge cost reduction, however rather theoretical, as it would have required fundamental changes. Choosing an institution-based retirement system would have resulted in a framework with costs approximately half as much as in retail market (James et al., 2001).

4.2.2. System-built costs

The level of charges is driven by competition level (profit margin for financial institutions) and by the environment designed by the state. The costs, though not directly, are shouldered on the insured. In general, the cost structure of Polish retirement system can be analysed as consisting of two main subsystems. The first represents the financial intermediaries' operational costs, which mainly cover start-up investments, record-keeping and communication expenses, investment costs and marketing spending. To certain extent, the pension providers have an influence on those costs. However, their actions are restricted by existing legislation and regulatory framework. The biggest item here is related to marketing expenditures. In 2001 acquisition of new clients plus advertising expenses

USD) and 0.01% and less (very large pension funds) annually (Blake et al., 2001, pp. 6,20). The UK management fee for the median size of the Polish fund of 153 m USD should be roughly 0.15% of assets annually. However, the scale of assets and development of institutional investors market is much higher in the UK than in Poland, which implies lower cost of financial services.

amounted to 32.8% of total operating costs[39].

The second group, the mandatory costs, is of more interest, as it is the state that defines what costs and at what level must be borne (Table 5). The main positions include fees for the central collector (Social Insurance Institution, ZUS), system's guarantees, supervision, information disclosure and opportunity costs of minimum required rate of return. Also, choosing the risk level appropriate for somebody's age and personal situation is practically impossible. This issue will become more and more important as the members approach their retirement age. Although the Polish law permits creating "B-type" pension funds with lower risk profiles, the system remains highly inflexible to various levels of personal risks aversion. It seems reasonable to argue that, at least few different investment styles within a pension fund, but not necessarily separate institutions, should exist. It would allow the people to change the investment mix as they approach the retirement age or.

As a final remark, one can point out a systematic problem concerning the percentage of contributions channelled to the funded pillar. Due to economic constrains, only 20% of social security or 37% of pension-related premiums are invested in the capital market. James (2000) observes that small accounts result in higher costs per assets, lower net returns, and therefore lower pensions. Small accounts are inevitably suffering from relatively high or even economically prohibitive, transaction costs (Lucas, 2001). This is the situation in Poland, where the average monthly premiums (end of August, 2002) range between 81 and 133 PLN (20 – 40 USD) with an industry average of 102 PLN (25 USD).

Table 5 System-built costs

4.2.3. Possible cost reductions

Some commentators and representatives of the industry voiced their concerns about the costs level. The Chamber of Pension Fund Administrators issued in 2001 a document in which they argued that it was possible to cut down the expenses of the system by 57%. Although this number is questionable in the context of the conflict of interests between the pension administrators and the public, it is obvious that still a considerable part of the expenses could be avoided quite easily. Chlon (2002) discusses the administrative costs and the potential cost reductions in detail.

There are several areas where one could seek cost improvements. The first applies to up-front fees. As the initial phase of the expenses related to entering the

[39] KNUiFE, Quarterly Bulletin, 4/2001.

market and marketing war are over, there is more possibility to lower these charges even at the cost of increasing asset management fee. Not only it would increase the accumulation rate in the nearest future but it would also bring some positive incentives for more efficient management. As a matter of fact, the government has recently put a proposal for such a change.

The system-build costs should be reconsidered as well. Following the previous argument, there is no particular need for keeping the guarantee allowances at the current level. The fee charged by Social Security Institution is just another levy imposed on already highly taxed individual savings. The idea of main collector was meant to create a solid information database framework and also to assure higher coverage rate. However, at the current stage, the service quality is low whereas the charge imposed by ZUS in a considerable way reduces individual savings to be invested in capital market. The effect on future retirement benefits is strong. A reduction of just 0.1% in the fees would increase accumulations and pensions by 2% (James, 2000).

The supervisory-related costs might be successfully reduced if the frequency of detailed reporting to the KNUiFE were changed. At the moment, funds are required to provide exhaustive information on a daily basis. It is quite doubtful whether such a flow of information is really needed and whether the supervisory body actually does make use of this data. Of course, less severe data requirements should be carefully balanced with the potential risks of weakening supervisory efficiency and public information disclosure. Nevertheless, weekly reports, for instance, should be sufficient.

The report-keeping and communication expenses would be lowered provided that the funds did not have to use registered mail letters in communication with their members. The regular mails are three times cheaper and do not require collecting of unaccepted letters[40]. The pension law requires funds to send the annual reports to all account holders, even though on average 20% (in some cases 60%) of the accounts are inactive.

Finally, the opportunity costs might be lowered if an action aimed at establishing proper benchmarks and performance evaluation rules is taken. Currently the minimum required rate of return creates a short-term investment horizon, herding around the results achieved by biggest market players and lower

[40] One might wonder whether the regulation was not intended to bring some profitable services to the state-owned post monopoly. Other financial institutions (like banks or mutual funds) do not have to use registered letters.

competition (section 5.3). This issue is closely related to the properly functioning mechanism of incentives built in charges. The Polish system should employ more ex-post performance incentives and also should be focused on competing with costs, not the promises of (ex-ante) performance results. Blake and Board (2000, p. 545) provide an excellent remark:

> "A scheme with charges levied principally on contributions offers the fund manager little incentive to achieve good performance, and places all of the risk of underperformance on the client"

4.3. Incentive effects of the fee structure

4.3.1. Linear performance contracts

Alongside with the cost issues, equally important are the incentive effects of the fee structure. Blake and Board (2000) claim that the front loaded charges, where the fees are paid before the service is delivered, usually do not provide the best incentives for the service provider to produce additional value. According to these scholars, the back-loaded remuneration, paid after the service is delivered, serves this purpose better. In their study on UK pension funds, Blake and Timmermann (2002, p. 117) conclude that the fee structure seems to discourage active management. The same problem applies to Poland.

The problem lies in the linear nature of fees specified by performance evaluation contracts and in the relative strength of incentives and risks. The incentive for investment executives to apply active management and thus, to increase the assets value, is quite weak. The additional reward to be obtained in the case of successful management is around two full orders of magnitude smaller than the base fee itself (Blake and Timmermann, 2002, p. 117). The same applies for Poland. The fee is a product of the ex post return and the management fee that the fund administrating company receives. Since the investment returns are subject to random deviations, it is quite probable, that the ex-post return might be negative. Stock returns are usually non-normal (leptokurtic), with skewed distribution tails and this fact indicates, that the sporadic extreme results may lead to considerable losses. That is why there is no much motivation for the administrator to undertake very active policy. The expected marginal disutility due to possible failure increases much faster than expected marginal utility due to increased management rewards. A spectacular failure can lead to loss of a job at the level of investment manager. For the administrating company, bad returns would create an outflow of clients (in the Polish case) or a loss of mandate (in the British case). Blake and Timmermann

(2002, p. 118) conclude therefore that: "the probability of relative underperformance due to bad luck outweighs the prospective benefits from active management for all but the most certain security selection or market timing opportunities." The managers try not to push their luck and this effect is even strengthened by the penalty payment existing in the Polish performance measurement system (section 5.2).

The issue of proper incentive mechanisms is important since they may alleviate the agency problems between managers and affiliates. Ross (1989) states in his theory, that the magnitude of agency conflicts is inversely related to the level of institutional transparency and that the performance itself is proportional to the level of institutional transparency.

4.3.2. Performance-related incentives

Blake and Board (2000) argue that providers should compete on the basis of charges rather than on past investment performance. Their reasoning is based essentially on the non-testability and non-sustainability of superior performance. In the Polish context an additional reason is that, due to herding behaviour, the investment results are quite similar.

The proper fee structure should eliminate the tendency towards keeping close to the index via creating incentives for managers to apply active management and to deviate from the benchmark. The fee should include a base part that is to cover the fixed expenses and a variable part that is a reward for beating the target. Blake and Timmermann (2002, p. 122) propose such a solution (existing currently in the UK specialised funds industry) and suggest that it is crucial to apply a fee rate that is symmetric around the target to avoid the excessive risk taking:

$$Performance-related\ \ fee\ in\ \ period\ t = \max[\,0, f_1(g_t - g_t^*)V_t\,] + f_2 V_t$$

where f_1 is the proportion of the fee in relation to the difference between the realized performance g and benchmark (target) g^*, f_2 is the base fee to cover the fixed expenses, and V_t is the value of the fund in period t.

Section 5.4.3 proposes an asset allocation index that might serve as a yardstick g_t^* in the above equation. The framework can work properly only if disincentives caused by current measurement regulations are be removed.

5. PERFORMANCE MEASUREMENT REGULATION ISSUES

5.1. Introduction

Public pension systems ought to be carefully designed and supervised to make sure that their purposes are met, the economic consequences are appropriate and that the individual members are given some basic protection. Even in the case when the retirement provision is "opted out" from the hands of the state and is operated by private entities, some sort of supervision is still needed. Usually, the state's involvement is more than marginal[41].

The Polish financial market is relatively new and consumers' knowledge about insurance products and capital market mechanisms is still to be improved. Also, since membership in the scheme is mandatory, there are more expectations toward the state to assure that the system functions properly. The same applies for state guarantees; their potentially substantial costs invoke stronger regulation. Important elements of this framework are: performance measurement, minimal required rate of return and benchmark issues.

5.2. Current benchmark

Poland applied system of performance measuring similar to that of some Latin American countries. The results of pension managers are compared against the industry's average return (AR). The AR is calculated every three months as an arithmetic average of individual funds weighted by their market shares during the period. The market shares are arithmetic averages of initial and final values and represent the proportion of all the pension assets that was under the management of a pension administrator. In consequence, the AR measure is a peer-group index. Another important performance facility is the minimal required rate of return (MAR) calculated as the lower of two values: 50% of AR or AR reduced by 4%. Both measures are determined every three months and use for calculations the results of the past two years.

According to the pension law, those fund administrators whose investment results are lower than the required minimum have to pay up the difference to their affiliates. Therefore, all members of the system can be sure that their rate of return will at least be equal to the MAR. Pension administrators must make up for the

[41] For instance, as the UK history shows, the self-regulatory framework can fail even in the affluent societies that are relatively more market-educated (vide Maxwell scandal in 1991).

difference from their reserve funds (1.5% of accumulated assets). If those assets are insufficient, the managing company has to use its own capital. In the case of insolvency, the fund is overtaken by another fund, the administrating company is liquidated, and the Treasury takes over outstanding obligations.

Up till now, only one administrator managing the Bankowy fund has had to compensate the difference. Three payments worth in total 14 m USD were the consequence of relatively aggressive stock investments that proved to be costly when the market collapsed.

The creators of the system hoped that such performance framework would make the system more competitive, and at the same time, safer for the clients. It turned out, however, that it has rather produced some perverse effects, which are described in the next subsection. It seems that a continuation of the assessment system in its current shape may seriously threaten the retirement income security of the members.

5.3. Drawbacks of performance measuring system

5.3.1. Misleading information

The asset-weighted benchmark can be misleading For instance, the administrator of Bankowy, the only one that has experienced lower than MAR results, generated for the period 1 June 1999 – 29 June 2002 a return of 43.4% (Stanko 2002, Table 7). There were other six funds with lower results, however their operators did not have to make any supplementary payments. Consequently, the running industry average represented by AR does not describe well the general picture of managerial skills. The average can produce completely deceptive results, as the hypothetical result in Figure 3 shows. In this example, the manager who experienced lower than average result in the first period still has to pay the penalty during the next periods, even though her results are higher than the market. Thus, the entry values used for calculation can be distorted either by local market price changes or by managers themselves.

Figure 3 Potential deceptive interpretation of AR

The first problem relates to the frequency and time span with which the industry performance measure is computed. The results cover only two years. Moreover, the quarterly frequency of such calculations forces the managing houses to follow short-term strategies to avoid the penalty payment. The managers

concentrate on a three-month investment strategy to make sure that the current results do not fall down below the average. The long-term strategy, so important in the process of accumulation, is abandoned causing the opportunity costs for the system members. Blake and Timmermann (2002, p. 123) suggest that the assessment frequency should correspond to the speed with the market anomalies are corrected. One may infer from their example, that this horizon is somewhere between several and ten years. Since the Polish financial markets are not so much efficient there, the minimal span for evaluation horizon and frequency should be longer as opposite to the UK case, with the economic cycle of perhaps 5-7 years.

Lakonishok et al. (1991) provide some evidence on the second issue - the "window-dressing". The fund administrators take short-time actions aimed at temporal improving of their results and portfolio structure. Though not officially documented, one should not expect that such phenomenon does not occur also in Poland.

5.3.2. Herding

Another effect of performance evaluation framework and incentive fees (subsection 4.3) is herding around the mean manager. Blake and Timmermann (2002, p. 117) conclude that: "The relative performance evaluation provides a strong incentive not to underperform the median fund manager". They also notice that in the presence of peer-group median or peer-group distribution measures, fund manager behaviour is likely to be distorted. In effect, a target that uses a group's median will create an outcome very close to this median. Not knowing what the median fund manager result will be at the end of the period makes managers stick to one other so not to deviate from the final result. That is why the results are not much higher than those obtained from the passive investment strategies and also this is a reason why there should be an external benchmark used (Blake and Timmermann, 2002, p. 122).

Stanko (2002) demonstrates that also the Polish fund managers have tendency to cluster around the median outcomes. The interquartile range (showing the difference between top 75% and 25% results) values, computed for returns and alphas during a period of 1999-2002, were very and quite narrow, respectively. For raw monthly returns, the range was around 160 basis points (1.6%) that is approx. a distance of +/- 1.7% of the average return. The interquartile range for empirical alphas of around 200 basis points translates to a deviation of +/- 20% of the average individual alphas. It is so, because within the AR framework, the safest strategy is

to imitate the portfolios of the biggest participants. Therefore, such action minimises the risk of return's deviation below the industry's weighted average. The big funds (representing almost 75% of the market) have theoretically more freedom in deciding their risk profiles. However, under the game where nobody knows the future returns it is still better to adapt a low-risk strategy to minimize the probability of penalty payments. Every three months, as the time to the next "beauty context" approaches, the players can immunize their portfolios against the MAR risk by increasing holdings of more stable and predictable instruments, like bonds and treasury bills. Consequently, the funds can "lock-in" the returns to make sure the final result will not fall down below the current average.

The industry's weighted average becomes the actual benchmark portfolio the fund managers prefer to stick to. Following the benchmark portfolio, even though this exposes them to some risk, does never expose them to regret (Clarke et al., 1994). In the Polish conditions the regret from not sticking to benchmark is enhanced by the penalty payments in the case of negative deviation. Keeping with the median manager immunizes managing companies from the MAR risk and the investment managers are protected from regret and threat of being fired as a consequence of taking on higher-than-average risk. The legislation induces two-layered agency problem: a conflict between the customers and managing house interests, and an internal one, between the managing houses and the fund managers themselves.

5.3.3. Costs

The market weight in the AR formula strengthens the herding effect and increases the opportunity costs. The system achieves the local optimum from the point of view of the managing houses; however from the view of the long run saving its global equilibrium is sub-optimal (short time and conservative investment strategy). The misleading information may cause wrong consumer choices. Finally, the guarantees[42] of the minimal rate facility are illusionary as it is the client after all, onto whom the cost will be passed in the long run.

[42] This insurance feature is already embedded in the Reserve Fund. The cost of insurance provided by the MAR institution is also spread over all clients; however its distortion effects on the investment behaviour are stronger than in the case of the ordinary moral hazard typical for the insurance solutions.

5.4. Benchmark proposals and their application for the performance incentives

5.4.1. Improvements of the current framework

The existing evaluation system can be improved by introducing several changes. To begin with, the frequency of assessment and time horizon should be extended. Probably, announcing every one or two years the average calculated over several years should minimize behaviour-distortive effects. Such a change, however, cannot be performed now since the market history is only 3 years old. The formula for the minimum required rate of return might be changed also by widening the deviation band to allow greater variation around the average and therefore, more active investment.

The Polish supervisory body enumerates some other possibilities (UNFE, 2000). The benchmark might be a weighted average of other funds, with exclusion of the fund's weight. However, such a proposal, due to high market concentration, would not solve the problem of high market shares. Therefore it would not change considerably the behaviour of funds, particularly the small ones. Another alternative, a simple arithmetic average, might be influenced by some extreme values experienced by few funds with minor market shares and therefore is not an option, either.

5.4.2. Market indices

It seems that the optimal solution is to abandon current regulations and to introduce a new, external benchmark. Such a benchmark would not create distortional effects typical for relative performance measures. The benchmark ought to reflect the universe of assets that the fund managers can invest in and the main legal investment restrictions that they face.

Blake and Timmermann (2002, p. 113) suggest that the benchmark should possess a "cap" character, that is, that the index should recognize the portfolio restrictions that are placed on single investments. That issue is of particular importance in Poland, where the pension assets are growing relatively to the capital market capacities and where a single investment cannot exceed 5% of the stock market capitalization. Consequently, the individual weights for the index should not be higher than this value.

However, the pension fund portfolio is a mixture of wide range of assets and, as opposed to mutual funds, it should not be evaluated with the use of single stock index representing usually only the equity part, and additionally limited to the

shares with the highest market capitalization.

Nagorniak (1982) shows that even the most common S&P index is not appropriate for gauging a performance, and proposes a "complete index" that would include all risky assets (stocks, treasury bills, corporate and government bonds, real estate etc.). Therefore the highest correlation between the return generating process and the index is obtained.

5.4.3. Asset allocation index

For more practical usage, one can use operationally easier multi-index benchmarks (Elton et al., 1993) to calculate the portfolio's total average rate of return that would consist of returns from stock, bonds and some other main investments (Treasury Bonds). Immediate candidates for the benchmark are, therefore, the stock index WIG20 (blue chips index) and the bond index. Since there is still no official market index for the later, the investments in bonds might be represented either by foreign investment bank indices (for instance Merrill Lynch GOPL), or by some proxy of main mutual funds investing in bonds (Stanko, 2002).

The question arises, however, what should be the weights for those investments in a synthetic benchmark. The pension administrators might declare their individual long-run asset allocation ratio vs. which they will be assessed. Alternatively, the Committee of Insurance and Pension Fund Supervision could use information about fund current holdings to compute weekly average structure for each pension portfolio[43] and to use those weights for calculating the final weighted return over the measured period. The office should not disclose this data so that the funds would have more freedom in deciding their individual short-term asset allocation strategy. Under such a scenario, the funds should publish their strategic asset allocation profile and any major changes. It would give the public a chance to choose preferred risk characteristic according to their individual preferences.

Such solutions seem even more appropriate in light of Blake and Timmermann (2002, p. 110) suggestions that, the strategic asset allocation should be viewed as a decision of fund trustees that is taken with regard to risk; not as an investment decision itself. Therefore, the proper assessment of managerial skills should focus on the tactical asset allocation (timing and stock selection) results judged against the strategic asset allocation benchmark. In the case of "classic" defined

[43] Currently, the Polish supervisory body obtains daily information concerning funds' investment activity and structure of their portfolios. For the purposes of benchmark calculations, weekly or perhaps monthly average holdings should suffice.

contribution funds it is their liability structure and maturity that affect investment risk profile of the portfolio. In the current Polish conditions, the asset allocation styles of various funds have tendency to converge. It is so because they are predefined by the state (investment limits) and, indirectly, by the biggest market players (their impact on weighted industry average). It would be worthwhile considering one or several (in the case of varying styles) asset allocation indices as a main or additional (besides the stock-bond one) performance yardstick since as they would give more information about the fund's tactical allocation skills (timing and stock selection).

The framework described above would provide the public with information about what the investment skills of pension administrators are. The second measure, the average weighted rate of return would indicate the overall investment results. It would be comparable to some wide-economic benchmark like long-term Treasury Bills return, real GDP growth or real growth of benefits from the state-based pay-as-you-go pillar[44]. The investment styles defined by individual asset allocation benchmarks would give the clients a chance to choose their preferred investment strategy.

The individual market indexes may not be mean-variance efficient. Roll (1978) shows that there are two possible scenarios. If an index is efficient, then all funds results will lie on the Security Market Line, which will make the ranking impossible. For an inefficient index there may be different rankings of the funds according to different indexes. However, Peterson and Rice (1980) find out that there is strong similarity of rankings while using various (inefficient) indices. Therefore, the mean-variance efficiency is not so important in the context of comparison of various funds.

An external stock-bond indicator has also more real links with the economy. By following such a benchmark, the fund administrators would have to make efforts to adjust to the economic situation rather than to comply with short-time measurement requirements. In line with regret theory, the proper benchmark should be constructed in such a way that the managers optimising their tracking errors[45] choose the portfolio of the possible best risk-reward profile in regard to the long-run pension purposes. That is why the benchmark should be based on some easy to follow, wide economic index or indexes, where their components do not

[44] The last proposal, however, seems politically sensitive, as the direct comparison to the previous system might be a difficult issue if the funded system brings much lower returns.
[45] That is the difference between benchmark and portfolio returns.

change frequently.

Another issue relates to investment costs. The benchmark represents passive investment and does not account for expenses occurred due to active investment, custody fees, research expenses and so on. However, lowering the benchmark by those costs might produce negative effects of churning and cost inefficiency.

The last two indicators that might be used are: the system's rate of return (SRR) and reduction in the rate of return (RiY). The former is calculated as:

$$SRR = \frac{Accumulated\ assets}{Total\ \ premiums\ paid\ in} - 1$$

and indicates what is the net effect of saving in the pension system. It gives a client his or her individual rate of return and shows the combined effect of all system hidden or explicit costs and investment efficiency.

The latter, based on the reduction in yield discussed in details in Blake and Board (2000), is the difference between the hypothetical rate of return that would have been achieved without any costs and the actual one that includes the costs borne by the member. Although the ratio is technically plain, Blake and Board (2000) remark that wide public have some difficulties in understanding it. It seems, however, that such an indicator would be a very good measure to show a fund's cost-effectiveness and to allow, to some extent, cost comparisons between the funds.

Table 6 provides a summary of main proposals.

Table 6 Benchmark proposals

5.4.4. Other proposals

One might also consider peer-benchmarks tailored for the fund sizes. That is, for instance, there might be big, medium and small fund indices. However, such a move would not solve the basic problems embedded in the nature of relative performance measures.

Another possibility is to create a mechanism based on some long-run average economic indicator, for instance:

benchmark = min { average stock-bond index }

Some other solutions might use the finance theory (unconditional and conditional alphas, information ratios or Value at Risk[46]) framework; however, they would be difficult to implement due to their cost, know-how requirements and applicability of such information for the public. Not only they are hardly

[46] See for instance: Dowd et al. (2001).

understandable by the average person but also there are some theoretical problems concerning the asset pricing models and efficiency of the markets.

Nevertheless, whatever the solutions might be, it is worth to remember the excellent observation:

> "It certainly appears to be the case that behaviour soon follows measurement when a performance benchmark is established; very quickly, the benchmark changes from being a tool of measurement to a driver of behaviour" (Blake and Timmermann, 2002, p. 116).

5.5. Compulsory participation and information policy to the public

In the case of mandatory public retirement system it is essential to insure that the information concerning the investment results achieved by various management providers is detailed and precise yet simple enough to be understood by the average member. Consequently, a system designer has to face the trade-off between the depth and completeness of information and its transparency. Bearing in mind the complexity of pension and investment issues, one must assume that only the simple measures will be properly comprehended by the public. Thus, either the current framework will be terminated and only basic geometric rates of return will be used or one will introduce some simple external benchmark. The asset allocation indices for each fund will work properly under condition that enough education campaign are to be organized. Such solution has also the advantage of making the public aware of basic return-risk relationships.

At the current stage, the individual decides only about which fund to join. Therefore, the members have no much possibility to shape their individual risk profiles, as the funds' investment strategies are quite similar. If this situation changes a moral hazard problem might become quite serious. A worker may choose, for instant, a very risky portfolio hoping that either the return will be high or the state will bail him out. This issue should be solved by educational campaign to make people aware of their decisions and potential risks. The safety net the state can offer in this case might consist of the first pillar.

6. CONCLUSIONS

A test of the system's efficiency could be concluded in the following question: "If you had some extra financial resources dedicated to additional retirement savings, would you put the money into the pension funds or would you choose another investment vehicle?" At the current stage of the system development, the answer is "no". Even though the system is efficient in the gross return context (positive alphas from the asset management), it does not produce satisfactory net returns. It suffers from cost ineffectiveness and measurement flaws affecting investment behaviour of the funds. Some of the problems are an integral part of the Latin American system applied by Poland. Other issues have become visible only after several years of system's operation.

The pension funds charges could be lower. However, it is rather not the funds' performance to be blamed. More things that ought to be changed lie in competence of the state. The system's costs embedded by the legislation create a highly expensive and ineffective environment, where monies of future pensioners are being used for purposes far from the retirement goal. The bureaucratic solutions should be revised carefully since in many situations new organisations are created not on efficiency or task grounds, but rather as an effect of political lobbying or bureaucratic expansion.

There is room for improvement in several areas. First, some immediate savings may be obtained if the system-built costs are removed. Second, the regulators should slash the fee level and revise their structure[47]. Building more performance-related incentives should bring higher accumulation rate for the insured and probably better profits for the successful administrators. The next group of changes should cover the performance reporting system. Temporary adjustments may improve its quality, however in the long run the peer-group benchmark and minimal rate requirements should be abandoned. The possible benchmarks should be of an external nature and should be related to the general economic conditions. For instance, all fund could announce their own risk profiles and their performance might be assessed against their individual asset allocation indices along with the basic indicator based on the geometric rate of return. The system's reorganization should also attempt to create a competition between funds based on the costs rather

[47] It might be obtained either by direct change of regulations, or – perhaps more wisely – by reaching an agreement with the fund administrators. The latter would involve making some concessions by government, for instance raising the maximum management fee and cutting the system costs (discussed in 4.2.1).

than promises of continuing their historical performance. To achieve both of this aims, some educational actions must be done so that the people, having understood the nature of indicators and the role of the fee structure, were able to take informed decisions about their retirement strategies.

One must also rethink the investment limits, especially the ones concerning investments abroad. In the long run, the insured should be able to choose their individual risk profiles[48]. Also, to make sure that the future benefits will offer satisfactory rates of replacement, the amount of pension-related premiums should be increased. However, this issue is beyond the scope of social policy and is mainly determined by the current fiscal constraints.

The above discussion suggests that the Polish system would have been much more efficient had the institutional framework been applied. The cost of managing pooled assets of insured would be much lower and the competition between the managing houses more rigorous. Therefore, in the context of yet to be solved annuity issues, one might argue that all financial institutions should be allowed to provide the annuities. Creating new, exclusive institutions is going to be very costly. The arguments of safety often result in the expansion of bureaucracy and do not necessarily produce economically efficient solutions since the costs are born final by the insured.

There should be also some decisions taken with regard to financial risks that are likely to occur during conversion of accumulated assets into the annuities. Even though the funded solutions are said to be immune to the demographic changes, this immunity may not be perfect. The future generations will be less numerous and it might have an impact on the demand-supply equilibrium in the financial market. Davis and Li (2002) raise this issue and provide some evidence that ageing can lower the market returns; they also argue that one should be careful about realised high historical returns on financial assets. Similar problem applies to the temporal market depressions and the methods how to protect the value of portfolio for those workers who happened to reach their retirement age and who have to annuitize their accumulated savings. A potential solution to this problem might consist of gradual decreasing of risky investments from the total portfolio as the member approaches his or her retirement age. Lucas (2001) argues that funding solution can solve demographic pressures only if the new pension system makes a positive

[48] To avoid uninformed decision problems, the state may, for example, specify or advice what minimal percentage of accumulated pension assets must be kept in the low-risk fund after a person approaches the retirement age (say, turns 50).

impact on private savings. Also, investing in stock can improve risk sharing within and between generations and have a positive impact on the financial markets, however there might be some negative aspects as well like: a risk-taking, high costs of individual accounts and deceitful sense of financial security (Lucas, 2001). This issues are beyond the scope of the paper, however are closely related to the issue how to design the funded framework and the pension system in general.

The proposals of this study, particularly the ones concerning the benchmark facilities, are obviously not exhaustive. Some more research, perhaps in collaboration with pension fund administrators, should be done to specify the best possible framework.

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