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Employee Capital Plans performance through the lens of the participant — how to (better) measure and inform about the returns

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Abstract

In recent decades, an increased effort to increase private retirement savings can be observed, especially in countries where public pensions have been the main source of livelihood during retirement. To increase participation in occupational as well as individual pension plans, states often use financial incentives (personal income tax reductions, preferential tax rates, subsidies). However, experience from studies in various countries shows that these incentives may not be efficient and/or attract mainly high earners. Mobilizing Poles to save for retirement in light of the paradigm shift in pension security in Poland caused by the 1999 reform has proven to be a major challenge. Given the mediocre development of the private pension plan market, a new type of workplace pension plans based on automatic enrollment called Employee Capital Plans (ECP) began to be implemented in 2019. However, despite the plan's favorable funding mechanism, especially from the perspective of low- and middle-income earners, participation remains low. In the article, we argue that a change in the manner in which program participants are being reported their earned rates of return could increase interest in ECP participation. Following the investment performance of 60 FZDs, operating within the framework of ECP in Poland, we show that the total returns presented by the managers

of FZDs and Polish FSA are lower than the returns measured from the perspective of participant contributions using the IRR method. Significantly higher results are also achieved by those with low earnings, who can make reduced contributions to ECP. Thus, we recommend the introduction of a standard for the presentation of ECP investment results from the participant's point of view, taking into account the ECP financing mechanism.

Introduction

Population aging is a global challenge that requires systemic action. One of the main consequences of this process is the need to ensure adequate income for retirement. Responsibility for securing retirement income is increasingly being shifted to individuals. In line with the recommendations of international organizations (World Bank, 1994; Hinz and Holzmann, 2005; European Commission, 2012), this is being done by promoting private pension plans offered at the workplace or individual pension plans often supported by financial incentives (OECD, 2007, 2018). This was also the idea behind the paradigmatic Polish pension reform of 1999 — both through the operation of Open Pension Funds (OFE) and Occupational Pension Plans (PPE), the intention was to introduce a culture of saving for retirement (Chłoń, Góra and Rutkowski, 1999). However, this goal has not been achieved, and the significant changes introduced in the operation of Open Pension Funds (Bielawska, Chłoń-Domińczak and Stańko, 2015) have undermined Poles' trust in the state and pension plans (Mentor S.A., Uniwersytet Gdański, Uniwersytet Ekonomiczny w Poznaniu and Business Centre Club, 2021; Bielawska, Shen and Turner 2022; Bielawska and Turner, 2023).

Nevertheless, after unsuccessful attempts to popularize supplementary pension plans in Poland, initially in the form of Occupational Pension Plans (PPE) and then individual plans (IKE, IKZE), a new form of plans organized by employers in the form of Employee Capital Plans (ECP; Pracownicze Plany Kapitałowe or PPK in Polish) was introduced in 2019. The principles and mechanism of PPK are based mainly on the experience of British pension workplace plans with automatic enrollment. In 2017, with most workers having been auto-enrolled by their employers, the overall opt-out rate in the UK was 9% (Department for Work & Pensions, 2017). In Poland, the opt-out rate accounts for 89% (Mentor S.A. et al., 2021).

The financial mechanism of ECP (see Part 1 for more details) is the most favorable for participants among all pension savings plans in Poland. While the issue of distrust in the state in the context of the OFE experience is unquestionable, we aim to verify that participants are properly informed about the investment outcomes with employer and state subsidies. We claim that the total rates of return on defined-date funds reported by the Polish FSA (KNF, 23.12.2022) or managers themselves understate the benefits received by participants in ECP. Secondly, we argue that inadequate performance information for the participant particularly affects low-income people. Thirdly, we argue that a measure of the market perfor-

mance of funds that is inadequate for the program design may discourage participation in ECP. To verify the research hypotheses, an analysis of the investment performance (the subject of the analysis) of 60 defined-date funds (the object of the analysis) managed by 10 financial institutions — whose quotations were available on stooq.pl as of January 5, 2023 — was conducted. The analysis covers the period between January 2020 and December 2022 and is based on various measures of investment efficiency (TRR, IRR) presented from the market and investor perspective. The methodology of the study is explained using the example of contributions made to the ECP on different salary levels (average and low-earners) and with the usage of different measures of performance of defined-date funds.

1. Theoretical framework of the research

Population aging is a visible process in all developed countries. This demographic change is affecting the countries of Central and Eastern Europe (including Poland) to a significant degree. As a result of this, public authorities should adapt the policies they implement to this challenge, in particular in the field of pensions, healthcare and long-term care systems, among others. Poland is a country that implemented structural pension reform in 1999 to cope with the long-term fiscal sustainability of public pensions (Chłoń, Góra and Rutkowski, 1999). At the same time, the transition from the DB to DC formula meant that it was necessary to support the development of supplementary pension plans, as the public system could not provide adequate benefits in the long term with a fixed level of pension contribution. Initially (in 1999), a framework was created for the operation of occupational pension plans (PPE), then, in view of their mediocre development, individual forms of pension security were introduced with the usage of tax preferences, i.e. IKE in 2004 and IKZE in 2012. Both individual types of pension saving mechanisms offered tax preferences: IKE — the TEE regime and IKZE — the EEpT regime (see more: Rutecka, Bielawska, Petru, Pieńkowska-Kamieniecka, Szczepański and Żukowski, 2014), however, they mostly attracted high-earners (Rutecka et al., 2014).

The development of supplementary pension plans depends on many factors, the most common of which in the literature are as follows: the level of benefits from public schemes, the income of the household, financial literacy and retirement awareness (evidence for Poland: see e.g.: Kolasa and Liberda, 2014; Pieńkowska-Kamieniecka, Walczak and Bera, 2019; Solarz, 2020; Buchholtz, Gaska and Góra, 2021). Employer involvement in building retirement savings also matters to employees (Pieńkowska-Kamieniecka, Rutecka-Góra, Kowalczyk-Rończyńska and Hadryan, 2021). In Poland, a culture of co-creation of pension security by employers doesn't exist. Attempts were made to initiate this process in 1999, but they ultimately failed. However, in several empirical studies (Czapiński and Góra, 2016; Olejnik, 2016; Mentor S.A. et al., 2021), Poles have declared that their pre-

ferred model for creating retirement savings is the participation of all stakeholders, that is: themselves, employers and the state.

The issue of state intervention within private pension plans has been widely discussed in the literature. The state's main rationale for supporting private pension plans is generally mobilizing long-term savings, which can support economic growth, develop markets for long-term financial instruments or reduce poverty among future retirees through increased investment. The forms of such incentives cover tax and non-tax stimuli (i.e. matching contributions or one-off or regular subsidies).

However, studies conducted in countries with a long tradition of fiscal support for retirement-oriented savings were not reassuring. Studies of pension plans in the US, Ireland and Poland (IKE, IKZE) have found that the tax incentives are used primarily by high-income earners and often lead to the reallocation of existing savings rather than the creation of new ones (Collins and Hughes, 2017; Ayuso, Jimeno and Villanueva, 2019; Dundure and Sloka, 2020; for Poland see Rutecka et al., 2014).

With all of the aforementioned limitations and expectations on participation in pension plans in mind, another attempt has been made in Poland to create attractive pension savings plans. This time it was modelled on plans with automatic enrollment, which have been successfully operating in the UK since 2012. Employee Capital Plans went into force in 2019. The ECP are DC funded plans based on auto-enrollment, co-financed by employers who are generally obliged to establish such a plan, and supported by state subsidies. So the ECP are voluntary to participants but mandatory to most employers. Despite the favorable financial arrangements found in ECP, aimed especially at low- and middle-income earners, participation in ECP is relatively low (Szczepański and Kołodziejczyk, 2020, 2021). As of the end of Q3 2022, the opt-out rate was 82%. This means that only 18% of those eligible participate in the scheme. ECP automatically cover employees aged 18–55 (with opt-out possibility) and those of age 55–70 may join ECP upon request. In all types of supplementary pension plans in Poland, assets are managed by licensed financial institutions. In the case of ECP, these are approved financial institutions which meet strict criteria (investment fund companies and life insurers). Within ECP, approved financial institutions must offer at least five defined-date funds (in Polish: fundusze zdefiniowanej daty, hereinafter FZD), with investment strategies relevant to the age of the participant. Financial inflows to ECP come from participants, employers and subsidies from the state (upon fulfilment of specified conditions).

The employer and employee make monthly payments to the ECP. The basic contribution rate for employers accounts for 1.5% of wages, and the basic contribution rate for employees accounts for 2.0% of wages (since 2023, the limit of yearly inflow is 50,000 USD). However, low-income earners (with monthly wages lower than 1.2 times the minimum wage in the economy) may decide to

pay only 0.5% of the wage without losing the full contribution of the employer. Both the employer and the employee may additionally contribute up to 2.5% (employer's contribution) and 2.0% of the wage (employee's contribution) to the ECP.

ECP are the first private pension program in Poland in which participants who meet criteria set by the law get subsidies from the state: a one-off welcome payment and a yearly subsidy. The welcome payment of PLN 250 is received by employees who will be ECP participants for at least 3 full calendar months and for 3 months the basic contributions will be financed by them. It will be credited to their ECP account within 30 days after the end of the quarter in which the employee met the conditions indicated in the ECP Act (PFR, 2021). An annual subsidy of PLN 240 is granted to ECP participants whose basic and additional contributions in a given year (financed by the employee and the employer) account for at least 3.5% of the 6-fold of the minimum wage applicable in the year for which the surcharge is due. Participants with the reduced rate of contribution (between 0.5% and 2.0% of their wage) must accumulate at least 25% of the above amount.

Matching contributions (the part of the contribution paid by the employer) and direct subsidies in ECP can be treated as a combination of traditional economic incentives to save with additional pension schemes and incentives based on behavioral economics, including negative ones, such as loss aversion (Szczepański, Ratajczak, Bielawska, Rutecka-Góra and Pieńkowska Kamieniecka, 2022). Fear of losing funds in ECP due to poor market conditions or actions of a political nature (such as changes to the Open Pension Funds) is probably a strong impetus inhibiting participation in this program. According to the regret theory, "the grief caused by making a wrong choice is more intense than the joy that comes from experiencing pride" (Czerwonka and Gorlewski, 2012). The program has also clearly defined private ownership of accumulated funds (Gumola, 2019), however, in case of unjustified (other than by law) premature use of money, there are financial consequences. ECP operate in a TEE tax regime, which means that the participant pays personal income tax on contributions to ECP (both made by employer and employee). It is also worth noting that the costs associated with investing in ECP are limited and in fact lowest among existing forms of merit plans. This issue is important in light of previous experience with management costs in, for example, open-end pension funds.

The Polish FSA, under the ECP Act, publishes quarterly information on ECP, which includes the number of participants, the value of FZD assets, the value of contributions, and FZD return rates for 12 and 24 months (see e.g. KNF, 23.12.2022). Return rates represent the total rate of return, which is dedicated to the evaluation of market performance (or fund manager performance). The same method is used by PFR, which is obliged to publish rates of return of FZD for the purpose of the success fee. In the empirical part of the paper, we show the differences in the evaluation of these returns using different (market and investor) perspectives.

2. Research methodology

The objects of the analysis were 60 FZDs, quotations from which were available on stooq.pl as of January 5, 2023, managed by the following institutions:

- ESALIENS Towarzystwo Funduszy Inwestycyjnych SA,
- Compensa Towarzystwo Ubezpieczeń na Życie S.A. Vienna Insurance Group,
- NN Investment Partners TFI S.A.,
- PKO Towarzystwo Funduszy Inwestycyjnych S.A.,
- Skarbiec Towarzystwo Funduszy Inwestycyjnych S.A.,
- Towarzystwo Funduszy Inwestycyjnych Allianz Polska S.A.,
- Towarzystwo Funduszy Inwestycyjnych PZU S.A.

The basic period of analysis was adopted as 1.01.2020–30.12.2022. The choice of funds was dictated by the availability of data, while the period of analysis was dictated by the completeness of data (not all funds began operations by 1.01.2020).

The calculation is based on the following assumptions:

1. Employee contributions of 2% or 0.5% (low earners) of the base occur at regular (monthly) intervals;
2. The number of FZD units purchased results from dividing the total contributions for a given day by unit value. If there was no FZD valuation for a given day (e.g., a day off), the rate for the nearest business day following that day was adopted;
3. Employer contribution constitutes 1.5% of the base;
4. For simplicity's sake, it was assumed that the welcome subsidy (PLN 250) occurs in the 4th month of regular savings, while the annual subsidy comes in in April of each year, provided that the statutory criteria for minimum contributions are met, that is: in the preceding year, the basic and additional contributions to the ECP financed by the employee and the employer accounted for at least 3.5% of 6 times the minimum salary in effect in the year for which the surcharge is due or 25% of this amount in the case of a reduced contribution;
5. The analysis ignores personal income tax paid by the participant on the base contribution (own and employer) due to the significant changes introduced in 2022.

Based on these assumptions, 36 cash flows were determined for each FZD (the sum of payments to the FZD in each month) and the number of units purchased in each month. According to the effect characteristic of the dollar cost averaging (DCA) strategy, which involves systematically investing equal amounts of money at regular intervals, regardless of the price of a unit, the number of units purchased increased as the price decreased, and vice versa (Barembruch, 2014). The final valuation was made on December 30, 2022. This data made it possible to calculate the profitability measures indicated above, including the internal rate of return (IRR).

3. Results and discussion

The analysis was conducted with two salary options: 5,000 and 3,000 PLN (low-earner meeting criteria in the whole period of analysis). Various measures of profitability were determined for the selected period of 2020–2022 (Table 1).

Table 1. Example income measures (absolute and relative) for the sample FZD 2055

Specification	Parameter	Value
Data	Initial price	50.43 PLN
	Final price	47.98 PLN
	Number of observations	36
	Total contributions of the employee	3600.00 PLN
	Sum of employer's contributions	2700.00 PLN
	Total contributions of the state	730.00 PLN
	Number of units purchased	141.71
	Valuation at the end	6799.25 PLN
Market performance	Total rate of return	-4.86%
	[Valuation / total payments]-1	-3.28%
	Annual IRR	-2.12%
Investor return (participant perspective)	[Valuation / employee contributions]-1	88.87%
	Employee's annual IRR	45.95%

Source: own calculations.

The data presented in Table 1 shows that the total return on the fund was negative (-4.86%). Investment yield, from a market perspective, taking into account all contributions to the fund, was negative both when measured by the ratio of the account value at the end of the investment to total contributions (-3.28%) and when measured by the IRR per year (-2.12%).

The investment yield, from the employee's perspective, is significantly higher.

The ratio of the value of the account at the end of the investment to the employee's contributions is 89%, which means that the employee making regular contributions over 3 years for a total of 3,600 PLN nominally gained (excluding taxation) 88.87% ($3600 \times 1.8877 = 6799$).

If we measure the profitability of the investment from the employee's perspective based on the internal rate of return on the investment, it was 45.95% per year or 3.20% per month. This means, according to the annuity account, that by contributing 100 PLN regularly for 36 months, he will accumulate a final account of 6,799 PLN.

Based on the measurement of profitability for a single fund, it is difficult to assess whether the relationships between the indicated rates of return show consistent regularity (i.e. whether, for example, any of the rates over- or underestimate the profitability of an investment).

However, based on the assessment, it can be concluded that the returns from the market perspective (most often published) that take into account all contributions to the funds do not reflect the real benefits of participation in the fund from the employee's perspective. To verify the above conjecture, the basic investment parameters for FZD groups were determined, and the results are shown in the table below (Table 2).

Table 2. Average profitability of FZD groups from the perspective of the market and the employee (assessment base of PLN 5,000, employee contribution of 2%)

FZD Group	Market performance			Investor return (participant perspective)	
	Total rate of return	[Valuation / total payments]-1	Annual IRR	[Valuation / employee contributions]-1	Employee's annual IRR
2025	-2.18	-3.84	-2.49	87.79	45.48
2030	1.92	-2.05	-1.32	91.28	46.97
2035	5.77	-0.23	-0.16	94.82	48.44
2040	6.17	-0.27	-0.18	94.75	48.41
2045	8.05	1.04	0.65	97.31	49.46
2050	8.37	1.1	0.69	97.43	49.51
2055	8.92	1.6	1	98.41	49.91
2060	9.92	1.58	1	98.36	49.9
Average	5.86	-0.13	-0.1	95.02	48.51

Source: own calculations.

Of the groups of FZDs indicated in Table 2, the low-risk investments are found in FZD 2025 (for those with the shortest period to retirement), moderate risk is found in 2030 funds, while the medium risk is found in FZD 2035 and 2040. The riskiest portfolio is found in 2045, 2050, 2055 and 2060 funds (for the youngest participants with a long period to retirement).

FZDs' diversified investment policy is reflected in the obtained results. The best results are achieved by the riskiest funds (aimed at the youngest participants, e.g. FZD 2060), while the worst results are achieved by those aimed at the oldest ones (e.g. FZD 2025). The above relationship is confirmed in all the measures of profitability used.

It is also clear that the profitability measures from the market perspective (total rate of return, [valuation / total payments]-1, annual IRR) are significantly lower than the profitability measures from the participant perspective ([valuation / employee contributions]-1, annual employee IRR).

This difference stems from the fact that profitability measures from the market's perspective only reflect the FZD's investment performance, while profitability from the participant's perspective is based on the FZD's investment policy

and subsidies — which, treated as profit, significantly increase the attractiveness of the investment.

Table 3. Average profitability of FZD groups from the perspective of the market and the employee (assessment base of PLN 3,000, employee contribution of 0.5%)

FZD Group	Market performance			Investor return (participant perspective)	
	Total rate of return	[Valuation / total payments]-1	Annual IRR	[Valuation / employee contributions]-1	Employee's annual IRR
2025	-2.18	-3.66	-2.33	415.58	142.04
2030	1.92	-1.7	-1.07	426.1	144.34
2035	5.77	0.3	0.18	436.8	146.63
2040	6.17	0.27	0.16	436.65	146.6
2045	8.05	1.75	1.07	444.55	148.27
2050	8.37	1.82	1.12	444.92	148.35
2055	8.92	2.34	1.44	447.72	148.94
2060	9.92	2.3	1.42	447.49	148.91
Average	5.86	0.43	0.25	437.49	146.76

Source: own calculations.

The variation in measures of profitability of ECP participation from the participant's perspective is even more pronounced in the case of low-income individuals who can pay a reduced contribution (IRR on average of 146.76%).

The results presented indicate that the assessment of the financial benefits of ECP participation from the participant's perspective significantly deviates from the measures used by market participants and the regulator. This allows for the positive verification of hypotheses 1 and 2. To the best of our knowledge, only one study based on a similar approach to ours has been published so far study (Instytut Emerytalny, 2022). In addition, a similar IRR-based approach was used to analyze the effectiveness of IKE and IKZE (Rutecka-Góra, Bielawska, Hadryan, Kowalczyk-Rólczyńska and Pieńkowska-Kamieniecka, 2020).

However, it is not universal in nature and presumably meant for pension market experts.

Conclusions

ECP are a particularly favorable financial solution for participants compared to other retirement savings plans in Poland. This is due to a financing mechanism that includes employer contributions and subsidies from the state.

Measures reflecting the effectiveness of ECP from the participant's perspective should consider only participant-funded contributions in relation to the re-

sults obtained from all cash flows (employer, state and, of course, the participant). Widely published measures viewed from the market's perspective do not report the significant benefits of joining the program. The mechanism of co-funding ECP by the employers and subsidies from the state during the period under review more than allowed to “cushion” losses related to the situation in the financial markets. It is an important message from the perspective of regret theory. The study also indicates that there are significant benefits of participation in ECP for people with low earnings. It would be worthwhile to highlight this aspect, since indigent people are more concerned about financial losses from investing. In conclusion, we recommend the creation of a standard for the presentation of FZD investment results from the participant's perspective, which would take into account the elements indicated in the study, and would be published by the Polish FSA and on the mojppk.pl website, which is a great source of knowledge about PPK. Perhaps this approach to evaluating participation in PPK will increase interest in the program.

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