“Determinants of pension capital management in Poland”

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DETERMINANTS OF PENSION CAPITAL MANAGEMENT IN POLAND

Abstract

The pension system's construction is an important element of the public finance system and the state budget policy. It is a relevant and important topic from the perspective of the level of cash benefits for future retirees after they finish their professional careers.

The aim of the paper is to present and analyze the evolution of solutions in the construction of the pension system in Poland since its first reform in 1999. The paper analyzes various options of investing for future pensions allowed by law in Poland. Simulations of the levels of future pension benefits are based on different variations, including membership or non-membership in an Employee Capital Plan and membership or non-membership in an Individual Retirement Account after the liquidation of Open Pension Funds.

According to the calculations, the future pensioner can count on the total payment from the commercial pillars, assuming the average life expectancy in Poland is reached: PLN 230,100 (Option I), PLN 346,698 (Option II), PLN 187,643 (Option III), and PLN 304,240 (Option IV), respectively.

It is an emphasized fact that ensuring the living standard's expected level after reaching retirement age is strictly dependent on voluntary investments for future benefits during professional activity.

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INTRODUCTION

There are various solutions to provide citizens with an adequate standard of living after the end of their work. One solution is based on high state aid through the payment of pensions by relevant institutions (in Poland, the Social Insurance Institution); others focus on providing citizens with commercial solutions and enabling independent investment for their future benefits through specialized financial institutions (voluntary pension pillars).

The paper is a review of a study about the problem of the construction of the pension system in Poland and the issue of ensuring the proper standard of living after retirement.

The paper aims to present various options for future pensioners to invest during their professional activity for future benefits.

Various simulations of the level of future pension benefits have been made based on decisions concerning what the future pensioner has selected available pension products.

Conflict of interest statement:
Author(s) reported no conflict of interest

1. LITERATURE REVIEW

The pension provision literature concentrates on two fundamental issues. The first is the problem of ensuring the expected standard of living after a person retires. The second is the question of the concept and mechanism that should be used for this purpose. A distinction can be made between the approach of the welfare state, which for the future pensioner will take care of his standard of living in retirement, and the state that gives instruments and possibilities to take care of this level independently. The above issues are of interest to many authors of the literature. Among the most important are works by Chróścicki (1998), Johnson (1997), Nowak (1998), Olszewski (1999), Sas – Kulczycka (1999), Logue and Rader (1997), Morris (2018), and Płonka et al. (2020).

On January 1, 1999, a modified pension system began to operate in Poland as one of four reforms implemented. More than 20 years after its introduction, 2020 will see the end of the system, which was intended by those in power to provide citizens with decent living conditions after the end of their working lives. This section will attempt to present the system's evolution over more than 20 years – from the original concept to its final form (as announced by the current government coalition).

The financially inefficient pay-as-you-go system was replaced by a system based on the social insurance institution and commercial pension pillars, which were supposed to be an additional source of future pension payments. The starting point for the reform of the social security system in Poland was the division of society into three groups, and age was the criterion for division (Olszewski, 1999, p. 24):

- persons born before January 1, 1949 were not covered by the reform; their benefits will be paid out according to the current rules, i.e., they will remain in the pay-as-you-go system;
- persons born after December 31, 1948 and before January 1, 1969 decided themselves whether to remain in the old system or join the reformed pension scheme;
- persons born after December 31, 1968 must obligatorily become members of the reformed system.

The fundamental decision underpinning the reform was the assumption that future pension payments would be made from three independent sources.

The architecture of the reform was based on three pension pillars (Sas – Kulczycka, 1999, pp. 35-36):

Pillar I – this is the reformed SII. It has a pay-as-you-go nature. Each insured person has his or her pension account, where financial resources coming into the company in the form of premiums are collected. Initial capital as of January 1, 1999, having the nature of acquired rights, was recorded on the individual account of the insured. Its amount will vary depending on the amount of contributions received on the account and the valorization level made by SII.

Pillar II – it is an obligatory pension system of a capital nature. The basis for its operation was establishing the Common Pension Companies – PTE, which started managing Open Pension Funds – OPFs. Funds come to the funds from a part of the pension contribution paid to SII, which transfers them to OPFs. The latter aims to invest the entrusted funds to multiply them while observing the principle of limiting investment risk. In 2020, this pillar will be completely liquidated.

Pillar III – this is voluntary insurance of a capital nature, financed individually by persons who believe that the benefits they receive from the mandatory pillars will be too low concerning their expectations. This pillar may have two forms (Olszewski, 1999, pp. 26-27): a group contract concluded by the employer with an insurance company or investment fund. "It has the form of an Employee Pension Plan. The funds for this pillar come from the part of the employee's net remuneration, which is allocated by the employee for the purpose of retirement" (Act of April 20, 2004 on Individual Retirement Accounts, Journal of Laws of 2004, No. 116, item 1205, as amended). In 2019, another product was introduced as part of the group pension insurance, called Employee Capital Plans. It will be presented later in the section.

Individual contract of a staff member is with an institution, which invests the funds entrusted to it. These are usually insurance companies or invest-

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ment funds. A member of staff shall allocate part of his net remuneration to one of the institutions mentioned above in order that the latter allocates it as efficiently as possible. In September 2004, a product called "Individual Retirement Accounts" was introduced under the third insurance pillar (Act of April 20, 2004 on Individual Retirement Accounts, Journal of Laws of 2004, No. 116, item 1205 with later amendments). Several solutions were introduced to encourage Poles to actively launch insurance under this pillar. The main incentive is the possibility to avoid capital income tax (currently 19%).

Since 2012, there have been Individual Retirement Security Accounts. Investors can choose from 5 types of institutions to which they can entrust funds for future pensions into management. They are them: insurance companies; banks; brokerage offices; voluntary pension funds; investment fund companies.

The latter type of investor is the only one that fully possesses the characteristics of a classical financial intermediary (Dawidowicz, 2012, p. 10).

Individual Retirement Security Accounts operate in a similar way to IRA, and the main difference is the form of encouragement to save in the voluntary pillar (Act of March 25, 2011 amending some acts related to the functioning of the social insurance system, Journal of Laws of 2011, No. 75, item 398):

- in the case of IRA, it is an exemption from the tax on capital income, which will not be paid at the moment of reaching retirement age;
- in the case of IRSA, it is a write-off of the amount invested (up to the applicable limit) from the tax base in the PIT-37 income tax settlement.

Collective investors influence the state's financial system and the development of the economy. They are an important element of the demand side of the financial market. The funds collected from their clients invest in financial instruments, contributing to the development of both money and capital markets. The size of the financial surpluses that go into the financial market depends on the income that investors receive and their willingness to save, understood as the renunciation of current consumption in favor of future benefits (Owsiak, 2002, p. 220).

In the initial period of the financial market in Poland, banks and, to a lesser extent, insurance companies were the dominant financial investors category. An important moment was the emergence in the financial system of investment fund companies (formerly trust companies) whose products became an alternative form of capital investment by investors (Pietrzak, Polański, & Woźniak, 2019, p. 18).

The first legal act that regulated the activity of CPCs and Open Pension Funds in Poland was the Act of August 28, 1997 on the Organization and Functioning of Pension Funds (Journal of Laws of 1997, No. 139, item 934). Some of its provisions concerning the level of contributions transferred to open-ended pension funds were changed due to which a new legal order was in force from May 1,

Source: Own study based on www.knf.gov.pl

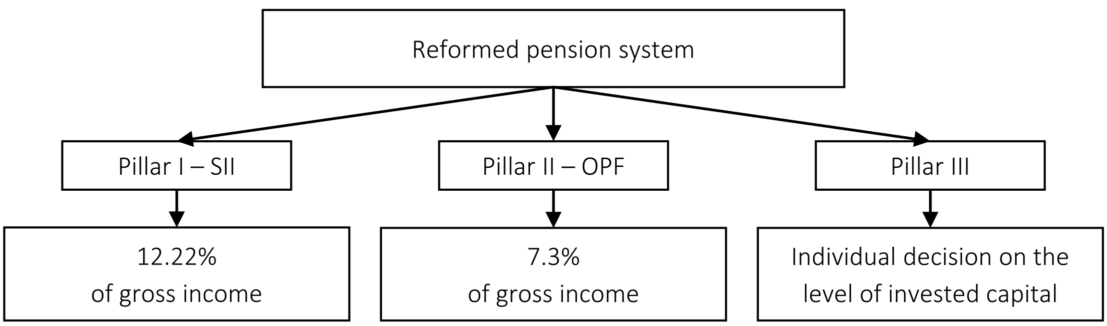

Figure 1. Architecture of the reformed pension system in Poland – condition in the timing of the pension reform

Table 1. Distribution of premium between OPF and sub-account at SII from 2011

Source: Act of March 25, 2011 amending some acts related to the functioning of the social insurance system (Journal of Laws of 2011, No. 75, item 398) and the Act of December 6, 2013 amending certain acts in connection with the definition of rules for the payment of pensions from funds accumulated in open pension funds (Journal of Laws of 2013, item 1717).

Period	Open Pension Fund	Sub-account at SII
January 1, 2011 – March 30, 2011	7.30%	–
May 1, 2011 – December 31, 2011	2.30%	5.00%
January 1, 2012 – December 31, 2012	2.30%	5.00%
January 1, 2013 – December 31, 2013	2.80%	4.50%
January 1, 2014 – 2020	2.92%	4.38%

2011. Act of March 25, 2011 amending some acts related to the functioning of the social insurance system (Journal of Laws of 2011, No. 75, item 398) came into force. The most important change concerned the level of contributions transferred to Open Pension Funds. Until April 30, its level was 7.3%, and since May 1, 2.3%. The remainder was recorded on future pensioners' sub-accounts in the Social Insurance Institution. This was valid until January 31, 2014.

Another change of legal regulations took place on February 1, 2014. On this date, Act of December 6, 2013 amending some acts in connection with determining the rules for paying out pensions from funds accumulated in open pension funds became effective (Journal of Laws of 2013, item 1717). As a result of its subscriptions, a debt and treasury part of OPF assets was transferred to SII, which meant transferring about 51.5% of funds from OPF members' accounts to SII accounts. Besides, from April 1 to July 31, 2014, each Open Pension Fund member was obliged to submit a declaration to SII about their further membership in the Open Pension Fund if they did not do so, which meant recording the entire contribution in their SII account.

The need to introduce the recent changes was argued by the need to ensure the stability and balance of the public finance system in Poland and radically reduce the social costs of the pension system. The details of the changes are presented in Table 1.

The changes initiated in May 2011 resulted in a decrease in the amount of contributions transferred to the funds, which reduced their importance as financial investors. Subsequent changes in legal regulations, which entered into force in 2014, involving the transfer of the treasury part of their assets to SII, drastically reduced their financial potential.

According to SII data, 2,564,072 existing pension fund members decided to continue to accumulate their pension contributions both in pension Pillars I and II. This means that 15.4% of the current OPF's clients decided to continue investing for future pensions in Pillar II (www.zus.pl). More than 14 million citizens decided that their contributions, starting from July 1, 2014, should be transferred exclusively to Pillar I (SII sub-account), which has had an extremely significant impact on limiting the importance and financial potential of the segment of Open Pension Funds.

Source: Act of December 6, 2013 amending some acts in connection with the definition of rules for the payment of pensions from funds accumulated in open pension funds (Journal of Laws of 2013, item 1717).

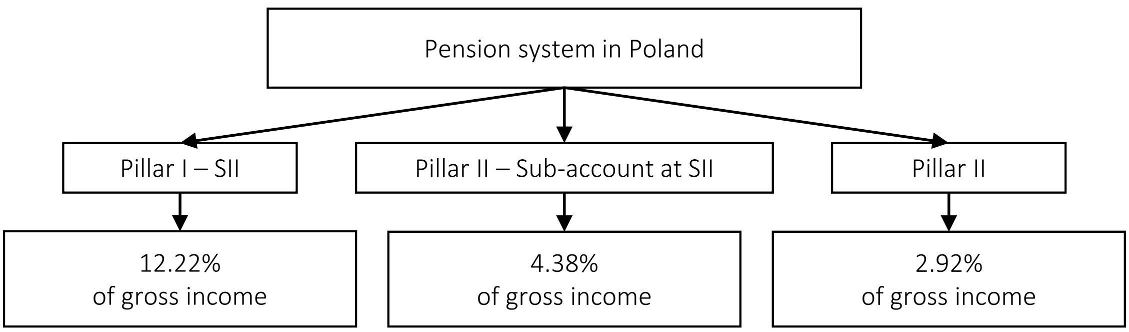

Figure 2. Construction of the pension system in Poland – as of February 1, 2014

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Table 2. Characteristics of supplying capital pension pillars in Poland – state before the closure of Open Pension Funds in 2020

Source: Nowak (1998, p. 56); Act of March 25, 2011 amending some acts related to the functioning of the social insurance system (Journal of Laws of 2011, No. 75, item 398) and Act of December 6, 2013 amending some acts in connection with determining the rules for paying out pensions from funds accumulated in open pension funds (Journal of Laws of 2013, item 1717).

X	Pillar	
	II	III
Membership	Mandatory for persons born after December 31, 1968, persons born before January 1, 1949 are not entitled to participate in this pillar	Voluntary, every citizen has the right to join the third pillar
Methods of increasing assets' level	Acquisition of new members, acquisition of members from competitors, payment of existing members, effectiveness of investment policy	Acquisition of new members, contributions from existing members, effectiveness of investment policy
Beginning of membership	In the moment of start working and start paying insurance premiums	Anytime the potential customer decides when to start paying additional contributions
Contribution level	2.92% of gross income	The member himself declares the amount paid
Payments frequency	In line with the salary and contributions paid	The participant has the right to decide on the frequency of payment of contributions
Pillar institutions	Open Pension Funds	Banks, brokerage offices, insurance companies, investment funds, companies

The first change in legal regulations in 2011 resulted in an increase in the OPF market's net assets by only PLN 3.4 billion. In the following years, the level of assets increased despite reducing the pension contribution rate; however, contributions were still paid for all OPF members.

The year 2014 was a real revolution in the OPF market. It was driven by two factors: transferring over PLN 153 million to SII (the treasury debt portion of assets) and the resignation from further contributions to OPFs of over 14 million of their members. As a result, the level of assets decreased by over 50% in 2014 (www.strefabiznesu.pl). Given that as of July 1, 2014, contributions to Open Pension Funds are transferred to 2.5 million members only, it will take many years for the funds to reach the asset level of the end of 2013, and it is now clear that this level will never be reached due to the liquidation of Open Pension Funds in 2020.

On January 1, 2019, the Act on ECP (Employee Capital Plans) (Act of October 4, 2018 on employee capital plans, Journal of Laws of 2018, item 2215) entered into force.

ECP is a voluntary pension saving scheme that will automatically cover employees between the ages of 18 and 55, but older employees up to 70 will also be allowed to join the scheme.

ECP is a project of the Ministry of Finance, which was created under the Responsible Business Strategy. This system is intended to be another source of increasing the level of future pensions. Polish society is getting older, which translates into the level of pension benefits, the level of replacement rate is being lowered. ECP is to be another solution to counteract the impoverishment of pensioners (www.strefabiznesu.pl).

According to the Central Statistical Office estimates, in 2050, there will be nearly 500 pensioners per thousand people of working age. There will be two working people per pension paid under the first pension pillar. Without funds from the ECP, pension benefits will be very low. Currently, the pension amount is equivalent to about 60% of a pensioner's last salary; in 30 years, the replacement rate will be only about 30%. That is why it is already necessary to introduce new pension products given the retirement of the current thirty-year-olds. The ECPs are supposed to encourage people to save for future pensions (www.zus.pl).

Both employees and employers will have a choice of different contributions. Both parties should regularly transfer funds to ECP to an account dedicated to the employee. The employee will not have to remember the payments, as the contribution to ECP will automatically be deducted from his salary.

In the case of an employee, the minimum monthly contribution must be the equivalent of 2% of the contribution part of the salary; in the case of an employer, it will be 1.5% of the salary on which pension contributions are based. The maximum employee's contribution will be 4%; the maximum employer's contribution will also be 4% (www.bankier.pl).

The legislator has announced lower contributions for the lowest-earning Poles. If an employee's salary amounts to 120% of the minimum wage or less, the employee will be able to reduce his contribution to PPK to 0.5% of the contribution part of his salary. Despite the reduced contribution, the poorest will retain the right to subsidies from the state and the employer.

Employee Capital Plans are a private scheme, and the funds in ECP are private, on the same basis as bank deposits or savings in IRA or IRSA. ECP is to serve investment fund companies (IFC) with permissions and permits to operate in Poland. One of the additional requirements for IFCs wishing to participate in ECP is a minimum of three years of experience in managing investment funds. Today, more than 60 Investment Fund Societies have permissions (www.izfa.pl). Preliminary estimates of the Ministry of Finance assume that more than half of Poles will be interested in submitting an offer to service ECP (www.gov.pl).

On November 6, 2019, the Council of Ministers adopted a draft act under which the Open Pension Funds will be fully liquidated on July 1, 2020 (Draft Act of October 10, 2019 amending certain acts in connection with the transfer of funds from open pension funds to individual retirement accounts). The first months of this year are the time of individual decisions whether to transfer the money accumulated in Open Pension Funds to SII or to remain in Individual Retirement Accounts transformed from Open Pension Funds. A person, who will want the money collected in an open pension fund to be transferred not to IRA, but to the first pillar, and who has such a choice, will have to make a declaration through his/her Open Pension Fund. Such declarations will be made from January 1 to April 1, 2020 (www.gov.pl).

If such a declaration is not made, the money from the Open Pension Fund will go to a new account in IRA by default. The decision to choose between SII and IRA is irrevocable. The transfer of funds from OPF to Pillar III (IRA) is planned for the second half of 2020 or the beginning of 2021.

Open Pension Funds (OPF) will be transformed so that the pension system in the coming years will be based on the following pillars (www.gov.pl):

- Individual Retirement Accounts (IRA) – new, voluntary, private, and funded;
- Social Insurance Institution (SII), regular account + sub-account, created during the reform of Open Pension Funds in 2014;
- Employee Capital Plans (ECP);
- Individual Retirement Security Accounts (IRSA).

The account with the Social Insurance Institution (SII) receives paid contributions, and the subaccount contains funds that were transferred to SII from 2015, after the 2014 reform of OPFs. The subscription on the sub-account is subject to inheritance, and the subscription on the account is no longer valid. The issue of the valorization of the sub-account and the account is also slightly different. When one chooses SII, account balances increase, not sub-accounts, so the funds transferred now will not be subject to inheritance.

The default option for OPF members is Individual Retirement Accounts – in this case, the funds accumulated in the OPF will be charged a 15% conversion fee. The funds accumulated in the IRA will be entirely private and inherited. They can be paid out once or in installments, without tax after reaching retirement age, following the original objectives of the 1999 reform (www.gov.pl).

An alternative to this option will be to transfer funds to SII, then no conversion fee will be charged, but the money will not be inherited. According to a communiqué from the Ministry of Finance, the conversion fee is an element of social justice, as pensions paid by SII are and will be taxed, while money paid from IRA after reaching retirement age is not. Without the transformation fee, the funds from IRA would be privileged over those from the Social Insurance Institution. Common Pension Company (CPC) – which manages Open Pension Funds – will be transformed into Investment Funds Company (IFC). OPFs will become Specialist Open Investment Funds (SOIFs), which will be managed by IFC. SOIFs will manage future IRAs (www.bankier.pl).

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Please note that only 75% of the funds will go into the IRA account. The remaining part (25%) will be credited to the SII sub-account and given to the Demographic Reserve Fund. The level of net assets accumulated by OPFs at the end of October 2019 is nearly PLN 155 billion (www.knf.gov.pl). According to the government's assumptions, about 80% of OPF members will choose the default option, i.e., membership in IRA, which would mean that DRF would receive over PLN 30 billion in assets under management (www.bankier.pl).

It has been assumed that the management of the Demographic Reserve Fund (DRF) resources will be carried out by IFC Polish Development Fund Inc. (currently SII). The change is justified because the funds from OPF transferred to SII will be transferred to DRF. As a result, the Demographic Reserve Fund structure will change, which will enable the management of DRF funds for investment purposes. The main objective of creating the DRF was to increase the security of solvency of pension insurance benefits. DRF also plays the role of a reserve fund for the pension fund separated in the Social Insurance Fund (www.bankier.pl).

The IFC managing IRA will invest the entrusted funds according to a precisely defined investment policy. For the first years, these will primarily be investments in shares of Polish companies. The minimum share of shares in the portfolio will be reduced by 2.5 percentage points annually for nine years. The rate of the share of shares in the investment portfolios of future IRA is presented in Table 3.

Table 3. Evolution of the share of shares in IRA portfolios after the liquidation of OPF

Source: www.marciniwuc.com

Date	Minimum share of shares in the portfolio
December 31, 2020	90.0%
December 31, 2021	87.5%
December 31, 2022	85.0%
December 31, 2023	82.5%
December 31, 2024	80.0%
December 31, 2025	77.5%
December 31, 2026	75.0%
December 31, 2027	72.5%
December 31, 2028	70.0%
December 31, 2029	67.5%

Foreign assets (denominated in a currency other than PLN) may constitute no more than 30% of the investment portfolio. Five years before reaching retirement age, the client's portfolio will become more secure by increasing its exposure to bonds and deposits, effectively reducing investment risk. A maximum fee of 0.45% for IRA portfolio management has also been introduced, which makes this form of investment very cheap compared to the commissions charged at the beginning of OPFs on contributions paid at 7% (www.bankier.pl).

2. GENERALIZATION OF THE MAIN STATEMENTS

In this section of the paper, the simulations of further pension level after retirement will be made. Input data for analysis are in Table 4. The results of the simulations are shown in the following tables. At the end of this section, conclusions and recommendations from the simulations and analyses can be found.

Table 4. Input data for analysis

Source: Own elaboration.

Gender	Male
Age	45 years
Gross monthly income	4,000 PLN
Age of retirement	65 years
Retirement benefit duration	112 months
Funds accumulated on the SII account	170,000 PLN
Funds accumulated on the SII subaccount	54,000 PLN
Funds accumulated on the OPF account	45,000 PLN
Participant in the Employee Capital Plan (ECP)	Yes/No*
Member of IRA after the reform	Yes/No*
Funds accumulated on the IRSA account	16,000 PLN
Further contributions to IRSA according to the limit	Yes
Real rate of return of ECP/IRA/IRSA	4%
SII's valorization rate	3%

Note: * depends on the variant.

Table 5. Variant 1 – participation in ECP and non-member of IRA

Source: Own calculations based on www.poradnikprzedsiebiorcy.pl

Component	Basis of calculation (PLN)	Rate (%)	Amount (PLN)
Gross income	–	–	4000,00
Amount transferred from OPF to IRA account	45000,00	0.00	0,00
Pension contribution to SII	4000,00	9.76	390,40
Pension contribution to IRA	4000,00	0.00	0,00
Disablement pension contribution	4000,00	1.50	60,00
Illness contribution	4000,00	2.45	98,00
Employer's payment to ECP	4000,00	1.50	60,00
Employees' payment to ECP	4000,00	2.00	80,00
Healthcare contribution	3451,60	9.00	310,64
Personal income tax advance	3262,00	17.00	544,34 – 43,76 = 510,78
Net salary	–	–	2 737,96
Pension contribution to IRSA	–	–	522,70

Table 6. Variant 1 – pension amounts after retirement

Source: Own calculations based on the data from Tables 4 and 5.

Component	Accrued amount (PLN)	Net monthly pension (PLN)
SII account + sub-account	1,388,490,60	2883,03
ECP*	51,118,27	379,09
IRA*	0,00	0,00
IRSA*	225,911,69	1675,38
Total	---	4937,50

Note: * benefits from these sources will be paid for 112 months; later, only a pension from SII will remain.

The first option is based on the future pensioner joining the Employee Pension Plan and resigning from membership in IRA after the liquidation of the Open Pension Fund, which means transferring funds accumulated in the Open Pension Fund to the SII sub-account and not transferring part of the pension contribution to the IRA (2.92% of the gross income). The entire pension contribution is transferred to SII. The pension from SII for the first 112 months constitutes 58.4% of all benefits paid out, and after exceeding the average life expectancy of a man in Poland, the pension paid out by SII will be the only benefit received by the pensioner.

Table 7. Variant 2 – participation in ECP and membership in IRA

Source: Own calculations based on www.poradnikprzedsiebiorcy.pl

Component	Basis of calculation (PLN)	Rate (%)	Amount (PLN)
Gross income	–	–	4000,00
Amount transferred from OPF to IRA account	45000,00	75.00	33750,00
Pension contribution to SII	4000,00	6.84	273,60
Pension contribution to IRA	4000,00	2.92	116,80
Disablement pension contribution	4000,00	1.50	60,00
Illness contribution	4000,00	2.45	98,00
Employer's payment to ECP	4000,00	1.50	60,00
Employees' payment to ECP	4000,00	2.00	80,00
Healthcare contribution	3451,60	9.00	310,64
Personal income tax advance	3202,00	17.00	544,34 – 43,76 = 510,78
Net salary	–	–	2 737,96
Pension contribution to IRSA	–	–	522,70

Table 8. Variant 2 – pension amounts after retirement

Source: Own calculations based on the data from Tables 4 and 7.

Component	Accrued amount (PLN)	Net monthly pension (PLN)
SII account + sub-account	1,288,519,28	2675,45
ECP*	51,118,27	379,09
IRA*	116,597,65	1041,05
IRSA*	225,911,69	1675,38
Total	–	5770,97

Note: * Benefits from these sources will be paid for 112 months; later, only a pension from SII will remain.

The second option is based on the future pensioner joining the Employee Pension Plan. It maintains membership in IRA after the liquidation of the Open Pension Fund, which means transferring funds accumulated in the Open Pension Fund to his new IRA and starts transferring part of the pension contribution to the IRA (2.92% of the gross income). The pension from SII for the first 112 months constitutes 46.4% of all benefits paid out, and after exceeding the average life expectancy of a person in Poland, the pension paid out by SII will be the only benefit received by the pensioner.

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Table 9. Variant 3 – non-participation in ECP and non-member of IRA

Source: Own calculations based on www.poradnikprzedsiebiorcy.pl

Component	Basis of calculation (PLN)	Rate (%)	Amount (PLN)
Gross income	–	–	4000,00
Amount transferred from OPF to IRA account	45000,00	0.00	0,00
Pension contribution to SII	4000,00	9.76	390,40
Pension contribution to IRA	4000,00	0.00	0,00
Disablement pension contribution	4000,00	1.50	60,00
Illness contribution	4000,00	2.45	98,00
Employer's payment to ECP	4000,00	0.00	0,00
Employees' payment to ECP	4000,00	0.00	0,00
Healthcare contribution	3451,60	9.00	310,64
Personal income tax advance	3202,00	17.00	544,34 – 43,76 = 500,58
Net salary	–	–	2 747,96
Pension contribution to IRSA	–	–	522,70

Table 10. Variant 3 – pension amounts after retirement

Source: Own calculations based on the data from Tables 4 and 9.

Component	Accrued amount (PLN)	Net monthly pension (PLN)
SII account + sub-account	1,388,490,60	2883,03
ECP*	0,00	0,00
IRA*	0,00	0,00
IRSA*	225,911,69	1675,38
Total	–	4508,41

Note: * benefits from these sources will be paid for 112 months; later, only a pension from SII will remain.

The third option is based on the future pensioner is not joining the Employee Pension Plan and resigning from membership in IRA after the liquidation of the Open Pension Fund, which means transferring funds accumulated in the Open Pension Fund to the SII sub-account and not transferring part of the pension contribution to the IRA (2.92% of gross income). The entire pension contribution is transferred to SII. The pension from SII for the first 112 months constitutes 63.9% of all benefits paid out, and after exceeding the average life expectancy of a man in Poland, the pension paid out by SII will be the only benefit received by the pensioner.

Table 11. Variant 4 – non-participation in ECP and membership in IRA

Source: Own calculations based on www.poradnikprzedsiebiorcy.pl

Component	Basis of calculation (PLN)	Rate (%)	Amount (PLN)
Gross income	–	–	4000,00
Amount transferred from OPF to IRA account	45000,00	75,00	33750,00
Pension contribution to SII	4000,00	6,84	273,60
Pension contribution to IRA	4000,00	2,92	116,80
Disablement pension contribution	4000,00	1,50	60,00
Illness contribution	4000,00	2,45	98,00
Employer's payment to ECP	4000,00	0,00	0,00
Employees' payment to ECP	4000,00	0,00	0,00
Healthcare contribution	3451,60	9,00	310,64
Personal income tax advance	3202,00	17,00	544,34 – 43,76 = 510,78
Net salary	–	–	2 737,96
Pension contribution to IRSA	–	–	522,70

Table 12. Variant 4 – pension amounts after retirement

Source: Own calculations based on the data from Tables 4 and 11.

Component	Accrued amount (PLN)	Net monthly pension (PLN)
SII account + sub-account	1,288,519,28	2675,45
ECP*	0,00	0,00
IRA*	116,597,65	1041,05
IRSA*	225,911,69	1675,38
Total	–	5391,88

Note: * benefits from these sources will be paid for 112 months; later, only a pension from SII will remain

The fourth option is based on the future pensioner is not joining the Employee Pension Plan and maintains membership in IRA after the liquidation of the Open Pension Fund, which means transferring funds accumulated in the Open Pension Fund to his new IRA and starts transferring part of the pension contribution to the IRA (2.92% of gross income). The pension from SII for the first 112 months constitutes 49.6% of all benefits paid out, and after exceeding the average life expectancy of a man in Poland, the pension paid out by SII will be the only benefit received by the pensioner.

Table 13. Summary comparison of the options

Source: Own calculations based on the data from Tables 6, 8, 10, and 12.

Component	Variant 1	Variant 2	Variant 3	Variant 4
Pension from SII	2883,03	2675,45	2883,03	2675,45
Pension from ECP	379,09	379,09	0,00	0,00
Pension from IRA	0,00	1041,05	0,00	1041,05
Pension from IRSA	1675,38	1675,38	1675,38	1675,38
Total	4937,50	5770,97	4508,41	5391,88
SII share	58.4%	46.4%	63.9%	49.6%
Capital pillars share	41.6%	53.6%	36.1%	50.4%

CONCLUSION

Millions of future Polish pensioners face the day when very important financial decisions need to be taken for their future. They have to decide whether to entrust all or part of the funds collected so far to a state institution or commercial investors for management.

The first solution is related to trust in the state pension system, which in the future may be unable to pay benefits at the current estimated level, but it ensures lifetime payments of these benefits.

The second solution means diversifying the number of sources from which pension benefits will be paid to as many as four. However, it should be remembered that the payment of benefits from the funded pillars of pensioners will only be possible to count on achieving life expectancy in Poland.

According to the calculations, the future pensioner can count on the total payment from the commercial pillars, assuming the average life expectancy in Poland is reached: PLN 230,100 (Option I), PLN 346,698 (Option II), PLN 187,643 (Option III), and PLN 304,240 (Option IV), respectively.

Accumulated pension payments in Options II and III differ by as much as 84.8%, meaning that a careful analysis of possible scenarios should precede the decisions to be taken.

Another element that should be taken into account when deciding on the choice or abandonment of funded pension pillars is the question of inheritance of the accumulated funds.

The funds recorded on retired persons' accounts in SII are virtual, and at the moment of a retired person's death, his SII account is zeroed and liquidated, i.e., his heirs will receive nothing. Upon the death of a pensioner, the remaining funds on his accounts in commercial pillars are fully inherited.

The conclusion from the analysis carried out in the study is the recommendation for future retirees to independently and voluntarily invest in available products in the commercial pension pillar. It is necessary to ensure an adequate standard of living after retirement.

AUTHOR CONTRIBUTIONS

Conceptualization: Paweł Trippner.
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Formal analysis: Paweł Trippner.
Funding acquisition: Paweł Trippner.
Investigation: Paweł Trippner.
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REFERENCES

1. Bankier.pl. (n.d.). Retrieved from www.bankier.pl
2. Chróścicki, A. (1998). *Fundusze inwestycyjne i emerytalne [Investment and pension funds]*. Warszawa: ABC. (In Polish). Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=Chr%C3%B3%C5%9Bcicki+fundusze+inwestycyjne&btnG=
3. Dawidowicz, D. (2012). *Fundusze inwestycyjne. Rodzaje. Metody oceny. Analiza [Investment funds. Types. Assessment methods. Analysis]*. Warszawa: CeDeWu. (In Polish). Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=dawidowicz+fundusze+inwestycyjne&btnG=
4. Finanse bardzo osobiste (n.d.). Retrieved from www.marciniwuc.com
5. GazetaPrawna.pl (n.d.). Retrieved from www.gazetaprawna.pl
6. Johnson, P. (Ed.) (1997). *Systemy i reformy emerytalne – raport końcowy projektu PHARE [Pension systems and reforms – PHARE project final report]*. (In Polish). Instytut Pracy i Spraw Socjalnych. Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=johnson+systemy+i+reformy+emerytalne+raport+projektu+PHARE&btnG
7. Komisja Nadzoru Finansowego (n.d.). Retrieved from www.knf.gov.pl
8. Logue, D., & Rader, J. (1997). *A comprehensive guide to improving plan performance. Financial Management Association Survey and Synthesis Series*. Tampa FL.
9. Morris, N. (2018). *Management and regulations of pension schemes*. Abingdon: Taylor & Francis Ltd. Retrieved from https://ideas.repec.org/b/oxp/obooks/9780875847917.html
10. Nowak, K. (1998). *Polski rynek kapitałowy [Polish capital market]*. Poznań: WSB. (In Polish). Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=nowak+polski+rynek+kapita%C5%82owy&btnG
11. Olszewski, J. (1999). *Fundusze emerytalne, filar II i III [Pension funds, pillar II and III]*. Warszawa: INFOR. (In Polish). Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=olszewski+fundusze+emerytalne&btnG=
12. Owsiak, S. (2002). *Podstawy nauki finansów [Basics of financial science]*. Warszawa: PWE. (In Polish). Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=owsiak+podstawy+nauki+finans%C3%B3w&btnG
13. Pietrzak, B., Polański, Z., & Woźniak, B. (Eds.) (2019). *System finansowy w Polsce [Financial system in Poland]*. Warszawa: PWN. (In Polish). Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=pietrzak+system+finansowy&btnG
14. Płonka, M., Jedynak, T., & Trynchuk, V. (2020). Retirement behavior strategies: the attitudes of students from Poland and Ukraine towards the old-age risk. *Problems and Perspectives in Management, 18*(2), 350-365. https://doi.org/10.21511/ppm.18(2).2020.29
15. Poradnik przedsie biorcy (n.d.). Retrieved from www.poradnikprzedsiebiorcy.pl
16. Projekt Ustawy z dnia 10 października 2019 roku o zmianie niektórych ustaw w związku z przeniesieniem środków z otwartych funduszy emerytalnych na indywidualne konta emerytalne [Draft Act of October 10, 2019 amending certain acts in connection with the transfer of funds from open pension funds to individual retirement accounts]. (In Polish). Retrieved from https://bip.kprm.gov.pl/kpr/bip-rady-ministrow/prace-legislacyjne-rm-i/prace-legislacyjne-rady/wykaz-prac-legislacyjny/r2001659691,Projekt-ustawy-o-zmianie-niektorych-ustaw-w-zwiazku-z-przeniesieniem-srodkow-z-o.html
17. Sas – Kulczycka, K. (Ed.) (1999). *Instytucje wspólnego inwestowania w Polsce [Mutual investment institutions in Poland]*. Warszawa: WIG PRESS. (In Polish). Retrieved from https://scholar.google.com/scholar?hl=pl&as_sdt=0%2C5&q=sas-kulczycka+instytucje&btnG
18. Ustawa z dnia 20 kwietnia 2004 r. o pracowniczych programach emerytalnych, Dz. U. z 2004 r. Nr 116, poz. 1207 z późniejszymi zmianami [Act of April 20, 2004 on Employee Pension Programs, Journal of Laws of 2004, No. 116, item 1207 as amended]. (In Polish). Retrieved from https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20041161207
19. Ustawa z dnia 20 kwietnia 2004 roku o Indywidualnych Kontach Emerytalnych, Dz. U. z 2004 r. Nr 116, poz. 1205 z późniejszymi zmianami [Act of April 20, 2004 on Individual Retirement Accounts, Journal of Laws of 2004, No. 116, item 1205, as amended]. (In Polish). Retrieved from http://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20041161205

20. Ustawa z dnia 25 marca 2011 r. o zmianie niektórych ustaw związanych z funkcjonowaniem systemu ubezpieczeń społecznych, Dz. U. z 2011 r. Nr 75, poz. 398 [Act of March 25, 2011 amending some acts related to the functioning of the social insurance system, Journal of Laws of 2011, No. 75, item 398]. (In Polish). Retrieved from https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20110750398

21. Ustawa z dnia 28 sierpnia 1997 r. o organizacji i funkcjonowaniu funduszy emerytalnych, Dz. U. z 1997 r. Nr 139, poz. 934 [Act of August 28, 1997 on the organization and functioning of pension funds, Journal of Laws of 1997, No. 139, item 934]. (In Polish). Retrieved from https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19971390934

22. Ustawa z dnia 4 października 2018 roku o pracowniczych planach kapitałowych, Dz. U. z 2018 r., poz. 2215 [Act of October 4, 2018 on employee capital plans, Journal of Laws of 2018, item 2215]. (In Polish). Retrieved from https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180002215

23. Ustawa z dnia 6 grudnia 2013 r. o zmianie niektórych ustaw w związku z określeniem zasad wypłaty emerytur ze środków zgromadzonych w otwartych funduszach emerytalnych, Dz. U. z 2013 r., poz. 1717 [Act of December 6, 2013 amending some acts in connection with determining the rules for paying out pensions from funds accumulated in open pension funds, Journal of Laws of 2013, item 1717]. (In Polish). Retrieved from http://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20130001717

24. Wszelkie prawa (n.d.). Retrieved from www.izfa.pl

25. ZAKŁAD UBEZPIECZEŃ SPOŁECZNYCH (n.d.). Retrieved from www.zus.pl

26. Załatwiaj sprawy urzędowe (n.d.). Retrieved from www.gov.pl

http://dx.doi.org/10.21511/imfi.17(4).2020.27