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*The Demographic Reserve Fund in Poland.
Analysis and Diagnosis of the First Years of Functioning
and Scenarios of Its Future Potential*

Fundusz Rezerwy Demograficznej w Polsce. Analiza i diagnoza pierwszych
lat funkcjonowania oraz scenariusze jego przyszłego potencjału

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Introduction

In 1998, following the changes introduced by the pension reform, a special institution was created in Poland, which intended task is to protect the financial stability of the pension fund payments in the so-called base system (basic pension system). The Demographic Reserve Fund (DRF) is the Polish equivalent of such funds introduced by many countries in the OECD. Although the Act of October 13, 1998 on the social insurance system came into force in 1999, still the actual launch of the DRF took place in 2002. The years 2002–2008 are considered to be the starting period, in which the start-up of the operational activity took place, when the rules of cash management were worked out as well as the gradual, extensive growth of the fund's assets. While after 2009 the changes in legal rules took place, resulting in the enlargement of the Fund's assets and the implementation of the tendencies of

starting resources to its functioning practice, which are used for the purposes of the current financial policy of the country [Nagel, 2012, p. 96].

The article is a continuation of analyses and forecasts conducted by the author, concerning the functioning of the Demographic Reserve Fund [Obidziński, 2011]. In the article there is presented an analysis and diagnosis of the situation of the Fund and its actual role in the pension system in Poland. In addition, author shows the projections of potential incomes and the state of the DRF until 2050, assuming implementation of solutions abandoned in the initial period. The final achievement of research contained in the article is to determine the potential effectiveness measured in month's payments from the Pension Fund.

The paper consists of an introduction, five logically related substantive parts and a summary. The first part presents the reasons for the establishment of the Demographic Reserve Fund on the basis of forecasts of the state and structure of the Polish population. The second part is devoted to the legal determinants of fund management. The third part shows how in fact looks the fund management, its practical functioning and financial effects. The fourth part is a comparison of the DRF with similar funds in the world, whereas the fifth part is devoted to design scenarios, whose aim was to show the possibility of the fund in the future.

1. Is this Fund needed?

The idea of the Democratic Reserve Fund, like this type of structures in other countries, was created as a result of studies conducted in terms of long-term demographic projections (Horizon 2050). In Poland, this issue is associated with two groups of phenomena in a special way:

1. First of all, the progressive socio-demographic processes, such as the entry of Poland into the phase of the long-term demographic stagnation, characteristic phenomena for the so-called second demographic transition, including the reduction of the fertility rate with the lengthening life expectancy and the reduction of the numbers in the households, as well as the demographic aging of the society and the population decline.
2. And on the other hand – the post-war “baby boom” and its consequences in the form of demographic structures waving. Hence, the main goal of the DRF – securing payments from the pension fund in the particularly demographically unfavourable periods, i.e. when the representatives of the post-war baby boom (and then the next echoes of this boom) will be the beneficiaries of the pension system, and, at the same time, the Labour resources (collecting generation) will be relatively low (the effect will involve the increase of the system burden).

A good portrayal of the above considerations is the forecast of the Polish population in the division into economic age groups.

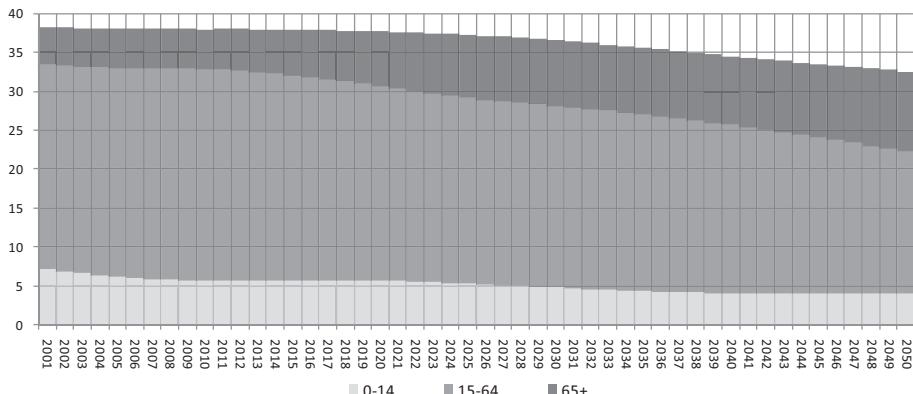


Fig. 1. Polish population according to the economic age groups (millions of people)

Source: Author's own study based on the "Population Forecast" of the World Bank.

Due to the fact that Poland is characterised by both the increased phenomenon of demographic aging and the strong presence of structure waving effects, the need to secure the system is highly justified. The Demographic Reserve Fund should, therefore, be treated really seriously in the base system.

2. Who manages the DRF and how does he do it?

Managing the Demographic Reserve Fund was entrusted to the Social Insurance Institution, which manages the Fund's resources based on the long-term forecast of the revenues and expenditure of the pension fund drawn up by the Board. The Fund's assets pursuant to the Act can be invested in order to achieve the maximum safety and profitability. Detailed rules of investing the Fund's assets are regulated by the regulation of the Minister of Labour and Social Politics of May 29, 2009 on the investment of Assets of the Demographic Reserve Fund, according to which the share of each category of securities in the Fund's portfolio cannot exceed: a) 100% – in relation to bills, treasury bonds and other securities of the Treasury, b) 20% – in relation to securities issued by municipalities, associations of municipalities and the capital city of Warsaw, c) 80% – for debt securities guaranteed by the State Treasury, d) 30% – for dematerialised shares, e) 20% – for dematerialised bonds, excluding bonds, for which the share proportions were specified in points a–c, f) 5% – in bonds issued by public companies, g) 40% – for bank deposits and bank securities.

These limits make the DRF investment policy have the assumed conservative character. This is also greatly affected by the provisions governing the way of investing the resources obtained from privatisation of the Treasury – these resources

must be invested in securities issued by the State Treasury (at the latest by the end of the month following the month, in which they were obtained at the Fund's bank account). A similar situation takes place in the case of funds from the sale, repurchase and interest on securities – they must be invested in the financial instruments issued by the Treasury.

These regulations cause the situation in which the fund *de facto* does not receive funds from privatisation, which can be freely invested in the financial market, but bonds and treasury bills. Therefore, it can be simply stated that the fund is largely powered by transfer in the form of debt securities of the Treasury.

3. How did the reality of the DRF functioning look like?

3.1. Proceeds to the Fund

The initial assumptions concerning the proceeds to the fund quickly proved impossible to realize. The main blow for the fund was the limitation of its most reliable source of income. Originally, the assumed charge for the DRF from the part of pension contributions in the amount of 1% of the base of the pension contributions for the pension insurance has quickly proved impossible to implement due to the growing deficit in the pension fund. Already in 2002, and so when the Fund was started, it has been reduced tenfold with the assumption of its annual increasing by 0.05% to the maximal level of 0.35%. The copy has never reached the originally assumed level, and yet there are no such plans for the next years. The real level of impairment is presented in Table 1.

Table 1. Contribution write-off for the DRF in 2002–2016

Year	2002–2003	2004	2005	2006	2007	2008	2009 and so on
Contribution write-off for the DRF	0.10%	0.15%	0.20%	0.25%	0.30%	0.35%	0.35%

Source: [Ustawa z dnia 13 października 1998 r.].

Despite clear statutory provisions, another significant limitation of the DRF development proved the failure to transmit some resources from privatisation of the state-owned property to the Fund. In 2002–2008, these resources were used to cover other public expenditure, which resulted in the DRF to be powered only by the part of the pension contribution (much smaller from the originally assumed). Only the amendment of the Act of 2009, which has expressly imposed an obligation to transfer 40% of revenues from the privatisation of the Treasury's property, reduced by the amounts of the mandatory contributions to the purposeful fund, changed the structure and dynamics of the DRF asset growth. Therefore, in 2009–2015, the resources from

privatisation occurred in the total value of 20 billion PLN, but it should be noted that mainly to further transfer them to the Social Insurance Fund by launching the mechanism of payments from the DRF.

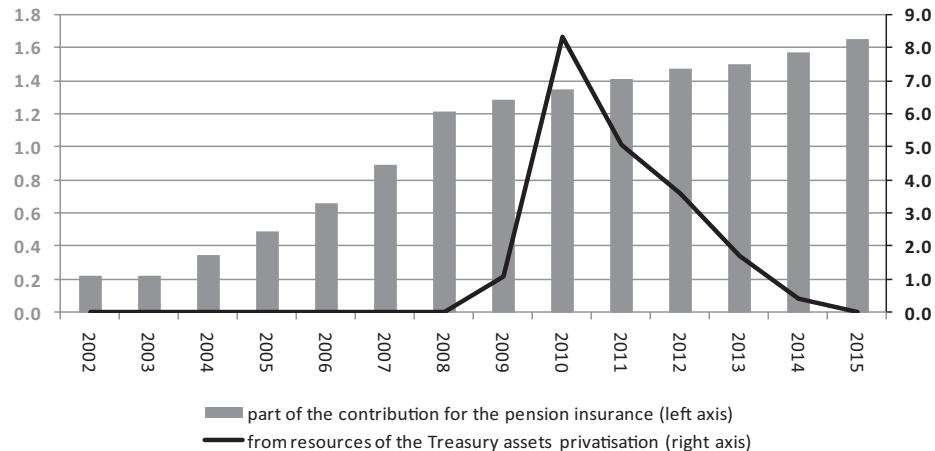


Fig. 2. Income to the DRF according to the source (billion PLN)

Source: Author's own study based on DRF Balances:[ZUS, 2002–2015a].

Due to the mentioned annual deficit of the Pension Fund it proved unrealistic to also power the DRF from the resources, which would remain in FE at the end of each year. Also, resources from other sources have never come to the Fund, which are generally indicated by the Act.

3.2. Effects of investing the Fund's resources

At the same time, it should be admitted that the DRF resources at the disposal of the Social Insurance Institution (ZUS) were safely invested at that time, of course within the statutory limitations. This framework, on the one hand, were the limitation of the investment possibilities (conservative investment policy based on bonds – Fig. 3), but on the other, they proved to be a good security buffer, so the DRF did not fall into troubles, and it happened that its return rate from investments exceeded the results of the Open Pension Funds.

The passive financial policy used by ZUS in the management of the DRF assets, however, has considerable disadvantages. ZUS, depending on the economic situation, only changes the structure of the asset category, and adjusts the share portfolio to the composition of the WIG index. The DRF cannot invest in foreign securities. This ensures the security of returns rate and minimises the fund management costs, but it is reflected in the investment results. In many periods they are weaker than pension

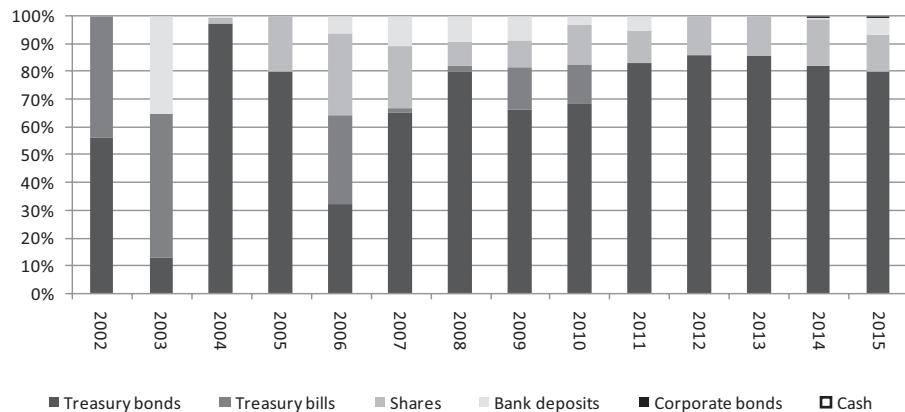


Fig. 3. Structure of the DRF portfolio in 2002–2015

Source: Author's own study based on Social Insurance Institution Reports: [ZUS, 2002–2015b].

funds. Only in 2008, the Social Insurance Institution was in the forefront among all institutions managing the financial resources in Poland. The return rate from the total DRF assets closed with a loss then, but it was one of the smallest losses on the market. With the result of -5.9%, the Fund has distanced the Open Pension Funds (OFE) operating in the country, the results of which ranged from -11.9 to -17.9%. This situation has highlighted the basic advantage of the DRF investment policy consisting of the minimisation of losses.

3.3. Payments of the Fund's resources

The law on the social insurance system allowed the use of the DRF resources not earlier than in 2009 only to complement the deficit of the Pension Fund resulting from the demographic reasons. It was just about the consequences, the so-called waving of demographic structures. The deductions of amounts from the current resources were also included, in order to cover the costs of fund management and the possibility to use the Fund's assets as the interest-free loan complementing the resources of the Pension Fund for the current payment of benefits in order to maintain the financial liquidity of the Social Insurance Fund(FUS).

When in the following years, after the introduction of the pension reform, it turned out that the real deficit of the pension system is much higher than the planned one, it was decided to start the consumption of the resources accumulated in the DRF. Already in September 2009,ZUS changed its strategy for managing the Fund's resources in connection with the possibility of transferring some resources to the Fund of Social Insurance. It was decided not to increase the state of the shares owned, and only to undertake actions in order to weight the DRF share portfolio to the WIG structure [ZUS, 2002–2015b]. All this started a series of payments from the DRF. At

the same time, these payments were deliberately protected with a series of payments from the privatisation of the Treasury property. The Fund was used (intentionally or not) as a means to lower the official budget deficit, that is to realize the short-term goals [Grodzicki, 2012, p. 18].

Table 2. Proceeds from privatisation and payments from the DRF in 2009–2015

Year	Payments from the DRF (thousand PLN)	Income from privatisation (thousand PLN)
2009	–	1 083 377
2010	7 500 000	8 347 065
2011	4 000 000	5 059 092
2012	2 887 000	3 602 767
2013	2 500 000	1 722 603
2014	2 500 000	400 345
2015	–	17 434
TOTAL	19 387 000	20 232 683

Source: Author's own study based on Social Insurance Institution Reports: [ZUS, 2002–2015b; Adamska-Mieruszewska, 2015, p. 433].

3.4. The condition of the Fund

As a result of payments made, the DRF resources were greatly reduced. The Fund did not record a decrease in the assets value only thanks to transferring some of the resources from privatisation of the Treasury property to it. At the end of 2015, the Fund had allocated almost 19.5 billion PLN, which would be enough to pay the

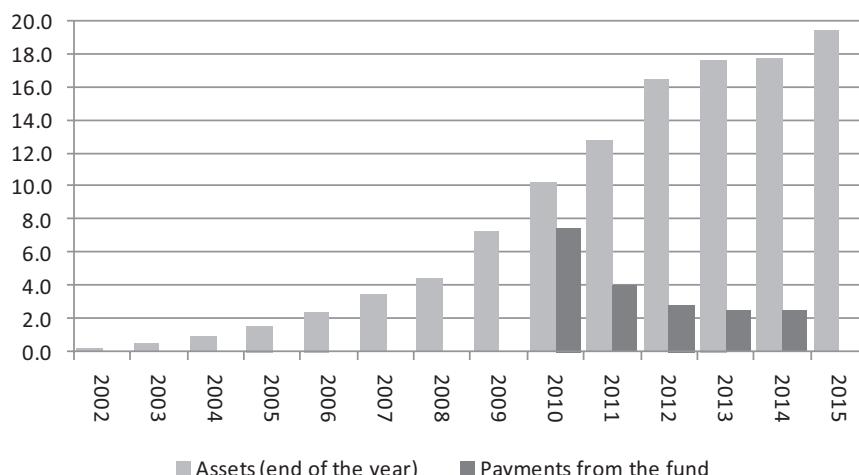


Fig. 4. Assets and payments from the Demographic Reserve Fund (billion PLN)

Source: Author's own study based on Social Insurance Institution Reports: [ZUS, 2002–2015b].

benefits from the Pension Fund for only about 2 months. This amount, as you can see, is more or less the sum of payments from the Fund. The funds accumulated in the DRF, therefore, do not allow the implementation of the goal, which was set to the Fund. Still, there is no certainty as to the occurrence of the next payments from the DRF in order to meet the short-term budgetary needs.

4. How do others act?

Prefunding social security benefits can help governments respond more effectively to the fiscal pressures that will result from ageing populations. While prefunding may not in itself offset the decline in domestic growth rates that will result from worsening dependency ratios, it can help to solvent some aspects of the demographic shock. In developing countries, where financial systems are underdeveloped, prefunding via reserve funds can be also used to support the economic growth by improving access to finance for productive activities [Yermo, 2008, p. 4].

In the world, according to the OECD classification, there are 23 funds functioning, categorised as PPRFs (Public Pension Reserve Funds) [OECD, 2015]. They differ primarily in the financing sources, and, therefore, the size of assets. The leading countries are those, in which the studies on the aging of the population and its impact on the pension systems have been conducted for years. The biggest reserves are maintained by the American “Social Security Trust Fund” in the amount exceeding 2.8 trillion USD.

Among the countries, which are more comparable to Poland, it is worth quoting the French FRR and the Norwegian funds GPFN/GPFG. The French “Fonds de Réserve pour les Retraites” (FRR) created in 2001, already in 2002 was powered with the amount of 1.2 billion EUR from the privatisation of the “Autoroutes” company managing the French motorways, and then, from 2003, the permanent funding has been set with 65% write-off of tax from investments in the amount of 2%. As a result, in 2015, the FRR has already been managing the amount of 70.1 billion USD. The aim of the Fund is to achieve the assets in the amount of 150 billion EUR until 2020.

In Norway, two funds were bet on. The first one, “Government Pension Fund – Norway” (GPFN) investing the resources only in Scandinavia. The second one is global, much bigger, “Government Pension Fund – Global” (GPFG) financed from the proceeds of oil production and 1% of GDP. The investment strategy of the funds has been developed by the Norwegian Ministry of Finance. It assumes the investments of 60% of resources into shares, 35–40% in bonds, and up to 5% in real estate. All resources of the funds are invested on foreign markets. The total assets of both funds in 2015 were over 926 billion USD.

Creating of Sovereign Wealth Funds is the domain of mainly Asia and the Middle East – three quarters of SWFs come from these regions. Against this background, slightly dislodged Europe, Africa and North and South America, can boast of creat-

Table 3. The size of assets of reserve funds in the selected countries of the world

Country	Year of formation	Total assets in 2015 (billion USD)
US	1940	2 837.6
Japan	2006	1 103.4
Norway (N+G)	1990	926.4
Korea	1988	418.8
China	2001	251.0
Sweden	2000	151.0
Australia	2006	90.0
France	2001	70.1
Spain	1966	48.4
Portugal	1977	15.2
Poland	2002	5.0
Bulgaria	2007	1.5

Fig. 4. Assets and payments from the Demographic Reserve Fund (billion PLN)

Source: Author's own study based on Social Insurance Institution Reports: [ZUS, 2002–2015b].

Source: [OECD, 2015].

ing respectively only 18%, 3% and 2% of the total number of existing SWFs. This situation is a consequence of the creation of funds based mainly on revenues from the sale of raw materials. However, it may significantly change when countries without natural resources begin to create the funds financed from other sources, intended to support the long-term stabilization of public finances [Rutecka, 2013, p. 15].

The analysis of functioning of most PPRFs type of funds securing the pension systems, indicates the diversity of sources of their funding. In the case of countries rich in raw materials, the natural source of incomes of these funds are the revenues from oil extraction (Norway, the Gulf countries – Oman, Kuwait, Abu Dhabi, as well as Kazakhstan and Azerbaijan).

5. What if, or the way it should be?

The ongoing discussion in Poland on the functioning and legitimacy of the creation of reserve funds in the area of social security, including the Demographic Reserve Fund, is often dominated by the short-term perspective, which is the consequence of the urgent need to adjust the size of revenues to budgetary expenses. In this discussion it is completely forgotten that the reserve funds can contribute to achieving significant economic benefits for the economy in the long term. In order for these benefits to be achieved, however, it is necessary to meet many conditions.

The positive impact of the activity of the state wealth funds, including the reserve pension funds, on the financial market could have been observed in the period of the last financial crisis. Then, such funds have partially absorbed the declines in stock markets and stabilised the situation on the global financial markets. It was the result

of the long-term investment strategy conducted by the funds, unlimited with the needs of payments in a short time. Additionally, the entities managing the funds showed the knowledge of the market phenomena and, constructing long-term portfolios, supported the development and liquidity of the global financial markets [Rutecka, 2012, p.115].

Therefore, it is worth thinking what would happen if the Demographic Reserve Fund was allowed to spread the wings in the long-term perspective. And thus, what would happen if the duration with the initial assumptions concerning the Fund proceeds was accompanied by the failure to use the gate in the form of the Act of 1989, regarding the possibility to pay out the funds after 2009.

Due to the adopted long-time horizon of the forecast of revenues and expenditure of the pension fund, three long-term scenarios of the DRF development can be formed:

- Scenario 1) The actual state of the DRF in the period of 2002–2015 and the assumption of the continuation with the current premium, without the continuation of powering with the resources from the privatisation of the Treasury property (the scenario corresponds to the current situation of the Fund, in which the means from privatisation were only used to cover the payments from the Fund, allowed after 2009).
- Scenario 2) Fund's assets with the assumption of the original write-off at the level of 1%, without the continuation of powering with the resources from privatisation (the scenario corresponds to the initial assumptions of the Act, also in terms of payments after 2009).
- Scenario 3) Fund's assets with the assumption of the initial write-off at the level of 1% and powering with resources from privatisation from the very beginning (the scenario corresponds to the situation, in which the proceeds to the Fund are in line with the original assumptions of the Act, and, at the same time, no payments are made). For the purposes of the construction of the scenario, the continuation of the distribution of revenues from privatisation was assumed in the following years, until using the assets assumed for privatisation (the privatisation of 50% of assets was assumed, which were created in the Treasury property).

These are purely theoretical scenarios, as the objective to create the DRF is closely related to the payments – exactly in the period until 2050. But it is about showing what could the Fund's resources be like at any moment in the future, when the decision would be made (strictly supported by demographic conditions) to launch its resources. The Fund's assets in all scenarios increase with the subsequent deductions from the pension contributions, according to the assumptions of the forecast of the incomes made by ZUS (Fig. 5).

The scenarios show how important it is to conduct the stable and long-term policy towards reserve funds. The basic conclusion, both for the legislative and executive branch, concerns the adoption of the long-term horizon of actions and the creation of strong and fair institutions, which will also serve future generations.

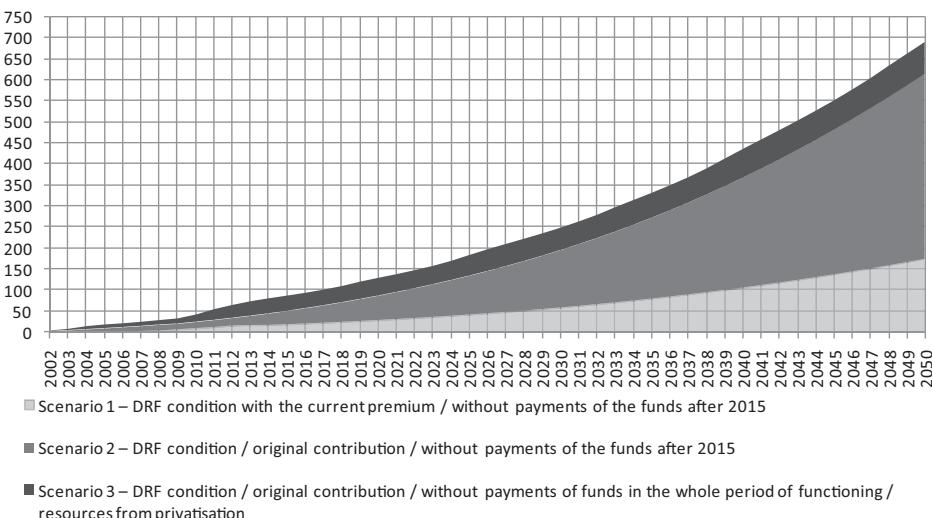


Fig. 5. The size of the DRF assets in the scenarios (billion PLN)

Source: Author's own calculations based on data in "Forecast of revenue and expenditure of the Pension Fund" [ZUS, 2016] and assumptions of the scenarios.

Table 4. The size of the DRF assets in the scenarios (billion PLN)

Year	Scenario 1	Scenario 2	Scenario 3
2015	19.4	50.4	86.4
2020	29.4	78.6	128.7
2030	59.2	195.0	248.0
2040	106.6	367.0	435.3
2050	174.7	614.7	690.6

Source: Author's own calculations based on data in "Forecast of revenue and expenditure of the Pension Fund" [ZUS, 2016] and assumptions of the scenarios.

The most important thing is the regular supply of the Fund, as only such a long-term approach can give effects (red excess on the chart). Then, the failure to use the Fund for current fiscal purposes – stopping the payments at least until 2020 (when the demographic load will actually increase). According to the initial assumptions, the first use of the Fund's resources was meant to take place after 2020, and if additionally until this time the principles of the proceeds did not change, then, according to scenario no. 3, the Fund would have the amount of 128.7 billion PLN at the end of the year (Table 4). The same year, ZUS predicts the expenditure of the Pension Fund in the amount of 169.7 billion PLN, what means that the DRF resources would be sufficient for about 9 months of system financing. Table 5 presents the remaining performance indicators expressed in months of payments from the DRF in the analysed scenarios and with the assumption of expenses of the pension funds from the forecast presented by the Social Insurance Institution.

Table 5. Efficiency of the DRF in the scenarios (billion PLN)

Year	Scenario 1	Scenario 2	Scenario 3
2015	1.8	4.8	8.2
2020	2.1	5.6	9.1
2030	2.5	8.1	10.3
2040	3.1	10.5	12.5*
2050	3.3	11.5	12.9*

Source: Author's own calculations based on data in "Forecast of revenue and expenditure of the Pension Fund" [ZUS, 2016] and assumptions of the scenarios.

Although the annual expenses of the Pension Fund planned by ZUS will continue to grow in the period of 2017–2050, the resources collected in the DRF in each scenario grow faster. Those periods in the highest scenario, in which the DRF would cover the annual pension obligations, are marked with a red asterisk.

Conclusions

The most practical postulate for the DRF is to loosen the investment policy – to make it more active and to allow investments in foreign securities. Cancellation of powering the Fund mainly with a transfer in the form of debt securities of the Treasury will free it from the trap of low return rates. This will be positively reflected on the Fund's assets, however, it will require the introduction of transparent investment rules and the clarity of actions. Currently, ZUS does not publish accurate information about the conducted investment policy of the DRF, and does not inform about the way to select the people managing the Fund's assets.

M. Grodzicki also mentions one important aspect of the Fund, which refers to spreading the idea of the generational justice. With proper implementation, it can be used as an argument increasing popularity and legitimacy for the necessary reforms. The Demographic Reserve Fund could become a strong tool for implementation of this postulate [Grodzicki, 2012, p. 20].

Then, it would be possible to strengthen its role through the records about the statutory next sources of income. The first fittings for such fund development took place, when in Poland a discussion was held on the so-called "slates". As in some countries rich in natural mineral resources, in 2012, there was a proposal to power the DRF with the resources from the taxed revenues from mineral exploitation. Finally, the demand subsided along with the decline of the fever around the extraction of gas from slates, however, the general direction of the search for additional sources of revenue should still be considered by the government.

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Fundusz Rezerwy Demograficznej w Polsce. Analiza i diagnoza pierwszych lat funkcjonowania oraz scenariusze jego przyszłego potencjału

Fundusz Rezerwy Demograficznej (FRD) jest polskim odpowiednikiem tego typu funduszy wprowadzonych przez wiele krajów zrzeszonych w OECD. Artykuł stanowi analizę i diagnozę sytuacji Funduszu i jego rzeczywistej roli w systemie emerytalnym w Polsce. Ponadto przedstawiono projekcję potencjalnych wpływów i stanu FRD do 2050 r. przy założeniu realizacji działań zaniechanych w początkowym okresie. Końcowym osiągnięciem badań zawartych w artykule jest określenie jego potencjalnej efektywności mierzonej w miesiącach wypłat z Funduszu Emerytalnego.

The Demographic Reserve Fund in Poland. Analysis and Diagnosis First Years of Functioning and Scenarios of its Future Potential

The Demographic Reserve Fund (DRF) is the Polish equivalent of such funds introduced by many countries in the OECD. The article is an analysis and diagnosis of the situation of the Fund and its actual role in the pension system in Poland. In addition, it shows the projections of potential incomes and the state of the DRF until 2050, assuming implementation of solutions abandoned in the initial period. The final achievement of research contained in the article is to determine the potential effectiveness measured in month's payments from the Pension Fund.