



Central European Review of Economic Issues

EKONOMICKÁ REVUE



Security for Old Age with a Focus on Pension Reform in the Czech Republic

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Abstract

The aim of this paper is to appraise security for old age in the Czech Republic. The main focus is on the description of the development and contemporary situation of the pension system and the pension reform during the years 2013–2019. The main part of the pension reform started in the Czech Republic in 2013. The author aims to discuss this development and to explain the necessity of the fast further implementation of the next steps or, better, the new pension reform. The important motivation for this is the gap between expenditures on pension insurance benefits and incomes from pension insurance premiums. Therefore, the long-term sustainability of the main first pillar is impossible without crucial changes to the whole pension system. The goal of this paper is to determine whether any progress has been made in solving this important problem. The paper also deals with the role of the pension funds in this process and explains the necessity of retirement security for future pensioners through their own preparation and investment.

Keywords

Pension funds, pension reform, pillars of pension system, retirement security.

JEL Classification: G29, H55

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1. Introduction

This paper focuses on the Czech pension reform and follows the author's articles mainly published in conference proceedings in 2013, 2014, and 2018,¹ which described the Czech pension system and pension reform. This topic has been researched and described in various articles and reports all over the world because the problem of retirement security is widespread. For example, Weaver (2003) dealt with retirement and politics and Oakley, Brown, and Saad-Lessler (2018) and Oakley and Kenneally (2019) published reports focusing on retirement and crisis in the USA. In Europe, for example, Feldstein and Siebert (2002), along with a number of distinguished contributors, assembled essays discussing the challenges facing social security reform in the aging societies of Europe. Bovenberg (2008) also reported problems with the aging society in his paper, and Carone et al. (2016) summarized the problems connected with this issue in a special discussion paper published by the European Commission (2016, 2019).

The author aims to discuss the latest development in the Czech Republic and to explain the necessity of the fast further implementation of the next steps or, better, the new pension reform, as stated by Zamrazilová (2019). It is necessary to realize that the long-term sustainability of the state's first pillar is impossible. New crucial changes to the whole system are needed (Nerudová, 2019). The main problems are the future demographic situation (Carone et al., 2016; Vostatek, 2012) and the anticipated difference between incomes and expenditures of this pay-as-you-go first pillar. Weaver (2003) contended that short electoral cycles that have complicated pension reform initiatives can also be problematic in a number of countries. In the Czech Republic, there have been several attempts to conduct a full pension reform, as described in materials from the Expert Advisory Forum² in 2010 and the Center for

Open Market Economy and Open Democracy (Vostatek et al., 2011). The last attempt was the establishment of the Commission for Fair Pensions in 2019 by the Minister of Labour and Social Affairs.

The aim of this paper is to summarize the ongoing development of this situation and find out whether any progress has been made in solving this important problem. The paper also focuses on the current financial instruments used in the Czech financial market – pension funds, building savings, and equity financial instruments – and provides an explanation for the use of these instruments for retirement security. Overall, the first part deals with the general description of the pension system and the second part focuses on investing for retirement. The final part is a conclusion in which possible approaches and solutions are proposed. It presents firstly a discussion about conceivable changes to the Czech pension system and secondly a recommendation for future pensioners to reduce their risks connecting with the lowering of their income during retirement. Standard methods of scientific work are used in the paper. In the first part, the description method is mainly used, specifically to present the current state of the pension system in the Czech Republic. Then, the methods of comparative analysis and synthesis are used for the clarification of the problem to be solved.

2. Czech Pension System

Originally, the Czech pension system was defined as a two-pillar system. The first and by far the thickest pillar is the state pension system, which is paid into by all employed citizens. People pay 28% of their gross salary into their pensions.³ The system is termed pay as you go, which means that the demands of the present pension system draw on those funds at the same time. The scheme is administered by the Czech Social Security Administration. The system was introduced in its

¹ International Scientific Conference Financial Management of Firms and Financial Institutions in 2013, International Scientific Conference Managing and Modelling of Financial Risks in 2014 and 2018, Ostrava, VŠB-TU Ostrava, Faculty of Economics, Finance Department.

² The Expert Advisory Forum was established in January 2010 by the Minister of Finance and the Minister of Labour

and Social Affairs with the aim of updating the projection of the state pension system and recommending changes to it.

³ Employers pay 21.5% of the payroll and employees 6.5% of their earnings. The self-employed pay the 28% of their earnings themselves.

current form by the Pension Insurance Act, which came into force in 1996.⁴ The first pillar is mandatory, and nowadays it is the main source of retirement funds – pensions. It works as a defined benefit scheme. The required insurance period has been 35 years since 2019.⁵ The retirement age for all persons born after 1971 is 65 years in all categories.⁶ This pension is paid monthly and is made up of two components: a basic amount and a percentage amount. The basic amount is a fixed sum for all pensions. In 2019, it was 3270 CZK per month; from 2020, it will be 3490 CZK per month. The percentage amount is defined individually based on the number of insured years and the applicant's average earnings from the age of 18 until the year before retirement.

On the contrary, the third pillar is voluntary and is based on investing in pension funds. This voluntary supplementary pension scheme is run by pension companies on a defined contribution basis and commenced in 1994. The system initially only consisted of the supplementary pension insurance scheme. The 2011 “small” reform closed all the pension funds as of 30 November 2012 and automatically transferred the savings of the participants to “transformed funds”. Transformed funds still offer an annual non-negative return guarantee, the ability to receive an old-age pension from the age of 50, and the possibility to terminate the contract and receive payments. Since 1 January 2013, new participants in the supplementary pension system can only join the supplementary pension savings scheme.

2.1 Importance of the Reform in 2013

Officially, the pension reform started on 1 January 2013; the laws were accepted at the end of 2012. It is necessary to state that the preparations for and explanations of the necessity of the pension reform were insufficient. The prevailing mood in society was against the pension reform because of the bad position of the government at that time. The government's mistake was to allow the perception of the reform as a political issue. Therefore, after the win of the opposite Social Democrats in the elections in October 2013, the new government proclaimed the cancellation of the most radical part of the reform – the existence of the second pillar. The second pillar was the new possibility of investing. It allowed the part of compulsory contributions in the first pillar to carry over to private accounts. The state received 25% of participants' gross wages, rather than

the previous 28%, and it was possible to transfer 3% to the pension fund. All the participants had to add other 2% of their gross monthly salary. The entry to this pillar was voluntary, and it was estimated that the second pillar would have at least 800 000 participants. Pension companies offered four types of pension funds according to the degree of risk and the level of interest. Participants could invest in the dynamic, balanced, or conservative fund or in the government bonds fund. The reality was different – at the end of its existence, the second pillar had fewer than 85 000 participants. These participants, for their investments in the second pillar, mostly chose more dynamic portfolio strategies. According to their selected funds, they were probably mostly experienced investors with a clear investment strategy. This also means that the majority of the Czech citizens were not persuaded about the necessity of the pension reform and primarily relied on the first state pillar.

There were important changes to the existing third pillar, too (Vostatek, 2012). This reform registered two types of funds in this supplementary pension system: the old transformed funds and the new participating funds. The most important point is that, from 1 January 2013, it was possible to enter only the new registered type of pension fund. The advantage is the possibility to choose a more dynamic investment strategy; however, the yield from this fund depends on this strategy and it is not guaranteed, unlike the old transformed funds. Participants in the supplementary pension insurance scheme may switch to the supplementary pension savings system at any time and select the participating fund of their choice and a particular investment strategy. This possibility was chosen by low number of participants.⁷ The main motivations to remain in the supplementary pension insurance scheme are the non-negative return guarantee and the possibility to withdraw funds without losing the state contribution from the age of 50 for those who joined before 1999.

Another important change in this pension scheme is the change to the state contribution. Until this change, it was possible to receive the state contribution even when saving only 100 CZK monthly; now, it is necessary to save at least 300 CZK monthly. Nevertheless, the value of the state contribution can be higher than before – when saving 1 000 CZK monthly, the state contribution is 230 CZK. The change in the contribution is described in Table 1. In addition, the range of contributions that are subject to tax deductibility

⁴ Act No. 155/1995 Coll., on pension insurance.

⁵ From 2010, the time of study is not included in this obligatory time.

⁶ The statutory retirement age will reach 65 years in 2030 based on current legislation and every fifth year it will be discussed by government and can be changed.

⁷ By the end of 2019, only 3.1% of the participants in the supplementary pension insurance scheme in 2012.

changed from CZK 500–1 500 to CZK 1 000–3000 monthly and the level of employer contributions that is not considered as taxable income increased by CZK 20 000 to CZK 50 000.⁸ The minimum age at which payments can be received from a pension fund is 60. This means that it is not linked with the state pension age, which is prolonged until 65 years, and it is possible to take the retirement income earlier. If money is withdrawn from the account before this age, the state's matching contributions have to be repaid and there is additional taxation. Generally, money can be withdrawn as a lump sum or in the form of regular instalments. To decrease the proportion of lump-sum withdrawals, pension payments taken over a period of more than 10 years are tax exempt. Since 2016, this supplementary pension savings system has been open to children because parents can set up a participating fund for them, too. A child, at the age of 18, can withdraw up to one-third of the savings if the saving period was at least 10 years.⁹

Table 1 State Contribution before and after the Pension Reform in 2013

| Monthly Payment (CZK) | State Contribution before January 1 2013 (CZK) | State Contribution after January 1 2013 (CZK) |
|-----------------------|------------------------------------------------|-----------------------------------------------|
| 100 | 50 | 0 |
| 200 | 90 | 0 |
| 300 | 120 | 90 |
| 400 | 140 | 110 |
| 500 | 150 | 130 |
| 600 | 150 | 150 |
| 700 | 150 | 170 |
| 800 | 150 | 190 |
| 900 | 150 | 210 |
| 1000 | 150 | 230 |

Source: The Association of Pension Companies of the Czech Republic

2.2 Contemporary Situation

In January 2019, the Minister of Labour and Social Affairs established a new Commission for Fair Pensions, tasked with reforming the pension system. The main aim of the Commission is to ensure a financially sustainable pension system in the Czech Republic. The Commission wants to discuss and offer various policy options to improve the Czech pension system. At the end of 2019, the Commission agreed on what the pension reform might look like in the future. The members of the Commission decided to start work on a model that divides the current first pillar into two. One part would be in solidarity and would be paid from the budget, and the other would be meritorious and would

include insurance premiums. This reform is now at the very beginning stage, and for now it is not clear what the important outputs will be. In August 2019, the Minister of Finance proposed the introduction of a long-term investment account that is in accordance with the National Strategy for the Development of the Capital Market in the Czech Republic 2019–2023. The possibility of higher state contributions in the case of pension funds is also discussed in this material.

3. Retirement Security

In this part, we explain the possibilities for future pensioners. Firstly, it is necessary to mention that the first part of pensioners' income is a state pension. This means that, at the age of retirement, pensioners in the Czech Republic will receive this pension according to the amount of their previous salary and the length of their employment. Nowadays, it is approximately 40% to 50% of the average previous salary, and it is possible to retire at 63 years old (this applies to 2018 and people born between 1953 and 1958; from 2030, it will be 65 years, and every fifth year it will be discussed by the government and can be changed). Claiming this state pension is possible after 35 years of the pension scheme from 2019, and, from 2010, the time of the study, it is not included in this obligatory period. This income in retirement is based on the first pillar of the Czech pension system and, in accordance with its functioning, it is called the pay-as-you-go system (PAYG). The problem is that the projections for a majority of industrialized countries indicate low birth rates and further increased life expectancy. This will result in an older, but in aggregate numbers unchanged, population. In the European Union, the ratio of individuals of working age to above 65 is expected to decrease from 4:1 to only 2:1 by 2060 (Carone et al., 2016). The population of the EU-27 on 1 January 2019 was estimated at 446.8 million. Young people from 0 to 14 years old made up 15.2% of the EU-27's population, while persons considered to be of working age (15 to 64 years old) accounted for 64.6% of the population. Older persons, aged 65 or over, had a 20.3% share – this is an increase of 2.9 percentage points compared with the situation 10 years earlier. In the Czech Republic, it was 19.6% in 2019, and the increase was 4.7%.¹⁰ The incomes to this first pillar are connected with economic cycles, too. During a recession, these incomes are lower. Although it is difficult to estimate the development of this first state pillar, it is possible to state that, from the demographic point of view, the future development will very probably lead to lower funds in this system.

⁸ Since 1 January 2016.

⁹ Without the state contributions.

¹⁰ Eurostat (2019).

Conversely, the increased social expenditures related to population ageing, in the form of pensions and health care, are likely to result in a higher burden for the working-age population. Therefore, the future pensions and their amounts are very uncertain. In Table 2, we can see the difference between the incomes and the expenditures of the pension account in the Czech Republic. It is clear that only the last 2 years (2018, 2019) are positive and that the costs of management are slowly but steadily increasing.

Table 2 Balance of the Pension Account in Billion CZK

| Year | Incomes | Expenditures | Operating expenditures | Balance |
|------|---------|--------------|------------------------|---------|
| 2013 | 332.6 | 382.77 | 4.92 | -55.1 |
| 2014 | 342.08 | 385.84 | 5.10 | -48.87 |
| 2015 | 361.61 | 395.22 | 5.30 | -38.91 |
| 2016 | 383.33 | 399.00 | 5.47 | -21.15 |
| 2017 | 416.65 | 414.39 | 5.90 | -3.64 |
| 2018 | 458.63 | 433.84 | 6.15 | 18.64 |
| 2019 | 494.34 | 471.58 | 6.32 | 16.44 |

Source: Ministry of Labour and Social Affairs

Another problem is the amount of the pension and its relationship to the average wage. From 2013, this ratio has been slowly declining.

Table 3 Pension/Wage Ratio

| Year | Average Pension (in CZK) | Average Wage (in CZK) | Pension/Wage Ratio (in%) |
|------|--------------------------|-----------------------|--------------------------|
| 2013 | 10 985 | 25 128 | 43.72 |
| 2014 | 11 090 | 25 686 | 43.18 |
| 2015 | 11 363 | 26 467 | 42.93 |
| 2016 | 11 475 | 27 589 | 41.59 |
| 2017 | 11 866 | 29 504 | 40.22 |
| 2018 | 12 435 | 31 885 | 39.00 |
| 2019 | 13 487 | 34 125 | 39.52 |

Source: Ministry of Labour and Social Affairs

3.1 Pension Funds

Now, we focus on the financial instruments that are designated for retirement in the third pillar. According to the latest legislation, in the Czech Republic, it is possible to distinguish two types of pension funds – transformed funds and newer participating funds – as part of

the third pillar of the Czech pension system. The second pillar existed very briefly from 1 January 2013 and was cancelled on 31 December 2015. Entrance to the transformed funds is not possible.¹¹ Participating funds are now the only possibility for investing in the pension funds. In the transformed funds, most of the invested money is still allocated – see Table 4 – although the value of the assets in the participating funds is quickly increasing from less than of 0.5% from the total invested assets in 2013 to 14% in 2019. The total invested assets have grown by almost 73% in this period. The increase in the number of participants in the participating funds does not balance the decrease in the transformed funds. The number of participants was 10.5% smaller in 2019 than in 2013.

The main differences between transformed and participating funds are the following:

- Transformed funds are funds with a non-negative return guarantee;
- People can withdraw half of their invested money from transformed funds after 15 years;
- In participating funds, people can choose a more dynamic investment strategy;
- The yield from participating funds depends on this strategy, and it is not guaranteed.

If we look at the performance of the pension funds during recent years, it is clear that especially transformed funds are not able to overcome inflation because they naturally focus on bonds with low credit and exchange rate risk – see Table 5 and the Appendix.

¹¹ From 1 January 2013.

Table 4 Total Invested Assets (in Million CZK) and Number of Participants in the Third Pillar

| Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total Assets / Transformed Funds | 280 688 | 312 102 | 339 311 | 364 985 | 383945 | 404 350 | 427 017 |
| Total Assets / Participating Funds | 1 265 | 4 840 | 10 133 | 18 048 | 29 943 | 42 715 | 60 098 |
| Participants / Transformed Funds | 4 870 174 | 4 557 812 | 4 256 679 | 3 976 341 | 3 688 675 | 3 470 026 | 3 301 995 |
| Participants / Participating Funds | 91 027 | 228 812 | 367 728 | 542 491 | 763 332 | 966 982 | 1 139 434 |

Source: The Association of Pension Companies of the Czech Republic

Table 5 Performance of Transformed Funds and Inflation from 2013 until 2019 (in %)

| Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|----------------------------|------|------|------|------|------|------|------|
| Inflation (%) | 1.4 | 0.4 | 0.3 | 0.7 | 2.5 | 2.1 | 2.8 |
| Pension company | | | | | | | |
| Allianz | 1.60 | 1.64 | 1.38 | 1.03 | 0.41 | 0.68 | 0.94 |
| AXA/Uniqa | 2.29 | 1.46 | 1.10 | 1.03 | 0.76 | 0.92 | 1.26 |
| Conseq | 2.17 | 0.70 | 0.40 | 0.47 | 0.16 | 0.58 | 1.50 |
| Česká spořitelna | 1.30 | 1.42 | 0.85 | 0.68 | 0.51 | 0.51 | 1.69 |
| ČSOB | 1.70 | 1.40 | 1.20 | 0.70 | 0.63 | 0.76 | 1.0 |
| ING/NN | 1.41 | 1.13 | 0.88 | 0.66 | 0.69 | 0.61 | 0.95 |
| Komerční banka | 1.44 | 1.35 | 1.16 | 0.66 | 0.49 | 0.51 | 0.60 |
| Česká pojišťovna /Generali | 2.10 | 1.70 | 1.40 | 0.94 | 0.84 | 1.10 | 1.75 |

Source: The Association of Pension Companies of the Czech Republic, Czech Statistical Office

In the case of the participant funds, the most important point is the choice of strategy according to the participants' age. This means that younger people can afford to choose a more dynamic investment strategy. In addition, from the Appendix – see Table 9 – we can see that there is a difference between a conservative and a dynamic strategy. Especially in the case of the Conseq Pension Company and its global stock fund, it is evident that the strategy of this fund is more dynamic and based on equity investments.

Strikingly, in the case of long-term investment, pension funds are not a suitable form of investment – especially in the case that they are people's only investment for retirement. If future pensioners rely just on these financial instruments, they will receive money in accordance with this performance, and the value of this money can be lower than the value previously invested because of inflation.

3.2 Other Financial Instruments

This part deals with the other possibilities for investing money in the Czech Republic – building savings and investing in equity financial instruments. Concerning building savings, at the end of 2019, the building savings banks in the Czech Republic were overseeing 359 billion CZK of their clients' savings. During the last years, the number of loans issued has stagnated, but the total value of the average loan is constantly increasing. The original purpose of this instrument was to encourage Czech households to buy their own houses and flats. Nevertheless, many investors still use building

savings only for investing their money. An advantage of this type of investment is closely connected with the length of time – see the entries mentioned in Table 6. We can state that the yield per year (internal rate of return) decreases with a longer saving period, lower state support, a lower interest rate, and the necessity of tax payment. It is clear that building savings are presently not a suitable investment instrument for a longer period because of their low yield. They can be used as a type of financial reserve but with very limited liquidity, and it is not possible to withdraw money before 6 years have elapsed.

Table 6 Performance of Building Savings and Length of Investment (Investing 1500 CZK Monthly + State Support 10%, 31 December 2019)

| Number of Years | Performance (IRR) |
|-----------------|-------------------|
| 6 | 3.70% |
| 10 | 2.40% |
| 15 | 1.90% |
| 20 | 1.60% |
| 25 | 1.40% |
| 30 | 1.26% |

Source: Building Savings Company Modrá pyramida, author

Regarding equity financial instruments, it is very difficult to estimate the result of investing in the long term and therefore it is daring to state that this type of investment in stocks or investment funds is the best.

Nevertheless, according to the performance of the global financial market and especially considering the performance of indexes (Table 7) and stock funds in the past, we can declare that this is probable.

Table 7 Performance (IRR) of Selected Indexes and Length of Investment (Historical Performance up to 2019)

| Indexes TR / Number of Years | World | U.S.A. | Europe | Emerging Markets |
|------------------------------|---------------------|------------------|----------------------|------------------|
| | MSCI World TR (USD) | S&P 500 TR (USD) | MSCI Europe TR (USD) | MSCI EM TR (USD) |
| 2015-19 | 12.82 % | 15.22 % | 7.42 % | 13.22 % |
| 2010-19 | 10.48 % | 13.88 % | 5.94 % | 4.00 % |
| 2005-19 | 7.93 % | 9.88 % | 5.11 % | 6.95 % |
| 2000-19 | 6.58 % | 7.47 % | 4.85 % | 9.94 % |
| 1995-19 | 7.75 % | 9.56 % | 6.95 % | 6.96 % |
| 1990-19 | 8.50 % | 10.70 % | 7.79 % | 9.38 % |

Source: <https://finance.yahoo.com/>, author

The performance from 1990 to 2019 (30 years) is higher than the performance from 1995 (25 years) because the global equity markets demonstrated above-average performance from 1990 to 1995 (world 12.3%, USA 16.6%, Europe 12.1%, EM 22.3% p.a.). In Table 8, we can see, as an example of this type of investment, the performance of the two main global equity funds in different time periods up to 2019.

Table 8 Performance (IRR) of Selected Global Equity Funds and Length of Investment (Historical Performance up to 2019)

| Ticker | FWWFX | PIODX |
|--------------|-------------------------|----------------------|
| Fund / Years | Fidelity Worldwide Fund | Pioneer Fund Class A |
| 2015-19 | 10.51 % | 12.04 % |
| 2010-19 | 11.54 % | 12.24 % |
| 2005-19 | 8.69 % | 8.36 % |
| 2000-19 | 7.03 % | 6.21 % |
| 1995-19 | 8.36 % | 9.22 % |
| 1990-19 | 8.51 % | 8.08 % |

Source: <https://finance.yahoo.com/>, author

In Table 9, the risk-adjusted performance ratio¹² is calculated as a ratio of real performance (return) and volatility (risk). The volatility of transformed pension funds is calculated from the beginning of their existence in 1993 as the average volatility of all these funds in the Czech market, and it is low because of their portfolios. The volatility of the indexes corresponds to the standard volatility of these financial instruments in the global financial market. Concerning this ratio, it is

evident that equity investments can bring a higher real return for a unit of risk. Therefore, equity instruments are more suitable financial instruments for long-term investment than transformed pension funds. If we focus on the performance of the selected indexes, it is also apparent that there is a difference between them. The better results regarding this adjusted ratio are from global indexes rather than local indexes (Europe and emerging markets).

Table 9 Real Performance (IRR above Inflation), Risk (Volatility), and Risk-Adjusted Performance Ratio of Transformed Pension Funds and Selected Indexes from 1993 to 2019

| | Real Performance | Volatility | Risk Adjusted Performance Ratio |
|----------------------|------------------|------------|---------------------------------|
| Pension Funds | 0.22 % | 1.7 % | 0.13 |
| MSCI World TR (USD) | 6.1 % | 19.76 % | 0.31 |
| S&P 500 TR (USD) | 8.2 % | 18.13 % | 0.45 |
| MSCI Europe TR (USD) | 5.4 % | 20.84 % | 0.26 |
| MSCI EM TR (USD) | 6.9 % | 30.13 % | 0.23 |

Source: <https://finance.yahoo.com/>, author

4. Discussion and Conclusion

This final part consists of a discussion and a conclusion that summarizes the knowledge gained. The pension system is itself a long-run scheme, and the contributions to the scheme are the government's liability to pay pensions in the future. Therefore, it is essential for the government to be aware of the future risk. However, it is possible to state that there has been no progress in solving this retirement problem. The author wants to point out that it is obvious that the future of the pension reform in the Czech Republic is very uncertain. The situation is unclear because it seems improbable that the necessary new pension reform can be approved until the next elections in 2021, although it is evident that a significant pension reform is necessary to protect the financial solvency of the state pension system (Table 2). If the situation does not change in a relatively short time, the first pillar will not be able to ensure the same value of pensions for all Czech pensioners.

¹² Real performance is expressed as the performance minus inflation rate (IRR above inflation).

Therefore, the urgency of the new pension reform is clear and the author intends to discuss these new ideas, which can help to expedite it:

- The continuous first pillar needs reform as soon as possible because its current setting is not sustainable, and a discussion about dividing it into two parts is necessary;
- The incomes to the first pillar should come partly from the state budget and not only from the insurance premiums;
- The performance of the transformed pension funds in particular is low, and it would be a good idea to encourage participants to switch to funds without a capital guarantee;
- The average contribution to the pension funds, according to the materials of the Association of Pension Companies of the Czech Republic, is low (less than 1 000 CZK); therefore, it is necessary to motivate the participants to increase their contribution;
- The idea of a new personal long-term retirement account should be elaborated and explained;
- Faster improvement of financial literacy is needed for possible investment in financial markets.¹³ As Hastings and Mitchell (2011) stated, financial literacy is important for the decision-making process and can influence retirement wealth.

The main recommendation for future pensioners resulting from this paper is the following: it is not advisable to rely only on the PAYG state scheme and invest only in pension funds. The amount of the state pension in future is uncertain. It is necessary to realize that the longer the time horizon, the less easy it is to predict because of the performance of the whole economy, the future demographic situation, and political factors. Concerning the investment in contemporary pension funds, their performance in transformed funds is very low and highly likely not to guarantee enough money for retirement. In the case of the new participating funds, it is very important to choose a proper investment strategy according to the time horizon – the portfolio of this fund for long-term investment should consist mainly of stocks. Based on the risk-adjusted ratio (Table 9), it is possible to state that equity investments can bring a higher real return for a unit of risk. Concerning building savings, this type of investment it is not suitable for a longer period – the longer the investment in this financial instrument is, the lower the average yield is. The advantage of this instrument is

connected with the situation in the financial market and the state policy. Nowadays, the average yield for 6 years is about 4%, and this is relatively good in comparison with bank accounts¹⁴ and short-term investment. In the case of long-term investment, on the basis of the mentioned data and achieved results, it is possible to state that equity funds receive considerably better risk-adjusted real returns than pension funds. Therefore, as preparation for retirement, it is probably better to start long-term investment in stock funds. This recommendation does not mean that the pension funds and the building savings are not fit for longer-term investment at all but suggests that investing in these financial instruments is possible under certain circumstances and for example can constitute a conservative part of investors' portfolio. Furthermore, according to Musilek (2015) and the Report of the Ministry of Finance of the Czech Republic from 2019, the structure of the savings of Czech households is different from the portfolios of other European investors and, in contrast, based on deposits, which counted for almost 70% in 2018. Therefore, there is a substantial space for this type of equity investment.

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¹³ According to a survey by the Czech Banking Association, financial literacy in the Czech Republic is only average and is not increasing enough. Especially for the younger respondents, the vision of their retirement is too distant.

¹⁴ Interest in the Česká spořitelna bank was less than 0.2% for a checking account in 2019.

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Appendix

Table 1 Performance of Participation Funds and Inflation from 2013 to 2019
(Two Types of Funds = Obligatory Conservative and the Most Dynamic Strategy of the Pension Company, in %)

| Year | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------------|--|-------|-------|--------|-------|-------|--------|-------|
| Inflation | | 1.4 | 0.4 | 0.3 | 0.7 | 2.5 | 2.1 | 2.8 |
| Pension company / Fund | | | | | | | | |
| Allianz | | | | | | | | |
| Conservative fund | | 1.44 | 1.31 | 1.22 | -0.04 | -1.63 | 0.30 | 2.24 |
| Dynamic fund | | 1.76 | 2.78 | 4.98 | 1.51 | 4.07 | -6.86 | 15.77 |
| AXA/Uniq | | | | | | | | |
| Conservative fund | | 0.49 | 2.67 | 0.59 | 0.02 | -1.38 | -0.84 | 1.20 |
| Balanced fund | | Xxx | xxx | 2.02 | 4.48 | -0.1 | -4.24 | 11.17 |
| Conse | | | | | | | | |
| Conservative fund | | 0.69 | 1.39 | 0.51 | 0.09 | -0.90 | -0.98 | 1.47 |
| Global stock fund | | 19.53 | 12.71 | -0.08 | 10.81 | 9.96 | -9.69 | 18.96 |
| Česká spořitelna | | | | | | | | |
| Conservative fund | | 0.44 | 1.34 | 0.50 | -0.05 | -0.62 | 0.19 | 2.59 |
| Dynamic fund | | 0.17 | 7.02 | -1.04 | 7.42 | 8.2 | -6.08 | 18.75 |
| ČSOB | | | | | | | | |
| Conservative fund | | 0.94 | 2.68 | 1.35 | 0.00 | -0.94 | -0.83 | 2.15 |
| Dynamic fund | | 0.66 | 3.28 | 7.66 | 5.36 | 5.53 | -10.09 | 25.31 |
| ING/NN | | | | | | | | |
| Conservative fund | | 0.27 | 0.61 | 1.15 | 0.21 | -1.93 | -0.07 | 1.26 |
| Growth fund | | Xxx | xxx | -11.53 | 9.35 | 14.04 | 9.22 | 17.58 |
| Komerční banka | | | | | | | | |
| Conservative fund | | 0.36 | 1.33 | 0.36 | -0.15 | -1.57 | -0.83 | 1.49 |
| Dynamic fund | | 2.16 | 5.81 | 1.60 | 0.87 | 7.51 | -9.51 | 16.42 |
| Česká pojišťovna | | | | | | | | |
| Conservative fund | | 2.46 | 0.87 | 0.97 | -0.14 | -0.30 | -0.34 | 1.44 |
| Dynamic fund | | 3.53 | 1.84 | -0.32 | 6.36 | 8.20 | -9.13 | 17.91 |

Source: The Association of Pension Companies of the Czech Republic, Czech Statistical Office

