

STATE FUNDED PENSION SCHEMES IN THE BALTIC STATES: ASSETS AND RETURN ANALYSIS



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Abstract

The Baltic States have a three-tier pension system. Pillar II is the state funded pension scheme in which contributions are made automatically from an employee's gross salary as part of social contributions. The contributions to Pillar II state funded pension schemes may be invested in several pension plans with different risk ratios of which three types are the most common: active, balanced and conservative ones. The accumulation of funds and consequently a partial amount of an old-age pension depends on the chosen pension plan and the manager of funds. The research aim is to assess the operation efficiency of the state funded pension schemes in the Baltic States. The research mainly employs and provides the analysis on the statistical data on the value and return of assets and number of Pillar II scheme participants. Theoretical discussion is built upon the use of scientific publications by means of monographic descriptive method, correlation and regression analyses as well as the methods of analysis and synthesis. In Latvia, 25.62% on average of all state funded pension plans participants have chosen conservative strategy, while only 8.36% on average have chosen this strategy in Lithuania. In Estonia (75.49%) and Lithuania (69.13%), the majority of assets are accumulated in the balanced strategy pension plans. The research results show that pension plans have positive return in long-term; though, sharp fluctuations and negative return might be demonstrated in short-term. Both in Lithuania and Latvia exists a negative correlation between Pillar II pension schemes and inflation, i.e. the return of a pension scheme decreases with the increase of inflation meaning that inflation alongside with other economic and political factors might be considered as a factor affecting the return of pension schemes.

Key words: pension schemes, state-funded, pension plans strategies, Baltic States.

Introduction

The origins of state retirement pensions date back to the end of the 19th century when countries initiated the development of state mandatory social insurance against such social risks as old age and work incapability. Several researchers studying the development of pension systems have come to the conclusion that countries may use one of the two basic pension models: the Anglo-Saxon or Beveridge system, or the continental or Bismarck system (Kolmar, 2007). The continental model is characteristic to Western European countries, and it is based on the solidarity principle of generations with the aim to reduce poverty. The principle of the Anglo-Saxon model envisages a uniform rate depending on the years a person has worked in a particular country, and it is aimed at the maintenance of status. Jefremova (2016) studying the significance of the state funded pension schemes assures that a three-tier pension system is one of the most efficient and progressive pension systems worldwide. Estonian researchers have provided a profound analysis of social protection systems in the Baltic States and indicate that pension systems there with the chosen three-tier system differ from the pension schemes in other European countries (Paas *et al.*, 2004). Funded pension schemes are broadly studied by Lithuanian and Estonian researchers (Meckovski *et al.*, 2022; Medaiskis & Gudaitis, 2017; Pivoriene & Ambrazeviciute, 2020; Novickyte & Rabikauskaite, 2017; Piirits & Vork, 2019). Volskis E. (2012, 2014) is one of Latvia's researchers who has made valuable

contributions to the analysis of pension system in Latvia. One of the aims of Pillar II pension schemes is to accumulate financial resources and receive part of them as an old-age pension. Therefore, it is necessary to choose the most appropriate pension plan and the manager of pension funds. The research aim is to assess the operation efficiency of the state funded pension schemes in the Baltic States. Research tasks: 1) to overview the pension systems and retirement requirements in the Baltic States; 2) to analyse assets value and number of participants in Pillar II scheme; 3) to evaluate the return of assets invested in Pillar II scheme.

Materials and Methods

The research mainly employs and provides the analysis on the statistical data on the value and return of assets and number of Pillar II participants compiled by the following authorities of the Baltic States: the State Social Insurance Agency of the Republic of Latvia, the Bank of Lithuania and Pensionikeskus AS of the Republic of Estonia. Theoretical discussion is built upon the use of scientific publications by means of monographic descriptive method, as well as the methods of analysis and synthesis. Correlation and regression analyses were applied to determine the relationship between two variables: pension scheme and inflation.

Results and Discussion

Three-tier pension system

The Baltic States have a three-tier pension system, which includes Pillar I (National Mandatory

Bonded Pension Scheme), Pillar II (State-funded Pension Scheme) and Pillar III (Private Voluntary Pension Scheme). Pillar I is a non-accumulating pension scheme, which means the participation of all residents who pay or whom social contributions are paid for. This scheme is also known as PAYG or pay-as-you-go pension system in which pensions are financed by the contributions collected from the current employees. Pillar I is based on gender and generation solidarity (Manapensija, s.a). Pillar II is a state funded or accumulative pension scheme which allows to make additional savings for the pension. Contributions to Pillar II pension funds are made automatically from an employee’s gross salary as part of made social contributions. These contributions are invested in financial instruments consistent with a person’s selected pension strategy. Pillar III is a private voluntary pension scheme ensuring additional savings for a person’s pension through private pension funds. Figure 1 reflects the historical development of the pension systems in the Baltic States.

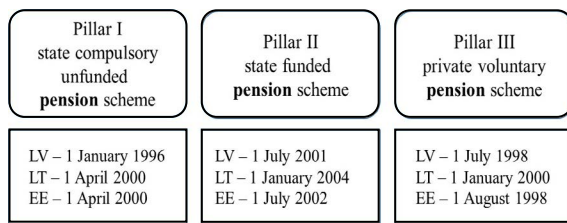


Figure 1. Three-tier pension systems in the Baltic States.

Source: author’s construction based on Paas *et al.*, 2004.

The pension system of Latvia is the oldest

pension system in the Baltic States as its Pillar I started the operation in 1996, while Lithuania has initiated the pension schemes only from 2000. However, in 2004 all three Baltic States had Pillar II pension schemes. Estonian researchers Paas *et al.* (2004) have mentioned that Pillar II scheme is compulsory for younger and voluntary for older employees. In Latvia, residents born after 1 July 1971 are mandatory participants of the state funded pension scheme, while voluntary participants may be persons born between 2 July 1951 and 1 July 1971 (Manapensija, s.a). In Estonia, the mandatory date for participation in the scheme is 1 January of the year after the person has reached the age of 18 (Pensionikeskus.ee, s.a.). Strumskis and Balkevicius (2016) analysing the pension system in Lithuania have pointed that Pillar II is voluntary and an employee may freely choose the contributions and pension fund manager. Yet, the situation has changed after the Pension Reform in Lithuania and participation in Pillar II pension scheme is mandatory from 2019 (Pivoriene & Ambrazeviciute, 2020). The rights to receive a state funded pension depend on several factors (Table 1).

Pension reforms in the Baltic States envisage a gradual increase of retirement age up to 65 years. In 2023, persons (both men and women) having reached the age of 64 years and 6 months and having at least 15 years of the insurance service have the right to an old-age pension in Latvia. In Estonia, the retirement age is 64 years and 3 months, while Lithuania has different retirement age requirements for men and women, i.e. 64 years and 6 months for men and 64 years for women. The pension system prescribes also the right to early retirement or delay of retirement.

Table 1

Comparison of retirement requirements in the Baltic States

Indicator	Latvia	Lithuania	Estonia
Retirement age in 2023	64 years and 6 months	64 years and 6 months (for men) 64 years (for women)	64 years and 3 months
Planned retirement age	65 (from 2025)	65 (from 2026)	65 (from 2026)
Insurance period (length of service)	at least 15 years (20 years from 2025)	at least 15 years	at least 15 years
Early retirement	2 years before the retirement age if insurance period is at least 30 years	maximum 5 years before the retirement age	2 years before the retirement age

Source: author’s construction based on Valsts sociālās apdrošināšanas..., s.a.; Pensionikeskus, s.a; Lietuvos Bankas, s.a.

The most favourable situation is reported in Lithuania, where persons may retire even five years before the retirement age, while Latvia has the strictest terms stating that early retirement is possible two years before the retirement age and only in the case a person has an insurance period for at least 30 years. In Estonia, these are two years before the retirement age. However, according to Riigiportal Eesti.ee (s.a.), in Estonia, the retirement age from 2027 will depend on

the average life expectancy and it would be possible to retire even five years before the retirement age.

Pillar II state funded pension strategies

The contributions to Pillar II state funded pension schemes may be invested in several pension plans with different risk ratios of which three types are the most common: active, balanced and conservative ones (Table 2).

Table 2

Comparison of Pillar II state funded pension strategies in the Baltic States

Indicator		Active plans			Balanced plans	Conservative plans
		Type 1	Type 2	Type 3		
Risk		high	high	moderate	low	low
Return rate		high	moderately high	moderate	moderately low	low
Investment sources	LV	up to 100% in investment funds and shares	up to 25% in fixed income securities up to 75% in investment funds and shares	50% in fixed income securities 50% in investment funds and shares	up to 75% in fixed income securities up to 25% in investment funds and shares	100% in fixed income securities
	LT	up to 98% in shares	up to 85% in shares	up to 50% in shares	35–85% in shares	10–19% in shares
	EE	up to 100% in investment funds and shares	various depending on the fund		up to 60–70% in shares	at least 80-90% are invested in government bonds
Target audience: age		around 20–30	up to 45	from 46 to 55	from 56 to 60	more than 60

Source: author's construction based on Valsts sociālās apdrošināšanas..., s.a.; Pensionikeskus, s.a; Lietuvos Bankas, s.a.

Consistent with Article 12 of the Law on State Funded Pensions (the Republic of Latvia), Pillar II funds may be invested in securities or money market instruments issued by the state, local governments and international financial institutions, shares and other debt securities of commercial companies, deposits in credit institutions, investment funds, derivatives and venture capital market instruments. In addition, the law prescribes restrictions for the investments and prohibits investing funds in real estate, virtual (crypto) currencies, financial instruments issued by the fund manager and granting or using them as loans (Valsts fondēto pensiju ..., 2000). The law allows to invest up to 100% of total funds in shares and up to 20% of total funds may be invested in other currencies.

In general, *active plans* mean that funds are invested in shares of various companies; thus, ensuring the highest long-term returns. In Latvia,

additional two kinds of active plans are introduced from 2018, i.e. Active 75% and Active 100% pension schemes. *Balanced plans* ensure a dynamic and stable increase of invested resources and protect the accrued funds from large fluctuations. *Conservative plans* ensure a low profitability, since they mainly preserve the accrued pension capital at the same time ensuring a steady increase in the capital value. In 2023, there are six conservative plans, three balanced plans and twenty active plans of which seven plans are under Active 50% strategy, two – Active 75% and eleven – Active 100%. In Lithuania, the pension strategies are divided into conservative, small equity share, medium equity and equity plans. Two pension funds fall under the category of conservative plans, one under small equity share, one – medium equity share and four – equity share funds. For the purpose of analysis, small equity share and medium equity plans are considered

as balanced pension plans, while equity ones as active pension plans. In Estonia, pension plans are divided consistent with the risk level: low (conservative), medium (balanced) and high (active). The degree of risk is determined by the structure and proportion of investments.

The value of Pension II pillar scheme assets consists of contributions made by the scheme participants and profit from investment generated by the pension plans. Figure 2 discloses the data on total assets value and number of participants in Pillar II pension schemes in the Baltic States.

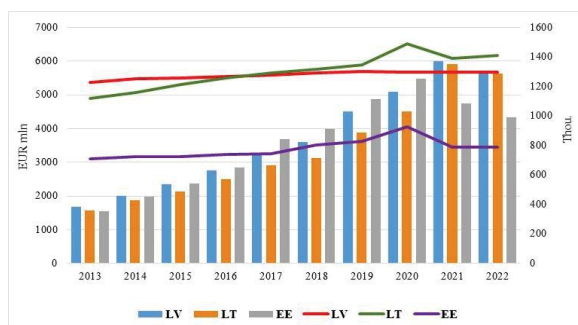


Figure 2. Total value of assets and number of Pillar II scheme participants in the Baltic States for 2013–2022, at the end of the year.

Note: bars – assets, EUR mln, lines – participants, thou.

Source: author’s construction based on Valsts sociālās apdrošināšanas..., s.a.; Pensionikeskus, s.a; Lietuvos Bankas, s.a.

Total value of assets of the state funded pension scheme has steadily increased in Latvia and Lithuania up to the end of 2021 reaching almost EUR 6 bln in each country with the following decrease in 2022, while Estonia reports a decrease already in 2021. However, in Latvia, the largest increase in the value of total assets was reported in 2019 when assets grew by EUR 915.41 mln or 25.46% compared with the previous period. Such an increase was reached thanks to net contributions made by the scheme participants (EUR 516.70 mln) and profitable investment of the scheme’s funds (EUR 398.80 mln). In Lithuania, the largest increase of assets value was observed in 2021 – by EUR 1.41 bln or 31.43% compared with 2020. The annual rate of return was 21% and such a growth was experienced due to fast rising equity markets (Invalda INVL, 2022). In Estonia, the fastest increase was seen in 2014 and 2017, i.e. by EUR 450.52 mln (29.32%) and EUR 828.78 mln (29.13%). In 2022, the value of assets decreased in all Baltic States mainly due to the sharp rise of inflation, the war in Ukraine and increase of energy resources prices. The decrease was around 5.32% in Latvia and 4.9% in Lithuania. In Estonia, the decline was larger, i.e. 8.82%. However,

the decrease in total assets value in Estonia started already in 2021 (13.07% vs 2020).

Changes in the number of scheme participants have a minor impact on the value of assets. Hence, in Latvia, the changes in the number of scheme participants have been very steady, i.e. 0.59% on average within the period analysed (the largest changes in 2014 (increase by 1.77%) and 2020 (decrease by 0.34%). Lithuania demonstrates bigger fluctuations: 2.69% on average with a sharp growth in 2020 (10.35%) followed by a quite rapid decrease in 2021 (6.64%). Such changes are due to the changes in the number of participants of conservative pension plans. In 2020, the number of participants in conservative Pillar II plans increased by 103% or a bit more than twice; yet, this number decreased by 59.42% in the following year. In Estonia, the number of scheme participants is 1.65 times smaller than in other Baltic States on average. Changes are similar to those reported by Lithuania: the largest increase in 2020 (12.26%) with a very rapid decline in 2021 (15.23%). Basic reasons here might be the Pension Reform of Estonia initiated in 2021.

The value of assets per scheme participant is also a significant aspect for the analysis (Figure 3). In general, the size of the accumulated capital in Pillar II scheme per participant depends on several factors: amount of contributions, duration of participation in Pillar II scheme and performance results of the selected investment plan.

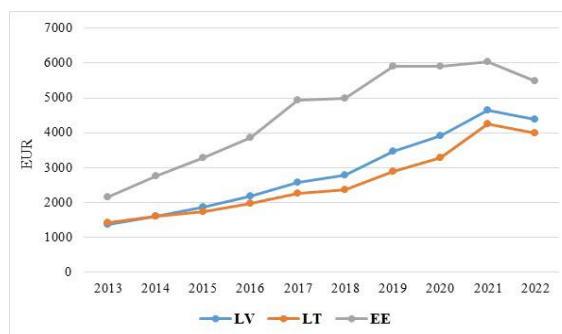


Figure 3. Value of assets per scheme participant in the Baltic States for 2013–2022, EUR, at the end of the year.

Source: author’s construction based on Valsts sociālās apdrošināšanas..., s.a.; Pensionikeskus, s.a; Lietuvos Bankas, s.a.

The largest amount of contributions made per scheme participant is reported by Estonia which exceeds the amount of contributions made in other Baltic States 1.66 times on average. The explanation lies in smaller number of participants and approximately the same amount of contributions made. The average increase in the value of assets per participant in Estonia has been more moderate (11.60%) in contrast to Lithuania and Latvia (12.66%

and 14.08% respectively). The analysed indicator has grown in all Baltic States till the end of 2021 with a bit more expressed fluctuations in Estonia which demonstrated also the sharpest decrease in the value of assets per participant in 2022 (9.07%). Latvia and Lithuania reported decrease by 5.32% and 6.27%, respectively.

Total assets of Pillar II state funded pension scheme are broken down by three main strategies: conservative, balanced and active to analyse the assets value in the Baltic States (Figures 4, 5, 6).

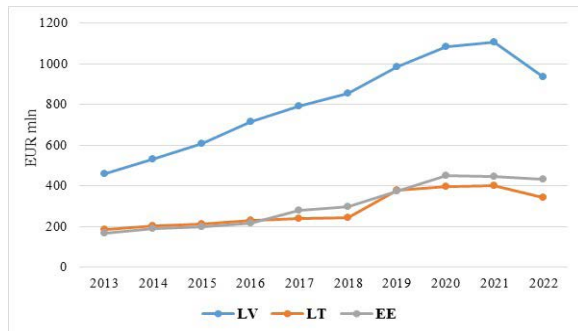


Figure 4. Total value of assets of conservative strategy plans in the Baltic States for 2013–2022, EUR mln, at the end of the year.

Source: author's construction based on Valsts sociālās apdrošināšanas..., s.a.; Pensionikeskus, s.a; Lietuvos Bankas, s.a.

According to Figure 4, the assets value of conservative strategy plans in Latvia is approximately 2.7 times higher than in Lithuania and Estonia on average. The value of assets has increased at an average rate of 13.68% till 2019, then the rate has slowed down to 9.78% in 2020 and 2.34% in 2021. The maximum value was reached in 2021 amounting to EUR 11.08 bln. In 2022, the value of assets decreased to EUR 935.34 mln or by 15.61%. In Lithuania, the value of assets in conservative strategy plans demonstrated the highest rate of increase by 55.28% in 2019. However, the maximum value of EUR 403.34 mln was reached in 2021 mainly due to the growth of assets in two pension funds: Life-cycle pension fund 1975-1981 and Life-cycle pension fund 1968-1974. In Estonia, the largest value of assets observed was also in 2021 (EUR 445.75 mln). The value of assets has started to decrease already in 2021 which might be associated with the Pension Reform in Estonia.

The number of strategy participants in Latvia is on average three times larger than in Lithuania (Figure 5).

In Latvia, 25.62% on average of all state funded pension scheme participants have chosen conservative strategy, while only 8.36% on

average have chosen this strategy in Lithuania. Unfortunately, no publicly available data broken down by pension scheme strategies are available for Estonia.

Different data and situation are demonstrated by assets accumulated in the balanced strategy pension plans (Figure 6).

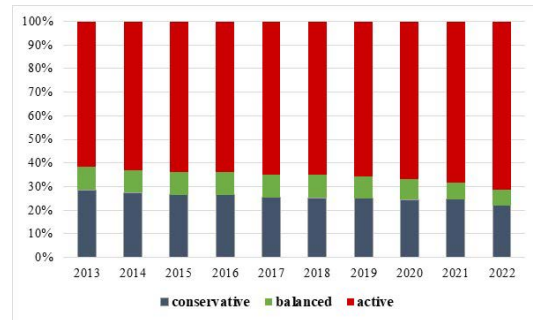


Figure 5. Proportion of Pillar II pension strategies participants in Latvia for 2013–2022, at the end of the year, %.

Source: author's construction based on Valsts sociālās apdrošināšanas..., s.a.

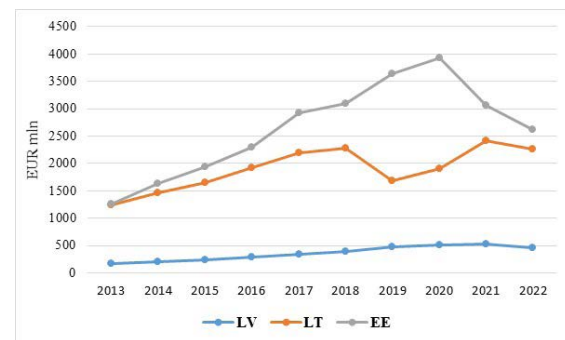


Figure 6. Total value of assets of balanced strategy plans in the Baltic States for 2013–2022, EUR mln, at the end of the year.

Source: author's construction based on Valsts sociālās apdrošināšanas..., s.a.; Pensionikeskus, s.a; Lietuvos Bankas, s.a.

In contrast to conservative strategy plans, in Estonia (75.49%) and Lithuania (69.13%) the majority of assets are accumulated in the balanced strategy pension plans. The value of assets demonstrated a growing trend till 2018 in the two countries. In Lithuania, the value of assets decreased by 25.69% in 2019 compared with the previous year due to a 32.73% decline in the number of scheme participants. However, the value of assets per participant grew by 55.54% from EUR 2465.56 to EUR 3834.82. In 2021, the largest rate of increase (25.90%) was reached followed by a 6.42% decrease in the following year. Estonia has reported a growing trend at an average rate of 17.93% reaching EUR 3.93 bln in 2020. The sharp decrease in 2021 (22%) might be associated with the

Pension Reform and more extensive transition of participants to active pension strategies.

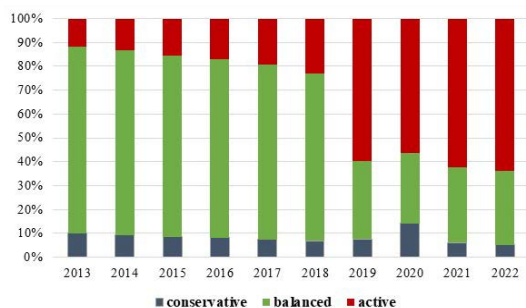


Figure 7. Proportion of Pillar II pension strategies participants in Lithuania for 2013–2022, at the end of the year, %.

Source: author’s construction based on Lietuvos Bankas, s.a.

Within the period analysed the proportion of scheme participants in balanced pension plans accounts for 57.43% on average, reaching the largest number of participants (942 451) in 2017. The number and consequently the proportion of active scheme participants significantly started to increase from 2019. The increase accounted for 59.61% compared with the previous year and the number of active scheme participants continued to grow with every year reaching 898 210 participants in 2022. The changes follow from the new pension model which was introduced in Lithuania from 2019. This means that Life cycle pension funds were obliged to offer participants to join those pension funds which were most appropriate for them to accumulate more funds for pension capital and their age (Ministry of Social..., 2023). Therefore, pension scheme participant had an opportunity to choose those plans which ensure higher return on investment.

The growth of accumulated assets in active plans also evidences the transition from balanced pension schemes to active ones that is expressively true for Lithuania (Figure 8).

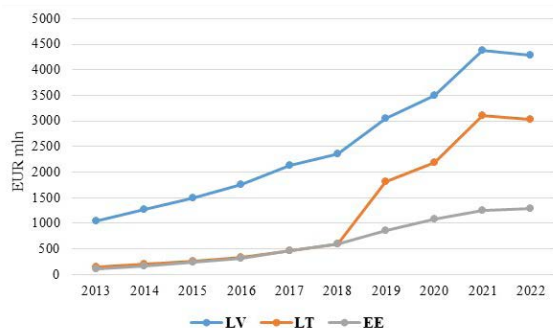


Figure 8. Total value of assets of active strategy plans in the Baltic States for 2013-2022, EUR mln, at the end of the year.

Source: author’s construction based on Valsts sociālās apdrošināšanas..., s.a.; Pensionikeskus, s.a; Lietuvos Bankas, s.a.

In Lithuania, assets of active strategy plans have sharply grown from 2018; thus, reaching EUR 1.82 bln in 2019 or increasing by 203.46% compared with the previous year. The value of assets moderately increased also in the following two years (by 31% on average) up to 2022. The value of assets per participant has increased throughout the entire period analysed reaching the largest value in 2021 when it amounted to EUR 3584.40 per participant or growing by 37.07% compared with the year before. Estonia demonstrates moderate fluctuations in the value of assets, and it is the only country which reports an increase in the assets value also in 2022. In Latvia, the increase of assets value has been the lowest, i.e. annually 17.21% on average.

The comparison of average annual return of three pension strategies and annual inflation rates might provide an insight in return of contributions made by the scheme participants (Figures 9 and 10).

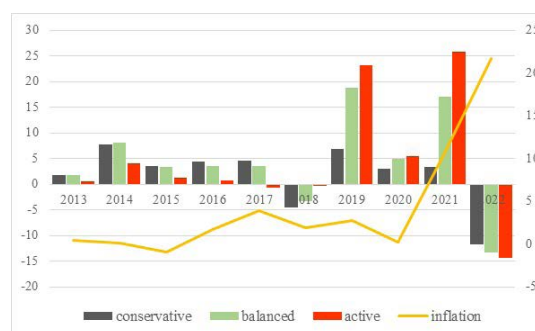


Figure 9. Average annual short-term return of Pillar II pension scheme and inflation rate at the end of the year in Lithuania between 2013 and 2022, %.

Source: author’s construction based on Lietuvos Bankas, s.a; Official statistics portal, s.a.

In general, returns from investments in pension plans are higher than inflation, especially in 2019, when the average return of pension schemes exceeded the inflation rate by 13.57 percentage points. Rabikauskaitė and Novickytė (2015) also have concluded that pension funds preserve the assets value despite financial slowdowns. However, this is true till 2022, when the return of pension funds’ assets was 35% below the inflation rate. Such a tremendous gap is due to the emergence of various political and economic circumstances. In 2022, the average return of assets was -13.20%, while the inflation rate was 21.70%. It shall be considered that the data show the average figures and the assessment of them require precaution as any individual pension plan may demonstrate different return rates. So, for example, in 2019, when the average annual inflation rate was 2.70%, the highest average return over a year was demonstrated by active plans (23.10%) of which Life-cycle pension funds, 1975–1981 were the most profitable (23.71%) followed by Life-cycle pension funds, 1989–1995 and Life-cycle pension funds, 1996–2002 (22.91% and 22.90%, respectively). In

Lithuania, the calculated correlation shows that there exists a negative correlation between Pillar II pension schemes and inflation, i.e. the return of a pension scheme decreases with the increase of inflation. The strongest negative correlation is observed between a conservative pension scheme and inflation ($r=-0.7281$). The coefficient of determination ($R^2=0.53$) means that only 53% of the variability observed in the target variable are explained by the regression model. Considerably lower results are obtained analysing correlation between a balanced pension scheme and inflation ($r=-0.4048$ and $R^2=0.16$) and an active pension scheme and inflation ($r=-0.2320$ and $R^2=0.05$). Hence, the correlation and regression analyses prove that inflation is only one of the factors affecting the return of pension schemes.

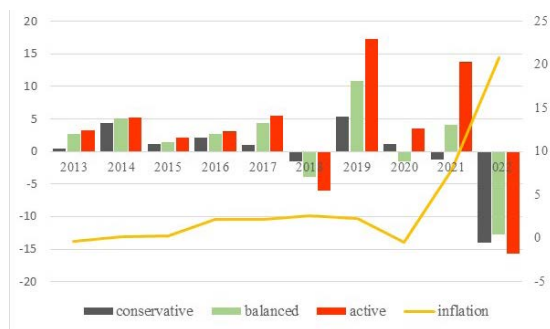


Figure 10. Average annual short-term return of Pillar II pension schemes and inflation rate at the end of the year in Latvia between 2013 and 2022, %.

Source: author's construction based on Valsts sociālās apdrošināšanas..., s.a.; Official statistics portal, s.a.

In Latvia, active pension schemes in short-term have reported higher return throughout the entire period analysed with the exception of 2018 and 2022. The year 2018 was unfavourable for the financial instrument market due to losses at the global stock and bonds market. The downturn had the hardest hit on the return of active plans (-5.96%), though a negative return was experienced also by balanced and conservative pension plans. In general, negative return results are due to the cyclical nature of financial markets.

In Latvia, the correlation trend is similar showing a negative correlation between Pillar II pension schemes and inflation. However, the correlation is stronger. Similar to Lithuania, also in Latvia, the strongest negative correlation is observed between a conservative pension scheme and inflation ($r=-0.9072$). The coefficient of determination ($R^2=0.82$) means that 82% of the variability observed in the target variable are explained by the regression model. Weaker but still significant correlation is observed between a balanced pension scheme and inflation ($r=-0.6827$ and $R^2=0.47$) and active pension schemes and inflation

($r=-0.5546$ and $R^2=0.31$). This means that inflation has been one of essential factors affecting the return of pension schemes in Latvia.

In a long-term (over 10 years), pension plans in Latvia have reported a positive annual return around 3% on average. The highest average annual return was achieved by Active 50% pension plan (3.60%), conservative pension schemes were the only ones who demonstrated a negative long-term return in 2022.

Conclusions

1. The Baltic States have a three-tier pension system. Pillar II is the state funded pension scheme in which contributions are made automatically from an employee's gross salary as part of social contributions.
2. Total value of assets of the state funded pension scheme has steadily increased in Latvia and Lithuania up to the end of 2021 reaching almost EUR 6 bln in each country with the following decrease in 2022, while Estonia reports a decrease already in 2021. Changes in the number of scheme participants have a minor impact on the value of assets.
3. In Latvia, 25.62% on average of all state funded pension plans participants have chosen conservative strategy, while only 8.36% on average have chosen this strategy in Lithuania. In Estonia (75.49%) and Lithuania (69.13%), the majority of assets are accumulated in the balanced strategy pension plans.
4. Within the entire period analysed, the assets value of conservative strategy plans in Latvia is approximately 2.7 times higher than in Lithuania and Estonia on average. The number of strategy participants in Latvia is three times on average larger than in Lithuania.
5. In Lithuania, the highest average short-term return of pension plans exceeding the inflation rate by 13.57 percentage points on average was observed in 2019.
6. In Latvia, active pension plans compared with other plans in short-term have reported higher return throughout the entire period analysed with the exception of 2018 and 2022, when the return of active plans decreased by 5.96%. However, a negative return was experienced also by balanced and conservative pension plans.
7. In a long-term (over 10 years), pension plans in Latvia have reported a positive annual return around 3% on average. The highest average annual return was achieved by Active 50% pension plan (3.60%) and conservative pension plans were the only ones who demonstrated a negative long-term return in 2022.

8. Both in Lithuania and Latvia exists a negative correlation between Pillar II pension schemes and inflation, i.e. the return of a pension scheme decreases with the increase of inflation. The strongest negative correlation is observed between a conservative pension scheme and inflation ($r=-0.7281$ in Lithuania and $r=-0.9072$ in Latvia), while the weakest correlation was reported between an active pension scheme and inflation ($r=-0.2320$ and $r=-0.5546$, respectively). This means that inflation alongside with other economic and political factors might be considered as a factor affecting the return of pension schemes.

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