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Collective Pension Savings and Long-Term Capital Mobilization: Polish Insights for the Savings and Investment Union

European capital markets remain underdeveloped compared to global peers, characterized by low equity issuance and limited market capitalization. This study investigates how collective pension savings can more effectively stimulate capital market growth than individual savings products. Using a mixed-methods approach – including a critical literature review, a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, and a comparative analysis of European and U.S. pension systems – the research identifies behavioral and structural barriers to individual saving. It highlights institutional mechanisms such as automatic enrollment, lifecycle contribution escalation, and default investment strategies that address these challenges. The paper contributes to the finance literature by proposing a sequenced reform strategy for pension systems aimed at optimizing long-term savings and capital accumulation. It emphasizes the often-overlooked role of asset allocation in pension plans, which is crucial for both capital market development and household investment returns. Furthermore, the study finds the concept of a positive feedback loop between emergency savings and pension contributions to be a potential game changer. Drawing on Poland's pension infrastructure, the article offers policy recommendations with broader relevance for European economies. The findings underscore that effective asset allocation and plan design in collective pension schemes – not merely the existence of pension funds – are critical to capital market development.

Keywords: capital markets, pension systems, institutional savings, asset allocation, behavioral finance, European economies, financial reform

JEL Classification: G23, G11, H55, D14, E21

1. Introduction

European capital markets remain significantly less developed than their counterparts in the United States¹. Measured by the total market capitalization of domestic listed companies relative to GDP, the stock markets in the U.S. and Japan are substantially larger than those in Europe. Even within Europe, considerable variation exists: countries such as Ireland, Sweden, Denmark, and the Netherlands exhibit markedly higher market capitalization levels. European firms rely less on equity issuance for financing than their American or Asian peers, and venture capital markets remain underdeveloped. As a result, European companies – particularly in the technology sector – frequently seek financing from non-European investors, opt for listings on U.S. exchanges, and are more often acquired by American firms than vice versa. Consequently, the high returns associated with the dynamic growth phase of these companies accrue to foreign investors, while European stock exchanges suffer from underrepresentation of modern technology firms. These structural weaknesses have contributed to persistently lower returns on European equity markets since the global financial crisis.

Despite a high propensity to save and relatively elevated levels of accumulated wealth, European households make limited use of capital market instruments. Bank deposits dominate the composition of household savings, with only around 17% of assets held in securities, compared to approximately 43% in the United States². This underutilization of capital markets means that substantial household savings fail to reach firms via equity financing, resulting in lower returns for savers and reduced capital formation. Pension funds in the EU also lag behind their U.S. counterparts in several key dimensions: they manage lower total asset volumes, allocate a smaller share to equities, and invest a significant portion of their portfolios outside the euro area. These factors limit their effectiveness as sources of long-term financing. Sweden stands out positively, with pension and insurance portfolios exhibiting significantly higher equity exposure than the EU average – over 50% of assets are invested in stocks and equity funds, nearly double the EU-wide figure. Recent reports on the competitiveness of European economies emphasize the need to strengthen capital markets by mobilizing pension savings³. Within the framework of the Savings and Investment Union initiative, the development of capital-funded pension systems is viewed as a strategic tool for fostering long-term economic growth⁴.

There is broad consensus in the academic literature regarding the importance of capital-based pension systems as a foundation for capital market development and economic performance⁵.

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1. Demertzis, M., Domínguez-Jiménez, M. and Guetta-Jeanrenaud, L. (2021), *Europe should not neglect...*, op. cit.
 2. Oliver Wyman (2024), *The capital flywheel. European capital markets report*.
 3. Draghi, M. (2024), *The Future of European Competitiveness*, European Commission; Letta, E. (2024), *Much More Than a Market: Empowering the Single Market to Deliver a Sustainable Future and Prosperity for All EU Citizens*, European Commission; Noyer, C. (2024), *Developing European capital markets to finance the future*, European Commission.
 4. European Commission (2024), *Developing European Capital Markets to Finance the Future: Proposals for a Savings and Investments Union*, Brussels.
 5. See f.e. Sołdek A, (2025): System wypłat z dobrowolnych oszczędności emerytalnych – analiza determinant, prognozy aktywów i rekomendowany model. *Ubezpieczenia Społeczne*, pp. 23–46, Grad, A., Karnowski, J. and Rzońca, A. (2022), „Jak powiązać prywatyzację i rozwój filara kapitałowego w systemie emerytalnym – propozycja”, *Ekonomista*, (4), pp. 484–508.

At the same time, the necessity of considering the specific characteristics of individual countries is emphasized – there is no ‘one-size-fits-all’ solution. The literature remains limited in its exploration of the sequencing of pension system development, particularly with respect to the relative roles of individual versus collective forms of savings mobilization. There is a lack of guidance on which components should be prioritized and how to evaluate the trade-offs associated with different approaches.

The aim of this article is to propose the development of the demand side of the capital market by focusing on collective rather than individual forms of pension savings. The comparative advantages of collective arrangements are examined through a SWOT analysis, highlighting their capacity to overcome behavioral and structural barriers to saving – especially among low-income groups. Drawing on a critical review of the literature, the article identifies key obstacles to the expansion of individual products and outlines the design features of institutional solutions that effectively address these challenges. Particular attention is directed toward automatic design features embedded in occupational pension schemes, including automatic enrollment, default contribution levels, lifecycle contribution-escalation mechanisms, and predefined investment strategies. Their significance stems from the fact that in economies where pension assets account for a substantial share of GDP, occupational pension plans serve as the primary vehicle for accumulating long-term capital to finance future retirement liabilities.

The article compares the recommendations from reports on the competitiveness of European economies with the opinions of capital market experts. While the literature has documented the positive impact of capital-based pension systems on economic growth and retirement outcomes relative to pay-as-you-go (PAYG) models⁶, this study contributes by identifying design principles that maximize the pool of investable capital. It also adds to the literature on optimal pension plan architecture by demonstrating how the sequencing of reforms influences the effectiveness of long-term savings mobilization. Furthermore, it highlights emerging evidence of a positive feedback loop between emergency savings and pension accumulation within occupational schemes.

Finally, the article addresses the challenge of reconciling divergent pension models and capital market structures. A second analytical lens is provided through a comparative assessment of success factors in selected European countries and the United States, where high pension savings relative to GDP have translated into tangible economic benefits. The analysis also underscores the importance of investment strategy in pension asset management – effective asset allocation is essential, even within collective frameworks. The mere existence of pension funds does not guarantee market development: their design and implementation are critical.

Based on a comparative evaluation of collective and individual savings mechanisms, the article proposes targeted reforms to the Polish pension system. Like Sweden, Poland initiated pension reform in the early 2000s with the intention of strengthening the capital market. However, the rollback of the Open Pension Funds (OFE) curtailed the potential benefits of this strategy. Despite these setbacks, the Polish system retains all essential components – albeit at varying stages of development – allowing for the identification of concrete directions for reform. The proposed solutions may also serve as a reference for other European countries seeking to enhance the role of pension savings in capital market development.

6. Ibidem.

2. Literature Review

The academic literature broadly supports the view that capital-funded pension systems positively influence economic growth. Compared to PAYG schemes, these systems offer superior benefits to participants by investing contributions in financial markets and leveraging the indirect effects of economic expansion. Two primary research streams emerge in this context: one examines the impact of capital-funded pensions on national savings, while the other explores their role in the development of the financial market.

Grad et al. provide a comprehensive review of these channels, showing that a wide range of empirical studies – employing varied research designs – support the positive macroeconomic effects of the capital pillar⁷. Feldstein posits that capital-funded systems enhance national savings by replacing intergenerational transfers with genuine asset accumulation⁸. Romer further argues that increased savings foster capital accumulation, thereby stimulating long-term growth⁹. Empirical evidence from Poland, as analyzed by Ciżkowicz, suggests that the introduction of a capital pillar significantly boosts institutional savings and expands the supply of long-term capital¹⁰. However, findings on the economic impact of Open Pension Funds remain mixed. Banasik and Brzozowska-Rup attribute this ambiguity to methodological differences, including variations in research design, time horizons, and control variables¹¹. Their analysis identifies three key transmission channels: increased savings, capital market development, and improved capital allocation.

The second research stream emphasizes the role of pension funds in financial market development. The scale and structure of private pension systems are strongly correlated with the depth and liquidity of stock and bond markets across economies. Vittas highlights the unique capacity of pension funds to generate demand for financial instruments, even in the absence of initial supply¹². Diamond adds that institutional investors enhance market transparency, improve disclosure standards, and strengthen corporate governance, thereby increasing market efficiency¹³. Numerous empirical studies indicate the positive influence of institutional investors on capital market development¹⁴. Kotlikoff argues that capital-funded systems improve resource allocation

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7. Grad, A., Karnowski, J. and Rzońca, A. (2022), „Jak powiązać prywatyzację i rozwój filara kapitałowego w systemie emerytalnym – propozycja”, *Ekonomista*, (4), pp. 484–508.
 8. Feldstein, M. (1995), *Would Privatizing Social Security Raise Economic Welfare?*, NBER Working Paper, (5281).
 9. Romer, P.M. (1990), Endogenous Technological Change, „*Journal of Political Economy*”, vol. 98, no. 5, s. S 71–S102.
 10. Ciżkowicz, P. (2013), „Wpływ reformy emerytalnej na oszczędności krajowe w Polsce”, *Bank i Kredyt*, 44(5), pp. 415–442.
 11. Banasik, T. and Brzozowska-Rup K. (2016), „Methodological Aspects of Assessment of Pension Funds Influence on The Economic Development of Poland”, *Research Papers of Wrocław University of Economics*, 451, pp. 11–26.
 12. Vittas, D. (1998), *Institutional Investors and Securities Markets: Which Comes First?*, World Bank Policy Research Working Paper, no. 2032.
 13. Diamond, P. (2002), *Social Security Reform*, Oxford University Press, Oxford.
 14. See, for example, Carvajal, A.F. and Bebczuk, R.N. (2019), *Capital Markets Development: Causes, Effects, and Sequencing*, World Bank Group; Bukowski, M. (2024), *Odnowa Polski rynek kapitałowy – odbudowa znaczenia i pozycji w gospodarce*, Wise Europa, Warszawa.

by channeling savings into productive sectors and supporting financial institutions¹⁵. Levine, in a comprehensive review, finds a robust link between financial sector development – measured by market depth, credit access, and intermediation efficiency – and long-term growth¹⁶.

Walker and Lefort, analyzing pension reforms in Latin America, report that capital-funded systems contributed to greater market liquidity, institutional development, improved governance, lower capital costs, and higher trading volumes¹⁷. Demertzis et al. underscore the importance of deep and efficient capital markets for economic recovery¹⁸. Meng and Pfau argue that financial sector maturity is a prerequisite for pension funds to positively affect securities markets¹⁹. According to Grad et al., increased liquidity combined with broader domestic investor participation serve to attract foreign capital, thereby mitigating exit risk and reinforcing overall market stability²⁰.

Recent studies also highlight the advantages of capital market financing over bank lending, particularly for innovation-driven and intangible asset-intensive sectors²¹. In economies with deeper capital markets, high-tech industries exhibit disproportionately higher innovation levels²². The European market illustrates this dynamic, where underdeveloped venture capital ecosystems hinder scale-up financing and constrain growth²³. Importantly, the literature emphasizes that the positive effects of pension funds are most pronounced during the accumulation phase – when contributions exceed payouts. As populations age, the decumulation phase may reverse these benefits. According to the lifecycle theory, savings decline post-retirement, potentially reducing national savings and altering asset demand structures²⁴. Grad et al. caution that some empirical studies identify channels through which capital market development may negatively affect growth²⁵.

Recent reports on European competitiveness – authored by Letta, Draghi, and Noyer – identify pension funds as a strategic instrument for addressing capital market deficiencies²⁶. Market experts,

15. Kotlikoff, L.J. (1999), *Generational Policy*, MIT Press, Cambridge, MA.

16. Levine, R. (2005), *Finance and Growth: Theory and Evidence*, [in:] Aghion, P. and Durlauf, S. (eds.), *Handbook of Economic Growth*, Elsevier, Amsterdam, pp. 865–934.

17. Walker, E. and Lefort, F. (2002), *Pension Reform and Capital Markets: Are There Any (Hard)*, World Bank.

18. Demertzis, M., Domínguez-Jiménez, M. and Guetta-Jeanrenaud, L. (2021), *Europe should not neglect...*, op. cit.

19. Meng, C. and Pfau, W.D. (2010), 'The Role of Pension Funds in Capital Market Development', *GRIPS Discussion Papers*, (10-17).

20. Grad, A., Karnowski, J. and Rzońca, A. (2022), *Jak powiązać prywatyzację...*, op. cit.

21. Beck, T., Döttling, R., Lambert, T. and van Dijk, M. (2020), 'Liquidity creation, investment, and growth', *CEPR Discussion Paper*, 14956, Centre for Economic Policy Research; Abele C., Benassy-Quéré A. and Fontagné L. (2020), 'One Size Does Not Fit All: TFP in the Aftermath of Financial Crises in Three European Countries', *Deliverable 6.6, MICROPROD Project*.

22. Hsu, P., Tian, X. and Xu, Y. (2014), 'Financial Development and Innovation: Cross-Country Evidence', *Journal of Financial Economics*, 112(1), pp. 116–135; Allen, F. and Gale, D. (2000), *Comparing Financial Systems*, MIT Press, Cambridge, MA.

23. Duruflé, G., Gelos, R.G. and Oura, H. (2017), *The Impact of Demographics on Productivity and Inflation in Japan*, IMF Working Paper, (17/237).

24. Poterba, J. M. (2004), *The impact of population aging on financial markets*, NBER Working Paper, (10851); Boersch-Supan, A., Ludwig, A. and Winter, J. (2006), 'Ageing, Pension Reform and Capital Flows: A Multi-Country Simulation Model', *Economica*, 73(292), pp. 625-658.

25. Grad, A., Karnowski, J. and Rzońca, A. (2022), *Jak powiązać prywatyzację...*, op. cit.

26. Letta, E. (2024), *Much More Than a Market...*, op. cit.; Draghi, M. (2024), *The Future of European Competitiveness*, op. cit.; Noyer, C. (2024), *Developing European capital markets...*, op. cit.

including Bierbaum and Singhal, likewise advocate mobilizing long-term capital through pension savings²⁷. Collectively, these reports echo mechanisms extensively discussed in the academic literature, namely how pension savings contribute to the expansion of risk-tolerant capital essential for economic growth and how greater equity exposure within household portfolios can enhance long-term returns. A common element across all of the reports mentioned above is the proposal to introduce retirement products that benefit from tax incentives. The proposed reforms envision individual products as a pilot phase for broader institutional changes, such as partial capital funding of public pensions (pillar I) and the expansion of occupational pension schemes²⁸. In the domain of employee plans, recommendations include the introduction of tax incentives and behavioral nudges to reduce opt-out rates from automatic enrollment. Experts further stress the importance of complementing structural reforms with a pan-European financial literacy campaign aimed at enhancing citizens' awareness, fostering investment habits, and promoting active participation in the EU's economic development.

While the proposed solutions differ in scope and emphasis, Letta underscores the sequencing of reforms, advocating for the primacy of institutional investors – particularly pension funds – and proposing automatic enrollment in a pan-European long-term savings product²⁹. Draghi emphasizes the strengthening of occupational pension schemes and cites the Netherlands, Denmark, and Sweden as exemplary cases: although these countries represent only 7.7% of the EU population, they collectively hold 62% of its pension assets³⁰. He illustrates how high participation rates and effective asset allocation within collective investment vehicles channel household savings into capital market instruments with strong growth potential. Noyer, in contrast, rejects a 'one-size-fits-all' pan-European solution and instead recommends national-level tax incentives for products meeting specific criteria: automatic enrollment with opt-out and voluntary contributions, limited liquidity during the accumulation phase, and default payout at retirement³¹. He further advocates for actively managed portfolios tailored to individual risk profiles and investment horizons, without capital guarantees during the accumulation phase.

Beyond its macroeconomic implications, an expanding body of research explores how the design of pension systems can be optimized to generate long-term benefits – primarily by enhancing capital accumulation, improving the efficiency of asset allocation, and stimulating innovation and productivity. One strand examines the relationship between pension pillars and the development of occupational pension schemes³². In countries dominated by PAYG systems, a crowding-out effect on private savings is observed³³. Owczarek notes that in nations with low public pension benefits (e.g., the Netherlands, U.S., Switzerland, U.K.), supplementary pension schemes are more

27. Bierbaum, M. and Singhal, S. [2024], *The Future of Pensions and Retail Investment in the EU*, New Financial.

28. Spitzer, K. G., Loi, G. and Sabol, M. [2024], *How to achieve CMU, after all? An analysis of the recommendations for Capital Markets Union in the Draghi, Letta and Noyer reports*.

29. Letta, E. [2024], *Much More Than a Market...*, op. cit.

30. Draghi, M. [2024], *The Future of European Competitiveness*, op. cit.

31. Noyer, C. [2024], *Developing European capital markets...*, op. cit.

32. Sánchez Serrano, A. and Peltonen, T. [2020], 'Pension Schemes in the European Union: Challenges and Implications from Macroeconomic and Financial Stability Perspectives', *Occasional Paper Series*, [17].

33. Attanasio, O. and Rohwedder, S. [2003], 'Pension Wealth and Household Saving: Evidence from Pension Reforms in the United Kingdom', *American Economic Review*, 93(5), pp. 1499–1521; Idem and Brugiavini, A. [2003], 'Social Security and Households' Saving', *The Quarterly Journal of Economics*, 118(3).

developed than in countries with generous public pensions (e.g., Spain, France, Italy)³⁴. De la Torre, Feyen, and Ize provide cross-country evidence showing that pension funds often precede other institutional investors, playing a foundational role in capital market development³⁵.

A second stream of research focuses on the micro-level determinants of pension system effectiveness, particularly the development of employee capital plans, which are a key component of capital-based social security. Reuter reviews studies on behavioral responses to plan features aimed at increasing participation, savings, and market exposure³⁶. Automatic enrollment, as shown by Madrian and Shea³⁷ and Choi et al.³⁸, significantly boosts participation, especially among new and lower-income employees³⁹. However, Reuter notes that default contribution rates may constrain the growth of individual savings⁴⁰. He attributes this to participants' tendency to align their behavior with the automatic contribution rate, interpreting it as the employer's implicit recommendation, as well as to the fact that some participants finance their contributions through debt. Both factors ultimately weaken participants' long-term financial outcomes⁴¹. Szczepański compares the effects of automatic enrollment across countries, reinforcing these findings⁴².

At an early stage is the study of the relationship between pension savings and the need for liquid savings for emergency situations. These studies emphasize the importance of behavioral design, financial resilience, and the integration of short-term and long-term savings mechanisms. Goodman introduces the concept of integrating liquid emergency savings accounts with pension plans, addressing income volatility and withdrawal risks⁴³. His research suggests that behavioral barriers to retirement savings also hinder emergency fund accumulation. Experiments with automatic enrollment in short-term savings accounts and flexible access to pension funds during employment show promise in improving financial resilience⁴⁴. Reuter also explores new financial

34. Owczarek J. (2011), „Druga fala reform emerytalnych w świetle zmodyfikowanej wielofilarowej koncepcji Banku Światowego”, *Rozprawy Ubezpieczeniowe*, nr 1 (10).

35. De la Torre, A., Feyen, E. and Ize, A. (2013), „Financial development: Structure and dynamics”, *The World Bank Economic Review*, 27 (3), pp. 514–541.

36. Reuter, J. (2024), *Plan Design and Participant Behavior in Defined Contribution Retirement Plans: Past, Present, and Future*, Pension Research Council.

37. Madrian, B.C. and Shea, D.F. (2001), „The Power of Suggestion: Inertia in 401(k) Participation and Saving Behavior”, *Quarterly Journal of Economics*, 116(4), pp. 1149–1187.

38. Choi, J.J., Laibson, D., Madrian, B.C. and Metrick, A. (2003), „Optimal Defaults”, *American Economic Review*, 93(2), pp. 81–125.

39. Cribb J., Emerson C., 2021, Private Pension Wealth Across Generations: Modelling the Impact of Automatic Enrolment, „Fiscal Studies”, vol. 42(4), pp. 779–806, DOI: 10.1111/1475-5890.12281

40. Reuter, J. (2024), *Plan Design...*, op. cit.

41. Reuter, J. (2024), *Plan Design...*, op. cit.

42. Szczepański, M. (2024), *Długowieczność w systemach emerytalnych*, Wydawnictwo Politechniki Poznańskiej, Poznań.

43. Goodman, A. (2025), *Impatience or illiquidity? The case of early 401(k) withdrawals*, Vanguard research note.

44. Berk, S.H., Beshears, J., Choi, J.J., Garg, J. and Laibson, D. (2023a), *Employer-Based Short-Term Savings Accounts*, HBS Working Paper; Idem (2023b), *Automating Short-Term Payroll Savings: Evidence from Four Large U. K. Experiments*, NBER Working Paper, [32581].

products that combine retirement and emergency savings, particularly relevant for small firms and low-income workers⁴⁵.

A less explored area of the literature concerns asset allocation within pension funds and its implications for capital market development and long-term wealth accumulation for households. While pension funds generate demand for diverse financial instruments, their impact depends on investment strategy. Funds heavily invested in government debt may have limited market influence and generate lower rates of return. Pension funds across European countries exhibit substantial heterogeneity in their investment strategies. Defined benefit schemes, which remain prevalent in some European countries, typically employ asset-liability management approaches characterized by a strong preference for fixed-income instruments.

Finally, the selection of investment strategies within individual and occupational pension products plays a pivotal role in shaping long-term outcomes. Empirical studies consistently demonstrate that default investment options mitigate behavioral biases and enhance savings performance⁴⁶. Insights from the literature on automated pension solutions and default mechanisms provide a valuable foundation for evaluating the relative strengths and limitations of collective versus individual approaches to mobilizing retirement savings. These findings offer important guidance for policymakers, particularly in the context of initiatives such as the European Savings and Investment Union.

Research methodology

Given the complexity of institutional pension savings and their impact on long-term capital mobilization, this study adopts a mixed-methods research design, inspired by established approaches in comparative pension research. The methodology is structured to answer the following research questions:

- How do collective pension savings mechanisms influence the development of capital markets in Poland and other European countries?
- What are the behavioral and structural barriers to individual and collective pension savings?
- Which institutional design features most effectively stimulate long-term savings and capital accumulation?
- Does the sequence of pension reform affect savings and capital accumulation?
- What is the role of asset allocation in pension plans, particularly in relation to capital market development and household investment returns?
- What are key drivers of success in leading European and U.S. pension systems?

To address these questions, the following research hypotheses were formulated:

- H1: Collective pension savings have a stronger positive effect on capital market development than individual savings products.

45. Reuter, J. [2024], *Plan Design...*, op. cit.

46. See for example, Sołdek, A. [2023], *Efektywność strategii inwestycyjnych w zarządzaniu oszczędnościami emerytalnymi*, PWE 2023 *Institutional Pension Saving in Poland*, Warsaw: SGH Press; Benartzi, S. and Thaler, R.H. [2001], 'Naive Diversification Strategies in Defined Contribution Saving Plans', *American Economic Review*, 91 (1), pp. 79-98; Tang, N., Mitchell, O.S., Mottola, G. and Utkus, S. [2010], 'The Efficiency of Sponsor and Participant Portfolio Choices in 401(k) Plans', *Journal of Public Economics*, 94, pp. 1073–1085; Morningstar [2023], *Mind the Gap Report*, Morningstar Research, Chicago.

- H2: Automatic mechanisms (e.g., automatic enrollment, default investment strategies) significantly increase participation and asset accumulation in pension schemes.
- H3: Behavioral and structural barriers limit the effectiveness of individual pension products, especially among low-income groups.
- H4: Asset allocation in pension plans plays a crucial role in both capital market development and household investment outcomes.
- H5: The design and implementation of occupational pension plans are key determinants of their impact on capital market development.

The research process consisted of several stages:

- Critical literature review: An extensive review of academic and policy literature was conducted to identify theoretical frameworks and empirical findings related to pension systems, capital market development, and behavioral finance.
- SWOT analysis: A structured SWOT analysis was performed to compare the strengths, weaknesses, opportunities, and threats associated with collective versus individual pension savings mechanisms.
- Comparative case studies: The study analyzed pension systems in selected European countries and the United States, focusing on institutional arrangements, participation rates, asset allocation strategies, and regulatory environments.

Both qualitative and quantitative data sources were utilized. The qualitative component included expert opinions and an analysis of various pension schemes in selected countries, while the quantitative aspect relied on secondary data from official statistics, industry reports, and academic studies. The research design ensures a comprehensive understanding of the factors shaping the effectiveness of collective pension savings in mobilizing long-term capital, with particular emphasis on the Polish context and its relevance for broader European policy debates.

3. Comparison of the Advantages and Disadvantages of Individual and Collective Pension Solutions

The main parameters influencing the amount of accumulated assets and pension benefits are the rate of return on invested capital during the accumulation and payout periods, the contribution amount and its growth rate, and the length of the periods of saving for retirement and receiving benefits⁴⁷. An analysis of the strengths and weaknesses of individual and collective forms of saving will be conducted based on their impact on these parameters, and the determinants of success of solutions in countries that are leaders in the pension markets will be identified.

There are numerous limitations and barriers, both rational and behavioral, when making decisions about saving and investing funds for retirement⁴⁸. Inertia and lack of knowledge are identified

47. Sołdek, A. (2023), *Efektywność strategii inwestycyjnych...*, op. cit.

48. See, for example: Sołdek, A. (2023), *Efektywność strategii inwestycyjnych...*, op. cit.; Blake D. (2006), *Pension Economics*, Wiley, Hoboken NJ; Viceria L.M. (2007), *Life-Cycle Funds*, Harvard Business School, Boston; Byrne A. (2004), 'Investment decision making in defined contribution plans', *Pensions: An International Journal*, 10 (1), pp. 37–49.

reasons for refraining from decisions to save and invest. Thaler and Benartzi show how behavioral biases, such as lack of self-control, procrastination, or loss aversion, can lead to an insufficient level of retirement savings among employees⁴⁹. Default mechanisms have demonstrated efficacy in mitigating these constraints, which has been extensively presented in the literature review on employee pension plans. As shown, default options affect plan participation, savings levels, decisions regarding fund transfers, and asset allocation.

The introduction of automatic enrollment has significantly increased participation rates⁵⁰. When employees are automatically enrolled in a pension plan, only a small percentage choose to opt out, whereas in situations of independent decision-making, less than 50% of employees join the program within the first year of employment⁵¹. Thanks to automatic enrollment, participation can be increased, especially among low-income participants, in contrast to individual products, where higher-earning individuals participate more, leading to a transfer of savings between products rather than the mobilization of new savings⁵². A compelling argument in favor of automatic enrollment is provided by Madrian and Shea, who conducted a comparative analysis of employee behavior before and after its implementation⁵³. Their study demonstrates significantly higher participation rates among individuals hired following the introduction of automatic enrollment, relative to those employed during the period of voluntary enrollment. The results indicate an increase in participation in the case of automatic enrollment compared to voluntary enrollment from 49% to 86%, with the largest increase in participation noted among younger, lower-income employees, as well as among Black and Hispanic individuals.

Among program participants, a decrease in average savings rates was observed. The dominant savings rate decreased from 6% to 3%, while the average rate fell from 7.3% to 4.4%. Part of this decrease can be attributed to the acceptance of the default rate of 3% by individuals who would otherwise not have joined the program. Other empirical studies have confirmed that automatically enrolling employees in 401(k) plans increases both participation and savings levels⁵⁴. Subsequent studies by Choi et al. showed that participation rates are significantly higher under automatic enrollment and remain at a high level⁵⁵. At the same time, from 65% to 87% of new program participants both saved at the default contribution rate and invested exclusively in the default investment option. The authors noted that this percentage gradually decreases over time, falling to 40%–54% after two years of employment and to about 45% after three years of employment.

Cribb and Emmerson analyzed the effects of automatic enrollment at both large and small employers⁵⁶. In the first group, automatic enrollment increased the participation rate by 36 per-

49. Thaler, R., and Benartzi, S. (2004), 'Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving', *Journal of Political Economy*, 112(S1), S164–S187.

50. Reuter, J. (2024), *Plan Design...*, op. cit.

51. Choi, J.J., Laibson, D., Madrian, B.C. and Metrick, A. (2003), *Optimal Defaults*, op. cit.

52. Goodman, A. (2025), *Impatience or illiquidity? ...*, op. cit.

53. Madrian, B.C. and Shea, D. F. (2001), *The Power of Suggestion...*, op. cit.

54. See for example: Choi, J.J., Laibson, D., Madrian, B.C. and Metrick, A. (2003), *Optimal Defaults*, op. cit.

55. Choi, J.J., Laibson, D., Madrian, B.C. and Metrick, A. (2004), 'For Better or for Worse: Default Effects and 401(k) Savings Behavior', [in:] Wise, D.A. (ed.), *Perspectives on the Economics of Aging*, University of Chicago Press, Chicago, pp. 81–125.

56. Cribb, J. and Emmerson, C. (2020), 'What Happens to Workplace Pension Saving When Employers are Obligated to Enrol Employees Automatically?', *International Tax and Public Finance*, 27, pp. 664–693.

centage points – relative to a baseline of 49%. It is worth noting that greater effects were observed among employees from the lowest income quartile (an increase of 54 percentage points) than among employees from the highest quartile (an increase of 16 percentage points). In a study of small employers, who in 2012 had the lowest participation rates, Cribb and Emmerson found that the participation rate increased by 44 percentage points, reaching 70%⁵⁷. The greatest effects were observed among young employees with lower wages. Reuter draws attention to a comprehensive analysis of the literature on automatic enrollment conducted by Beshears et al., which confirmed that the automatic enrollment mechanism produces similar effects across a wide range of other defined contribution pension programs⁵⁸.

As a potential drawback of automatic enrollment, recent empirical evidence suggests a negative association between its implementation and the average contribution level, despite a positive association with overall participation⁵⁹. This implies that while more individuals are saving for retirement, they tend to contribute less on average, potentially diminishing the long-term wealth accumulation benefits. Two primary explanations have been proposed: first, automatically enrolled participants tend to have lower incomes; second, default contribution rates are often set deliberately low during the initial rollout phase to minimize opt-outs. Moreover, studies indicate that automatic enrollment may crowd out other forms of saving⁶⁰, increase household debt⁶¹, and lead to early withdrawals upon termination of employment⁶².

In terms of increasing the contribution level, collective forms of investment also have advantages due to the positive impact on savings outcomes of automatic contribution increases. The first empirical evidence was provided by Thaler and Benartzi⁶³. The Save More Tomorrow program involved setting an initial contribution rate and automatically increasing it by one or more percentage points in subsequent years, following annual salary increases. Choi et al. showed that less than 50% of participants accepted automatic escalation at its first implementation date and estimated that the automatic escalation mechanism increased contribution rates by 0.2 percentage points of annual income⁶⁴.

Another promising approach to enhancing retirement savings through workplace pension schemes involves integrating these programs with mechanisms for building emergency savings. Berk

57. Cribb, J. and Emerson, C. (2021), 'Private Pension Wealth Across Generations: Modelling the Impact of Automatic Enrolment', *Fiscal Studies*, 42(4), pp. 779–806.

58. Reuter, J. (2024), *Plan Design...*, op. cit.; Beshears, J., Guo, F., Laibson, D., Madrian, B.C. and Choi, J.J. (2023), *Automatic Enrollment with a 12% Default Contribution Rate*, NBER Working Paper, [31601].

59. Muller, P., Ladher, R., Devnani, S. and Pate, L. (2021), *Best practices and performance of auto-enrolment mechanisms for pension savings Final Report*, LE Europe Ltd.

60. Choukhmane, T. and Palmer, C. (2024), *How Do Consumers Finance Increased Retirement Savings?*, Working Paper.

61. Beshears, J., Blakstad, M., Choi, J.J., Firth, C., Gathergood, J., Laibson, D., Notley, R., Sheth, J.D., Sandbrook, W. and Stewart, N. (2024a), *Does Pension Automatic Enrollment Increase Debt? Evidence from a Large-Scale Natural Experiment*, NBER Working Paper, [32100].

62. Choi, J.J., Laibson, D., Cammarota, R., Lombardo, R. and Beshears, J. (2024), *Smaller than We Thought? The Effect of Automatic Savings Policies*, Working Paper.

63. Thaler, R., and Benartzi, S. (2004), *Save More Tomorrow*..., op. cit.

64. Choi, J.J., Laibson, D., Cammarota, R., Lombardo, R. and Beshears, J. (2024), *Smaller than We Thought?*..., op. cit.

et al., in studies conducted in both the US and the UK, demonstrated that automatic enrollment in high-liquidity savings accounts significantly increases participation rates, similar to pension accounts⁶⁵. Importantly, they found no evidence of a reduction in pension contributions following the initiation of emergency savings, suggesting a net increase in total savings of approximately 1 percentage point among newly hired employees. Complementary findings from Vanguard indicate that individuals with at least \$2,000 in emergency savings are more likely to contribute to pension plans and less likely to make withdrawals, both during employment and after separation⁶⁶. Additional support comes from the BlackRock Emergency Savings Initiative, which promotes parallel emergency savings accounts alongside pension plans⁶⁷. Since 2021, Nest has been piloting opt-out emergency savings schemes via payroll deductions across three UK employers, covering over 70,000 employees⁶⁸. Furthermore, the SECURE 2.0 Act facilitates the adoption of such programs by allowing employers to offer automatically enrolled emergency savings accounts⁶⁹.

In terms of investments, default solutions can be an appropriate first step in mobilizing pension savings in countries where there is no culture of investing in stocks, and there is too low an allocation to risky instruments relative to the ability or necessity to take risks. Employee capital plans with target-date funds as the default option are, for many people, their first contact with investing. This is well illustrated by the example of the American market, where these solutions help people who are just starting their investment journey to properly allocate funds in their retirement portfolio. In 2024, 73% of households owning mutual funds held them through employee pension plans⁷⁰. Among households owning mutual funds, 29% invested exclusively through employee pension plans, including defined contribution plans and individual employee retirement accounts⁷¹. In contrast, 27% of households held funds exclusively outside these plans, and 44% held funds both within and outside employee pension plans⁷². Younger generations are more likely to hold mutual funds exclusively within employee pension plans, while older generations are more likely to hold funds outside such plans. In 2024, 39% of Millennial households, 32% of Gen Z households, and 37% of Gen X households owning mutual funds held them exclusively within employee pension plans, compared to 18% of households headed by Baby Boomers⁷³. Mutual funds in and out of pension plans for all generations ranged from 42%–49%.

It is worth noting that very few employees without access to employee pension plans who can independently open and fund individual retirement accounts do so⁷⁴. Another example of using participation in an employee pension plan to become familiar with investing is the original strategy for

65. Berk, S.H., Beshears, J., Choi, J.J., Garg, J. and Laibson, D. (2023a), *Employer-Based Short-Term Savings Accounts*, op. cit.; Idem (2023b), *Automating Short-Term Payroll Savings...*, op. cit.

66. Vanguard (2025), *Emergency savings protect retirement savings*; Goodman, A. (2025), *Impatience or illiquidity?...*, op. cit.

67. BlackRock (2023), *Emergency Savings Initiative Report*.

68. Nest Insight (2025a), *Easier to Save*.

69. Reuter, J. (2024), *Plan Design...*, op. cit.

70. ICI (2024a), *What US Households Consider When They Select Mutual Funds*, ICI Research.

71. Idem, (2024b), 'Characteristics of Mutual Fund Investors', *ICI Research Perspective*, 30(9).

72. Ibidem.

73. Ibidem.

74. Chalmers, J., Mitchell, O.S., Reuter, J. and Zhong, M. (2022), 'Do State-Sponsored Retirement Plans Boost Retirement Saving?', *A&A Papers and Proceedings*, 112, pp. 142–146.

beginner Nest clients, who, unlike the universal allocation path, follow a conservative asset allocation for the first five years⁷⁵. This is intended to prevent them from withdrawing from the funds during stock market fluctuations, which is the greatest threat to achieving the goal of saving for retirement. This is a time for educating participants and preparing them to make informed decisions through communication from the fund tailored to beginner participants. There are positive examples that such education is more effective than general campaigns aimed at increasing economic knowledge⁷⁶.

While higher participation in pension schemes is a positive development, it is crucial that the resulting asset accumulation is allocated efficiently. Evidence suggests that individual decision-making in pension products often leads to suboptimal investment choices⁷⁷. The same behavioral and informational barriers that limit participation also impair portfolio construction. Common issues include poor timing of investment decisions, inappropriate asset allocation within employer-sponsored plans, and overly conservative risk profiles resulting from product-level optimization, which may undermine long-term retirement outcomes⁷⁸. Three key challenges have been identified in participant-directed investment strategies. First, individuals often fail to construct well-diversified portfolios from the available fund options. Benartzi and Thaler documented that participants tend to apply naïve diversification heuristics, such as allocating equally across available funds, which can lead to unintended risk exposures⁷⁹. For instance, increasing the number of equity funds in the menu led to higher average equity allocations, without corresponding diversification benefits. Similarly, Tang et al. found that most participants are unable to construct optimal portfolios from employer offerings, with inefficient portfolio construction potentially reducing retirement wealth by up to 20% over a 35-year horizon⁸⁰.

Second, participants frequently maintain static asset allocations over time, failing to adjust for changes in income, risk tolerance, or life stage⁸¹. This includes excessive concentration in employer stock, which increases idiosyncratic risk. Third, investment decisions are often reactive to market fluctuations, leading to suboptimal timing and performance-chasing behavior. These findings underscore the importance of default investment strategies and lifecycle-based portfolio design in improving long-term outcomes. Default investment strategies, especially target-date funds, help to limit the impact of individual management errors on long-term retirement outcomes. The benefits of lifecycle investing through target-date funds are documented by Soldek, who highlights their role in aligning portfolio risk with participants' age and investment horizon⁸². In this context, the findings of Blanchett et al. offer valuable empirical support: during the sharp market downturn in Q1 2020 triggered by the COVID-19 pandemic, participants who had invested in target-date funds were significantly less likely to make reactive changes to their portfolios compared to those

75. Nest [2025b], *Nest Retirement Date Fund*.

76. Soldek, A. [2023], *Institutional Pension Saving...*, op. cit.

77. Morningstar [2023], *Mind the Gap Report*, op. cit.

78. Soldek, A. [2023], *Efektywność strategii inwestycyjnych...*, op. cit.

79. Benartzi, S. and Thaler, R.H. [2001], *Naive Diversification Strategies...*, op. cit.

80. Tang, N., Mitchell, O.S., Mottola, G. and Utkus, S. [2010], *The Efficiency of Sponsor...*, op. cit.

81. Reuter, J. [2024], *Plan Design...*, op. cit.

82. Soldek, A. [2023], *Efektywność strategii inwestycyjnych...*, op. cit.

managing their own allocations⁸³. This behavioral stability under stress underscores the protective role of default strategies. Reuter also emphasizes the advantages of target-date funds, particularly in reducing the cognitive burden on participants and promoting disciplined investing⁸⁴. However, he notes that such strategies may not be optimal for all individuals. He recommends adjusting asset allocation especially for those with non-standard income trajectories, heterogeneous risk preferences, or significant non-pension wealth. These findings reinforce the importance of designing default options that are both behaviorally robust and adaptable to individual circumstances.

Analysis by Vanguard shows that, thanks to the default option of choosing target-date funds, their share in retirement savings has increased, and the share of participants holding the sponsor's stock has decreased⁸⁵. The study by Chalmers and Reuter shows the potential of default strategies, where, thanks to automatic management according to a lifecycle strategy for the assets of less advanced participants, the number of errors made in self-investing will decrease⁸⁶. A number of academic studies have shown a diversity in risk appetite and risk-taking decisions depending on income level, education, and financial knowledge⁸⁷. This means that low-income households do not take advantage of the potential of capital market investments associated with a higher level of risk. Default investment solutions, which relieve such individuals from making independent investment decisions, contribute to increasing their participation in capital markets and to improving the efficiency of resource allocation in the economy. Self-selected allocations are often too conservative or too risky in the risk zone⁸⁸. Default solutions in universal systems help to overcome these barriers.

The increase in the share of target-date funds means that by adjusting the asset allocation, the structure of retirement savings improves, and their increase in total savings improves the overall savings structure. This is well illustrated by the example of the United States, where change in the structure of retirement savings occurred thanks to the increase in the share of target-date funds in employee capital plans. According to Vanguard, thanks to pension plans with a default form of target-date funds, retirement savings are invested in accordance with the lifecycle strategy recommended in theory⁸⁹. Currently, people under 40 have about 90% of their retirement savings invested in stocks. Since 2005, as more and more plans have adopted target-date funds as the default option, the share of stocks in the portfolios of young investors has grown. Systematically, although on a smaller scale than for young people due to a higher starting point, the share of stocks

83. Blanchett, D., Finke, M. and Reuter, J. (2020), *Portfolio Delegation And 401(k) Plan Participant Responses to COVID-19*, NBER Working Paper, [27438].

84. Reuter, J. (2024), *Plan Design...*, op. cit.

85. Vanguard (2024), *How America Saves*, The Vanguard Group, Valley Forge, PA.

86. Chalmers, J. and Reuter, J. (2020), 'Is Conflicted Investment Advice Better Than No Advice?', *Journal of Financial Economics*, 138(2), pp. 366–387.

87. Carroll, C.D. (2002), 'Portfolios of the Rich', [in:] Guiso, L., Haliassos, M. and Jappelli, T. (eds.), *Household Portfolios*, MIT Press, Cambridge, MA; Heaton J., and Lucas D. (2000), 'Portfolio Choice and Asset Prices: The Importance of Entrepreneurial Risk', *Journal of Finance*, 55, pp. 1163–98; Campbell, J.Y. (2007), 'Household, Institutions, and Financial Markets', *NBER Reporter*, Winter, pp. 2–8.

88. The risk zone is the period during which pension assets are most vulnerable to fluctuations in rates of return. It is commonly understood as encompassing the ten years preceding and following the retirement date: see for example Soldek A. op.cit.

89. Vanguard (2025a), *How America Saves*, The Vanguard Group, Valley Forge, PA.

has grown for the other age groups. The study by Mitchell et al. shows that participants in pension programs with automatic enrollment delegated investment decisions to fund managers selected by the plan sponsors⁹⁰. Similar to the Vanguard report, they emphasize that the inclusion of these funds in retirement savings offers contributed to an increase in the share of stocks in portfolios. Additionally, they point to positive effects thanks to the reduction of the share of cash and employee stocks in retirement portfolios. They also emphasize the benefits of diversification and the reduction of specific risks for individual investors. The quantification of potential benefits is also interesting. The authors show that adopting low-cost target-date funds can potentially increase the value of retirement assets by as much as 50% over a 30-year horizon. The advantage of default solutions over individually selected options is demonstrated by the differences in asset allocation between Individual Retirement Accounts (IRAs) and target-date funds⁹¹. The stock allocation in IRAs is currently the same as in employee capital plans in 2005 before the favorable changes due to default strategies in target-date funds. Additionally, as indicated in the report, funds paid or transferred to an IRA go to a cash account and remain there for seven years or longer in the case of 28% of such transfers⁹².

Collective forms of pension saving play a pivotal role in the development of capital markets, particularly in countries with the most advanced financial systems. This observation aligns with findings from the literature review and is supported by data from the European Fund and Asset Management Association (EFAMA). According to an EFAMA report, countries with the lowest share of household savings held in bank deposits tend to exhibit the highest levels of pension-related financial asset accumulation⁹³. This outcome is largely attributed to long-term policy efforts that have expanded access to funded pensions through mandatory or quasi-mandatory mechanisms. The report emphasizes that, in the absence of institutional incentives or compulsion, few households actively invest in capital markets. Several structural factors contribute to the persistently high share of household savings held in bank deposits across the European Union, including widespread risk aversion, limited financial literacy, and the presence of comprehensive welfare systems that reduce the perceived need for voluntary retirement saving. These barriers, however, can be effectively addressed through automatic enrollment mechanisms combined with default investment strategies. EFAMA estimates that if the share of household savings held in bank deposits had gradually declined from 41% to 30% between 2008 and 2019, and the reallocated funds had been invested in equity and bond-based investment funds, the total value of financial assets held by European households would have been approximately €1.2 trillion higher⁹⁴. This underscores the transformative potential of collective pension frameworks in mobilizing household savings and deepening capital markets.

An analysis of the pension systems of countries with the largest pension assets in relation to GDP indicates the dominant share of collective forms of saving for retirement. The leaders – Sweden, Denmark, and the Netherlands – have systems with a dominant share of collective forms.

90. Mitchell, O.S. and Utkus, S.P. (2022), 'Target-Date Funds and Portfolio Choice in 401(k) Plans', *Journal of Pension Economics & Finance*, 21(4), pp. 519–536.

91. Vanguard (2025a), *How America Saves*, op. cit.

92. ICI (2024c), *The Role of IRAs in US Households' Saving for Retirement*, ICI Research Perspective.

93. EFAMA (2020), *Household Participation in Capital Markets*.

94. Ibidem.

A characteristic feature of the Swedish financial ecosystem is its multi-pillar pension system. The capital part of the public pension system played a key role in the development of the domestic capital market. It consists of a premium pension system and funds that manage the buffer capital within the PAYG public system. The first component has assets of €237 billion, constituting nearly 40% of GDP, and the second has assets of €186 billion, equivalent to approximately 35% of GDP⁹⁵. These funds are among the largest institutional investors in Sweden, investing both in the domestic and international markets. The next element is employee capital plans. About 90% of employees are participants in these plans, and the benefits paid from them constitute between 20% and 30% of the total pension. In addition to a very high level of managed assets, Sweden is also distinguished by a higher involvement in equity compared to its European counterparts. In the case of employee pension funds, which have transitioned from defined benefit to defined contribution models, investments in equities amount to 40% compared to the European average of 15%. In addition to the public system and employee pension funds, citizens can voluntarily save for retirement through investment savings accounts (ISK). Indicated as a model solution due to its appropriate tax incentives⁹⁶ and simple account management, this savings account has attracted over 40% of citizens, who have accumulated assets constituting 30% of GDP⁹⁷. Sweden's three-pillar pension system ensures that virtually all economically active citizens participate in the financial market – directly or indirectly. However, the asset distribution among the pension pillars, as previously outlined, underscores the comparative effectiveness of collective forms of savings mobilization⁹⁸. Sweden's three-pillar pension system is also a good illustration of how capital-based pension systems with a proper method of investing long-term savings develop the capital market and generate a stable and sustainable stream of long-term investment capital. This is particularly evident in comparison to many other European countries whose systems are based on non-capital PAYG systems.

Other positive examples where the capital part of the basic system has contributed to the development of the capital market include Denmark. Similar to Sweden, collective solutions dominate, i.e., a partially capital-based basic system and a pillar of employee pension plans. A key element of the Danish pension system is the fully funded supplementary fund, ATP⁹⁹. Almost all employees contribute to the fund. ATP is one of the largest investors in Denmark, and, at the end of 2022, its assets amounted to €91 billion. In 2022, the fund adopted a more growth-oriented investment strategy: individuals with more than 15 years to retirement now have a portfolio divided 60:40 between safe and growth assets. This is the level of involvement in equity recommended in lifecycle strategies. This example shows the advantage of collective forms because the change occurs immediately after the decision and does not have to be adopted through independent decisions of savers. Employee pension plans are a very large investor in Denmark. Their assets at the end of 2022 amounted to €644 billion. Two factors contribute to the effectiveness of asset accumulation in these funds. The first is the high participation rate of over 80% of employees, and the second is the contribution level, which is determined by agreement between the employer and

95. Government Offices of Sweden (2025), *Sweden's capital markets journey*.

96. A simple and low annual tax based on the estimated market value of assets applies

97. Bierbaum M. (2025), *Designing savings and investment accounts in the EU*, New Financial.

98. Government Offices of Sweden (2025), *Sweden's capital markets journey*, op. cit.

99. Bierbaum, M. and Singhal, S. (2024), *The Future of Pensions...*, op. cit.

employee and, for many employees, ranges from 15% to 17% of salaries. Pension assets in Denmark are the largest in relation to GDP among all countries of the European Union.

The Netherlands represents a benchmark example of a well-designed occupational pension system, both within Europe and globally¹⁰⁰. Second-pillar solutions have reached a high level of maturity, with almost 90% of employees covered by occupational pension schemes. Participation is largely automatic, and many individuals are unaware that they are active investors in capital markets. Employer contributions constitute the majority of pension inflows, with average contribution rates reaching approximately 30% of gross salary. This translates into substantial capital accumulation, which is actively invested in the domestic economy – particularly in infrastructure and innovation. The effectiveness of the Dutch system is reflected in its high net replacement rate, estimated at 93%, one of the highest among OECD countries¹⁰¹. This level of income security in retirement reduces both the need and the incentive for individuals to engage in voluntary investment outside the pension framework. The Dutch experience illustrates how mandatory and quasi-mandatory occupational pension schemes can simultaneously enhance retirement adequacy and support capital market development.

The failure of the Pan-European Personal Pension Product (PEPP) points to the lower chances of developing pension funds based on individual products. In a report, Noyer points to, among others, differences in the tax systems of the Member States, which have led to a complicated structure of national sub-accounts and a lack of attractive tax incentives¹⁰². Similarly, the failure of the PEPP to achieve the expected scale is explained by the only provider of this product in Europe. Finax indicates that despite numerous advantages, a number of barriers, such as a lack of equal conditions in terms of tax incentives, limited openness to employers, insufficient promotion and distribution, regulations on fees, and other factors, have led to its failure¹⁰³. In the opinion of Bierbaum and Singhal, the PEPP is an excellent example of the limitations of a top-down approach¹⁰⁴. Although it was part of the original Capital Markets Union package from 2015, it was only launched in 2022 – after seven years of debate.

Empirical evidence from Poland highlights the superior effectiveness of collective pension saving mechanisms over individual products, primarily due to the application of automatic enrollment. In the case of Employee Capital Plans (PPK), participation is based on automatic enrollment, requiring an active opt-out to withdraw from the scheme. In contrast, individual pension products such as Individual Retirement Accounts (IKE) and Individual Retirement Security Accounts (IKZE) rely on voluntary enrollment, which significantly limits their reach. After four years of operation, the number of PPK accounts exceeds that of IKE and IKZE combined by a factor of 2.8. Moreover, the assets accumulated within PPK are comparable to the total assets gathered in IKE and IKZE over a period of more than two decades. These findings underscore the importance of collective design and behavioral mechanisms – such as automatic enrollment – in mobilizing long-term savings and expanding participation in capital markets. These findings highlight the efficacy

100. Ibidem.

101. Organisation for Economic Co-operation and Development (2021), *Pensions at a Glance*.

102. Noyer, C. (2024), *Developing European capital markets...*, op. cit.

103. Finax (2024), *Own-Initiative Opinion Paper on Pan-European Pension Product: Building a Brighter Pension Future for Europe*, Bratislava.

104. Bierbaum, M. and Singhal, S. (2024), *The Future of Pensions...*, op. cit.

of default-based collective arrangements in enhancing participation rates and accelerating capital accumulation within pension systems.

It should be emphasized that even examples of individual accounts considered exemplary, such as the Swedish ISK or the American IRA, show that they are not suitable places for mobilizing new savings, and a large part of the contributions is transferred from other forms of savings such as investment funds or employee pension plans¹⁰⁵. Similarly, the development of individual retirement accounts in Poland, despite more than 20 years of operation, has not achieved a significant scale of assets or participants. Additionally, research results show that, similar to other markets, most of the contributions to these accounts are transfers from other forms of saving¹⁰⁶.

A comparison of the strengths and weaknesses, as well as the opportunities and threats, related to the mobilization of pension savings through collective versus individual forms is presented in Table 1.

Table 1. SWOT Analysis: Collective vs. Individual Pension Saving Forms

Strengths

Collective Forms	Individual Forms
High participation through automatic enrollment	Flexibility in investment choices
Effective mitigation of behavioral biases (e.g., inertia, procrastination)	Potential for personalized risk management
Lifecycle investment strategies (e.g., target-date funds)	Tax incentives in select jurisdictions
Economies of scale and professional asset management	Direct ownership and control over assets
Proven contribution to capital market development in leading economies	Flexible timing of withdrawals
Cost efficiency due to economies of scale and regulations	
Systemic stability and reduced exposure to individual decision errors	

Weaknesses

Collective Forms	Individual Forms
Default contribution rates may be suboptimal	Low participation among low-income and less financially literate individuals
Limited customization of investment strategies	High behavioral and informational barriers
Dependence on employer infrastructure and regulatory support	Fragmented market and limited scale
Risk of passive acceptance of defaults without engagement	Often used for asset reallocation rather than the mobilization of new savings
Lack of effective decumulation mechanisms	Lack of integration with the pension system
Exposure to political risk and regulatory changes	Limited access to investment advice

105. ICI (2024c), *The Role of IRAs...*, op. cit.

106. Rutecka, J. (2015), 'Realokacja czy nowe oszczędności? – 0 efektach zachęt podatkowych w dodatkowym oszczędzaniu na starość w Polsce', *Rozprawy Ubezpieczeniowe*, 18(1), pp. 66–79.

Opportunities

Collective Forms	Individual Forms
Integration with emergency savings mechanisms	Growth of digital platforms and robo-advisory services
Expansion of opt-out schemes and contribution escalation	Development of cross-border pension products (e.g., PEPP)
Improved default investment design tailored to participant profiles	Enhanced financial education and outreach
Legislative support	Potential for harmonized tax incentives across EU Member States
Development of automated decumulation platforms	Integration with pension systems via digital platforms
Consolidation of fragmented assets into unified payout systems	Emergence of hybrid products combining individual and collective features

Threats

Collective Forms	Individual Forms
Political and regulatory uncertainty affecting pension frameworks	Low trust in financial institutions and pension products
Suboptimal asset allocation despite institutional structure	Regulatory complexity and lack of harmonization (e.g., PEPP fragmentation)
Lower average contribution rates despite higher participation	Poor timing and suboptimal investment decisions due to lack of guidance
Risk of early withdrawals and reduced long-term savings	Absence of investment culture and financial literacy
Crowding out of other savings forms or increased household debt	Overly conservative or excessively risky asset allocation
Lack of effective payout mechanisms undermining trust	Limited scalability and failure of top-down initiatives (e.g., PEPP adoption)
Slider mechanism distorting capital market dynamics (Polish case)	Absence of systemic support during decumulation phase
	Prevalence of lump-sum withdrawals and shift to low-yield deposits

The source: own elaborations

4. Recommendations for Changes in the Polish Pension System

The demonstrated advantages of collective forms of savings mobilization in the presented literature review and comparative analysis, as well as the conclusions from the analysis of the determinants of outstanding pension systems that have contributed to the development of capital markets, justify focusing on collective forms. There is no single common model for the development of pension systems for all countries due to specific conditions, but the recommendations for Poland can be an inspiration for the development of selected segments of the pension system in other European countries. A favorable element for starting reforms with institutional solutions is the high priority given to the Savings and Investment Union project, which should encourage demanding political decisions to be made.

Examples of exemplary multi-pillar pension systems justify the introduction of a capital part in the basic system as a common solution in Europe. A minimum contribution level could be considered for such funds in each Member State of the European Union, and this contribution could

be excluded from the calculation of public debt. The recommended minimum level is 1% of the total wage bill. In Poland, these funds could flow to the Demographic Reserve Fund, which would act as the administrator. The management of these assets could be entrusted to professional market entities, which, in addition to the function of asset management, would be responsible for supervising portfolio companies and exercising voting rights. The selection of managers would be carried out through tenders, where the evaluation criteria should be the investment results achieved, the investment process, and the level of costs.

To preserve the long-term benefits of capital-funded pension schemes, it is recommended that assets accumulated within Open Pension Funds (OFE), Employee Pension Plans (PPE), and individual retirement products remain invested in capital markets through the implementation of an effective decumulation strategy. Poland holds a structural advantage over many European countries due to the introduction of OFE in 1999 as a mandatory, capital-based component of the pension system¹⁰⁷. Despite subsequent reforms, OFE remain the largest institutional investor in Poland, with assets exceeding €62.3 billion as of June 2025, accounting for approximately 6.5% of GDP. Over 80% of these assets are allocated to domestic equities, and almost 10% to foreign equities. Retaining these funds within the capital market during the payout phase would mitigate the adverse effects of the supply overhang caused by the slider mechanism and enhance future pension benefits through capital market returns, which typically exceed the indexation rate of PAYG pensions provided by the Social Insurance Institution (ZUS). Such a solution would align with the objectives of the Savings and Investment Union initiative, positioning Poland as a leader in leveraging long-term pension capital for economic transformation. Unlike other countries participating in the initiative, where pension savings are yet to be mobilized, Poland has the opportunity to capitalize on over two decades of accumulated assets to support innovation and investment-driven growth. In the payout phase, to replace the transfer of assets to ZUS, the pension fund management company (PTE) should manage a sub-fund to which assets would be systematically transferred ten years before reaching retirement age. The investment strategy of this sub-fund should be more conservative than in OFE, with an equity exposure at the level of 30%–50%. The default form of payout could be programmed withdrawal.

A second underutilized opportunity in the Polish pension system concerns the decumulation phase of assets accumulated in Employee Pension Plans, Employee Capital Plans (PPK), and individual pension products. Although these instruments – apart from PPK – have existed for over two decades, the prevailing method of asset withdrawal – typically in the form of lump-sum payments – limits their potential to enhance retirement income and reduces the availability of long-term capital for the economy. This payout behavior is driven by several structural and behavioral factors, including the fragmentation of savings across multiple products, the absence of mechanisms to consolidate assets for the decumulation phase, and the lack of flexible payout options tailored to individual needs. Additionally, the absence of tax incentives and limited access to financial advice further discourage the use of long-term withdrawal strategies. Addressing these barriers through integrated decumulation frameworks, improved product design, and targeted incentives could significantly increase the efficiency of retirement savings and their contribution to economic development. The demographic structure of savers suggests that challenges related to the decumulation of pension assets will intensify in the coming years. In the case of voluntary pension

107. Sołdek, A. (2023), *Efektywność strategii inwestycyjnych...*, op. cit.

products, providers should be equipped to offer payout-phase solutions that enable the consolidation of fragmented savings and provide default mechanisms for asset management and withdrawal. A recommended approach would involve the introduction of programmed withdrawals as the default payout option, supplemented by the possibility of purchasing a deferred life annuity to hedge longevity risk. Implementing a systemic decumulation framework that allows for the aggregation of assets across various products – and keeps them invested in capital markets – would offer a superior alternative to lump-sum withdrawals and the transfer of funds to low-yield bank deposits. Such a solution would benefit both individual savers, by enhancing retirement income security, and the broader economy, by maintaining a stable supply of long-term capital.

When making recommendations for the development of the capital market through the mobilization of pension savings, it is worth paying attention to the interesting proposal presented by Grad et al. on the development of OFE in conjunction with the privatization of companies with State Treasury participation¹⁰⁸. In the opinion of the authors, the small size of the capital pillar and the extensive sector of state-owned enterprises allow for potentially significant benefits from the development of this pillar and from privatization. The proposed process would be implemented through three complementary mechanisms. First, individuals who choose to do so would have Treasury bonds transferred to their capital-pillar retirement accounts, replacing the notional entries currently recorded on their sub-accounts in the Social Insurance Fund (FUS). Second, a portion of these Treasury bonds would be converted into shares of companies with State Treasury ownership. Third, shares of such companies would be allocated to the insured persons' pension fund accounts as a form of compensation for long employment tenure and for early entry into the labour market.

As shown, employee capital plans are key elements of savings mobilization. The PPK introduced in 2019 use automatic enrollment and the lifecycle strategy recommended for managing long-term savings¹⁰⁹. After more than five years of operation, as of August 9, 2025, the assets accumulated in them exceeded €9.5 billion, and 3.94 million people participated in them. It should be noted that despite the described advantages of this collective form of mobilizing pension savings, the potential of PPK is not fully utilized. It is recommended to introduce new solutions to increase participation, the contribution level, and the method of asset management. The frequency of automatic enrollment could be increased from four to three years. It is also justified to differentiate the contribution rates depending on age by introducing a mechanism for automatically increasing the contribution after the participant reaches the age of 45 and 55, respectively. The arguments for increasing the contribution are the increase in disposable income over an individual's lifecycle, the change in the consumption structure, and the observed increase in interest in additional savings for retirement purposes.

It is recommended to change the investment limits in PPK and raise the share of risky investments in all target-date funds. This solution could be introduced for all participants or for women¹¹⁰. In the case of women, this would be an opportunity to reduce the pension gap by changing the investment strategy, and not, as in many recommendations, by increasing the contribution. The justification for the proposed increase in the share of stocks in the PPK structure is the higher efficiency of lifecycle strategies with a high involvement in equity instruments before the risk zone

108. Grad, A., Karnowski, J. and Rzońca, A. [2022], *Jak powiązać prywatyzację...*, op. cit.

109. Soldek, A. [2023], *Efektywność strategii inwestycyjnych...*, op. cit.

110. Ibidem.

and a constant share after the risk zone¹¹¹. Additional arguments are the high share of savings on ZUS accounts in the total retirement portfolio of participants, the similar state of participants' assets regardless of age due to the launch of funds for all age groups at the start, and the lower level of risky assets in PPK than in other systems with a higher contribution.

The proven positive effects of employer involvement in facilitating the accumulation of savings for emergency situations by employees can be an inspiration for a fuller use of the potential of PPK. In Poland, a large part of the savings held in bank deposits are funds for a so-called rainy day. This shows that a mechanism is needed to break down the barriers to investing savings in products other than bank deposits. Such a game-changer could be the involvement of employers in facilitating the process of saving for purposes other than retirement. Savers lack trust in financial institutions, while studies show that they trust employers and treat the products of financial institutions offered with the participation of employers as verified. Additionally, the employer can use its bargaining power in setting the level of fees for the services provided. Therefore, it is recommended that employers facilitate saving for emergency expenses for employees with the possibility of withdrawal at any time. This should be implemented within the framework of cooperation between the employer and the PPK management institution, which should offer tools for investing short-term savings with easy access to them. The method of managing such funds until the accumulation of assets in the amount of four to five monthly salaries should be according to the lowest risk strategy, while, after exceeding this level, the assets should automatically be managed according to the lifecycle strategy. The mobilization of these savings should be supported by tax incentives and voluntary employer contributions.

The case of Poland offers a valuable opportunity to explore an underexamined aspect of pension savings mobilization in the context of capital market development. As previously noted, the largest institutional investor on the Warsaw Stock Exchange – Open Pension Funds (OFE) – is currently in the decumulation phase. Realizing the full potential of pension-driven capital market growth requires addressing the adverse effects of the slider mechanism, which gradually transfers assets from OFE to the public system. To counteract this, alternative withdrawal strategies for OFE assets should be considered, alongside efforts to harness the growth potential of Employee Capital Plans (PPK). Key measures include increasing participation rates, implementing the auto-escalation of contributions, and raising limits on equity exposure. These reforms are essential for expanding the supply of long-term savings and strengthening the role of pension institutions in capital market development. In the Polish context, such measures are not only feasible but strategically critical for leveraging the structural advantages of the existing pension framework.

5. Conclusion

The persistent lack of long-term risk capital remains one of the most critical obstacles to the development of capital markets in Europe. Based on the findings from the literature review, the comparative analysis of collective versus individual pension saving mechanisms, and the success factors observed in countries with high pension asset-to-GDP ratios, this study recommends prioritizing the development of universal, collective saving frameworks. The paper has outlined the benefits and

111. Ibidem.

risks associated with alternative approaches to an expansion of the pension system and presented targeted recommendations for the Polish context. The proposed reforms – centered on automatic enrollment, default investment strategies, and effective decumulation mechanisms – could serve as a blueprint for other European economies seeking to enhance competitiveness through capital market deepening. In Poland, these changes would help reverse the adverse effects of post-crisis reforms and restore the long-term potential of the capital-funded pension pillar. In the broader European context, mobilizing long-term savings through collective pension schemes offers a dual benefit: improving household financial security and financing the investment needs of innovation-driven economies. However, the creation of a savings supply is only the first step. To fully realize its potential, it must be accompanied by a dynamic capital market ecosystem – characterized by a robust pipeline of publicly listed, high-growth companies and strong corporate governance standards that foster investor confidence. Current evidence suggests that European public markets lag behind the United States in hosting modern, growth-oriented firms. A structural shift in the composition of listed companies is therefore essential to ensure that the capital markets can effectively absorb and deploy long-term savings in support of sustainable economic development.

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Instytucjonalne oszczędności emerytalne i mobilizacja długoterminowego kapitału: polska perspektywa dla Unii Oszczędności i Inwestycji

Europejskie rynki kapitałowe pozostają słabiej rozwinięte w porównaniu do globalnych odpowiedników, co przejawia się niskim poziomem emisji akcji oraz ograniczoną kapitalizacją giełdową. Niniejsze opracowanie analizuje, w jaki sposób instytucjonalne oszczędności emerytalne mogą skuteczniej stymulować rozwój rynku kapitałowego niż produkty indywidualne. Wykorzystując podejście mieszane – krytyczny przegląd literatury, analizę SWOT oraz studia porównawcze systemów emerytalnych w Europie i USA – badanie identyfikuje bariery behawioralne i strukturalne dla indywidualnego oszczędzania. Podkreślono mechanizmy instytucjonalne, takie jak automatyczne zapisy, eskalacja składek oraz domyślne strategie inwestycyjne, które pozwalają przezwyciężyć te wyzwania. Artykuł wnosi wkład do literatury finansowej, proponując sekwencyjną strategię reform systemów emerytalnych,

ukierunkowaną na optymalizację długoterminowych oszczędności i akumulację kapitału. Zwrócono uwagę na często pomijaną rolę alokacji aktywów w planach emerytalnych, kluczową zarówno dla rozwoju rynku kapitałowego, jak i wyników inwestycyjnych gospodarstw domowych. Ponadto, badanie wskazuje na potencjał pozytywnego sprzężenia zwrotnego pomiędzy oszczędnościami na sytuacje awaryjne a składkami emerytalnymi. Wykorzystując polską infrastrukturę emerytalną, artykuł przedstawia rekomendacje polityczne o szerszym znaczeniu dla gospodarek europejskich. Wyniki podkreślają, że efektywna alokacja aktywów i projektowanie planów w instytucjonalnych programach emerytalnych – a nie tylko istnienie funduszy emerytalnych – są kluczowe dla rozwoju rynku kapitałowego.

Słowa kluczowe: rynki kapitałowe, systemy emerytalne, oszczędności instytucjonalne, alokacja aktywów, finanse behawioralne, gospodarki europejskie, reforma finansowa

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