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FINANCIAL SUSTAINABILITY OF PENSION SYSTEMS IN EU MEMBER STATES

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ФІНАНСОВА СТІЙКІСТЬ ПЕНСІЙНИХ СИСТЕМ КРАЇН-ЧЛЕНІВ ЄС

This article investigates the financial sustainability of pension systems in EU member states by introducing a novel metric — per capita pension assets earmarked for individuals aged 65 and above. The central hypothesis posits that in many EU countries, the accumulation of pension assets is not keeping pace with the rapidly growing elderly population, leading to a declining asset-per-retiree ratio and increased risks to intergenerational equity, retirement adequacy, and long-term fiscal stability.

The research employs a comparative, longitudinal analysis of 20 EU member states over the period 2014–2023. Using official statistics on pension fund assets and demographic data, the study calculates annual per capita pension assets for each country. Descriptive analysis and compound annual growth rates are used to identify disparities, structural patterns, and the extent of demographic-financial misalignment.

The results demonstrate marked asymmetries across member states. Western and Northern countries, such as the Netherlands, Ireland, and Finland, sustain high asset-per-retiree levels due to mature funded systems, while several Central, Eastern, and Southern countries exhibit stagnant or declining ratios. France showed dramatic late-period growth, whereas Sweden experienced an unexpected decline, despite a stable pension framework. These findings confirm the hypothesis and underscore the importance of aligning financial accumulation with demographic change.

The study uses U.S. dollar-denominated values without adjusting for exchange rate movements or inflation, which may distort comparability. Furthermore, not all EU member states were included due to incomplete data availability, and the analysis does not incorporate household-level or distributional factors.

The per capita pension asset metric provides a powerful indicator for policymakers to evaluate financial preparedness and tailor pension reforms. It highlights where structural adjustments or prefunding incentives are most urgently needed. Unlike prior studies that emphasize demographic or institutional indicators in isolation, this research offers an integrated financial-demographic measure that captures the adequacy and resilience of pension systems under aging pressure.

У статті досліджено фінансову стійкість пенсійних систем країн-членів ЄС шляхом запровадження нової метрики — пенсійних активів у розрахунку на одну особу віком 65 років і старше. Висунуто гіпотезу, що в багатьох країнах ЄС накопичення пенсійних активів не встигає за швидкими темпами зростання чисельності літніх громадян, що призводить до зниження співвідношення активів на одного пенсіонера та загрожує міжпоколінній справедливості, адекватності виплат і довгостроковій фінансальній стабільності.

У дослідженні застосовано порівняльний і динамічний аналіз для 20 країн ЄС у період з 2014 по 2023 роки. На основі офіційної статистики щодо обсягів пенсійних фондів і демографічних даних розраховано щорічні показники пенсійних активів на одну особу пенсійного віку. За допомогою описової статистики та середньорічних темпів зростання виявлено регіональні диспропорції, структурні відмінності та ступінь невідповідності між демографічними й фінансовими тенденціями.

Отримані результати демонструють суттєві асиметрії між країнами. У Західній і Північній Європі, зокрема в Нідерландах, Ірландії та Фінляндії, зберігаються високі рівні активів на одного пенсіонера завдяки зрілим накопичувальним системам. Водночас у низці країн Центральної, Східної та Південної Європи показники залишаються сталими або знижуються. У Франції зафіксовано стрімке зростання наприкінці досліджуваного періоду, тоді як у Швеції, попри стабільну пенсійну модель, спостерігався несподіваний спад.

Аналіз проводився в доларах США без урахування інфляції та валютних коливань, що може впливати на порівнюваність даних. До дослідження не включено всі країни ЄС через відсутність повної інформації; також не враховано показники на рівні домогосподарств і розподільчі аспекти.

Запропонований показник пенсійних активів на одну особу є ефективним інструментом для оцінки фінансової готовності пенсійних систем і розробки реформ. На відміну від попередніх досліджень, що розглядали демографічні чи інституційні чинники ізольовано, у роботі представлено інтегрований фінансово-демографічний підхід, що дозволяє оцінити адекватність і стійкість пенсійних систем в умовах старіння населення.

Key words: EU member states, financial sustainability, non-state pension funds, non-state pension provision, pension accumulation, pension assets, pension system, Ukraine

Ключові слова: країни-члени ЄС, фінансова стійкість, недержавні пенсійні фонди, недержавне пенсійне забезпечення, пенсійні накопичення, пенсійні активи, пенсійна система, Україна.

GENERAL STATEMENT OF THE PROBLEM AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

The financial sustainability of pension systems is a growing concern for EU member states amid accelerating demographic aging and structural labor market changes. Although prior research has examined fiscal reforms, retirement age adjustments, and labor participation, few studies have linked pension asset accumulation directly to demographic pressures. This article addresses that gap by introducing a novel metric (per capita pension assets for individuals aged 65 and above) to assess pension systems' financial preparedness. The hypothesis posits that in several EU countries, the accumulation of pension assets is lagging behind the growth of the elderly population, resulting in a declining asset-per-beneficiary ratio. This misalignment signals potential risks to

intergenerational equity and retirement income adequacy. By comparing 20 EU member states from 2014 to 2023, the study offers new insights into institutional disparities, asset trajectories, and policy effectiveness. The findings have direct implications for pension reform strategies and long-term fiscal planning within an aging European population.

ANALYSIS OF RECENT STUDIES AND PUBLICATIONS

There is a substantial body of research addressing the financial sustainability of pension systems across EU member states, particularly in response to demographic ageing, labor market shifts, and structural reforms. For instance, Bayar investigates how EU states responded to demographic pressure and fiscal constraints through retirement age increases and multi-pillar reforms,

Table 1. Annual stock of pension assets earmarked for retirement in selected EU member states in 2014–2023, billions of US dollars

EU member state	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Czechia	14.9	15.0	15.7	20.9	20.9	22.4	25.3	26.2	26.5	27.6
Denmark	152.3	130.4	138.3	160.2	154.4	169.4	224.1	190.5	143.0	146.7
Estonia	2.7	2.8	3.3	4.4	4.5	5.3	6.5	5.1	4.3	5.5
Finland	126.4	112.5	116.1	140.6	132.2	140.4	164.3	175.3	150.9	165.0
France	12.6	13.3	14.8	19.2	19.0	35.7	71.8	84.4	242.3	269.6
Germany	236.2	220.2	227.3	270.9	268.5	290.5	338.5	325.1	268.1	294.8
Greece	1.3	1.2	1.3	1.6	1.6	1.8	2.0	2.1	1.9	2.5
Hungary	5.0	4.8	5.1	6.4	5.9	6.1	6.4	6.2	5.0	6.5
Ireland	130.9	116.6	104.6	121.9	117.9	131.1	148.8	152.7	126.9	133.8
Italy	130.7	122.5	130.3	157.4	153.5	169.2	198.1	194.8	173.7	194.9
Latvia	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.7	0.9
Lithuania	2.3	2.4	2.7	3.6	3.7	4.5	5.7	6.9	6.2	8.2
Luxembourg	1801.0	1572.0	1659.0	1941.0	1853.0	2020.0	2246.0	2187.0	1688.0	1491.0
Netherlands	1282.0	1266.4	1360.6	1631.2	1538.6	1773.7	2100.0	2079.8	1541.8	1735.0
Poland	43.1	36.6	36.9	51.9	42.2	41.0	40.0	47.0	36.4	54.3
Portugal	21.3	19.8	19.5	23.7	22.3	24.5	28.3	27.3	22.7	20.9
Slovak Republic	9.6	8.8	9.5	12.0	12.0	13.3	16.2	17.5	16.1	19.5
Slovenia	2.6	2.4	2.4	2.9	3.0	3.2	3.8	4.2	3.9	4.4
Spain	121.6	113.2	112.0	132.1	121.4	129.9	144.7	143.7	122.2	136.1
Sweden	47.0	43.7	20.1	22.6	21.1	22.8	25.8	29.8	24.6	27.2

Source: elaborated by the author based on [14–15].

emphasizing progress in highly indebted states [1, pp. 51–52]. However, the paper's reliance on policy summaries lacks statistical depth and omits broader social impacts of reforms.

Krpan, Pavkovic, and Gardijan Kedzo evaluate pension efficiency in 11 new EU states using DEA and the Mercer Index, highlighting Estonia and Poland as top performers based on structural and macroeconomic indicators [2, pp. 6661–6663]. Yet, institutional differences are underexplored, and the static timeframe limits reform trajectory insights.

Lakotova analyzes automatic adjustment mechanisms and institutional resilience across EU systems, showing that countries with robust linkages to demographics fare better under ageing scenarios [3, pp. 64–66]. Still, the author provides limited empirical validation and overlooks political resistance to reforms.

Dumiter, Schebesch, Nicoara, and Bente use advanced regressions to model pension expenditure in CEE and Baltic states, finding labor market activity and demographics as key predictors [4, pp. 1941–1942]. Nonetheless, the study omits institutional factors and cross-country dynamics crucial to policymaking.

Helmdag and Vaananen examine 438 EU pension reform recommendations, finding a strong fiscal bias and targeting of high-deficit countries, with employment among older adults as the main driver [5, pp. 1252–1254]. The absence of a normative framework and trade-off analysis weakens its applied value.

Pokorny and Hejdukova present Denmark's pension model as fiscally balanced through a mix of public, occupational, and private tiers [6, pp. 57–58]. However, the descriptive narrative lacks comparative rigor and fails to address vulnerability to market shocks or inequity among non-standard workers.

Valls Martinez, Santos-Jaen, Amin, and Martin-Cervantes conduct a bibliometric review of pension

research, mapping trends and key contributors using visualization tools [7, p. 22]. Despite its breadth, the review lacks critical engagement with content or policy impact and omits non-Scopus sources.

Vuckovic and Skuflic explore emigration's effect on pension sustainability in 11 EU states using fixed-effects panel analysis, revealing fiscal strain without significant social impact [8, pp. 156–157]. However, their focus on median income is narrow, excluding wider political and behavioral dimensions.

Jgerenaia and Ghaniashvili benchmark Georgia's pension system against EU standards, noting its declining sustainability despite nominal improvements and highlighting its reliance on PAYG structures [9, pp. 153–154]. Still, the researchers offer little econometric analysis and neglect equity and inter-generational issues.

Krpan, Pavkovic, and Zmuk cluster new EU states based on pension, demographic, and labor data over three decades, identifying more sustainable Baltic models versus lagging Southern peers [10, pp. 219–220]. Yet, private pensions are excluded, and methodological bias from variable selection remains a concern.

Despite these diverse and insightful contributions, most studies fall short of synthesizing institutional design, demographic trends, and fiscal indicators into comprehensive, comparative models.

FORMULATION OF THE OBJECTIVES OF THE ARTICLE (TASK STATEMENT)

The article assesses the financial sustainability of pension systems in selected EU member states by analyzing disparities in per capita pension assets amid demographic aging, highlighting key structural and policy factors that shape long-term adequacy and suggesting reform strategies for underperforming countries.

Table 2. Population ages 65 and above in selected EU member states in 2014–2023, millions of people

EU member state	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Czechia	1.853	1.909	1.965	2.022	2.076	2.129	2.171	2.158	2.190	2.232
Denmark	1.039	1.063	1.085	1.106	1.126	1.146	1.166	1.186	1.204	1.225
Estonia	0.244	0.248	0.252	0.256	0.260	0.264	0.269	0.272	0.278	0.287
Finland	1.074	1.107	1.137	1.165	1.192	1.218	1.244	1.268	1.291	1.317
France	12.193	12.545	12.868	13.163	13.458	13.753	14.026	14.281	14.550	14.852
Germany	16.973	17.198	17.404	17.601	17.783	17.972	18.166	18.415	18.820	19.121
Greece	2.254	2.281	2.306	2.329	2.350	2.372	2.396	2.414	2.424	2.444
Hungary	1.739	1.769	1.800	1.827	1.857	1.900	1.943	1.965	1.979	1.997
Ireland	0.596	0.616	0.638	0.660	0.683	0.709	0.734	0.759	0.790	0.825
Italy	13.088	13.268	13.411	13.536	13.718	13.800	13.896	13.992	14.121	14.288
Latvia	0.384	0.386	0.388	0.389	0.389	0.391	0.393	0.393	0.395	0.400
Lithuania	0.546	0.550	0.552	0.554	0.556	0.558	0.560	0.560	0.562	0.570
Luxembourg	0.079	0.081	0.083	0.085	0.087	0.090	0.092	0.094	0.097	0.101
Netherlands	2.926	3.008	3.082	3.156	3.231	3.307	3.378	3.447	3.523	3.603
Poland	5.657	5.841	6.042	6.253	6.461	6.666	6.781	6.855	7.003	7.176
Portugal	2.092	2.131	2.171	2.213	2.255	2.303	2.354	2.413	2.472	2.551
Slovak Republic	0.742	0.767	0.796	0.827	0.857	0.887	0.915	0.935	0.954	0.980
Slovenia	0.362	0.372	0.382	0.393	0.404	0.415	0.423	0.431	0.441	0.452
Spain	8.482	8.608	8.719	8.845	8.983	9.132	9.263	9.400	9.647	9.986
Sweden	1.893	1.930	1.962	1.992	2.021	2.051	2.077	2.104	2.133	2.164

Source: elaborated by the author based on [14–15].

SUMMARY OF THE MAIN RESEARCH MATERIAL

Table 1 presents the annual stock of pension assets earmarked for retirement in selected EU member states over the period 2014–2023. The numbers represent assets accumulated within autonomous pension funds, expressed in billions of U.S. dollars (USD), and reported on an annual basis. These assets are essential for backing future benefit payments under occupational or personal retirement schemes, whether defined benefit or defined contribution plans. As such, their evolution over time is a core indicator of the financial sustainability of pension systems.

Over the observed decade, most EU member states recorded positive growth in pension fund assets. However, the pace and scale of this growth varied considerably across regions, reflecting differences in institutional maturity, policy environments, investment returns, and demographic pressures. In Central and Eastern Europe, countries such as Lithuania (+351.4%), Latvia (+262.6%), Estonia (+205.2%), and the Slovak Republic (+202.6%) exhibited significant relative growth. These increases point to expanding funded pension pillars in systems that historically relied on pay-as-you-go mechanisms. Nevertheless, in absolute terms, asset levels in these countries remain relatively modest, signaling the need for continued reform and capital accumulation.

In Western and Northern Europe, results were mixed. The Netherlands retained its leading position, with total pension assets reaching over USD 1.7 trillion in 2023 (a 35.3% increase from 2014). Finland and Ireland also posted consistent, if moderate, growth (+30.5% and +2.2%, respectively). In contrast, Denmark saw a slight overall decline (-3.7%), possibly due to investment reallocations, benefit payouts, or currency revaluation effects.

France displayed the most exceptional trend, with pension assets growing from USD 12.6 billion in 2014 to nearly USD 270 billion in 2023 (an increase of over 2140%).

This dramatic shift likely reflects structural reforms, the expansion of funded occupational schemes, or reclassification of pension vehicles into the autonomous fund category. Conversely, Sweden experienced the sharpest decline among all countries in the dataset, with assets contracting by 42.1%. Given Sweden's mature pension framework, this drop may stem from rebalancing within its national pension system or adjustments in how certain assets are classified.

In Southern Europe, Italy demonstrated steady long-term growth (+49.2%), while Spain posted a more modest gain (+11.9%). Greece and Portugal showed limited asset accumulation over the decade, suggesting structural or macroeconomic constraints that continue to hamper the expansion of funded pension schemes.

The disparities revealed by this dataset raise important questions regarding the financial sustainability of pension systems across the EU. Countries with aging populations and slow-growing or shrinking asset bases may face challenges in delivering adequate retirement benefits in the future. The divergence between demographic trends and asset accumulation, especially where pension wealth per retiree is eroding, could intensify intergenerational imbalances and necessitate policy interventions.

Although the figures are expressed in USD, and may partially reflect exchange rate movements, the broad trends signal meaningful structural differences. Among the 20 EU member states analyzed, 17 recorded nominal growth in pension assets, while three (Sweden, Luxembourg, and Portugal) ended the period with lower or stagnant asset levels relative to 2014. These descriptive patterns reveal institutional asymmetries that will increasingly shape the EU's retirement security landscape.

Table 2 tracks the annual population aged 65 and over across 20 EU member states between 2014 and 2023. All countries in the dataset experienced an increase in their 65+ population during the period, with the average

Table 3. Annual per capita pension assets earmarked for retirement among the population aged 65 and over in selected EU member states, 2014–2023 (in thousands of US dollars)

EU member state	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Czechia	8.016	7.874	7.982	10.346	10.083	10.543	11.675	12.135	12.114	12.376
Denmark	146.59	122.66	127.50	144.84	137.06	147.81	192.10	160.59	118.71	119.71
Estonia	10.969	11.447	12.929	17.021	17.344	20.233	24.224	18.666	15.498	19.162
Finland	117.73	101.60	102.12	120.73	110.87	115.23	132.10	138.31	116.91	125.30
France	1.033	1.057	1.147	1.455	1.412	2.598	5.119	5.908	16.655	18.151
Germany	13.917	12.803	13.061	15.393	15.101	16.165	18.632	17.654	14.243	15.415
Greece	0.586	0.542	0.544	0.689	0.674	0.738	0.842	0.863	0.802	1.009
Hungary	2.900	2.724	2.837	3.484	3.164	3.209	3.291	3.138	2.513	3.277
Ireland	219.61	189.08	163.92	184.65	172.50	184.91	202.71	201.15	160.61	162.19
Italy	9.983	9.231	9.718	11.628	11.188	12.257	14.257	13.923	12.298	13.640
Latvia	0.893	0.934	1.039	1.340	1.359	1.610	1.905	2.105	1.816	2.240
Lithuania	4.271	4.323	4.918	6.516	6.722	8.093	10.215	12.397	11.080	14.379
Luxembourg	22.924	19.439	20.014	22.752	21.196	22.516	24.424	23.216	17.411	14.811
Netherlands	438.07	421.03	441.54	516.93	476.18	536.40	621.59	603.32	437.67	481.48
Poland	7.623	6.267	6.112	8.293	6.537	6.155	5.898	6.863	5.203	7.562
Portugal	10.159	9.279	8.966	10.705	9.883	10.648	12.013	11.322	9.202	8.203
Slovak Republic	12.997	11.402	11.959	14.472	14.054	15.024	17.693	18.683	16.845	19.953
Slovenia	7.092	6.505	6.373	7.500	7.319	7.802	8.942	9.778	8.766	9.673
Spain	14.335	13.148	12.848	14.938	13.518	14.229	15.619	15.290	12.671	13.631
Sweden	24.850	22.638	10.259	11.352	10.448	11.138	12.429	14.167	11.533	12.584

Source: elaborated by the author.

cumulative growth across the sample at approximately 24.3%. While larger states such as Germany (+13.3%) and France (+21.8%) contributed the most in absolute terms (adding over 2 million elderly individuals each) smaller and mid-sized countries experienced the most rapid relative growth. Ireland led with a 38.4% increase, followed by the Slovak Republic (+32.0%), Portugal (+21.9%), and Czechia (+20.5%). These growth rates reflect the aging of post-war cohorts, increasing life expectancy, and, in some cases, modest inward migration of retirees.

Central and Eastern European countries revealed some of the most accelerated demographic transitions. Poland added over 1.5 million individuals aged 65+, a 26.8% increase, while Hungary and Lithuania posted similar upward trends. However, when cross-referenced with pension asset data from the same period, it becomes clear that in many CEE countries, the accumulation of pension assets has not kept pace with the rising number of beneficiaries. For instance, Lithuania's pension assets grew by 351.4%, but from a small base, while Hungary's increased only modestly, despite a growing senior population. These gaps underline long-term risks in financial adequacy and retirement income security.

In Western and Southern Europe, population aging remains more advanced in absolute terms, with Italy surpassing 14.2 million seniors in 2023. Spain's elderly population neared 10 million, having grown by over 17.7% across the decade. France, while traditionally reliant on pay-as-you-go pensions, also saw rapid aging-adding over 2.6 million seniors. However, France simultaneously expanded its funded pension asset base by more than 2,140%, suggesting a shift toward diversification of retirement financing.

Outliers further sharpen the contrast. In Sweden, where the 65+ population increased by 14.3%, pension fund assets declined by 42.1%, signaling a significant imbalance that may reflect reclassifications or drawdowns exceeding new contributions. Meanwhile, Luxembourg maintained a stable growth trajectory in both demo-

graphics and pension reserves, indicating relative alignment between its population dynamics and financial provisioning.

Taken together, these patterns demonstrate a growing asymmetry between demographic trends and pension system readiness. Countries with high population aging but stagnant or declining pension assets face deteriorating asset-per-retiree ratios. At the EU level, this misalignment may erode intergenerational equity, amplify fiscal transfers, and challenge the design of cohesive retirement policies.

Addressing these asymmetries will require policy innovation, ranging from incentives for voluntary savings and occupational schemes to careful recalibration of retirement ages and contribution structures. Without such measures, the financial sustainability of pension systems across the EU may be severely undermined by a predictable yet unevenly mitigated demographic transition.

Per capita pension assets, calculated as the ratio of total pension fund assets to the population aged 65 and over, provide a critical measure of a pension system's financial preparedness for demographic aging (Table 3). Unlike aggregate figures, this indicator captures the degree to which prefunded retirement resources are aligned with the growing number of potential beneficiaries. It is particularly valuable for assessing adequacy, asset-per-beneficiary trends, and early signs of financial unsustainability in systems under pressure from rising dependency ratios.

The dataset covering 20 EU member states between 2014 and 2023 reveals striking and persistent disparities in both levels and growth trajectories. As of 2023, the Netherlands leads with over USD 481,000 per retiree, followed by Ireland (USD 162,190), Finland (USD 125,300), and Denmark (USD 119,710). These countries have long-established funded pension pillars and stable institutional frameworks supporting occupational and personal pension plans. Their compound annual growth rates (CAGRs), while

moderate, e.g., +1.1% in the Netherlands-reflect the maturity and scale of their systems.

Conversely, countries starting from lower baselines recorded more dramatic increases. France, for instance, saw per capita assets rise from USD 1,033 in 2014 to USD 18,151 in 2023, a staggering CAGR of 38.7%. This growth likely stems from the gradual expansion of funded occupational schemes, institutional reform, and potential reclassification of pension vehicles into the autonomous category. Similarly, Lithuania achieved a 236.6% increase, growing from USD 4,271 to USD 14,379 per capita, signaling progress in consolidating second- and third-pillar mechanisms.

However, these positive trajectories are far from universal. Several countries show flat or even declining trends, despite aging populations. Poland's per capita pension assets decreased slightly over the period, from USD 7,623 to USD 7,562 (CAGR: -0.1%), despite a significant rise in the number of elderly citizens. Portugal and Greece also remained low, ending the decade with only USD 8,203 and USD 1,009 per senior, respectively. These figures raise concerns about long-term adequacy, particularly in systems where pay-as-you-go schemes dominate and funded reserves are not keeping pace with demographic change.

A notable deviation is observed in Sweden, where per capita assets fell sharply between 2014 and 2016, from USD 24,850 to USD 10,259, before partially recovering to USD 12,584 by 2023. While this may reflect fund rebalancing, payout schedules, or classification shifts, it contrasts with the generally upward trajectory seen in other Nordic states.

The cross-country variation underscores the critical importance of assessing pension fund growth in relation to population aging. High nominal growth in assets may mask deteriorating adequacy when demographic expansion outpaces financial accumulation. This per capita measure thus serves as a leading indicator of financial pressure and potential intergenerational imbalance.

CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH IN THIS AREA

This study provides a novel empirical assessment of pension system sustainability in selected EU member states by analyzing per capita pension assets earmarked for retirement among populations aged 65 and over. Unlike traditional indicators centered on demographic ratios or replacement rates, this asset-per-beneficiary metric introduces a valuable financial dimension to the discussion on aging and retirement security. The cross-country comparisons reveal not only the absolute differences in pension wealth accumulation but also highlight distinct trajectories shaped by national pension structures, investment strategies, and policy reforms.

The findings underscore a persistent divide between Western and Northern European countries, particularly the Netherlands, Ireland, and Denmark, with consistently high asset levels, and Central, Eastern, and Southern European countries that continue to lag behind. Some cases, such as France's dramatic late-decade asset growth or Sweden's fluctuating pattern, reflect systemic shifts, portfolio adjustments, or changing prefunding strategies. These

observations suggest that financial sustainability is not purely a function of demographics but also of institutional commitment to prefunded pillars and investment performance.

From a policy perspective, countries with underdeveloped pension asset bases, such as Greece, Hungary, and Latvia, should consider strengthening their prefunding mechanisms, possibly through incentivized savings schemes, improved governance of pension funds, or diversification of investment portfolios. Moreover, the volatility observed in high-performing countries emphasizes the need for resilient asset management practices and prudent regulation to safeguard retirement security amid market fluctuations.

Future research should build on this framework by linking pension asset growth to retirement income adequacy, poverty rates among the elderly, and fiscal pressures associated with aging. Longitudinal, household-level studies could further uncover intra-national disparities in pension wealth accumulation. Expanding the comparative lens beyond the EU (to OECD or global contexts) would also advance the understanding of how financial strategies can mitigate the socioeconomic risks posed by population aging.

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