

# *Financialization and Three-Pillar Pension System in China: Risks, Reforms, and Policy Pathways*

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**Abstract.** Rapid population aging threatens the sustainability of China's pension system. The first pillar faces mounting deficits while the second and third pillars remain underdeveloped. This paper examines whether financialization can enhance asset efficiency, ease fiscal pressure, and strengthen resilience. Analysis of China's current framework shows structural imbalances and limited progress in market-based investment. By comparing international experiences, two main approaches to pension financialization emerge: equity-oriented investment strategies, exemplified by U.S. target-date funds, and collective risk-sharing mechanisms, as in the Netherlands and Nordic countries. The results suggest that moderate financialization can raise returns and diversify risks, but excessive market reliance may amplify volatility, erode equity, and weaken legitimacy. Policy recommendations include advancing national pooling, improving tax incentives, introducing automatic stabilizers, and designing effective default options for personal accounts. Overall, the study argues that financialization should remain measured and anchored in public interest, providing a pathway for China to balance sustainability and fairness under demographic pressures.

**Keywords:** Pension reform, China's three-pillar system, sustainability and equity, international comparison

## **1. Introduction**

Population aging is accelerating worldwide, placing pay-as-you-go pension schemes. Many countries have explored financialization and market-oriented reforms to improve the efficiency and sustainability of pension assets. China faces serious challenges. By the end of 2024, about 310 million people were aged 60 and above (22.0% of the population), including 220 million aged 65 and above (15.6%) [1]. Rising old-age dependency ratio and falling child dependency ratio has increased the burden on the working-age population, widening the financing gap in the first pillar. The second pillar, including enterprise and occupational annuities, totaled RMB 6.7 trillion—less than 5% of GDP—while the third-pillar personal pension system remains nascent, with limited participation and weak supplemental capacity.

International experience suggests that financialization can expand the second and third pillars and ease public pension pressures. Australia, for instance, has achieved total pension assets equivalent to 140% of GDP through mandatory contributions and market-based investments, with second-pillar spending exceeding public pension outlays [2, 3]. China has begun experimenting with market-

based investment; By end-2024, the basic pension fund reported a surplus of RMB 8.72 trillion, but only about 30% was invested; indicating room for improved returns [4]. With financialization can enhance asset efficiency and relieve fiscal pressure, it carries risks. The challenge lies in increasing pension returns without compromising system stability. This paper reviews the literature to map key challenges in China's pension system, assess the case for financialization alongside its risks, and draw on international experience to propose policy recommendations. It aims to supplement the relevant literature in the Chinese context and provide practical guidance for the sustainable development of pensions and fiscal relief.

## 2. Analysis of the current state of China's pension system

The first pillar of China's pension system is basic pension insurance, which is operated by the government and has extremely broad coverage. By the end of 2024, approximately 1.073 billion people nationwide had enrolled in the basic pension insurance program [4]. The system adopts a “combined account” model, whereby a social pooling account is used to assume pay-as-you-go responsibilities and achieve mutual pension protection. At the same time, individual accounts are set up to reflect differences in contributors' contributions, achieving a certain degree of personal accumulation and incentives [5]. However, with the acceleration of population aging, the shrinking labor force, and the continuous rise in dependency ratios pose, severe challenges are posed to the sustainability of the system. Analysis indicates that if the current retirement age and institutional arrangements remain unchanged, the basic pension insurance fund for urban employees will experience its first deficit in 2027, with the deficit widening annually thereafter [6]. An actuarial report released by the Chinese Academy of Social Sciences in 2019 warned that system-wide reserves could be exhausted around 2035 [7]. If structural adjustments are not made in areas such as contribution rates, retirement age, and fiscal subsidy mechanisms, the long-term stability of the first pillar will be threatened. At the same time, there are significant differences in revenue and expenditure between different regions, and areas with severe population outflows and aging populations have already experienced current deficits, further exacerbating the vulnerability of the system.

The second pillar of China's pension system is the enterprise-led enterprise pension system, which aims to supplement the benefits provided by the first pillar, but its development remains inadequate at present. By end-2024, about 159,300 employers had plans in place, with assets around RMB 3.64 trillion and an average annual return of 6.17% [4]. Although the scale of the fund has been growing year by year, the coverage rate remains below 7%, indicating that the reach and benefits of the system are still limited. The reasons include low willingness among enterprises to establish pension plans, insufficient institutional incentives, limited tax incentives, and inadequate employee awareness of the system. In terms of investment operations, Chinese corporate pension funds have long favored fixed-income instruments and money market tools and have been cautious about allocating assets to high-risk, high-return assets such as stocks [8]. While this conservative strategy reduces volatility, it also limits long-term returns and inflation-hedging capabilities. Additionally, insufficient information disclosure and low management transparency have eroded public and corporate confidence, limiting the system's role as a long-term source of funds [9].

The third pillar is personal pension plans, which are voluntary contribution accounts. As of the end of 2024, there were approximately 70 million personal pension accounts nationwide, but only about 30% of these accounts had contributions, with a cumulative total of less than 40 billion yuan and an average annual contribution of less than 700 yuan per person [10]. From an asset allocation perspective, the majority of funds flow into low-risk, low-return long-term wealth management

products, with equity assets accounting for less than 4% [11]. While this overly conservative allocation helps protect principal, it struggles to achieve significant appreciation in the long term and cannot fully leverage the potential of personal pensions as a long-term source of capital for the capital market. More importantly, the current tax incentives primarily benefit high-income groups and have limited appeal for low- and middle-income groups, which undercuts the system's inclusivity and participation rates. Participation has also been further constrained by a narrow range of investment options, severe product homogeneity, and the long-term poor performance of some funds. However, China's private pension market remains in its infancy, harboring immense opportunities. According to KPMG's calculations, the scale of China's personal pension market is expected to reach 7 trillion yuan by 2030 [11]. If improvements can be made simultaneously in tax policies, product diversity, and investment management capabilities, the third pillar could play a greater role in addressing the shortfall in replacement rates and alleviating fiscal pressures.

Overall, China has established a three-pillar framework in place, but the imbalances are clear. The first pillar still carries most of the load and is increasingly strained by rapid aging and regional disparities. The second pillar suffers from insufficient coverage and limited institutional incentives, failing to effectively share the retirement burden. While the third pillar holds considerable potential, participation rates remain low, fund sizes are limited, and tax incentives and product systems are not yet sufficiently developed. In other words, the imbalance in the distribution of functions among the pillars has constrained the system's resilience and risk-sharing capacity. Meanwhile, efforts to explore the financialization of pensions have begun, but progress has been limited. A share of assets has entered capital markets, and basic market mechanisms are in place. However, portfolio allocations remain conservative, equity exposure is low, and long-term real returns often lag inflation. More critically, the governance and regulatory architecture is incomplete: investable channels are narrow, product offerings are highly homogeneous, and disclosure remains inadequate. In the absence of effective supervision, excessive reliance on markets would not only impede attainment of return objectives but could also heighten exposure to market volatility. Calibrating an appropriate risk-return trade-off is therefore central to long-run sustainability and to maintaining public confidence.

### 3. International experience with pension systems

China's pension challenges are not unique. Many advanced economies face the same tensions among population aging, fiscal pressure, and the trade-off between equity and sustainability—problems that in some cases remain unresolved. This means that the challenges China faces are universal and comparable. Across countries, pension systems share common features: three-pillar designs, market-based operations, and recurring questions of legitimacy. A systematic review of foreign pension-finance reforms can therefore clarify China's reform direction and inform institutional improvement.

In current international practice, pension financialization has followed two broad paths:

The first expands equity allocation—allowing pension assets to enter stocks and mutual funds to seek higher long-term returns. The U.S.'s second and third pillars exemplify this, with target-date funds (TDFs) at the core. TDFs adjust asset weights according to the expected retirement year and are now the dominant default in 401(k) plans [12]. However, market turbulence also reveals its vulnerabilities: for instance, in March 2020, forward TDFs plummeted by as much as 14%, while short-term TDFs nearing retirement declined by approximately 8%. This exposed the so-called “sequence risk”—the amplified effect arising from the combination of asset depreciation and withdrawals when facing market crashes near or during retirement [13]. Additionally, differences

across glide paths also mean retirees face uneven risk. The U.S. GAO has therefore called for stronger disclosure and fiduciary duties so investors understand the uncertainty embedded in defaults [14]. The lesson is clear: higher equity allocations can enhance long-term performance, but they must be paired with robust risk management, transparent information disclosure, and protections for those near retirement to avoid eroding trust during extreme volatility.

The second path pairs deep market investment with collective risk-sharing. The core idea is that relying on capital markets does not mean all risks must be shifted to individuals. The Dutch occupational pension system is a prime example. Its assets are market-invested, but employers and employees pool contributions in sector-wide funds to diversify investment and longevity risk. This coordinated arrangement enables risks to be broadly dispersed rather than concentrated on individual retirees. Governance is also shared by employer associations and unions, so major investment and benefit decisions reflect group interests rather than short-term returns. The system uses conditional indexation—benefits rise when funding is strong and pause or decline when deficits emerge—providing an automatic stabilizer. And mandatory participation delivers very high coverage, limits adverse selection, and strengthens the risk pool [15]. Denmark and Finland follow similar principles—mandatory coverage, social-partner co-governance, and automatic links to life expectancy—achieving higher replacement rates with stronger sustainability [16]. These cases demonstrate that the financialization of pensions does not necessarily imply individualization. Collective designs can capture long-run market returns while preserving equity and stability.

In summary, international experience primarily focuses on two dimensions: First, moderate equity investments can raise the asset efficiency but must be supported by robust risk management and regulatory frameworks. Second, collective risk-sharing mechanisms play a crucial role in maintaining the fairness and stability of pension systems. But financialization also has costs. U.S. evidence shows substantial “leakage”—pre-retirement outflows via early withdrawals, loan defaults, and cash-outs on job change—that erode long-run adequacy [17]. Chile’s reform faced legitimacy pressures from limited coverage and widening inequality. Even in Northern European countries like the Netherlands, mandatory and collective governance models face challenges stemming from insufficient flexibility and declining social trust. For China, marketization should avoid the risks of excessive financialization, including potential dependence on financial gains and legitimacy challenges. Simultaneously, reforms must consistently be anchored in social equity and institutional trust.

#### **4. Policy recommendations for measured financialization**

International experience suggests China should pursue financialization with moderation. As Zheng Gongcheng notes, excessive instrumentalization and financialization can turn pensions into an appendage of growth, diverting them from their public goal of basic old-age security [18]. Reforms should be anchored in public purposes and fairness principles, prudently introducing market investments to enhance the fund's ability to preserve and increase value through long-term, stable asset allocation. Evaluation should shift from short-term returns to cross-cycle performance and liability matching so that near-term volatility does not unsettle the system.

First, enhance the level of nationwide coordination and centralized funding. The current structural obstacles of “scattered funds, difficult investments, and easy depreciation” limit the investment efficiency of capital. A unified collection and investment platform would improve scale and enable market operations. In terms of investment, global practices offer valuable guidance: For instance, U.S. 401(k) plans help participants smooth risk exposure through lifecycle funds, while Australia's superannuation relies on long-term equity investments to achieve substantial asset appreciation.

Meanwhile, occupational pension funds in countries like the Netherlands and other Nordic nations emphasize diversified asset allocation and strict regulation to maintain a balance between returns and security. The common lesson is that financialization should serve stable, long-run returns and be paired with cross-cycle risk management to avoid procyclical risk amplification.

Second, improve policy incentives for the second and third pillars. International experience shows that tax incentives and account portability are key to broader coverage. Second, improve policy incentives for the second and third pillars. International experience shows that tax incentives and account portability are key to broader coverage. The widespread adoption of the U.S. 401(k) plan relies heavily on robust tax incentives, while European countries like the Netherlands achieve accounts that “move with workers” through unified transfer systems. In contrast, China's enterprise annuities and personal pensions currently lack sufficient tax advantages and liquidity, resulting in low coverage rates. Policy should raise tax incentives, simplify deductions, and build a unified transfer platform to improve attractiveness and portability.

Third, build automatic stabilizers. Countries such as the Netherlands link retirement age to life expectancy and adjust replacement rates and contributions, which boosts system resilience. In China, key parameters of the current pension system have remained unchanged for decades: the retirement age is still set at the 1950s standard, the minimum contribution period remains at 15 years, and replacement rates and benefit indexation are not tied to macro conditions. Without dynamic adjustments, even if financialization can temporarily boost investment returns, the system itself cannot remain sustainable in the long term.

Finally, refine the design of third-pillar personal accounts to mitigate risks from over-reliance on individual decisions. U.S. evidence shows that participants managing their accounts independently often exhibit behavioral biases such as chasing high and selling low. Consequently, default investment tools like target-date funds have been progressively adopted. In contrast, China's market features a higher proportion of retail investors, with investor education and risk awareness remaining insufficient. If individual accounts are left entirely to autonomous investment decisions, market volatility could easily trigger herd buying and panic selling, thereby undermining the stability and legitimacy of the pension system. Reforms should therefore set appropriate default investment options and expand financial literacy programs. This helps promote long-term diversified investment, advancing financialization within a framework of public interest and sustainable development.

## 5. Conclusion

This paper reviews international practice in pension financialization, focusing on the equity investment approach in the United States, the collective risk-sharing models in the Netherlands and Nordic countries, and their corresponding regulatory and governance arrangements. It proposes reform ideas tailored to China's institutional realities. The evidence suggests that measured financialization can improve asset allocation, ease fiscal pressure, and promote coordination across the three pillars. However, without clear institutional boundaries and effective oversight, financialization may lead to excessive risk concentration, return dependency, legitimacy crises, and heightened social equity tensions. Hence, reform should adhere to “moderate financialization”: keep public interest and fairness as foundations, advance national pooling, adopt long-term and steady portfolio design, and employ cross-cycle risk management to build sustainability and trust.

This study has limitations. It centers on system design and reform paths rather than specific instruments, portfolio optimization, or risk models. And the selected cases and literature scope are

limited, making it difficult to comprehensively cover differences across diverse institutional contexts.

Future analysis may further deepen in the following areas: First, employing economic models to quantitatively assess the long-term impact of pension financialization on fiscal sustainability and pension security levels. Second, integrating microeconomic and behavioral economics perspectives to explore incentive mechanism designs for corporate and individual participation in the second and third pillars. Third, exploring how financialization interacts with distributive equity, helping China chart a steadier path between global templates and domestic conditions.

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