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The Enlightenment of Chile's Pension Fund Investment Management Model to China's Social Security Fund into the Market

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***Abstract*—With the rapid development of China's social security system, the scale of basic pension insurance funds has been continuously expanded, and the problem of maintaining and increasing value of investment operations has received increasing attention from society. This paper analyzes the problems existing in the investment operation of China's pension insurance fund under the background of population aging, and sorts out the process of China's pension insurance fund entering the market. On this basis, it studies the management model and experience of Chile's national pension fund investment operation, and puts forward the advice based on China's actual situation for improving the effectiveness of China's pension insurance fund investment operations.**

***Keywords*—Chile, Investment management model, Pension entering the market.**

I. Introduction

A. China's Pension Systeme

The basic old-age insurance refers to a social insurance system established by the state to protect all citizens from the loss of their labor and the loss of their living resources due to old age. China's pension insurance fund system is currently composed of three pillars: the basic pension insurance fund (urban employee pension insurance fund and urban and rural residents' pension fund), the national social security fund, occupational annuity (enterprise annuity), and individual savings pension.The basic endowment insurance fund includes two parts: social pooling and personal accumulation account. The social pooling fund implements the pay-as-you-go system, which only pays for the current period, regardless of the accumulation problem; The individual account fund implements the fund accumulation system and is fully paid by the employee[1]. Accumulate to meet the needs of the individual's future pension. China's current social security system is shown in Table 1.

TABLE I. CHINA'S CURRENT SOCIAL SECURITY SYSTEM

Class division		First pillar			Second pillar	Third pillar
		Basic pension insurance		Reserve	company annuity	Personal savings pension fund
		Social pooling fund	Personal account fund	Social security fund		
Management agency	Administrative agency	Ministry of Human Resources and Social Security, Human Resources and Social Security Bureau at all levels		State Council	Ministry of Human Resources and Social Security, China Insurance Regulatory Commission	Insurance Regulatory Commission
	Business management organization	National Council for Social Security Funds		National Council for Social Security Funds	Enterprise Annuity Council, various social security departments, commercial organizations, trade unions	Insurance Regulatory Commission, individual
Regulatory Authority		Social security, local taxation, finance, auditing and other departments at all levels		Ministry of Finance, Social Security Department, China Securities Regulatory Commission, People's Bank of China, etc.	Social security, auditing and other departments at all levels	Social security departments at all levels, China Insurance Regulatory Commission, etc.
Investment agency		National Social Security Fund Council and Entrusted Agency		National Social Security Fund Council and Entrusted Agency	Enterprise Annuity Council, legal trustee	Insurance company
Investment tool		Bank deposits, notes, various types of bonds, securities investment funds, stocks, stock index futures, government bond futures, and major national and major projects		Bank deposits, government bonds, corporate bonds, securities investment funds, stocks, overseas investments, etc.	Bank deposits, government bonds, corporate bonds, securities investment funds, stocks, agreement deposits, etc.	Bank deposits, government bonds, corporate bonds, securities investment funds, stocks, agreement deposits, real estate, large-scale infrastructure, equity investments, etc.

B. The Problem of Depreciation of the Basic Pension Fund

The balance of China's basic endowment insurance fund is generally found in the social security accounts of the financial departments of all levels of government, generally in the state of demand deposits, a small amount of short-term deposits. We now measure the actual interest rate of the pension fund in the past 10 years from 2008 to 2017. The annual average real interest rate for the year of 10 years without inflation is -0.35%, and the accumulated depreciation for the decade is close to 40 billion yuan. If the median fund yield rate published by the Social Security Fund Council is 8.8%, the accumulated “shrinkage” from 2008 to 2017 is nearly 378.4 billion yuan. Table 2 shows the depreciation of China’s basic pension fund from 2008 to 2017.

TABLE II. THE DEPRECIATION OF CHINA'S BASIC PENSION FUND FROM 2008 TO 2017.

year	Inflation rate	One-year deposit rate	Real interest rate
2008	5.9	3.06	-2.84
2009	-0.7	2.25	2.95
2010	3.3	2.625	-0.675
2011	5.4	3.25	-2.15
2012	2.6	3.125	0.525
2013	3.2	3	-0.2
2014	1.5	2.75	1.25
2015	1.4	2.0625	0.6625
2016	2	1.5	-0.5
2017	1.6	1.5	-0.1

C. *Low Level of Hierarchy and Management Dispersion*

At present, China is nominally all provincial-level co-ordination, but in reality most provinces only stay in the state of city, county, and provincial adjustment, and only seven provinces including Beijing, Shanghai, Tianjin, Chongqing, and Shaanxi have realized the provincial level of unified income. Most provincial social security agencies achieve provincial balance by extracting the subsidies and subsidies in the counties and cities. The endowment insurance funds retained in cities and counties cannot be adjusted across provinces, and it is even less likely to be used for operational investment. Most of the funds accumulated and stored in more than 2,000 social security coordinating units across the country are idle, resulting in a large amount of idle funds unable to capitalize investment.

D. *Implicit Gaps and Explicit Balances*

The implicit gap refers to the overall statistics of the difference between the pension income and expenditure or the difference between assets and liabilities that the future needs state burden and which are not reflected in the current fiscal book. In the process of the transition of the pension system, the government transferred the burden of social pension to the future, making the pension fund gap a hidden gap[2]. Liu Xueliang (2014) adopted an actuarial assessment to calculate the full-caliber pension gap of Chinese citizens from 2010 to 2050, the pension gap will be discounted to 57.5 trillion yuan in 2010, equivalent to 143% of the 2010 GDP[3].

Explicit balance: Since 1996, with the expansion of urban enterprise employee pension insurance, the promotion of urban and rural residents' endowment insurance system, and the development of the pension system of administrative institutions, the accumulation of China's pension insurance funds has increased year by year. The accumulated balances of urban and rural residents' social endowment insurance from 2012 to 2016 were 459.23 billion yuan, 384.46 billion yuan, 30.57 billion yuan, 230.22 billion yuan, and 320.4 billion yuan respectively. With the implementation of the social endowment insurance for urban residents and the new rural social endowment insurance, and the reform of the endowment insurance system for institutions, the balance of the basic endowment insurance fund will continue to grow for a long time[2].

As of the end of 2016, China's basic pension insurance fund (including urban and rural residents' pension insurance) has accumulated a total of 4.39 trillion yuan. If measured according to the current growth rate, it is expected that the fund will reach 10 trillion by 2030. Faced with such a huge capital balance, the market-oriented investment of pensions is a very important measure to maintain the long-term stable operation of pension funds and achieve value-added. How to fully and effectively play its role in coping with the aging of the population and the huge funding gap brought about by inflation is a major problem facing us.

II. The process of China's pension into the market

The introduction of a pension into a market refers to the investment of securities in a personal account fund in a basic pension fund. Investing pensions in the market can realize the value-added and preservation of pensions, and it can also play a role in stabilizing the market. However, since pension are in the social security category, it is inevitable that risks will be put into the market. Therefore, pensions have been debated by Chinese experts and scholars. The problem is also strongly concerned by the people.

A. Market Entry Background

On December 15, 2011, Guo Shuqing, chairman of the China Securities Regulatory Commission, said in a public occasion that there are about 2 trillion balances of local pension insurance and 2.1 trillion housing provident fund balances in China. If these funds are managed in a unified manner, the National Social Security Fund will be studied. Investing in the stock market to generate income is good for individuals, governments and capital markets.

The 2011 China Pension Development Report released by the Chinese Academy of Social Sciences on December 22, 2011 also pointed out that the state may establish an investment management company to manage the operation of basic pension insurance funds. The report recommends that the relevant departments of the State Council conduct a unified study on investment management system of locally managed basic pension insurance fund and national social security fund centralized by the central government, and make unified decisions.

B. Market Entry Process

On March 20, 2012, the Social Security Fund Council was entrusted by the Guangdong Provincial Government to invest and operate 100 billion yuan of basic endowment insurance funds for urban employees in Guangdong with the approval of the State Council. The funds will be allocated in batches, and the entrusted investment period will be tentatively set for two years.On August 17, 2015, the State Council issued the “Measures for the Administration of Investment in Basic Endowment Insurance Funds”, and started the official entry of pension funds. In March 2016, the State Council issued the “Regulations on the National Social Security Fund”, clearly stipulating that the Social Security Fund Council can accept the entrusted operation of the provincial people's government to manage the social insurance fund. In March 2017, the National Minister of Comprehension and Human Resources answered the reporter's question: At the end of the year 2016, seven provinces and municipalities entrusted 360 billion yuan to the National Social Security Fund Council for investment operations.

C. Entry Control

The Measures for the Administration of Investment in Basic Endowment Insurance Funds stipulates that pension funds are limited to domestic investment. Investment scope includes: bank deposits, central bank bills, interbank deposit certificates, government bonds, policy bank bonds, development bank bonds, financial bonds with credit ratings above investment grade, corporate (company) bonds, local government bonds, convertible bonds, short-term financing bonds, medium-term notes, asset-backed securities, bond repurchases, pension products, listed securities investment funds, stocks, equity, stock index futures, and treasury futures. In addition, pension funds can participate in the investment of major national projects and major projects through appropriate means.

The fund can invest in stocks, stock funds, hybrid funds, and stock-based pension products. The maximum proportion of such investment funds can reach 30% of the fund's net assets, which will allow more than 1 trillion yuan of funds be invested to the stock market. directly or indirectly.At the same time, the basic national pension plan for basic pension insurance for urban employees is also expected to be implemented,which will further enhance the payment adjustment capacity of pension funds and expand the accumulated balance of funds. According to the official calibre, after deducting the reserved payment funds, the total amount of funds that can be included in the investment operation scope of the whole country is more than 2 trillion yuan. According to the upper limit of 30%, the theoretical limit of pensions entering the market is 600 billion yuan[4].

III. Chile's pension investment management operation model

Chile is the first country in the world to replace the traditional pay-as-you-go pension system with a fully accumulative system. The 1981 privatization reform of pensions introduced a DC-type personal account. Its main features: the first is to establish a personal pension account for each employee, and 10% of the employee's contributions are deposited into the personal account; the second is to establish a single business target pension management company (AFPs), which is responsible for account management and fund investment operations; the third is that employee is free to choose AFP, and the pension benefit at the time of retirement is converted into an annuity from the account accumulation assets or received as planned; the fourth is to establish Pension Fund Supervision Bureau (SAFP)and it is responsible for the supervision of AFPs, and the government guarantees the minimum pension.

A. Basic Requirements for AFP

AFP is responsible for the collection of pension contributions, the management of accounts and the investment operation of the fund. It must comply with the government's regulatory requirements in terms of registered capital, scope of business activities, investment policies, and information disclosure. The law stipulates that the pension fund assets managed by AFP are independent of the company's own net assets, and the account pension assets are kept by the custodian bank. The purpose of this is for security reasons, even if the AFPs goes bankrupt, it will not affect the security of the account assets[5].

The government has mandatory requirements for the return on investment of AFPs: each AFP guarantees that the actual investment return of the pension fund it manages in the past 36 months cannot be lower than the average rate of return of the fund market by 2 percentage points or less than 50% of the market average rate of return (using the lower of the two figures). The law requires each AFP to establish a reserve system. The company draws a total of 1% of its own funds from the management of the pension fund as a reserve fund, and the reserve fund is carried out together with the pension fund it manages. In addition, the management has also set a cap on the maximum return on investment of the pension fund:the return on investment exceeds the average return of the AFP industry by no more than 2 percentage points or more than 50% of the industry average. The excess is stored as a “profit reserve” for a pension fund. When the return on investment of AFPs declines, the reserve can be used to cover the difference between the actual return on investment and the minimum return on investment[6].

In the case of AFP bankruptcy, SAFP is responsible for the liquidation of company assets. However, this does not affect the pension fund managed by the company, and the personal account funds will be transferred to other pension fund management companies.

B. *Investment Management Framework for Private Pension Funds*

The following figure illustrates the investment management process of the Chilean model private pension funds.According to the capital flow process, the pension investment management process can be decomposed into three stages: the first stage is the pension payment stage, and the employee chooses AFP. In this phase, there is a principal-agent relationship between the insured and the AFP. The insured entrusts the pension to AFP for investment management, and AFP's obligation is to provide account management and investment services, in return it collects a certain percentage of the commission from the insured's salary or account balance to make up for its own operating costs and obtain a certain profit. The second stage is the investment stage of account funds. Under the framework of certain regulatory policies, AFP develops an investment strategy for pensions. The investment manager selects the investment products and quantity combinations of pensions according to the financial market conditions.The third stage is the payment phase of pension benefits. Insured members receive pensions from AFP as planned or receive annuities from insurance companies when they retire[7].

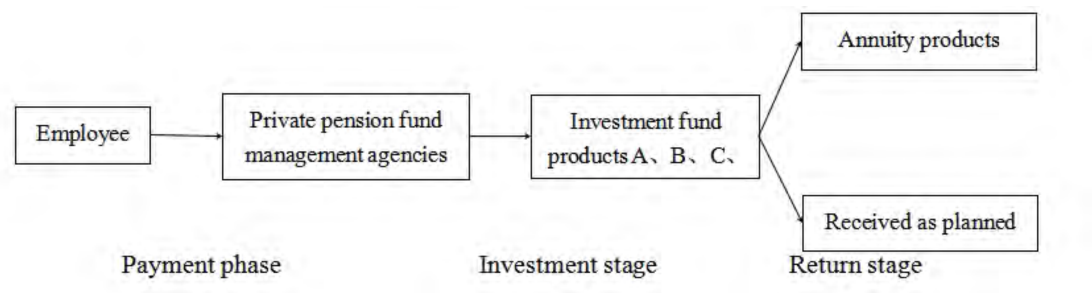

Figure. I Fundamental Pension Insurance Personal Account Fund

IV. INVESTMENT MANAGEMENT SYSTEM REFORM

A. *Investment Supervision Policy*

In the channels and scope of investment in pension funds, the government has adopted a stricter quantitative supervision method. At present, the proportion of stock investment allowed by the policy is over 30%, and foreign securities investment reaches 40%. The portfolio of investable products includes: foreign financial securities, investment funds, stocks, various bonds, time deposits, etc.

Implement a risk rating system for pension investment products. The legal requirements for financial investment products issued by the private sector can only become the investment targets of AFPs only after the risk assessment of the government-approved risk assessment company[7]. At present, there are five investment funds in the market, A, B, C, D, and E. Each fund has different risk-reward portfolios. Employees choose their own fund types according to their own risk preferences, and can freely change them in different risk portfolio funds.

In the event that the pension fund management company stops paying or goes bankrupt, the government must guarantee the payment of disability and survivors' insurance premiums. In the case of the bankruptcy of the insurance company, the government provides certain pension protection for the insured members who choose the life annuity payment method[9].

B. *Make an Achievement*

Since the reforms in 1980, the private investment management of Chilean pension funds has achieved great success. The first is the high return of investment. After deducting various expenses, the average return on net assets is about 6%.At the same time, it has accumulated a huge pension assets: as of 2011, Chile’ s total pension was 12.62 trillion, accounting for 64.49% of GDP[10].

At the same time, the privatization investment operation of Chile's pensions promotes the development of the capital market and domestic economic growth to a certain extent. The impact mechanism is shown in the following Figure. 2:

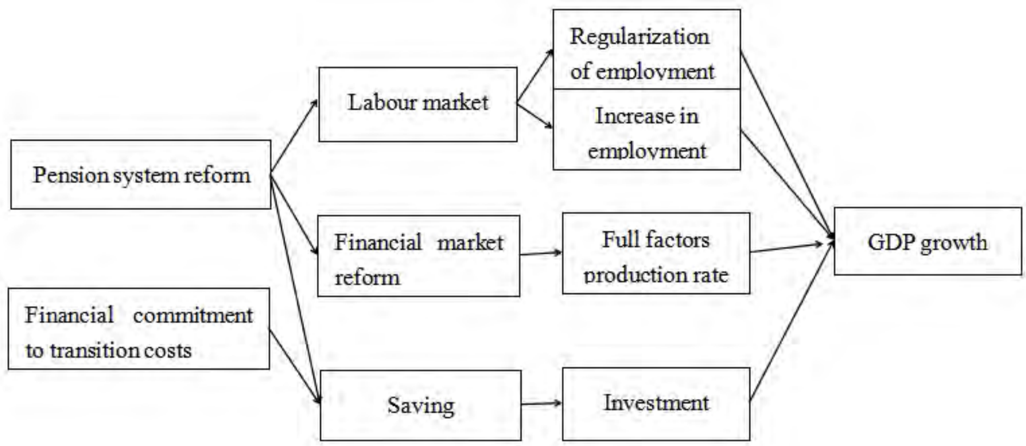

Figure. 2 The mechanism and process of the effect of pension reform on economic growth

V. THE ENLIGHTENMENT OF CHINA'S PENSION FUND INTO THE MARKET

The Chilean model is one of the most influential reform attempts in the world, and it has achieved great success. Its investment implications are multifaceted.

A. Fund regulators and Operating Agencies must be Separated to Foster Efficient Fund Management Institutions

In the public pension security system, the government has switched from direct investment in pension fund investment operations to special investment management agencies responsible for fund investment operations.It is a basic experience that government functions are transferred to the supervision and management of investment operations, and the administrative management and investment management of pension funds are properly separated. The fund is managed by the private sector rather than the government agencies. Many operations, not exclusive monopolies, encourage private institutions to compete with each other and foster efficient fund management institutions.

B. Strengthen the Supervision of Pension Investment Links

The primary problem of account fund investment is to protect the security of pension funds, and secondly to be profitable. To avoid damage to the pension benefits of insured members caused by the omission of institutional arrangements, and to prevent investment losses caused by financial market risks. The Chilean experience shows that a good market competition mechanism combined with strict government regulation is a necessary measure to ensure the safety of pension funds.

In terms of supervision, China has formulated a supervision framework for pension insurance, but in practice, there are problems such as low management transparency and inadequate information disclosure system. In order to ensure the safety of the social pension fund and consider the independence of the operation of the investment institution, it is recommended to set up a professional pension fund supervision committee to coordinate internal and external supervision. On the one hand, strengthen the daily internal supervision of the management and decision-making of pension investment management. On the other hand, it strengthens the information disclosure of pension investment income and smooth the external supervision channels to ensure that the fund investment information is completely open and transparent[11].

C. Establish an Effective Risk Identification System

In 1983, Chile introduced a risk assessment system for investment instruments:financial instruments[12]. It is issued by the private sector can only be the target of investment in pension funds if they are rated by a government-approved risk assessment company. China can learn from Chile's risk rating system and formulate an effective risk identification system. The limited pension fund investment tools must be within the limited risk range, or introduce external private risk rating agencies to risk the product portfolio of pension fund investments.

D. Establish an Investment Risk Compensation Mechanism for the Pension Fund

In order to resist the aging of the population and reduce the burden on the state and enterprises, and to realize the preservation and appreciation of the pension fund, it is necessary for China's pension fund investment to learn from Chile's experience and determine a minimum income guarantee. It need to establish a corresponding surplus reserve and risk reserve. When the actual rate of return of the pension fund is lower than the minimum return on investment, first use the surplus reserve and risk reserve to make up. If it is still insufficient, the government will make up the remaining balance of the fund's rate of return, and cancel the fund's operating agency to support the pension. For the qualification of insurance fund investment, the remaining pension insurance fund re-trusts other fund management institutions to be responsible for investment operations.

E. Broaden Investment Channels and Optimize Investment Portfolios

After decades of development, the investment channels of pension funds in Chile have been highly decentralized. The proportion of government bonds, domestic stocks and foreign securities is roughly equal, thus diversifying the investment risk of the fund[13]. According to China's actual national conditions and the development of the capital market, the investment management of individual account funds should follow the principle of prudent and diversified risks, and pursue higher returns on the premise of ensuring the security and liquidity of personal account fund assets. The investment scope of the account fund can be selected from the investment product management policies of the national social security fund and the enterprise annuity investment. On the basis of this, the scope of investment can be further expanded: RES investment (real estate trust fund), industrial investment, overseas investment, national major projects and Project investment, preferred stock investment, etc., Through diversified investment strategies to achieve optimal allocation.

Although the Chilean pension investment operation management model has many places worthy of reference in China, any model is not a panacea compared to other countries. Therefore, for China, while drawing on the experience of Chile, we also need to follow the actual situation of our country and combine the inherent laws of fund investment and operation. Only in this way can we get out of a unique basic pension fund investment operation road suitable for China's national conditions.

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