Original Article

China's pension reform: Challenges and opportunities

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ABSTRACT China is transitioning from an unfunded pay-as-you-go to a funded pension system. Because of a rapidly ageing population, this transition is vital in maintaining the state's ability to fund its future pension liabilities. To complete this transition, China must be able to fund current pension liabilities owed to workers who did not contribute to funding the system. Furthermore, it must fund the asset accumulation for the accounts of future retirees. This puts China under substantial strain, which can only be dealt with by tightening fiscal policy and speeding up sales of state-owned enterprises. Sustaining a funded system in the long term provides China with several challenges and opportunities. The pension system should be privatised, and the government's role reduced to monitoring fund managers. To function properly, transparency must be increased, allowing authorities to monitor risks taken by pension firms. The pension funds should be given flexibility to invest in whatever financial market they see fit; hence, China's investor protection laws should be reformed. As stable long-term and possibly activist investors, the growth of pension funds will lead to more efficient financial markets, and more venture capital funding, allowing China's growth to continue.

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INTRODUCTION

China is the most populous country in the world, with an estimated population of 1.33 billion as of 2008.¹ A massive population in combination with a one-child policy is complicated by an increase in life expectancy: 'aging has become a central policy issue more quickly in China than in most developing countries'.² Further,

because of China's economic and political importance and its unique development from a socialist to capitalist economy, it provides an interesting case of pension reform.

In 1984, China started to consolidate its fragmented pension system. The focus in the 1990s was expanding pension coverage to the entire working population.³ By the start of the new millennium, China began to transition from a pay-as-you-go to a funded system. In many ways, China has been able to greatly improve its pension system; however, it is far from being reformed, and thus many challenges remain. Although official

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Table 1: Three pillars of China's pension system

<i>Pillar</i>	<i>Benefit contribution</i>	<i>Benefit financing</i>	<i>Benefit eligibility</i>	<i>Benefit payment</i>	<i>Status</i>
Pillar 1 Component A: Social pooling	Employer: 13 per cent of pretax revenue	Pay-as-you-go, financed by employer; government finances any deficit	A minimum of 15 years of contribution	DB, replacing 20 per cent of the average wages at retirement	Operational
Pillar 1 Component B: Individual accounts	7 per cent of pretax revenue; 8 per cent of employee wage	Prefunded in principle, but not as yet in practice, financed by employers and employees	A minimum of 15 years, and lumped sum if more than 5 years	Replacement rate of 38.5 per cent of wage at retirement	Operational in principle, although individual accounts are notional
Pillar 2	Employer contributions	NA	NA	Employer-sponsored DB	Operational
Pillar 3	Employee contributions	NA	NA	Voluntary	Not operational

Defined benefit (DB) plans involve a preset portion of a worker's salary, being paid to them once they retire. Defined contribution (DC) plans involve a worker paying a certain amount into their individual pension account, which is invested until they retire; once they are retired, the payout is decided upon depending on the performance of the investments.

figures are hard to come by, the World Bank estimates that in 1997, China's implicit pension debt, covering workers who were employed over the last 35–40 years, was between 49 and 69 per cent of gross domestic product (GDP).⁴ Yet, with China's rapidly ageing population, this number is expected to rise dramatically.

This paper is a brief survey of challenges to China's pension reform, and the dangers inherent in not reforming the pension system. First, a brief overview of the current pension system is presented. Following this, the sustainability of China's current pension system and proposed reforms are discussed in light of the current demographic, funding and administrative situations. Reforms to the financial markets to enable a sustainable pension system are discussed. Recommendations on how to proceed with pension reform are then presented.

OVERVIEW OF CURRENT SYSTEM

Until the late 1980s, China had an enterprise pay-as-you-go pension system, where current workers' pension contributions would go to paying current retirees' pensions; this system only covered workers in state-owned enterprises.⁴ During the reform to a market economy, this pay-as-you-go system proved to be highly unsustainable because of the inconsistency between the social responsibilities and the roles of state-owned enterprises in a market economy.

This reform forced many of these state-owned enterprises into financial hardship.⁵

The 1997 State Counsel Document 26 laid down the guidelines under which China's pension reform is to occur. The main features of the pension reforms are (a) all urban workers including those who are self-employed are covered by pensions; (b) responsibility for operation of the pension scheme, including keeping records, was transferred from enterprises to social insurance agencies; (c) the old age pension is multitiered, with the benefit structure shown in Table 1. This new structure is almost identical to that recommended by the World Bank.⁶ A multitiered old age pension has been fully implemented; however, (a) and (b) are still in the process of being implemented.

The three pillars of China's pension reform are a defined benefit (DB) public pillar for redistribution, a mandatory funded defined contribution (DC) component for each worker and a voluntary supplement pension pillar managed by an individual's firm or private insurance company.⁴ The first pillar is the only pillar that has been fully implemented, whereas the other two have limited diffusion. The objective of component A of the first pillar is to provide a minimal living standard, above the poverty line for all old people; this will be financed on a pay-as you-go basis. The bulk of a person's pension comes from component B,

Figure 1: Median age, China, Japan and India.

Figure 2: Dependency ratio projections.⁷

which is intended to replace 38.5 per cent of the person's final salary, by using a personal account for each person's savings. In total, pillar 1 will replace 58.5 per cent of a person's wages.

DEMOGRAPHICS AND COVERAGE

Because of the one-child policy, and a jump in life expectancy, China has highly unfavourable demographic trends, resembling those of a more developed economy. Between 2005 and 2050, the median age in China will jump by 12.2 to 45 years, whereas in Germany it will increase by 5.3 to only 47 years.⁷ China's ageing population is shown in Figure 1, and is significantly greater than India's, although not as high as Japan. Nevertheless, China is ageing at a much lower income than Japan, which reached China's current median age of 33 years in 1980 at the time when GDP per capita was \$15 600, as opposed to China's current \$4800. These GDP figures are nominal, implying that it will be very difficult for China to fund its pension liabilities.

The funding difficulty is further exasperated when one looks at China's dependency ratio. This is calculated as the number of wage earners, divided by the number of pensioners, plotted in Figure 2. The number of wage earners per pensioner was 6.7 in 2005, and by 2015, this is expected to be 4.2. Because of China's generous income replacement policy, where one's pension is 75–80 per cent of their final salary,⁴ one can see that a pay-as-you go system will become infeasible very soon. In fact, some provinces are already diverting funds from the accounts of employees who will retire far into the future, to pay for their current liabilities. One of the main solutions to this problem is to reduce the income replacement rate to one similar to that paid by Western countries – about 40 per cent of the employee's income.³

A further problem with the current pension scheme is that it does not cover the vast majority of the labour force, only 11 per cent of 498 million rural workers⁴ and 46 per cent of the 256 million urban workers are covered,⁶ translating to a countrywide coverage ratio of

only 26 per cent. This low coverage rate may be detrimental to social instability in the long term. Further, it implies that China's pension system is hugely underfunded, if it were to cover the majority of its citizens.

FUNDING

There are three options for funding a pension system – pay-as-you-go, which means that current workers contributions are used to pay the pensions of current pensioners; a funded system, where workers and their employers save future contributions in an individual account for each worker beforehand; and a combination of both. China has chosen the third option, as recommended by the World Bank.⁷ The first component of tier one of the pension system is pay-as-you-go-based; the remainder of the system is officially funded. The inherent difficulties and feasibility of funding the liabilities in the long and short term are discussed in the remainder of this section.

Inadequate funds for transition

As shown in Table 1, employers are expected to contribute 13 per cent of workers' salaries to the pay-as-you-go portion used to fund current beneficiaries and those who will retire without adequate funds in their individual accounts. But this is unrealistic, as by 1996, the cost of providing these benefits was 20 per cent of total wages. Given the falling ratio of workers to pensioners, the 20 per cent value can only increase, providing a shortfall of at least 7 per cent of current wages.³ This may 'partially explain the widespread phenomenon of empty individual accounts'.³ It appears that provinces have been diverting funding from individual accounts to fund current pensioners, reducing the funds accumulating in individual accounts. There are five potential solutions to this funding shortage:³

1. The 28 per cent of income currently going towards pensions can be increased; however, 28 per cent is very high, and an increase may reduce China's competitiveness.
2. Increasing state subsidies may be difficult because of the poorer performance of

state-owned enterprises; however, this may be the best solution, if the Chinese government is able to run a budget surplus, similar to that run by Chile in its transition from a pay-as-you-go to a funded system.⁸

3. Changing the pensionable age or level of pension in the long term may be the best solution, as currently Chinese women can claim pensions starting at the age of 55, and men at 60 years, whereas the average life expectancy is 72 years.¹ This may, however, cause social problems, in particular if applied to people just about to retire and may prevent younger employees from getting promoted. Reducing pension contributions is not an option, as although pensions are a large portion of a worker's salary, they are fairly modest for most workers.
4. Increasing the number of workers liable to pay pension contributions.
5. The employees receiving shares or profit-sharing of the company, or the government paying the difference. Both these solutions end up at the same conclusion, as the government using an income stream to pay its pension debts or crediting the assets to the individual accounts has an equivalent outcome.⁹

Solution (2) is the ideal, as it does not involve difficult integrations of systems, or crediting state assets of questionable long-term value to individual accounts. However, economically, solution (2) may be difficult to implement. Thus, solution (5) is the optimal solution in the short term, along with solution (4), if it is possible to introduce new workers from the private sector to the pensions. Nevertheless, all three of these solutions have a zero sum gain, as none of them create wealth, but only redistribute it.

Pooling

As mentioned previously, one of the goals of the Chinese pension reform in the 1990s was to move pooling from a municipal to a provincial level. This means that there is a larger and more diverse population base for pension funding. Further, pooling is an important aspect to the

long-term viability of China's pension system, as private sector employers have younger workers – '... if private sector workers were to be brought fully into the system, pension deficit crisis in the state pension system would be immediately alleviated'.⁴ Bringing private employers into the system is not feasible, as they would strongly object to having to pay for liabilities incurred by state-owned enterprises; however, a partial contribution in return for other benefits in the future may be warranted. Pooling accounts at a state level is crucial for the mobility of workers from state-owned enterprises to private companies, and vice versa,⁴ which is a prerequisite for a free labour market. In the future, a national pooling system will be required, but because of relocation restrictions, it is not urgent at the moment.

Long-term viability

Martin Feldstein has carried out an analysis of the long-term viability of the new scheme.⁹ Earlier, pension funds were only allowed to hold government bonds or deposit accounts, which provided a low or negative real rate of return. Recently, these requirements have been relaxed (new requirements are discussed in section 6). The implicit assumption is that these accounts will be able to earn a real rate of return of 4 per cent.⁹ The marginal cost of capital in China is estimated to be 12 per cent; the current expected rate of return includes an implicit tax of 65 per cent, which will be reduced once investment restrictions are gradually removed. Hence, doubling the return would imply halving the required contributions.⁹ One can conclude that, assuming the Chinese government goes ahead with its plans and relaxes its restrictions on investments, this plan appears to be very conservative and hence feasible in the long term.

ADMINISTRATION AND TRANSPARENCY

The reforms in Chile have shown that transparency of the administration of investment of funds is crucial to the success of a funded system.⁸ This section discusses this issue with regard to China. First, some examples of the consequences of a lack of transparency

causing embezzlement of funds are presented. The problems with political interference are then explained, leading to a strong case being made for private management of funds.

Transparency

The current Ministry of Labor Social Security released figures that show an overall national surplus in the pension accounts.^{1,7} Since 1990, independent verification has shown that this to be mathematically impossible.^{1,7} As shown in Table 2, when looking at all figures provided by the Ministry of Labor Social Security, not the aggregate figures, and substituting total pensions for current retirees with the expenditure figures, the deficit was 0.4 per cent of GDP in 2003.⁷

This deficit may be very small at 0.4 per cent of GDP; however, the magnitude of the deficit has been constant, and the small portion of GDP is because of China's fast growth. The major caveat is that this growth cannot be expected to continue unabated. As China's population starts to age faster, the deficits can be expected to increase in magnitude as a result of more stress being applied on the system. The National Council for Social Security Funds (NCSSFs) implicitly acknowledged these deficits, reporting that cuts to local and central budgets were needed to cover pension expenditures.⁷ As the magnitude of these deficits is substantial, it is unlikely that cuts would be able to account for the shortfall. The undeclared deficits, along with companies using funds in individual accounts to make payments to current pensioners,⁴ raise issues regarding the transparency of the system. Transferring funds from accounts is a serious issue, as it implicitly returns the structure to a pay-as you-go system.

A further example of the effects of poor transparency was evident in July 2005, when it was found that one-third of Shanghai's social security fund was lent to fund risky projects such as toll roads.¹⁰ This was at a time when the fund was only legally allowed to invest in treasury bonds and bank deposits. In fact, Xinhua quoted an official as saying that '16 billion yuan (\$2 billion) had been embezzled from the funds since 1998'.¹⁰ The Chinese government has

Table 2: China's pension deficit in billions of RMB

<i>Year</i>	<i>Revenue</i>	<i>Expenses</i>	<i>Pensions</i>	<i>Revenue minus expenses</i>	<i>Revenue minus pensions</i>
1990	17.9	14.9	39.9	2.9	-21.7
1995	95	84.8	130.6	10.2	-35.6
2000	227.8	211.5	273.3	16.3	-45.5
2001	248.9	232.1	307.2	16.8	-58.3
2002	317.1	284.3	365.9	32.9	-48.8
2003	368	312.2	414.9	55.8	-46.9

understood the magnitude of this problem and has sent 100 investigators from Beijing to audit the funds and fired Zhu Junyi, head of the Shanghai Labor and Social Security Bureau.¹¹ The solution to these corruption and transparency issues is to separate control and supervision, leaving supervision to the government and privatising the management of the funds, hence eliminating the existing conflict of interest. Further, providing workers with annual or semiannual statements on their pension accounts may help to reduce incidents like this in the future.

Management

In September 2000, the NCSSF was created and was assigned the task of managing the national social security fund.¹² It will only be involved in purchasing government bonds and the investment in bank deposits. It will delegate purchase of corporate bonds, mutual funds and stocks to six licensed mutual fund management companies.¹² Nevertheless, this new management structure does not solve the problem.

First, as the NCSSF is a government institution, the intensions of the government rather than the interest of the pensioners is still the most decisive factor in the operation of the funds.¹² For instance, the NCSSF has leeway on how much funding can be invested by these fund management companies. Second, there is a shortage of competent money management professionals, exasperated by poor benefit packages for government affiliated institutions. Third, as the funds receive these accounts without incurring costs, there is little incentive for effective management. And as there is no direct competition, the guidelines under

which the government awards the management contracts are weak,¹² which may induce illegal actions to secure funding.

A model based on Chile's system is recommended, where there is semiannual disclosure of the performance of pension statements to account owners,¹³ inducing management accountability. Further, individuals are able to change the firms managing their pension,¹³ inducing competition. The government is not involved at all with investment; it only monitors whether pensions are kept within the defined asset allocation rules. A potential problem for China in implementing this may be poor financial knowledge by many individuals. In fact, Chile has had a problem with individuals who change their managing firms too frequently.¹³ However, the threat of a portion of individuals moving their accounts to another fund manager will induce firms to perform to a higher standard than the government would have otherwise.

HOLDINGS

Currently, the investment instruments of the NCSSF are subject to strict regulations on the securities they can hold, mainly bank deposits and government bonds must account for at least 50 per cent of the total holdings, corporate and financial bonds for at least 10 per cent and mutual funds and stocks for at most 40 per cent of holdings. This section looks at the effects of these regulations on the long-term performance of the funds and the effects of fund investment on the development of Chinese capital markets.

Regulations

The types of pension fund regulation vary between two extremes: those countries with

Figure 3: Annual pension fund returns, OECD countries.¹³

very aggressive quantitative investment restrictions on areas ranging from assets pension funds can hold to their allowed performance; and those countries that have prudent person rules. Current Chinese regulations lean somewhat towards the quantitative end. Figure 3 shows the effect of regulations on the performance of pension funds. It is clear that both types of funds out-perform a balanced portfolio of 50 per cent index funds and 50 per cent government bonds. Furthermore, countries using prudent person rules tend to out-perform the countries with asset limits by 2–3 per cent a year. When taking into consideration the higher risks prevalent in prudent person rule portfolios because of their larger holding of equities, they still out-perform asset limit rules even when a slightly higher standard deviation of returns of 13 per cent as opposed to 11 per cent is taken into consideration.

According to a report by the World Bank,¹⁴ the most dangerous effect of regulations is that they cause pension fund returns to be very similar, and hence participants are unable to diversify the risk. They also fail to offer workers the ability to choose the best pension fund suiting the risk tolerance for their current stage in life, that is, younger workers should be able to invest in a more risky portfolio.

The report¹⁴ recommends that countries with developing markets, such as China, start off with a more regulated approach, as there is a large portion of systemic risk that can lead to the collapse of one or more funds; further, there is a lack of local talent and experience in managing these funds. Over time, the pensions will help in the process of developing the financial market, which is explained in the next section.

China's current restrictions are considered to be well guided; however, in the future, these restrictions should be slowly removed to ultimately end with a prudent person rule. The speed of these liberalisations depends on the speed at which the financial markets and stability of the economy is able to change.¹³ For the time being, the Chinese government should consider investing some of the pensions overseas; although this introduces some currency risk, it may provide Chinese pension funds with access to more developed markets, and with China's current trade surplus, now is a good time to start these foreign investments.

Effects on markets

Pension funds are some of the largest institutional investors in Western countries, holding 25 and 33 per cent of total stock market assets in the

United States and United Kingdom, respectively.⁷ Hence, they are able to provide higher returns than bonds to their holders, and also greatly benefit the stock market, as they are very large, stable, long-term investors, reducing the stock market's volatility, and given their size they are able to become activist investors, improving companies' profitability.⁷ Pension funds are also large investors in venture capital and private equity,⁷ both of which are important pillars of a developed economy.

China's stock markets are volatile, and have weak investor protection, resulting from pervasive speculation, low quality of listed companies and poor risk control in security companies and mutual fund management.¹² As a result, it is very difficult for pensions to invest in current Chinese stock markets, as they are too irrational to allow pension funds to guarantee capital preservation. Investing in overseas stock markets, although possible, has its own risks, as Chinese fund managers will have a home bias, and currency risk is added. Given that there does not exist a large Ramimbi futures market, it will prove difficult to hedge currency risk. Nevertheless, the aforementioned problems were overcome by Chile in its transition to a funded system and loosened asset controls. The current Chinese pension reform so far has been based on that of Chile in the early 1980s. By using Chile as a benchmark, the remainder of this section looks at the expected effects on the development of the Chinese financial system, if asset-holding restrictions are loosened.

It is almost unanimously believed that financial market maturity enhances economic growth and that in Chile pension reform has contributed to this development.^{8,12,13} By 1998, pension funds were some of the largest investors in stock and corporate bond markets, helping to stabilise them. This was shown from 1992 to 1998, when the stock market variation coefficient (ratio of variance of monthly returns of the index to monthly average returns) was 1.92 for Chile, while it was 2.44 for Mexico, 3.25 for Argentina, 3.73 for Peru and 4.46 for Brazil.⁵ None of the countries except Chile had any pension assets invested in stock markets.

Pension funds pushed for stronger financial regulation and reforms. As a result, by 1998 pension funds owned 54 per cent of mortgage and bank notes and 10 per cent of all stocks¹² Finally, the largest potential effect for Chile is that \$13.3 billion of pension assets were invested in venture capital, accounting for 60 per cent of the total national investment.¹² This can help China in its attempts to grow its research and development, one of its important educational objectives.

Nevertheless, there exist some misconceptions regarding the Chilean pension reform on pension savings. It is commonly thought that the pension reform increased national savings; however, this increase in savings can be accounted for by government surpluses.^{6,13} Although the pension reform did not have any adverse affects on Chile's financial market, it made some important improvements, and forced the government to run a budget surplus; the financial markets are still a net beneficiary of pension reforms. Further, it is doubtful that a funded system can be financed without using mature financial markets.

RECOMMENDATIONS

So far, China has chosen the right track on which to proceed on pension reform. Creating a three-tiered pension system, as recommended by the World Bank,⁶ is a good start. Calculations have shown that in the long term, the current pension design is feasible, and in fact is based on very conservative assumptions on the marginal product of capital.⁹ The current transition will be the most difficult time for China's pension reform, as people who were not covered by the earlier pension system must still receive their pensions, and a strong legal framework for financial markets must be put in place, along with enforcement tools. The most important recommendations are:

1. *Reform quickly.* With China's rapidly deteriorating dependency ratio and ageing population, the longer China waits to reform its pension system, the more difficult it will be, as there will be fewer contributors to finance

the transition. China is currently enjoying strong growth, easing its ability to run tight fiscal policy.

2. *Run a budget surplus during transition.* It is evident that Chile's reform was only possible by running a budget surplus, enabling the government to bare some of the costs of the transition. With China's ageing population, and lack of funds to finance the current pensioners, it is important for the government to find alternative financing methods, rather than depleting individual accounts.
3. *Finance transition through state assets, not individual accounts.* Recently, the provincial governments have been tapping into current individual accounts to finance current pension liabilities. This must stop, as it changes the system to a pay-as-you-go system, and the government must later on pay back the initial withdrawal, plus accrued earnings. The current liabilities that must be financed by the government, whether by using proceeds from sales of state-owned enterprises, or from running a budget surplus, are beyond the scope of this report. One must clarify that crediting shares of state-owned enterprises to the individual accounts is not recommended, as the value of these state-owned enterprises is difficult to judge, and depends on how well pension reform takes place.
4. *Increase contributing institutions and pooling.* Currently, private companies and self-employed persons are excluded from the pension scheme, and different industries have their own pension schemes. These must be consolidated into minimally a provincial, but preferably a national pension scheme. This will help to equalise the balance, as private companies have younger workforces, and some provinces have surpluses. More importantly, this will increase labour mobility, freeing up labour markets.
5. *Transparency.* The pension administration must be made more transparent to current workers and pensioners. This will allow them to hold fund managers accountable. One step towards accountability would be the release of quarterly/semiannual statements to all workers and pensioners of their individual account balances.
6. *Separating supervision and control.* Because of the pervasive fraud of extracting money from individual accounts and illegally financing risky projects, the government should not be involved in pension management. Instead, it should set guidelines on what instruments to invest in and supervise firms contracted to manage pensions.
7. *Relax asset-holding restrictions.* Though the current restrictions on portions of the pension fund that can be invested in particular assets are justified, in the long term, this reduces variation in possible portfolio returns and reduces overall returns. Therefore, as China's financial markets mature, these restrictions should be relaxed.
8. *Allow greater competition between pension fund managers.* More competition should be allowed between pension fund management companies. To encourage competition, insurance companies and banks should be allowed to offer pension funds, with adequate supervision. In addition, individuals should be able to easily change the fund manager in charge of their accounts.
9. *Improve financial regulations.* In order for the pension system to be feasible in the long term, it must be able to invest in financial markets. If investor protection rules are immature, it will be too risky for Chinese pension funds to invest in financial markets, greatly increasing the possible collapse of a funded pension system.
10. *Allow international investments.* Because of China's immature financial markets and the large current account surplus, pension funds should be able to invest in international markets; this can be achieved by not repatriating revenues from initial public offerings of state-owned enterprises on international markets and crediting them to pension funds.

A common question is 'Will China grow rich before it grows old?'; a large part of the answer to the question depends on how well and how quickly China is able to reform its pension system. The future dims as China waits to make the sacrifices required. However, making these

reforms to the pension and financial systems will help in the maturation process for China's markets, allowing the Chinese economy to become far more sustainable in the long term.

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