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978-1-107-02226-3 - The Future of Multi-Pillar Pensions

Edited by Lans Bovenberg, Casper Van Ewijk and Ed Westerhout

Excerpt

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1 *Introduction*

ED WESTERHOUT

Pension systems are under serious pressure worldwide. The pervasive trend of population aging will dramatically affect the functioning of pension systems in almost any country in the world. In addition, trends like individualization, increasing heterogeneity of the population, financial innovation and increasing (international) labor mobility impact pension systems as well. All these trends call for rethinking the optimal pension design.

The recent worldwide financial crisis, which has become a global economic and public debt crisis, provides another challenge. This crisis has affected pension systems in the world very differently. Countries featuring a strong second pillar of funded pensions have suffered severe losses of pension wealth following the fall in stock market prices. Pay-as-you-go (PAYG) pension schemes cannot be regarded as a safe haven, either; the dramatic deterioration of government finances has only aggravated the pressure on first-pillar pension schemes. Indeed, the financial crisis represents a serious test of pension systems, which have been under reform in the past decades in most countries.

Rethinking the design of pension systems can best be done by starting from the 1994 World Bank Report *Averting the Old Age Crisis*. Intriguing questions emerge. Does the three-pillar system, as sketched by the World Bank in its report, still provide a proper model? Is this three-pillar system sufficiently geared to its tasks of providing robust pensions to the old and redistributing and smoothing shocks between and within generations – given that demographic and economic trends change the economic environment and the international financial crisis has put the world economy on a lower growth path? Can the modifications made by the World Bank in its 2005 report be regarded a step in the right direction? What is the optimal size of the pension pillars and what are optimal investment policies, now that the crisis has made clear how vulnerable pension schemes can be with respect to worldwide adverse shocks?

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This book reconsiders the multi-pillar pension scheme against the background of demographic and other trends and a severe financial and debt crisis. It adopts an integral perspective and asks how the total of pension pillars contributes to the three basic functions of pension schemes: (1) facilitating life-cycle financial planning; (2) insuring idiosyncratic risks; and (3) sharing macroeconomic risks across generations. It also discusses the relation between functions and pillars. Here, it argues that the relationship between functions and pillars is not one-to-one; functions can be organized in different pillars.

The subject gives the book an international flavor. The demographic and other trends have international applicability and the financial and debt crisis has indisputably also an international character. Countries differ in the pension schemes they have set up and the book will stress the role of the various elements of pension schemes. As an application, the book focuses primarily upon the Netherlands. The lessons that will be drawn have wider applicability, though. Indeed, the case of the Dutch pension system is particularly interesting, as this system is generally thought to resemble the “ideal” three-pillar pension system as sketched by the World Bank in 1994, featuring a Beveridge-type first pillar providing a flat-rate pension to every citizen, a similarly large funded Bismarck-type second pillar providing pensions to workers that are related to their individual labor market history and a third pillar providing funding on a voluntary basis. Yet, the Dutch pension is under serious discussion: public finances are unsustainable due to, among other things, the first-pillar pension system with an as yet unchanged retirement date. Many pension funds face serious underfunding after the dramatic fall in stock market prices and the increase of pension liabilities on account of declining interest rates.

The book consists of four parts. The first part, “The multi-pillar pension scheme,” puts central the functioning of multi-pillar pension systems. It assesses the likely impact of pervasive trends in the world economy and that of the economic crisis. It also discusses the appropriateness of a multi-pillar approach, both on a conceptual and a more practical level. The second part of the book, “Intergenerational risk sharing and distribution,” puts central one of the basic functions of any pension scheme, which is risk sharing between generations. It discusses the allocation of this function between pension funds and the government, assesses the role of various types of indexed bonds and explores the redistributive impact of pension funds and the government for a

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number of aggregate shocks. The third part of the book, “Pensions and financial planning over the life cycle,” focuses on two additional issues: that of a lack of both willpower and financial knowledge on the part of individual pension plan participants and that of optimal pension policies in the decumulation phase. The final part of the book, “The future of multi-pillar pension systems,” explores the impact of trends and crisis upon optimal pension policies and the relation between functions and pillars of pension schemes. It discusses both the issue of convergence between countries and the non-unique character of optimal pension policies.

The multi-pillar pension scheme*Zaidi*

The first part of the book, “The multi-pillar pension scheme,” focuses on the idea of a pension scheme that consists of several pillars, each playing their own role. It takes off with the chapter “Population aging and financial and social sustainability challenges of pension systems in Europe: a cross-national perspective,” written by Asghar Zaidi. This chapter discusses demographic trends that can be observed worldwide and that can in fact be viewed as one of the reasons for reconsidering multi-pillar pension schemes. In particular, it sketches how low fertility rates and decreasing mortality rates combine to produce aging populations throughout the industrialized world. The dependency ratio (number of 65+-year-olds in terms of the number of people aged 15–64) in the EU-27 is expected to about double from 25 percent in 2010 to 53 percent in 2060. The chapter stresses also that although the demographic trends are international, there are large cross-country differences. On one side of the spectrum, Poland is expected to face a more than tripling of its dependency ratio. On the other side, the expected change in the dependency ratio in the UK is only about 75 percent.

The chapter also discusses the budgetary implications of population aging. Using European Commission estimates, Zaidi shows that if current fiscal and social security institutions are left unchanged, the aging of the population will produce ever-increasing public deficit and public debt levels. Ultimately, fiscal policies will become unsustainable. Again, cross-country differences are huge. However, observing that about three out of four EU-27 countries are considered to be at

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medium or high risk, one can characterize fiscal sustainability as a truly European issue.

Zaidi shows how policymakers in the EU have responded to the challenge of fiscal sustainability. Many EU countries have taken steps to enhance the employment rate of the working-age population, with a focus on groups that feature low employment rates (e.g., mothers with young children and older workers). Pension policy reforms have also contributed to this goal: for example, by creating greater incentives for longer working careers. Regarding pension policies, Zaidi distinguishes three groups in the EU area. Countries in the first group have implemented reforms that improved pension adequacy by protecting low-wage earners. The UK and Belgium are part of this first group. Countries in the second group reformed their pension systems in order to strengthen the link between pension contributions and benefits. This will improve the functioning of the labor market, but may reduce pension adequacy. Poland and Slovakia belong to this second group. In the third group of countries, which includes Portugal and Italy, reforms have been implemented that have a similar impact on benefits for low, average and above-average earners. Summing up, in terms of pension adequacy, no single trend can be observed.

Hinz

The whole idea of a multi-pillar pension scheme got a strong impetus from the World Bank Report *Averting the Old Age Crisis*. As explained by Richard Hinz in “The World Bank’s pension policy framework and the Dutch pension system: a paradigm for the multi-pillar design?” this idea was derived from the principle that the primary functions of pension systems (namely, poverty alleviation, consumption smoothing and insurance) should be organized in separate pillars. The World Bank’s multi-pillar approach, which was published in 1994, incorporated three pillars: a first pillar that is mandatory and publicly managed, a second pillar that is also mandatory but privately managed and a third one that is voluntary. The second pillar could be made up of personal savings plans or occupational plans – although the World Bank pointed out the drawbacks of earnings-based defined benefit (DB) systems.

Since 1994, the world has changed drastically. A large number of countries have implemented pension reforms and have accumulated

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experience on account of both these reforms and developments in other countries. This led the World Bank to refine and adapt its design of a multi-pillar pension scheme. In particular, in its 2005 Report *Old Age Income Support in the 21st Century: An International Perspective on Pension Systems and Reform*, the World Bank developed a scheme consisting of five pillars: (1) a zero pillar that is non-contributory; (2) a first pillar that is mandatory and has DB elements; (3) a second pillar that is also mandatory, but – different from the first pillar – is of the defined contribution (DC) type; (4) a third pillar that is essentially voluntary; and (5) a fourth pillar that includes access to informal support, such as from families or housing.

As regards the Dutch pension system, Hinz notes that its structure is quite consistent with the principles of the World Bank's multi-pillar model. The Dutch system features separate elements that perform well-defined functions, and includes all three components of the 1994 World Bank model. Hinz argues that the Dutch system deviates from the World Bank model in two important aspects, however. First, the scope of the AOW (*Algemene OuderdomsWet*) is relatively large, from the perspective of the zero pillar in the 2005 World Bank model, and also when compared with other countries that are quite similar to the Netherlands. The high replacement rates that follow from the Dutch first-pillar pension scheme AOW and occupational schemes create distortions on labor markets and leave little room for voluntary savings that can better accommodate individual preferences. Second, occupational schemes incorporate redistribution that is non-transparent, rather unpredictable and probably large. Indeed, transparency and equity would be better guaranteed by individual savings schemes.

Barr

In his chapter "Credit crisis and pensions: international scope," Nick Barr provides an overview of the various pension systems that can be observed in the world of today. He argues that any pension system faces multiple risks, has multiple objectives and can be set up in multiple ways, ranging from pure DC to pure DB or notional defined contribution (NDC). The systems vary in several dimensions, including who bears what part of a shock, how much room they leave for flexibility or how vulnerable they are to political pressure. Different pension systems do not differ in terms of the amount of macroeconomic

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risk. Indeed, the total amount of this risk is given, and it can only be allocated differently over the various shareholders. In terms of risk sharing, one pension system may be more efficient than another.

Barr indicates that the financial crisis did not reveal any new risks. Instead, it made many aware of the risks that had always been there. Initially, many countries responded to the crisis by increasing spending on pensions. Subsequently, many countries started to reduce pension benefits, by cutting them, by reducing the degree of their indexation or by increasing the retirement eligibility age. In all cases, the effect of the reforms was to make the pension systems less vulnerable to shocks. In addition, Barr observes that pensioners and older workers suffered much larger losses under DC plans than under DB systems. This is due to, among other things, less intergenerational risk sharing in DC plans, which tended to be invested heavily in equity.

As to pension design, Barr stresses the virtue of automatic adjustment to demographic change and the range of instruments used to absorb shocks. As regards the latter, he argues that adjustments should embrace both benefits and contributions. He considers as strong points of the Dutch pension system that it has many elements of adjustment to systemic risk. In this regard, he welcomes the use of a formula that links the pension eligibility age to life expectancy, as included in the recent pension agreements between social partners in the Netherlands. Further improvement could be achieved by differentiating between cohorts of different ages – for example, by introducing an age-related indexation rule.

Bovenberg and Van Ewijk

In “Designing the pension system: conceptual framework,” Lans Bovenberg and Casper van Ewijk develop an analytical framework for the design of pension systems, thereby taking the functions of the pension system as the guiding principle. The chapter distinguishes three basic functions of pension schemes: (1) facilitating life-cycle financial planning; (2) insuring idiosyncratic risks and (3) sharing macroeconomic risks across generations. Life-cycle financial planning concerns consumption smoothing over the individual life cycle and takes into account individual circumstances and preferences. The second basic function of pension schemes concerns pooling of intra-generational risks in the face of imperfect insurance markets.

The third function concerns intergenerational risk sharing of aggregate shocks in the face of incomplete markets. Bovenberg and van Ewijk translate this issue into two questions. The first is what optimal risk sharing implies for savings and the risk exposures of various cohorts. They derive formally that optimal policies imply that generally all cohorts share risks, and that in reaction to an unexpected shock the consumption of different cohorts moves in the same direction. In addition, under some assumptions, all age cohorts optimally exhibit the same risk exposure, if risk exposure is defined in terms of total wealth (i.e., including human wealth).

The second question is how this optimal risk sharing can be achieved: through capital markets, through the government or through mandatory occupational pensions. The authors observe that capital markets can accomplish only a limited part of the desired intergenerational risk sharing. One reason is the limited liability of human capital. This constrains the exposure to capital risk that young agents can take on through leverage. Another one is the impossibility of committing future generations to an intergenerational risk-sharing contract. Hence, other institutions than capital markets, such as the government or pension funds, are needed to help generations share risk optimally. Risk sharing through the government is costly too, however. Taxes have distortionary effects and governments investing in equity may give rise to political risks. Moreover, risk sharing through the public accounts is hampered by the difficulties that governments have in setting up complete contracts. Indeed, contracts that involve the government are generally incomplete, reflecting the political economy of a democracy in which voters can always undo earlier commitments. Risk sharing through mandatory collective pension funds avoids political risks, but is hampered by more discontinuity risk: it is easier to avoid high pension contributions that are levied by one pension fund than it is to avoid taxes that apply to the national level.

Intergenerational risk sharing and distribution

Bohn

The second part of the book, “Intergenerational risk sharing and distribution,” starts with the chapter by Henning Bohn, “Private versus public risk sharing: should governments provide reinsurance?” This

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chapter examines alternative arrangements for intergenerational risk sharing in a small open economy that is subject to various types of macroeconomic shocks, including shocks in labor productivity, the return to capital and longevity. Bohn observes that whereas markets dealing with financial risks are well developed, markets for dealing with risks in labor productivity and longevity are generally not. This is an argument for pension funds: DB and hybrid DB/DC type occupational pensions can be regarded as insurance mechanisms that deal with these types of risk.

However, efficient risk sharing seems to call for a greater role of the government. One reason is that the ability of traditional corporate pension plans to reallocate risks has declined as mobility and financial engineering erodes firms' and workers' ability to enter long-term contracts. Mobility refers to the ability of workers to exit firms when large negative shocks to their plan require excessively high future contributions. Industry funds mitigate this problem because exiting from an industry is more difficult than leaving a firm. Insurance provided by the government could mitigate the problem further. It would take the form of wage- and longevity-indexed contracts or bonds.

Another reason is incomplete markets. Pension promises must be backed by assets or by a plan sponsor – a firm or an industry. However, rapid technological change, industrial restructuring and advances in financial engineering have eroded the ability of firms to offer their equity capital as collateral. Wage- and longevity-indexed bonds issued by governments would help, as reducing the mismatch between pension assets and liabilities would reduce the pension fund's dependence on corporate sponsors. A third reason originates in imperfections in risk sharing abroad. In particular, most foreign countries fail to integrate young and unborn generations into risk-sharing arrangements – through pension funds or governments. Hence, wage risk is not priced; governments could therefore provide insurance that is welfare-improving.

Bettendorf and Knaap

In "The redistribution of macroeconomic risks by Dutch institutions," Leon Bettendorf and Thijs Knaap also analyze the insurance provided by pension funds and governments. Indeed, they focus upon the insurance actually provided by occupational pension funds and the

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government in the case of the Netherlands. They do so by examining how a large variety of aggregate shocks impact upon the macro economy and the position of different generations, including the unborn. To mimic the Dutch institutions and economy, they adopt a computable general-equilibrium model that incorporates most of the relevant institutional rules of the pension fund sector and the government sector.

The range of shocks that is studied is broad. First, it includes what the authors call simple shocks: two shocks to labor productivity (a temporary and a permanent one), a shock in asset prices, two shocks in the interest rate (one that is short-lived and another that is long-lived) and, finally, a shock in mortality rates. The analysis accounts for the autocorrelation of these shocks found in empirical data. Second, it includes mixed shocks. Unlike simple shocks, these shocks combine shocks in different variables, reflecting the fact that some of the simple shock processes are correlated in the data. The most relevant type of mixed shock, they argue, is a rare disaster (Barro, 2006): a combination of a large drop in labor productivity, a falling interest rate and a large drop in asset prices that occurs with a frequency of about once every 70 years.

Both pension funds and the government act to redistribute shocks. A drop in labor productivity, for example, is redistributed by pension funds; these funds provide wage-linked benefits to the retired, so that workers lose part of their increase in wage income through an increase in pension contributions. The government also redistributes towards the old because it uses the additional tax revenues to increase benefits to all cohorts. Another example is a drop in mortality rates. In this case, pension funds redistribute towards the elderly because they provide benefits as long as the retired are alive. The government does the same through first-pillar pensions. A major result from the numerical simulations in this chapter is that the redistribution through the government sector is quantitatively more important than the redistribution through the pension fund sector.

Beetsma and Buccioli

In “The consequences of indexed debt for welfare and funding ratios in the Dutch pension system,” Roel Beetsma and Alessandro Buccioli explore the economic and welfare effects of different types of nominal debt. Most occupational pension schemes in the Netherlands provide

pension benefits that are (conditionally) indexed to prices or wages. If price-indexed debt, wage-indexed debt or longevity-indexed debt were available, this would therefore help pension funds in reducing the mismatch risk between their assets and liabilities. Hence, a case can be made for the Dutch government to issue these types of public debt.

Beetsma and Buccioli adopt a model of a two-pillar pension system, designed after and calibrated to the Dutch situation. They use this model to explore the implications for the funding ratio of pension funds and the welfare of individuals of replacing nominal debt in the pension funds' portfolio with indexed debt. They do so for a variety of shocks: shocks in fertility, mortality, labor productivity, inflation, equity and bond returns and the term structure are included. The model distinguishes between not only different generations, but also different skill groups within each generation. The model includes the institutional details of the first and second pillar of the Dutch pension scheme that provide public basic pensions and occupational supplementary pensions, respectively.

Beetsma and Buccioli find that, as expected, including price-indexed debt or longevity-indexed debt in the pension funds' portfolios reduces the volatility of the funding ratio. It also reduces the variability of the consumption of participants of pension plans, which is welfare-increasing. Quantitatively, the effects of the policy reforms on the funding ratio and welfare are quite modest. The reasons are that the types of debt investigated give protection against only one type of risk, whereas pension funds face a number of other aggregate risks. Furthermore, pension funds invest only part of their financial wealth in these debt instruments.

Pensions and financial planning over the life cycle

Bodie and Prast

In "Rational pensions for irrational people: behavioral science lessons for the Netherlands," Zvi Bodie and Henriëtte Prast examine the implications of behavioral economics for Dutch supplementary pensions. They argue that the second pillar of the Dutch pension scheme faces two major challenges. First, the global economic crisis has made clear that the current system is unsustainable. Second, a large part of the expanding group of self-employed people lacks pension coverage.