REFERENCE LIST
July 2017

Forging a New, Social Security System for Greece: The NTS proposal

July 2017—Georgios Symeonidis, PBSS/IACA Colloquium Cancun 2017

Greece has one of the largest percentages of social security contributions for pensions, amounting to almost 24 percent for special groups of employees. At the same time, its pension system became unsustainable a few decades ago, without any government taking action to bring it back to financial stability. A detailed proposal of three academics (Nektarios, Tinios, Symeonidis - NTS) suggested a way to reform the system through the introduction of a notional defined contribution first pillar, while at the same time reducing social security contributions by 50 percent. The second pillar is to become fully capitalized and an optional third pillar is proposed in order to support occupational funds (IORPs). This paper aims to analyze and present the basic points of this new system while at the same time elaborate on the actuarial indices that bring out the benefits of contribution reduction.

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Valuation of Bermudan-DB-Underpin Option

July 2017—Xiaobai Zhu, PBSS/IACA Colloquium Cancun 2017

The study of embedded options has grown importance in pension design, with many novel forms of hybrid plan being proposed to meet the needs of employees and sponsors. In 2002, the State of Florida introduced (temporarily) a switching hybrid plan, under which employees were given the option to convert their defined contribution (DC) plans to define benefit (DB) plans. The cost of such a switch is calculated in terms of the accumulated benefit obligation (ABO), which is the present value of the accrued benefit. If the ABO is greater than the DC account, the employee is assumed to fund the difference. In this work, we reconsider the switching hybrid plan, with additional downside protection for the employees. The new option is similar to the DB- Underpin hybrid design, also knowns as the floor-offset plan, but with a Bermudan-style exercise feature. We adopt an arbitrage-free pricing methodology to value the option, and specify the situation where early switch is not optimal.

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Japanese Pensions, Under and After the Low Interest Rates Policy

July 2017—Tachimoto Takahiro, PBSS/IACA Colloquium Cancun 2017

In Japan, Defined Benefit Plans must satisfy two financial requirements: “continuation standard” and “noncontinuation standard,” otherwise they have to pay extra premiums. The discount rate assumption for the latter is decided by the Minister for Health, Labor and Welfare according to the average interest rates over the past five years, independently of the outlook of future yield of each pension fund. This means that the Minimum Funding Requirement (the required money to satisfy this standard) gradually increases as the interest rate decreases. The situation is more serious when the interest rate suddenly increases. In this case, the Minimum Funding Requirement does not change rapidly, even though the value of bonds decreases. In this presentation, financial situations of DB plans are analyzed under and after the low interest rates policy, and the necessity of easing measures are discussed.

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Automatic Enrollment and Choices of Pension Plans: An Experimental Study in Brazil.

July 2017—Luis Eduardo Afonso and Antonio Gualberto Pereira, PBSS/IACA Colloquium Cancun 2017

One alternative presented in the literature to increase adhesion to pension plans is to modify the default of choices from opt in (to adhere to the plan) to opt out (leave the plan), a nudge typical of the libertarian paternalism (Kahneman, 2002). An experimental design was adopted, adapted from a tool by Hey (2007). The research was made available with the assistance of Questionpro© and sent to respondents in Brazil through social networks from July to December 2015. 241 answers were obtained. The experiment was composed of a control group and two treatment groups. In both groups, individuals made decisions throughout nine periods: five in the work stage and four in the post-retirement stage. In the control group, the participant chose if he/she wanted to save part of the income (USD 260.00 per period, equivalent to BRL 1,000.00) as well as decide which of the pension plans to contribute to. Three possible plans were offered to the participants with different risk profiles: plan 1 (with the same probability of earning 1.4% or 5.2% per period), plan 2 (1.5% or 4.3%), and plan 3 (1.6% or 3.4%). In treatment group 1, the participant was automatically enrolled in the standard plan and could decide in the following periods, if he/she wanted to continue contributing to a plan, at which percentage, and for which of the plans offered. The results suggest that the pension funds with automatic enrollment, parity contribution of the sponsor, and absence of the element of risk, positively influence the decision of adhesion to the plan. In this scenario, there was a longer permanence in this plan compared to the control scenario in which the design of the plan did not present such characteristics (p-value < 0.01). This conclusion is in line with the work of the nudge theory (Orenstein, 2013; Thaler & Sustein, 2008).

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Practical Issues on Japanese Version of "Defined Ambition"

July 2017—Kazuma Fujiyama, PBSS/IACA Colloquium Cancun 2017

Most developed countries are seeking ways to maintain a sustainable pension system. Japan is no exception. DB plans still cover a half of Japanese corporate pension plans, however there has been a big change in Japanese DB plans. In Japan since January 2016, Negative Interest Rate Policy has been adopted by the Bank of Japan and it made the investment environment more severe. As a result, the transfer from DB plans to DC plans is now accelerated in particular among large companies. The transfer to DC plans is not the only way to make the pension plans sustainable. The government has taken the initiative in introducing the new type of pension system for the past few years, and finally Japanese version of "Defined Ambition" system shall come into force by March 2017. It is a kind of the hybrid pension systems and called "Risk-Sharing Corporate Pension". One of the most significant features is that the benefit is linked to the adequate level of the plan. Toward smooth introduction of the new system, some practical issues have been discussed by the government and the trustee companies which are life insurance companies and trust banks. Some of the issues will be discussed in my presentation. The objectives of the presentation are threefold. First, I review the mechanism of the Japanese risk-sharing corporate pension, and explain the underlying practical issues which will affect sponsor companies, trustee companies and participants. Second, by means of the financial model, I illustrate how the practical issues will cause unfairness among participants and discuss how they will be solved. Third, I make recommendations on this system to improve practicality and sustainability.

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Economic Valuation of DB-liabilities

July 2017—Teemu Pennanen, PBSS/IACA Colloquium Cancun 2017

In pension finance, on often faces the problem of finding the least amount of capital needed to cover the claim payments of a given liability. In the case of DB liabilities, such problems are often highly nontrivial due to uncertainties in future investment returns, longevity developments and other risk factors that affect the liability payments. In a deterministic world, the problem would have a simple solution: the least amount of initial capital is given by discounting the projected claim payments by the future rates of investment returns. This is the classical actuarial formula often referred to as the "best estimate". In the uncertain reality, however, the "best estimate" loses its economic interpretation and often results in problematic valuations when the underlying economic environment changes. Several attempts have been made to adjust the incorrect valuations e.g. by an introduction of a risk margin or by adjusting the discount rates. Such modifications rarely address the actual problem of hedging the claim payments. Instead of trying to adjust the incorrect valuations, the economic approach to liability valuation goes back to the original question and looks for the cheapest hedging strategy that covers the liability payments with an acceptable level of risk. Under "complete markets" assumption, this coincides with the classical Black-Scholes hedging argument and in a deterministic case, one recovers the "best estimate". The economic approach accounts for uncertainties both in asset returns and liability payments. The approach is illustrated by the valuation of BD-pension liabilities of the whole Finnish private sector pension system.

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Hybrid Social Security Pension Schemes Between DB and DC: Risk Sharing ans Stochastic Optimal Control

July 2017—Pierre Devolder, PBSS/IACA Colloquium Cancun 2017

Traditionally, public pension schemes, organized in a social security framework and using a pay as you go technique (PAYG), are based on a Defined Benefit (DB) or a Defined Contribution (DC) approach, corresponding to two extreme philosophies of risk spreading between the stakeholders: in DB, the main risks are taken by the organizer of the plan; in DC (including the Notional accounts – NDC), the affiliates must bear all the risks. Especially applied to social security, this traditional polar view can lead to unfair intergenerational equilibrium in both cases. The purpose of this presentation is to propose, in PAYG, alternative hybrid architectures based on a mix between DB and DC, in order to achieve simultaneously financial sustainability and social adequacy. An example of this approach is the so called Musgrave rule, proposed recently in Belgium as potential reform principle. Other risk sharing approaches will be also presented and illustrated. In particular, we will develop a stochastic optimal control model in order to obtain an optimal mixed level between DB and DC.

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Assessing Pension Plan Health: More Than One Right Number Tells the Whole Story

July 2017- American Academy of Actuaries

Consider the following hypothetical case of unsettling news reports that indicate that a retirement plan of a major local employer is underfunded by $50 million. Retirees are concerned that their pension benefits might not be paid. Other stakeholders in the company, such as investors, customers, and taxpayers, are also worried. But what does the $50 million shortfall really mean? The employer's leadership reported in an interview last week that the plan was in solid financial shape and consistent with its financial plan. So, what is the truth? What is the right measure of the shortfall?

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The impact and Implication of the 2016 Pension Legislative Revision in Japan

July 2017- Kenji Kusakabe, PBSS/IACA Colloquium Cancun 2017

Japan faces one of the most severe environments in the world for income security for the elderly (declining birthrate, aging population, low economic growth, and sluggish stock market). On the other hand, the desire to work and employment rate among the elderly are remarkably high among developed countries. Under these circumstances, the 2016 pension legislative revision was implemented in order to complement public pension. In the field of public pension, the macroeconomic slide introduced in 2004 has started functioning effectively. In the future, the average replacement rate from public pension is expected to decrease from about 65% to about 50%. In the field of DB (defined benefit pension), new structures (risk-related premium, risk-sharing scheme) have been introduced. In the field of DC (defined contribution pension), the participation eligibility of individual-type DC has been expanded. For this paper, we conducted simulations and developed a way to achieve income security for the elderly, considering aspects such as longevity risk and investment risk. The analysis confirms that the income for the late elderly (over 75 years old) should be covered with public pension and that the income for the early elderly (65 to 75 years old) should be covered with wages and private pension. Specifically, for longevity risk it is effective to raise the upper pensionable age for public pension to 75 years old (annual amount increases according to the age). In addition, it is important to defer parts of wages by utilizing DB and DC to maintain income level in the early elderly. To that end, it will be necessary to better educate Japanese citizens about social security. The new structures are effective for mitigating investment risks in DB. However, in order for these structures to become popular, additional measures for refunding of pension assets to employers are required.

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Commentary: Parametric Adjustment to Social Security

July 2017- The Buffin Fundation

With the title *Parametric Adjustments to Social Security*, this edition discusses various parametric adjustments to the Social Security benefit and financing structure. It identifies problems associated with the fixed payroll tax rate that is the major source of financing for the system and proposes changing to a structure of graduated rates with modest incremental annual adjustments.

The United States Social Security system is a dynamic system in many different ways. Certain features of the benefit structure are subject to periodic parametric adjustments that are typically tied to inflation, as measured by changes to consumer prices or national wage levels. Benefits in course of payment are subject to a cost-of-living adjustment (COLA) that is based on the Consumer Price Index.

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Retirement Calculators: 3 Good Options

July 2017- Center for Retirement Research at Boston College

The Internet offers many free calculators to baby boomers wanting to get a better handle on whether their retirement finances are on track. The operative words here are “on track,” because each calculator has strengths and weaknesses. Calculators aren’t capable of providing a bullet-proof analysis of the complex factors and future unknowns that will determine whether someone has done the planning and saving required to ensure a financially secure retirement.

With that caveat, *Squared Away* found three calculators, listed below, that do a good job. They met our criteria of being reliable, free, and easy to use. Many other calculators were quickly eliminated, because they were indecipherable or created issues on the first try.

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UPDATES: Mortality Working Group

July 2017-MWK

The Mortality Working Group of the IAA released the MWG Update #9. In this selection, you can find material related to mortality and longevity, among other topics

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A First Look at Alternative Investments and Public Pensions

July 2017- Center for Retirement Research at Boston College

The brief's key findings are:

Public pension plans have boosted their holdings in alternative assets, defined as private equity, hedge funds, real estate, and commodities.

This shift reflects a search for higher returns, a hedge for other investment risks, and diversification.

The question is how the shift has affected returns and volatility over two periods: 2005-2015 and 2010-2015.

In terms of returns, a 10-percent increase in the average allocation to alternatives was associated with a reduction of 30-45 basis points, primarily due to hedge funds.

In terms of volatility, alternatives did not have a statistically significant effect. Hedge funds reduced volatility, but real estate and commodities increased it.

This analysis is only a first look at this area; further research is clearly warranted.

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Decumulation Options in the New Zealand Market: How Rules of Thumb can Help

July 2017- New Zealand Society of Actuaries (Inc)

1.Rules of Thumb are used in some savings and pensions markets to give general guidance. Rules of Thumb are simple principles, which are generally reliable in the absence of full advice. They give a broad steer on how to achieve a financial goal.

2. In this paper we make the case for a set of four tested Rules of Thumb to be integrated into the different ways retirees in New Zealand receive information on how to safely take income from their retirement fund. The four Rules of Thumb are:

• 6% Rule: Each year, take 6 per cent of the starting value of your retirement savings. • Inflated 4% Rule: Take 4 per cent of the starting value of your retirement savings, then increase that amount each year with inflation.

• Fixed Date Rule: Run your retirement savings down over the period to a set date – each year take out the current value of your retirement savings divided by the number of years left to that date.

• Life Expectancy Rule: Each year take out the current value of your retirement savings divided by the average remaining life expectancy at that time.

3. Based on our testing, this set of four Rules of Thumb could give a reliable, useful steer, suitable for a range of personal decumulation priorities. The Rules provide different income profiles, so they offer a way of engaging a range of retirees in understanding what the implications of decumulation decisions are, especially investment and longevity risks.

4. We welcome further testing and review of these Rules.

5. We propose that a regulator-approved set of tested Rules should be available for providers, distributors, regulators, commentators and others who communicate with New Zealanders on decumulation matters.

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The Small Business Retirement Challenge

July 2017- LPL Financial

The fact that there is a brewing retirement savings challenge in the United States is well known. The challenge must be evaluated in the context of the switch from defined benefit plans, which pay a pre-defined amount of money upon retirement, to defined contribution plans (such as 401(k) plans), which depend on workers to make the choice and tradeoffs involved in saving for their own retirement. These changes have led to less certain retirements for many Americans. In fact, research has found that 52% of households are at risk of not being able to meet their current standard of living in retirement.1 Although this number is striking, behavioral research also provides encouraging news; there are ways companies can help their workers save more money. Namely: 1. Offer a retirement plan; 2. Automatically enroll employees in the retirement plan; 3. Automatically select investments; and 4. Automatically increase the amount of employee contributions each year. Employees of businesses that have followed these steps have shown a marked increase in the amount of money saved.

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UPDATE: Retirement Policy and Research Centre

July 2017- RPRC

The latest edition of the RPRC Update is available now! See the front-page report on the RPRC's international forum in April with expert speakers, the Hon. Nick Sherry, Australia's first Minister of Superannuation, and David Harris, Managing Director of UK-based TOR Financial Consulting.

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UPCOMING EVENTS

2017 Retirement Research Consorting Meeting

3–4 August 2017, Washington DC., USA

The 2017 Retirement Research Consortium Meeting will be held August 3-4, 2017 at the National Press Club in Washington, DC. This event showcases the latest in retirement research from the nation's top scholars.

The event is free and open to the public. The event will also be live streaming if you are unable to attend in person.

More Information

ASTIN/AFIR Colloquium

20–24 August 2017, Panama City, Panama

The 2017 ASTIN/AFIR-ERM Colloquium will be held in the beautiful coastal city of Panamá, in the heart of the Americas. The event will feature findings from leading researchers and practitioners in the form of concurrent presentations, plenary and panel sessions, and educational workshops.

See the program or register now

IAA Life Colloquium

23–24 October 2017, Barcelona, Spain

The seemingly unstoppable growth in human life expectancy, coupled with the current state of health and social services, has led to a remarkable rise in longevity across the globe.

While increased longevity may be heralded as progress for mankind, it nevertheless poses a major challenge for private and public pension schemes and will have an impact on the life insurance industry, thereby affecting the actuarial profession itself.

See the program or register now

1st International Congress of Actuaries (ICA 2018)

4–8 June 2018, Berlin, Germany

Like no other metropolis in Europe, Germany's capital symbolizes the breakdown of old structures and the beginning of a new era of understanding and cooperation. May the unique atmosphere of a city that has re-invented itself in recent decades inspire you to be an integral part of a vibrant International Congress of Actuaries in 2018.

Come and join colleagues working together, at an event without cultural or geographical barriers.

See the list of pension-related topics, or find out more about the ICA 2018