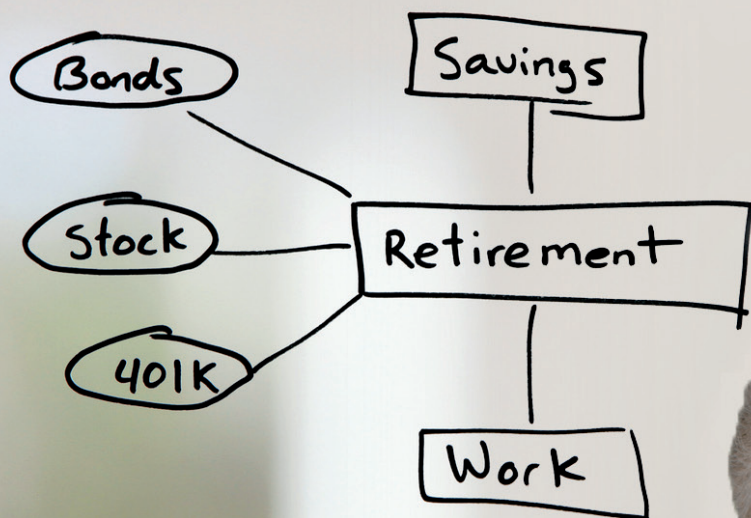


# The Public Pensions Crisis in the U.S.

A GENEVA ASSOCIATION REPORT



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## The Geneva Association

The Geneva Association is the leading international insurance think tank for strategically important insurance and risk management issues.

The Geneva Association identifies fundamental trends and strategic issues where insurance plays a substantial role or which influence the insurance sector. Through the development of research programmes, regular publications and the organisation of international meetings, The Geneva Association serves as a catalyst for progress in the understanding of risk and insurance matters and acts as an information creator and disseminator. It is the leading voice of the largest insurance groups worldwide in the dialogue with international institutions. In parallel, it advances—in economic and cultural terms—the development and application of risk management and the understanding of uncertainty in the modern economy.

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# The Public Pensions Crisis in the U.S.

A GENEVA ASSOCIATION REPORT

*by Krzysztof Ostaszewski, Actuarial Program Director, Illinois State University*

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# EXECUTIVE SUMMARY

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- A 2010 report by the Pew Center on the States highlights the trillion-dollar shortfall facing state and local retirement systems in the U.S. due to policy choices and a lack of fiscal discipline, namely the failure to make annual payments for pensions systems at actuarially recommended levels and expanding benefits without considering their long-term costs. The majority of states (34) have a funding level below 80 per cent.
- The Geneva Association has long advocated a four-pillar approach to sound pension planning: (1) a universal public system such as Social Security, (2) an occupational pensions system supported by employers under government financial supervision, (3) private savings using financial intermediaries and (4) continued employment, through the removal of barriers to partial employment of retirees.
- Excessive reliance on one of the four pillars—particularly a public system or private savings only—strains public finances and/or an individual's ability to finance retirement adequately. The Geneva Association has also highlighted the unnecessary losses of human capital resulting from restrictions on the employment of retirees. Human capital, i.e. the ability to earn income, should be valued, particularly in societies with ageing populations.
- The Geneva Association calls for more in-depth study of solutions to the pension crisis the U.S.

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# OVERVIEW OF THE CRISIS

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The mounting pension-related difficulties besetting U.S. state and local governments made the headlines on several occasions in 2013. The biggest story was that of Detroit, which filed for bankruptcy on 18 July after state-appointed emergency manager Kevyn Orr, backed by Michigan governor Rick Snyder, announced that the city could not pay the US\$11.5 billion in liabilities associated with pension benefits, retiree health-care costs and unsecured debt held by investors.

Several other municipal bankruptcies have also been in the news recently. San Bernardino, a city of 210,000 people located 60 miles east of Los Angeles, filed for bankruptcy on 1 August 2012. The California Public Employees' Retirement System (CalPERS) challenged the eligibility of San Bernardino for bankruptcy because of its concern for contributions to the pension system that San Bernardino was expected to continue making. On Wednesday, 28 August 2013, Judge Meredith Jury of the U.S. Bankruptcy Court for the Central District of California ruled that the City of San Bernardino is eligible for bankruptcy protection.

Another headline story was the political struggle over pension reform in the State of Illinois. In July 2013, Illinois governor Pat Quinn suspended pay for state legislators until they pass employee pension reform for state workers (in late September 2013, Governor Quinn's suspension of pay for legislators was overruled by a judge as unconstitutional, but the governor is appealing to the Illinois Supreme Court). As of this writing, four months later, no pension reform legislation has been passed.

On Wednesday, 28 August 2013, Standard & Poor's Ratings Services downgraded Illinois' credit rating from A+ to A, pointing to the state's large budget imbalance and an US\$83 billion unfunded pension liability as the reasons. For comparison, in 2012, the State of Illinois collected approximately US\$36.5 billion in tax revenues (according to governing.com). The Standard & Poor's rating places the State of Illinois second lowest among the states, just above California.

In January 2013, Moody's Investors Service, too, had downgraded Illinois, making it the lowest-graded state in the nation. When we note that estimates of pension liabilities are more than twice the State of Illinois' annual tax revenues, the urgency of the measures taken by Governor Quinn becomes understandable.



## THE MILLION-DOLLAR SHORTFALL FACING RETIREMENT SYSTEMS IS IN PART DUE TO A FAILURE TO MAKE ANNUAL PAYMENT AT RECOMMENDED LEVELS.

### SOME NOTABLE EXISTING ANALYSES OF THE ISSUE

The challenges faced by state and local governments in the U.S. have not gone unnoticed and have been targeted by numerous prominent policymakers and researchers. In June 2011, former chairman of the Board of Governors of the Federal Reserve System Paul A. Volcker and former lieutenant governor of New York Richard Ravitch created the State Budget Crisis Task Force (<http://www.statebudgetcrisis.org>) to examine threats to near and long-term fiscal sustainability in six U.S. states: California, Illinois, New Jersey, New York, Texas and Virginia. While these states differ along many dimensions, including politics, policies, economies and demographics, they share many of the same problems.

A year later, in July 2012, the task force released several reports on state and local finances. Some key findings were:

- State finances are opaque. They often include hidden liabilities, and growing responsibilities which are difficult to control.
- State revenues are gradually recovering from the drastic decline of the Great Recession that started with the credit crisis of 2008; however, they are not growing enough to keep pace with the spending required by costs of medical care covered by state

pensions and other responsibilities and obligations.

- The volatility of state revenues stands in contrast with their generally increasing current expenditures and future liabilities.
- States are experiencing persistent and growing structural deficits, which threaten fiscal sustainability.

In 2010, the Pew Center for the States (now State and Consumer Initiatives) division of the Pew Charitable Trusts published *The Trillion Dollar Gap: Underfunded State Retirement Systems and the Road to Reform*, a comprehensive document addressing the issues facing state and local retirement systems. The document pointed out that these retirement systems were facing a trillion dollar shortfall in terms of funding of promised benefits and that this

problem was due to states' own policy choices and lack of discipline, expressed in the following:

- failing to make annual payments for pension systems at the levels recommended by their actuaries;
- expanding benefits and offering cost-of-living increases without properly considering their long-term costs or determining how to pay for them;
- providing retiree health care benefits without determining their costs and adequately funding them.

We see in these three points a common theme where needed and desirable benefits are promised without properly accounting for their costs, and even if costs are accounted for, without paying these costs. The importance of plan sponsors making



regular contributions to the funding of a pension plan is highlighted in pp. 24-28 of this report.

In 2012, Pew State and Consumer Initiatives published an update of the 2010 document entitled *The Widening Gap Update: States Are \$1.38 Trillion Short in Funding Retirement Systems*. The updated report indicated that states had lost even further ground in their coverage of the costs of their employees' pensions and health care in retirement.

In fiscal year 2010, states had a US\$1.38 trillion shortfall of funding in relation to the cost of promised benefits. That represented a 9 per cent increase from the previous fiscal year and a whopping 38 per cent increase over the trillion dollar shortfall presented in the first report produced by the Pew Charitable Trusts. On the other hand, the updated report also found that, over the span of the three years covered by the update, the majority of states had put in place reforms to manage the cost of their retirement systems better. Nevertheless, the funding shortfall is a very substantial challenge.

In the updated report, pensions are found to represent more than half the total shortfall. The majority of states (34) had funding below an 80 per cent level, which is commonly considered to be the minimum prudent level of funding. The states with the worst pension funding situation were: Connecticut, Illinois, Kentucky and

Rhode Island, with pensions funded under 55 per cent. The best states, on the other hand, were North Carolina, South Dakota, Washington and Wisconsin, with pensions funded at 95 per cent or better. Wisconsin was the only state that had fully funded pensions for its employees.

The update also found that the states that consistently make their full payments (annual required contribution or ARC), as calculated by a pension plan actuary, have better-funded retirement systems and smaller gaps.

### THE IMPACT OF THE SUBPRIME CRISIS

The effects of a relatively small financial problem can be magnified by the leverage of the economic agents involved and by the vulnerabilities of the system exposed when a financial problem comes to light. As indicated in the report of the National Commission on the Causes of Financial and Economic Crisis in the United States:

Federal Reserve Chairman Ben Bernanke now acknowledges that he missed the systemic risks. "Prospective subprime losses were clearly not large enough on their own to account for the magnitude of the crisis," Bernanke told the Commission. "Rather, the system's vulnerabilities, together with gaps in the government's crisis-response toolkit, were the principal explanations of why the crisis was

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so severe and had such devastating effects on the broader economy.”

In other words: billions of dollars of subprime mortgage losses resulted in eradication of the capital held by the banking industry, which then brought about trillions of dollars of losses in the markets, which in turn resulted in even larger long-term losses of real economic wealth, due to non-utilisation of labour and capital after the crash and during the subsequent panic. Like a bullet fired into the heart of a large animal, relatively small losses hitting the national economy's area of vulnerability were leveraged into a very large crisis.

We hope that this is not the situation in the case of U.S. public pension plans, but we also think that such a possibility exists, prospectively. The key reason for this view is the increased amount of leverage in government finance, with the federal government experiencing more than one trillion dollar deficits for three fiscal years in a row, resulting in a very large increase in debt and the federal government reaching its statutory debt limit with increased frequency.

Furthermore, according to the Consumer Finance Protection Bureau (Chopra, 2013), student loans owed to federal government exceeded a trillion dollars as of May 2013. When you combine this with decreasing labour participation rates as well as declining wages since 2009, and the fact that workers' wages are the key source of

financing of the federal, state and city governments and student loans, the resulting picture is troubling.

Let us also note that one of the most prominent proposals for reform of state and local government pensions calls for increased involvement on the part of the federal government, especially as a provider of financing and insurance. We should ask ourselves whether a crisis of municipal pensions could possibly trigger a crisis of public finance, not only at state and local, but also at the national level.

## THE GOVERNANCE ISSUE OF UNPAID STATE PENSION CONTRIBUTIONS

The central issue in the debate on public pensions in the United States is whether this is merely a passing problem, an unpleasant carry-over from the shock of the 2008 credit crisis, or a systemic problem that can severely damage the long-term vitality of the U.S. economy.

In a recent published research brief, Munnell *et al.* (2013) show that, for a large sample of U.S. cities, the average cost of their pension plans amounted to 7.9 per cent of their budget revenues. The authors appear to consider this value to be manageable, and should not overwhelm these cities' budgets. They do note great variability of the cost among various cities, with the

bottom quintile average being 2.3 per cent and the top quintile 12.3 per cent. This already is an indication of a certain amount of risk created by the cost of pensions.

Additionally, the authors note that the 7.9 per cent figure is the annual required contribution as calculated by plan actuaries, while contributions actually made average 5.6 per cent of these cities' revenues. Some of the difference is due to the method of aggregation used, but the largest part of it—1.5 per cent of cities' budgets—is the amount that the cities are required to pay into pension plans based on the actuarial valuation, but they simply do not pay it.

This is, unfortunately, a very common phenomenon among U.S. states and local governments: a substantial portion of their annual required contributions for their pension plans remains unpaid. Private pension plans in the United States are unable to skip required payments this way, as this would constitute a violation of the 1974 Employee Retirement Income Security Act (ERISA) and would be subject to prosecution by the U.S. Department of Labor (i.e. a department of the federal government and not a state or local entity).

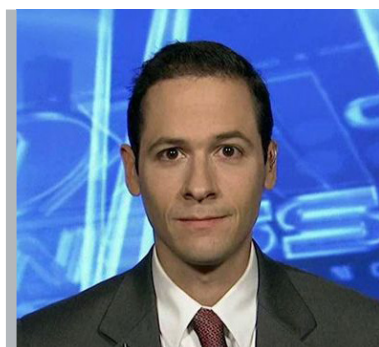
In contrast, the entity that typically holds a state responsible for making a pension contribution is that state itself. Clearly, this is a troubling governance issue, and we will discuss it further in this paper. At this point,

we would like to note only that, while 7.9 per cent may not appear to be a very high portion of cities' budgets to be paid into pension systems, those cities, on average actually do not pay 1.5 per cent of it at all. Hence, that 1.5 per cent is already a high, in fact, insurmountable cost to those cities.

### Should the federal government step in?

In a 4 August 2013 *New York Times* op-ed, Richard Riordan, former mayor of Los Angeles (the second largest city in the U.S.) and Tim Rutten urged the U.S. federal government to step in to avert a major crisis, by establishing a public employee pension reform programme for troubled state and cities retirement systems in the United States.

The article called for the federal government to act as an insurer of bonds sold by cities and states to cover their pension liabilities and public debt; in exchange, the troubled systems would have to implement substantial reforms that would bring them in balance. The plan is based on the work of Joshua Rauh, a professor at Stanford University and a senior fellow of the Hoover Institution, author of yet another major work on the ailing U.S. public pension system "The Pension Bomb", published in 2011 in *The Milken Institute Review*. Professor Rauh makes the following proposals for reform:



*Prof. Joshua Rauh*

- freezing existing benefits in defined benefit plans and switching all future benefits to a defined contribution system;
- reducing the cost of benefits by adjusting the retirement age forward and reducing cost of living adjustments;
- stopping the growth of unfunded liabilities, by requiring funding that matches assets and liabilities;
- funding the cost of the transition with long-term bonds that could be guaranteed by the federal government, provided that states and cities implement appropriate reforms and pay risk-based premiums for insurance of their credit provided by the federal government.

While such extensive involvement of the federal government may be disturbing to some decision-makers, Rauh points out that the secondary effects of fiscal problems of states and cities affect the whole nation: businesses leave economically depressed areas, often for offshore sites, and laid-off impoverished workers leave the labour force because of being unable to find work in such depressed areas, thus becoming dependent on public assistance.

It should be noted that, in the U.S., cities can enter bankruptcy proceedings (as did the cities of Detroit and San Bernardino mentioned earlier in this work), but states cannot.



Professor Rauh proposes that the federal government may consider giving troubled states a strong nudge by publishing federal government guidelines that would be followed in the case of the functional equivalent of a bankruptcy happening at the state level. While this kind of blunt nudge may cause a shock to the municipal debt market, such a shock may turn out to be what is needed for states that stubbornly refuse to reform (e.g. Illinois).

We will now present The Geneva Association's perspective on the issue of public pensions in the U.S.



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# A FOUR-PILLAR STRUCTURE TO SOUND PENSION PLANNING

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In 1987, The Geneva Association created a research programme aimed at studying the key importance of social security, insurance, savings, and employment—the four key components of retirement systems—in the new service economy. In 2012, this programme, renamed Life and Pensions, celebrated its 25<sup>th</sup> anniversary.

The main drivers for this programme are:

- demographic change and its financing impact;
- complementarity between social security and insurance;
- the changing nature of the welfare state, employment and life cycles.

The related research activities have four main objectives:

- analysing the key elements of old-age security systems;
- researching the conditions for multi-pillar systems of pension financing;
- encouraging multiple and complementary solutions to the challenges of ageing;
- understanding the role of insurance in the provision of old-age security systems.

The key insight is relatively simple, yet powerful: retirement systems should be built upon the four pillars of:

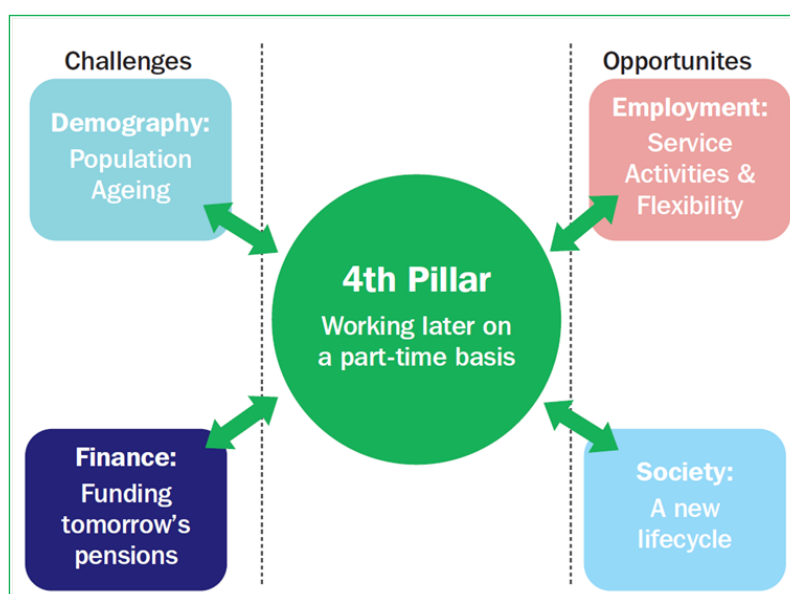
- **social security**, i.e. a universal public system of pensions or pension-like benefits, created as a social insurance system, or a welfare benefits system delivering results similar to social insurance;
- **occupational pensions**, where delivery of pension benefits for individuals is provided, supported and guaranteed by employers, under government financial supervision;
- **savings**, where individuals save and invest for their own retirement, using financial intermediaries, including private insurance companies, which can provide increased security of their benefits and mitigate longevity risk;
- **continued employment** with reduction or even removal of barriers to the partial employment of retirees that have traditionally existed worldwide, either on the part of governments or employers.

**A SYSTEM BASED ON FOUR PILLARS OF SOCIAL SECURITY, OCCUPATIONAL PENSIONS, SAVINGS AND CONTINUED EMPLOYMENT PROVIDES GREATER SECURITY AND STABILITY. A SLACK IN BENEFITS OF ONE PILLAR IS MADE UP BY THE OTHERS.**

### THE FOUR PILLARS CONCEPT AT WORK

A system based on these four pillars should provide greater security and stability, because any slack in the benefits provided by one of the four pillars can be made up by the others. Furthermore, each of the pillars can make specific contributions to the sustainability of the overall retirement system:

- The first pillar of social security acts as the anchor of long-term stability by providing intergenerational as well as intra-generation redistribution, as deemed necessary by policymakers, especially for the purpose of creating a minimum income floor for poorer retirees.
- The second pillar is employment-based. Citizens spend the longest part of their lives in employment, and that time should be productively used planning for and funding their retirement. If the employment relationship comes with a sound long-term retirement plan, this greatly enhances the value of that relationship to the employee, but also improves the sustainability and performance of retirement systems.
- Workers also need to assume individual responsibility for their retirement. Well-functioning private markets provide important market signals about the true cost of



retirement, hence the vital role of the third pillar.

- Continued employment not only can supplement the income of retirees, as needed, but also helps society by utilising the valuable human capital of retirees. Given declining fertility rates, the relative human capital value of retirees is increasing and, given increasing longevity, gradual retirement becomes a more realistic and more economical approach for the workers.

While the first three pillars have generally been a part of the retirement system design in most countries, many obstacles to the continued employment of retirees have been customarily put in place. The time has

now arrived, however, when not only financial problems with the first three pillars, but also significant societal changes compel us to acknowledge the vital economic and social role that the fourth pillar will play in our future.

On the other hand, one could argue that the creation of universal government-sponsored systems of social security in the early 20<sup>th</sup> century in most developed world economies was a reaction to excessive reliance on the fourth pillar prior to the existence of modern retirement systems. Of course, that excessive reliance was merely an expression of widespread poverty among the elderly, which reforms undertaken in early 20<sup>th</sup> century sought to remedy.

### THE PROBLEM OF EXCESSIVE RELIANCE ON ONLY ONE PILLAR

Excessive reliance on only one of the four pillars is problematical for the other three pillars. If a country relies solely on the first pillar for its retirement system, it will have to impose high payroll taxes to finance it, and reduce or even minimise the role of capital markets in retirement provision. This, in turn, will bring about disruptions in labour markets due to high payroll taxes and inefficient capital allocation, and create incentives to lobby for retirement benefit, instead of earning them. The World Bank 1994 report *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth* made similar arguments and proposed restructuring retirement systems that were heavily concentrated in the first pillar into a combination of the first, second and third pillars.

On the other hand, Burtless (2012) considers the shortcomings of relying solely on private saving arrangements, i.e. the third pillar (in the U.S., the most common private retirement savings arrangement is an individual retirement account (IRA), but private insurance annuities are also quite common). One such shortcoming is that some workers will not save properly for their own retirement, due to lack of planning, ill planning or some unexpected circumstances

in their lives, if third pillar savings process is voluntary. Of course, this shortcoming can be overcome by introducing compulsory elements into private saving plans. The law could make workers contributions into such plans mandatory and then, upon retirement, some or all worker accumulations could be converted into annuities.

Another shortcoming is that workers may lack the skills to construct an appropriate retirement portfolio and then convert it into an annuity; to address that, workers' investment choices could be regulated or even narrowly restricted. But Burtless (2012) considers something else to be the biggest weakness of private saving plans: the asset-liability management risk specific to individual investors who are saving for retirement. The savings will at some point have to be converted into some form of retirement income. The timing of that conversion may be planned (such as retiring at age 65), but it may turn out to be random (e.g. having to retire early because of being laid off, inability to find work or becoming disabled). But the conversion must happen. If done at the opportune time when accumulated assets have high value and annuities are inexpensive, the worker may retire comfortably.

Yet, such timing requires a combination of investment and actuarial skills rarely possessed by individual investors and,



even if one has such skills, one still has to have the self-discipline to override the emotional side of the process. For example, many individual investors are extremely uncomfortable with parting with their assets in return for a life annuity, terrified of the thought of an early death resulting in their hard-earned assets being effectively handed over to a life insurance company instead of their heirs. Also, fluctuations in asset prices make it hard for even well-informed workers to select an appropriate yet affordable saving rate and an investment strategy that will assure a decent income in old age. Social security systems and employment-based pensions partly insulate workers against economic and financial market risks by sharing those risks broadly across workers, retirees and taxpayers in multiple generations.

The creation and subsequent universal growth of defined benefit social insurance schemes, as well as employment-based defined benefit pension plans in the early 20<sup>th</sup> century, was a result of the then widespread social and political consensus concerning their desirability. Workers liked them, the costs appeared reasonable and politicians as well as employers enjoyed being able to provide them. But, beginning with the economic malaise of the 1970s, the system began to show some cracks. Increasingly, private pension plan sponsors found themselves unable to

bear the cost of defined benefit plans, both economic and regulatory.

The attraction of early defined benefit pension schemes lay in their generosity, especially towards poorer workers, combined with hidden and often perceived as negligible, costs. Yet this, over time, also proved to be their core weakness. Fitzpatrick (2012) studied the question of how much public school teachers in the U.S. are willing to pay for their pension benefits. She found that employees of the public school system in the state of Illinois are willing to pay 19 cents for a dollar increase in the present value of expected retirement benefits. While precise valuation of pension benefits is a complex financial calculation, this result makes it quite clear that workers enjoy their benefits, but are unwilling to pay anything even close to their market value for them.

As Burtless (2012) rightly points out, the need for the first pillar, i.e. social insurance pension benefits, arises from the inability of many, especially poorer, workers to pay for the level of benefits they need. Additionally, the cost of pensions is quite opaque for many workers and, as Fitzpatrick's study indicates, their cost as perceived by workers is much lower than the true cost. Both the first pillar and the second pillar implement measures that in some form subsidise those costs, and make them invisible to workers. This stands in sharp contrast with the third and fourth pillars. In

the third pillar, workers pay for their own retirement costs, and see the price immediately. In the fourth pillar, the value of income is instantly communicated in the cost of the effort expended in work.

But the value of income protection offered by first and second pillar defined-benefit pension schemes is real and significant. The social and political movements that created them actually acknowledged that many poorer workers could not afford that protection. This is why social security systems had income redistribution built into them from the very beginning, and why second pillar pensions were granted tax preferences and government guarantees. The costs were high, but social benefits

were judged to be worth the cost borne by governments and employers. The trouble is that the society that chooses to protect or subsidise workers, and hence hide the true costs of pensions from them, must find a way to pay those costs nevertheless.

### WORKING PAST RETIREMENT: IMPLEMENTING THE FOURTH PILLAR OF PENSION REFORM

#### Human capital as an asset

Pensions are often presented as yet another aspect of the insurance business. But what are they insuring against? It is commonly proposed





that a life annuity paid by a pension plan provides insurance against living too long, in the sense of outliving one's assets. But as long as we remain healthy, we cannot outlive the human capital asset that we possess—our ability to earn income.

Extensive research produced by The Geneva Association and other entities on the fourth pillar clearly suggests that the human capital potential of retirees is far greater than commonly acknowledged. But a person's human capital becomes severely impaired if that person withdraws from the labour force for an extended period of time, because, while we work, we continuously learn, upgrade our skills and maintain our human capital. If we withdraw from the labour force, we lose that maintenance, and our human capital value can significantly drop. This is a pure, and often completely unnecessary, loss to the person experiencing it, and to society. Complete withdrawal from the labour force also carries with it a very significant financial risk. A pension provides insurance against that event as well, not just against the risk of living longer than one's financial assets can pay for.

The Geneva Association has argued since the creation of the Life and Pensions research programme (formerly Four Pillars programme) that such unnecessary losses of human capital should be avoided. The human capital of retirees should be valued,

protected and cherished, especially in societies with unfavourable demographics, i.e. ageing populations.

Many leading government and insurance industry experts view increasing longevity as a significant threat to the financial sustainability of government finances and pension systems. But that argument only holds if increasing longevity comes with no increase in the length of time during which human capital is viable. To the extent that we can, we should use the natural hedge against longevity risk: the fourth pillar.

This, however, requires proper alignment of incentives. Public pension plan participants often face limits on their pension benefits once they reach a specific number of years of service. If they retire, returning to work with the same employer often results in a reduction of benefits. These are, of course, disincentives. Additionally, limiting the number of years of service that count towards pensions means that the employee faces a strong financial incentive to retire once reaching that number, and to maximise the benefit just prior to retirement. These incentives also mean that employees benefit if they seek ways to artificially increase their wages just prior to retirement (a practice called spiking), but not if they work longer. But, of course, exactly the opposite (i.e. honest work instead of gaming the system) would be beneficial to society.

**RESEARCH BY THE  
GENEVA ASSOCIATION  
CLEARLY SUGGESTS  
THAT THE HUMAN  
CAPITAL POTENTIAL  
OF RETIREES IS  
FAR GREATER  
THAN COMMONLY  
ACKNOWLEDGED.**

Furthermore, the relationship between public employees and their employers is not only an employment relationship; it is also a political relationship. If employees cannot increase their income in retirement by working longer, full time or part time, they can turn to their government/ employer and lobby for higher benefits instead, which is, of course, an expression of their fundamental right to petition the government. Yet moving those people from working for higher income to lobbying for higher income is detrimental to society. Lobbying may indeed be a productive activity, if it seeks to remedy an injustice. But such lobbying is sorely missing in the debate about public pensions.

### **Does encouraging post-retirement work increase unemployment?**

Mysteriously, an argument is often made that older workers must retire at some point in order to “release” their jobs to the new generation. This argument assumes that the number of employment positions is fixed, or nearly fixed. But everyone knows this is not true. At some point in history between the year 1000 and now, the number of jobs available in the world has increased, because there are not just many more people living in the world now than in 1000, but also many more people working in

the world. How did this happen? The miracle was brought about by the phenomenon of economic growth, fed by increasing productivity, capital accumulation and, yes, growth in the number of people available to do the work. As we intuitively know about every economic recovery, economic growth results in an increase in the total population employed, as new jobs miraculously appear.

Why, then, is such an argument so often put forth? Because it assumes a static vision of the economy, with a scarcity of jobs, a fixed capital stock and a fixed employment pool. This in turn makes every worker a potential replacement for another worker, and it implies a vision of “dog-eat-dog” labour market competition. The reality is far more dynamic and far more hopeful for the workers.

As a simple example, imagine a single worker whose job involves performing two tasks: writing blog entries and making online videos. If a second person is hired to work solely on the online videos, the first worker will work solely on the blog; each will be assigned his/her area of comparative advantage and the total output might increase enough for both of them to earn comfortable salaries. If, additionally, their example helps other workers in the world increase their productivity, this might result in an even larger increase in employment worldwide. If the first worker is already planning gradual retirement,

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## A KEY REASON WHY PUBLIC PENSION SYSTEMS IN THE U.S. ARE IN A SEVERE STATE OF CRISIS IS THAT THEY ARE A DRAMATIC DEPARTURE FROM THE FOUR PILLARS CONCEPT.

that first worker may be actually willing to accept gradually declining income, and use the transition time to train the newly hired worker, leaving a long-lasting legacy of increased productivity.

The processes described here are so natural that we envision them in nearly all social circumstances. We know that, for civilisation to continue, we need to transfer the skills, the knowledge, the human capital of the current generation to the next generation. Yet so often the relationship between these two generations is presented as antagonistic. In reality, the natural relationship is one of mutual cooperation—and leaving a legacy of knowledge and productivity is highly valued by the retiring generation, as well as the newly emerging generation that is receiving it.

### THE FOUR PILLARS CONCEPT APPLIED TO THE U.S. PENSION CRISIS

The four pillars concept of The Geneva Association is a form of compromise between these two perspectives:

- Pension income protection offered by the first and the second pillar is valuable to its beneficiaries, but since its cost is opaque, high social value may result in a relentless push for ever increasing benefits, without proper accounting for their

economic costs, shifting these costs to the national economy. Thus, the first and second pillars are socially valuable, but present the risk of imposing a heavy burden on the economy and ultimately leading to lower growth and negative social outcomes (which, given subsidies for retirees, will likely mostly affect younger workers).

- Economic cost accounting is realistic in the third and the fourth pillars, but poor workers may end up with insufficient wealth accumulation in their private savings and insurance, and work throughout the rest of their life.

Hence the four pillars structure addresses these two concerns by seeking a balance between socially desirable, yet socially costly, income protection benefits—first and second pillars, and realistically priced, yet potentially unaffordable to the workers—third and fourth pillars.

### ONE WOBBLY PILLAR WILL NOT DO THE JOB OF FOUR PILLARS

Public pension systems of the states and local governments in the U.S. are in a severe state of crisis, as documented by several studies we quoted earlier. We propose that the key reason for this situation is that those systems are a dramatic departure from the four pillars concept.

In the U.S., states and local governments have financial systems that are mostly autonomous and separate from the U.S. federal government. They collect their own taxes, often including income taxes, and have their own financial operations, which include pension systems for their own employees. These pension systems are separate from the national social insurance system, known as Social Security, administered by the U.S. federal government.

A unique feature of certain state and local government pension systems is, however, even more unusual when compared with the rest of the world: many municipal pension plans are exempt from the national Social Security system. This means that employees participating in those systems have no first pillar in their retirement plan, and the second pillar provided by the state or local government employing them assumes the role of both pillars 1 and 2. Furthermore, pillar 2 pensions, referred to as *public pensions* (note that universal social insurance pension, i.e. Social Security, is not considered a public pension in the United States) were originally designed to be generous enough to serve as employees' sole source of retirement income.

State and local government employees were also viewed as having lower incomes than typical private sector

workers, hence a high level of income replacement in retirement was meant to provide incentives for potential employees to consider state and local government employment instead of working in the private sector. This means that the third pillar played only a minimal role for these workers, as their relatively lower salaries would make it more difficult for them to save by themselves.

And to put the final piece into this financial puzzle, state and local public sector workers have been traditionally precluded from seeking any form of continued employment, even part time, from their original employer, once retired. This means that the fourth pillar was minimised, if not eliminated, for these workers.

Thus non-federal-government public sector workers were mostly left with a one-pillar pension system. Employers promised to make that pillar as strong and as secure as a giant sequoia tree, and offered the backing of state and local governments for them. This appeared very attractive. But the system had one fundamental flaw. It pretended to be just like any defined benefit pension scheme offered by private employers, without two key features that private employer plans have:

- systematic planned funding based on realistic cost estimates;
- strong and independent regulatory body supervising the system.



In fact, in its practical functioning, the system of public pensions greatly resembles a pay-as-you-go social security system with small partial funding, but without the fiscal restraint of relatively the small replacement ratio that the Social Security system has followed, and without proper mechanisms for restoring proper funding when deficiencies developed.

## THE PROBLEM OF PENSION OBLIGATION BONDS

Public pensions in the United States have promised to deliver generous pensions of the type offered by the private sector or even better, while backing them with government guarantees. In practice, they have

delivered large unfunded promises, which may actually threaten the financial viability of the government entities sponsoring them, and hence, the delivery of the promised pension benefits.

Solutions implemented so far have often concentrated on various special financial arrangements. One such special financial arrangement is a pension obligation bond. It is a bond issued by a plan sponsor, with the proceeds of the issue used to contribute to the pension plan. For the non-financial lay person, this may seem, to put it mildly, strange. But let us present its unusual logic.

Public pension plans are subject to actuarial valuation. This means that their future costs are modeled and calculated by the plan actuary, and

then their present value is calculated to establish the funding needed. The plan actuary also calculates the annual required contribution, which is the amount that that plan sponsor (employer, or the government entity supervising the employer) should pay in a given year in order to provide appropriate funding for the planned benefit payments.

While the actuarial methodologies vary, they all are based on the idea of ultimately providing appropriate funding for promised benefits so that the money is available when those benefits are due. The entire calculation rests on the assumptions set by the plan actuary. The most important assumptions are the interest rate (used for calculating today the value of future pension benefits promised) and mortality of plan participants. One of the reasons why pensions have become increasingly expensive in the last quarter century is the continually increasing lifespan of workers in developed economies. This is, of course, a great achievement for these countries, to be celebrated, but it also means that pension benefits will be paid over longer periods of time, resulting in higher costs in funding them.

But the sensitivity of the cost of pension plans to the interest rate assumption is more important, because interest rates can fluctuate more in relatively shorter periods of



time than mortality. Since the interest-rate peak of around 1980, they have been mostly falling, and falling a great deal, and the resulting increase in the cost of pensions is dramatic.

The interest rate used for calculating the costs of a pension plan, known as the valuation rate, is set by the plan actuary. It has become a quite controversial concept in the debate on U.S. public plans. Rauh (2011) and Riordan and Rutten (2013) seriously criticise the valuation rate levels set by plan actuaries in U.S. public pension plans. They consider them unrealistically high. A high valuation rate results in a lower present value of plan liabilities, and this makes the plan's current financial status appear better than it is. How do actuaries determine the valuation rate? They determine it as the expected long-term rate of return on the pension plan investment portfolio. Pension plans generally invest in a diversified portfolio of stocks and bonds, close to 60 per cent in equities and 40 per cent in fixed income.

According to the Public Fund Survey website ([www.publicfundsurvey.org](http://www.publicfundsurvey.org)), as of 2012, the median (in the population of public plans surveyed) valuation rate was 7.8 per cent, and the rates varied between the high of 8.5 per cent to just below 7 per cent. What kind of rate of return can one reasonably expect for the investment portfolio in the future? For a portfolio of 60 per cent stocks and 40 per cent



bonds, and allowing 2 per cent or slightly more for inflation, if we take 60 per cent in stocks with an expected real return of 7 per cent and 40 per cent in bonds with an expected real return of 2 per cent, we arrive at an estimate of 2 per cent + 60 per cent of 7 per cent + 40 per cent of 2 per cent = 7 per cent.

The Public Fund Survey reports that, as of 2012, for the first time in the period of their study plans in Indiana and the District of Columbia actually adopted a valuation rate below 7 per cent. Thus the assumptions commonly used may seem slightly high, but are reasonable for the purpose they serve. And for the last two years, strong stock markets returns and reasonable rates of return on bonds allowed many pension plans to earn returns in excess of their valuation rates. Why then the controversy? The Public Fund Survey

reports that, as of 2012, for the first time in the period of their study, two plans actually adopted a valuation rate below 7 per cent. Thus the assumptions may seem slightly high, but are reasonable for the purpose they serve. And for the last two years, strong stock markets returns and reasonable rates of return on bonds allowed many pension plans to earn returns in excess of their valuation rates. Why then the controversy?

The case of pension obligation bonds shows the real damage that can be wrought by high valuation rates. If, to be somewhat conservative, the long-term rate of return on the pension portfolio is 6 per cent, and the state or the city sponsoring the plan can borrow at 4 per cent, would it not make sense to borrow the money to fund the pension plan? By borrowing at 4 per cent and lending at 6 per

cent, the plan would earn a free 2 per cent a year just through a financial arrangement. In other words, free money. Is there anything wrong with this reasoning?

This reasoning is actually common from the financial institution management perspective, which sees a risk-free spread between two interest rates, a low rate at which they borrow (e.g. from the public in the form of bank deposits) and a higher rate at which they invest (e.g. by loaning money to businesses). This perspective is wrong, because the difference between the two rates is not a risk-free spread, but rather, a very risky series of cash flows which could turn out to be negative under certain circumstances (e.g. if the asset in which the borrowed funds are invested delivers a negative return, a distinct possibility, which happened to many banks in 2008).

Ostaszewski (2012) argues that this kind of short/long portfolio (e.g. a municipality issuing pension-funding bonds, hence entering into a short position on these bonds, and investing in the pension plan portfolio, hence being long in that portfolio) has risks equivalent to a derivative security, and the financial institution engaging in such transactions is acting like a derivatives dealer, often without acknowledging the leverage and risk of the situation. In the case of a pension plan, a year of bad returns on a pension plan portfolio is likely to coincide with

a downturn in the economy, resulting in lower tax revenues for the plan sponsor, yet still requiring regular payments for the pension obligation bonds.

This is precisely the scenario behind many municipal finance crises in the United States. The story is very similar to banks or insurance companies taking excessive risk in their investment portfolios, while having liabilities payments that are perceived by their customers as guaranteed and perfectly safe. This is, of course, one of the key reasons for solvency regulation by government authorities. If you are a municipal government leader and you decide to borrow at 4 per cent and invest at 6 per cent—but 6 per cent is really the expected value of a random variable—and next year a crisis hits and you must still pay 4 per cent on your borrowings, you lose 10 per cent in your investment portfolio; because you also must pay your workers' regular salaries and other bills the following year, as well as that year's pension contribution, you are likely to find yourself seeking advice from lawyers processing bankruptcies of municipal governments.

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# THE ART OF PENSION FUNDING

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How does solvency regulation of life insurance and life annuity companies solve the problem of the risky short/long portfolio? While the regulation of insurance is evolving, the traditional approach to life insurance and life annuities called for very careful and conservative assumptions on interest rates and mortality resulting in low valuation rates, and the high present value of liabilities. Additionally, solvency regulations require life insurance companies to hold capital (a surplus), which, in case of trouble, is available for payments of benefits to customers in addition to the funds held in reserves (liabilities of insurance companies).

Capital is not free, however. It must be paid an appropriate, typically high, rate of return. The return earned by insurance company's assets is distributed to liabilities (receiving excessively low rate) and surplus (receiving competitive rate of return in capital). Furthermore, assets are invested mostly in fixed-income instruments of lower risk, also due to solvency regulations.

The result is that a life insurance company, whether engaged in the life insurance or life annuity business, is always ready for the possibility of not receiving a premium payment for the policy, and even for the possibility of the liquidation of a policy, through death, lapse of policy or some other payout to the customer, because funds needed for that payout are always available. The central theme of the work of a life insurance actuary is that the funds paid by the customer may not arrive, but the funds to be paid to the customer must always be available for a payout.

## BLAME THE ACTUARIES?

Pension actuarial science is constructed with a markedly different perspective. Pension plan valuation is done under the assumption that the plan will continue indefinitely. Because of the plan's long-term perspective and because of the need to index benefits to wages as well as to meet certain legal requirements (in the U.S., for example, private pension plans are required to have a prudently diversified portfolio based on the 1974 Employee Retirement Income Security Act), pension plan assets tend to be invested in a diversified portfolio including stocks and bonds, and the long-term expected rate of return is assumed to be higher than the risk-free rate, representing the contribution of the risky portion of the portfolio to the long-term returns. The plan actuary then calculates what regular annual contribution (*normal cost*) is needed to fulfill the plan obligations, and instructs the plan sponsors to make those contributions.



If a plan develops a deficiency in funding, i.e. if plan assets fall significantly below plan liabilities and the normal cost payments turn out to be insufficient, the plan actuary is responsible for designing a plan for resolving the deficiency with *supplementary costs payments* by the plan sponsor. As stated earlier, in a typical plan portfolio, 60 per cent is allocated to stocks and 40 per cent to bonds, with the addition of some alternative assets in the case of larger plans. This approach has some interesting and quite positive consequences for the way plans are funded:

- If the asset allocation of 60 per cent stocks and 40 per cent bonds is consistently followed, this means selling some of the portfolio's stock and buying bonds when stocks are earning high returns, and reallocating more funds to stocks when stock markets are declining. This forces a value-investing strategy, at least to some degree, which has been shown by many studies to deliver consistently superior returns over a long-term time horizon.
- The value investing strategy is also reinforced by the fact that when asset returns are high, plan contributions may turn out to be relatively low, or unnecessary, while falling asset prices will force additional contributions.

- The investment strategy imposed by actuarial valuation, therefore, relies on the plan sponsor's willingness to pay regular contributions in a timely manner, and supplementary contributions when needed.

This traditional actuarial funding methodology for pension plans may seem to assume unreasonably high valuation rates, but the circumstances accompanying that assumption are dramatically different than those in actuarial models for life insurance and life annuities:

- Life insurance uses low interest rates, hence, high value of liabilities. Pension valuation assumes higher interest rates, hence lower value of liabilities, but those liabilities are structured to converge over time towards the benefits, and if they do not, the employer is expected to make additional contributions to make up any emerging deficiency.
- Life insurance assumes the insurance company holds a positive surplus, paid for by means of a high rate of return to investors. Pensions are routinely run with negative surpluses, effectively lowering the cost to plan sponsors; plan sponsors, however, are expected to make any contributions that may turn out to be needed to fulfill plan obligations, should deficiencies continue through the time of retirement.

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**IF A PLAN DEVELOPS A DEFICIENCY IN FUNDING, THE PLAN ACTUARY IS RESPONSIBLE FOR DESIGNING A PLAN FOR RESOLVING THE DEFICIENCY WITH SUPPLEMENTARY COSTS PAYMENTS BY THE PLAN SPONSOR.**

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We see that pension funding methodology is designed to give pension plans flexibility to pursue higher risk investments and reap their benefits over the long-term, but also assumes that plan sponsors will make regular contributions to the plan and will be available to make supplementary contributions when needed.

The question whether this is the right methodology has been subject to quite an intense debate in actuarial science. In 2006, the Joint American Academy of Actuaries/Society of Actuaries (AAA/SOA) Task Force on Financial Economics and the Actuarial Model published the *Pension Actuary's Guide to Financial Economics*. The financial economics perspective argues that pension liabilities are meant to be risk-free to pension plan beneficiaries and, therefore, should be valued at a conservative, relatively low, risk-free interest rate. Furthermore, plan investments should be placed in appropriately risk-free bonds, e.g. federal government bonds in the U.S., matching the structure of liability payouts. If, instead, plan sponsors decide to undertake a risky investment strategy and, if that strategy works, they reap the benefits because of lower funding costs, but if the strategy does not work, and the plan becomes insolvent, they often turn to the government (e.g. in the U.S., the Pension Benefit Guaranty Corporation or PBGC). Thus, the financial

economics perspective argues that a risky investment strategy and a high valuation rate are merely devices to enrich the plan sponsors (e.g. the owners of the company employing the workers in the pension plan) at the expense of plan beneficiaries. This is a very serious argument, in terms of its potential consequences, because the law (e.g. the ERISA of 1974) imposes on plan sponsors the *fiduciary duty* of "solely acting in the [best interest] of participants and beneficiaries and for the exclusive purpose of providing benefits and paying plan expenses" (ERISA, Sec. 1104).

The traditional actuarial approach to pensions provides a response to that argument. The response is related to the Modigliani-Miller theorem, commonly referred to as the "M&M irrelevance theorem". Modigliani and Miller (1958) proved this result of corporate finance, using an early "no-arbitrage" condition. Consider a simple leveraged firm in which there are two basic claimants to the firm's income:

- bondholders, whose security allows them to claim the coupon  $C$  at each time  $t$  as long as default is not declared;
- equity holders (the owners of the firm), whose security allows them, once bondholders have been paid, to claim the residual cash flow (if positive) in dividends as long as default is not declared; assume that all the residual cash flow,



when positive, is distributed to equity holders as dividends.

Bondholders are paid before equity holders, but their claim does not allow them to receive more than the coupon, no matter what the net result is. On the other hand, dividends received by equity holders may be very high when the net result is very high, but can also be very low or zero when the net result is very low. Equity holders are called the residual claimants, since they own the residual income of the firm, i.e. what remains when employees, bondholders and government have been paid.

The sum of the bondholders' claim value and the equity holders' claim value at  $t$  is called the value of the firm at time  $t$ . The central question of Modigliani and Miller (1958) is: does the method of financing of the firm affects the value of the firm? The answer provided by the seminal work of these two authors is that, in the absence of taxes, bankruptcy costs or agency costs, the value of the firm is fundamentally determined by its earnings and not by the way the firm is financed, i.e. by its leverage policy.

Subsequent research (e.g. Modigliani and Miller, 1961; Stiglitz, 1969; Stiglitz, 1974; Tirole, 2006; and Braouezec, 2008) has pointed out that taxes, bankruptcy costs and agency costs do affect the value of the firm; and if the method of financing influences the tax costs, bankruptcy costs or agency costs (especially the incentives of all

the stakeholders of the firm, or the structure of distribution of information among those stakeholders, given information asymmetries among them), then the leverage policy becomes relevant. Over time, more specific research needs to look into how these factors affect the value of the firm.

## UNPAID ANNUAL REQUIRED CONTRIBUTIONS AND THE FATE OF PUBLIC PENSION PLANS

Let us then ask this fundamental question about a pension plan: does it matter how a pension plan is funded? According to an old actuarial adage the actuarial funding method for a pension plan is merely a way of spreading the costs over time, but the actual cost of the pension plan will be what it will be: the amount that will be paid out in pension benefits. The valuation interest rate, normal cost and actuarial liability are merely financial phenomena; what underlies them is the real economy, where the actual delivery of benefits takes place.

A higher discount rate means that some funding of the pension benefit is moved into the future. The ultimate cost of the benefit, in terms of payment made by the plan sponsor, is determined by the amounts of benefits granted and investment

### THE ULTIMATE FATE OF PUBLIC PENSION PLANS IN THE U.S. DEPENDS ON THE WILLINGNESS OF PLAN SPONSORS TO PAY FOR THEM.

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performance. If the assumed rate of return (i.e. the valuation rate) is too high in relation to returns earned by plan portfolio, the plan sponsor will not only see a lower value of current actuarial liability, but also a faster rate of growth of those liabilities (as they automatically grow at the assumed valuation rate), as well as actuarial losses in plan valuation, resulting in the need for increased funding in the future.

The same promised benefits will be paid, and rates of return will be what they will be, regardless of actuarial assumptions. Only the timing of payments will be affected. To the extent that the valuation rate is too high, one would expect that the lowering of the current valuation of liabilities would have resulted in a better funding picture for public pension plans.

The data assembled by the Public Fund Survey shows exactly the opposite, however: the plans surveyed show funding ratios that are generally declining. The key reason, as we have highlighted earlier in this report, seems to be that plan sponsors are not paying the annual required contributions as calculated by plans' actuaries, but rather paying significantly smaller amounts.

Thus we discover something crucial about the situation of public pension plans in the U.S.: their ultimate fate depends on the willingness of plan sponsors to pay for them. The

actuarial approach to pension funding and valuation assumes that when the annual required contribution is calculated, the amount is literally what its name says: the plan sponsor is *required to contribute* the calculated amount this year.

If the contributions are not made, the entire financial structure falls apart for very real economic reasons:

- The plan can no longer be assumed to be continued indefinitely, as its large deficiencies may result in being unable to pay the benefits, and even forcing the plan sponsor into bankruptcy.
- The relatively higher actuarial valuation rate cannot be realised, because when the funds are required to be invested at a time of low valuation of assets, the funds are not there!
- Large deficiencies are actually increased by missed contributions and then they snowball, because they are automatically accumulated at the relatively high actuarial valuation rate.

Public pension plans function under the pretence of being just like private pension plans. But private pension plans are subject to the U.S. Department of Labor's supervision and regulation, while state and local government's employee pension plans are under the supervision of the government entity sponsoring the plan. Missing the full or partial annual required contribution does not trigger

any regulatory or legal response. In fact, during times of crisis, state and local governments appear to treat their pension contribution as the least significant expense, to be paid when other bills are settled.

Actuaries should be capable of responding to criticisms levelled at them, but it would be more appropriate to give them the legal power to collect the annual required contributions on behalf of the pension plan for which they calculated it, before assigning the blame to them.

### NO SALVATION IN FINANCE: TIME TO DO THE REAL WORK

The key implication of the Modigliani-Miller theorem is that, if finance appears to matter for the value of a firm (or pensions, in the case of a pension system), it is because of tax expenses, bankruptcy costs or agency costs. Pensions generally enjoy preferential tax treatment by both federal and state governments in the U.S. and, while there may be some tax issues that affect things, as taxes are omnipresent, they do not appear to be major for these tax-exempt pension plans.

The second issue is bankruptcy costs. Separate pension trusts were created in the U.S. and worldwide to hold pension assets for plan beneficiaries, specifically in order to prevent the insolvency of the plan sponsor

affecting delivery of promised plan benefits. But just as in the case of the effect on actuarial valuation, if contributions are not paid, and assets are not placed in a separate trust holding them specifically for the delivery of pension benefits, plan participants are not fully protected from the threat of plan insolvency. And public pension plans are not guaranteed by the PBGC in the U.S., as that entity was created specifically for the purpose of protecting private sector plans subject to ERISA.

Surging public pension plan deficits have negative effects not only on the financial aspects of the plans (e.g. relentless accumulation of deficits at the high actuarial valuation rate), but also on the trust placed in pension arrangements by employees (who may doubt that they will receive benefits), taxpayers (who will see those deficits as future taxes to be paid by them, unless they move to another jurisdiction) and employers in general (while the general public may not fully comprehend the scale of the problem, businesses have every incentive to evaluate it and make decisions about, e.g. relocating their facilities, if they view the costs as affecting them).

Uncertainty of pension funding has also the effect of encouraging workers to take their pension benefits as soon as they can, before the money runs out, creating a form of pension system "bank run".

So there are precious few incentives for public employers to act in a responsible, sustainable fashion. While plan actuaries clearly communicate the annual required contribution amount to the employers, contributions are made only partially, because there is no significant oversight for making them, and no significant adverse consequences for not making them. This situation is a clear manifestation of *agency cost*: plan sponsors have significant control over resources that should be used to fund retirement of employees, but use them instead for what they perceive to be higher current fiscal priorities. It is hard to imagine a situation when these resources are controlled by any other party, especially the employees affected, and they end up being similarly abused. In the extreme, there have been cases of municipal governments issuing pension obligation bonds, and then not using the proceeds for pension contributions.

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# CONCLUSIONS

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How then do we map our way out of this trap ?

Alicia Munnell's comprehensive 2012 monograph *State and Local Pensions: What Now?* stresses that the challenge of public pensions is big, serious, but also proposes that it is manageable and can be resolved. The plans were thrown seriously off course by the stock market decline of the period 2000–2002, and by the credit crisis of 2008, but as the market recovered, plans' finances began to stabilise and, with proper long-term planning and a serious focus on risk management, can be repaired, Munnell suggests.

The work points out the success story of the State of Rhode Island, which in late 2011 implemented a sweeping reform that reduced its pension system's unfunded actuarial liability of US\$7 billion by over US\$3 billion, and provided long-term sustainability. Munnell's book points out that the burden of this substantial reform was shared equitably among employees, retirees and taxpayers.<sup>1</sup>

Indeed, we must accept the reality that the solution will not come from financial operations, but rather must come from real reform. Such reform will work if it does at least one of the following:

- **Lower or eliminate bankruptcy costs:** This means putting state and city finances on a sound footing, so that the threat of bankruptcy is not represented in states' costs of borrowing and business activities, and also so that employees do not have reasons to fear losing their pensions.
- **Improve incentives for honest work,** instead of creating incentives for agents who are in charge of pension money to use the funds for other purposes, or for employees who fear losing benefits to simply reach for maximum benefits they can get immediately without regard for the long-term consequences for themselves and for the system.
- **Better governance:** The fact that there are no independent supervisors of pension plan sponsors means the latter have the responsibility of regulating their own behaviour.

The situation of public pension plans in the U.S. is dire. The estimates of aggregate unfunded actuarial liabilities of those plans range from US\$1 trillion and as much as US\$2 trillion, if the value of retiree health-care benefits is included. The problem has only been increasing in size and gravity, even during the period of strong stock market performance since March 2009.

The problem may seem manageable from the financial conditions perspective alone. However, the financial instability of some large states and cities, notably Illinois and Chicago, has created circumstances where a small problem in relation to

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<sup>1</sup> Executive Summary of the reform legislation can be accessed online at: [www.pensionreformri.com/resources/ReportwithGRSAppendix.pdf](http://www.pensionreformri.com/resources/ReportwithGRSAppendix.pdf)



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While there have been several municipal bankruptcies over time, on 3 December 2013 Detroit became the largest city in the U.S. to become legally eligible for Chapter 9 bankruptcy. Its ballooning deficits and large pension shortfall are characteristic of municipal bankruptcy cases. Across the country, states have posted funding shortfalls of more than a trillion dollars.

In this report, The Geneva Association examines the issues at the root of this crisis and suggests that the non-payment of annual required contributions and an unbalanced structure to pension planning are among the most significant challenges to overcome.