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## *Introduction*

THE RECENT FINANCIAL CRISIS and subsequent recession resulted from a series of major failings: excessive incentives for lenders to originate subprime mortgages and for others to securitize them; poor risk management by financial institutions; serious failures of oversight by state and federal financial regulators; and far too much leverage in too many financial institutions and households. While the immediate dangers from the crisis have abated—the financial system has returned to profitability and the economy is growing, albeit slowly—the damage to the economy will linger for years.

Among the many impacts of the crisis is the growing interest in early retirement, perhaps because so many of the older unemployed are unlikely to find another job. That, in turn, has highlighted a problem that may be most acute in the United States: how government and private companies will honor their obligations under “defined benefit” (DB) pension plans—those that promise a post-retirement stream of payments based on some combination of workers’ seniority, their average or highest level of pay, and perhaps other factors. The yawning gap between the costs to support pension obligations and the funds available to cover the costs is, without overstatement, highly disturbing if not alarming. In part the problem is one of demographics: the number of workers relative to the number of retirees has been shrinking and will continue to do so. But that challenge has long been

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known and therefore cannot fully explain the shortfalls. Why, then, are so many pension schemes so hard pressed?

One widely publicized answer lies in the generosity of many plans. The anecdotes are many. In California, for example, more than 9,000 state and local managers have retirement incomes of over \$100,000 a year. Public schemes often calculate benefits based on final salary rather than average salary and allow employees to cash out unused sick days without limit. Private companies have been shying away from such commitments for some time now, but the original plans still exist and the residual commitments are significant. Although most pension plans in the United States today are “defined contribution” (DC) plans—which are based on a worker’s own contributions, typically with some employer match—as of 2006, DB plans could still be found in two-thirds of the companies in the S&P 500.

A second answer lies in the tangle of accounting standards and actuarial conventions that allow DB plan sponsors, especially those in the public sector, to obscure the extent of their obligations and to scrimp on funding. To be sure, calculating those obligations is complicated, but current rules often permit generous return estimates of 8 percent while eschewing best practice techniques such as risk adjusting expected returns. That is especially pertinent because regardless of financial performance, pension fund obligations will need to be paid. With market returns on risk-free or low-risk assets having been driven to record low levels by the Fed and other monetary authorities, how will or can these obligations be met? That question vexes not only pension funds, but insurance companies, university and charitable endowments, and other institutional investors.

Questions regarding the future of pension plans and institutional investment following the financial crisis were the centerpiece of the 2010 conference on financial policy issues jointly organized by the Nomura Institute of Capital Markets Research, the Brookings Institution, and the Wharton Financial Institutions Center and held at Brookings in October 2010. This volume contains revised versions of four papers presented at the conference.

This introductory chapter provides a summary of the chapters that follow. The broad theme that runs throughout the chapters is that DB pension systems are in direct need of reform and that there exists no better time than the present to reckon with the challenges involved.

Akiko Nomura, of the Nomura Institute of Capital Markets Research, contextualizes the global nature of pension reform in chapter 2 by examining what has been happening in Japan, Korea, and China. The discussion in this chapter provides a useful introduction to many issues that relate to the United States and Western Europe as well, which are addressed in the remaining chapters.

Nomura identifies three global trends in pension reform: a shift from public to private pensions, increased levels of prefunding, and a shift from DB to DC plans. She finds that the three countries that she examines in detail are broadly following the global trends but with particular and important deviations.

The three countries—Japan, Korea, and China—were not by chosen by accident. They are the subject of analysis because of both their global prominence and their diversity relative to one another. Japan is a country of 127 million people; Korea, 48 million; and China, 1.3 billion. Their histories with pensions are similarly varied. Japan began a public scheme as far back as 1942, whereas Korea and China launched their public programs much more recently, in 1988 and 1990, respectively. Japanese corporate pension plans also are by far the oldest, dating back some fifty years; corporate launches took place only in 2004 for China and 2005 for Korea. For all the differences in their program history and design, however, each country faces the same demographic challenge: the share of the population aged sixty-five and older is growing, meaning that a larger base of beneficiaries must be supported by a relatively smaller base of workers. While Japan's issues with a shrinking and aging population are well known, Korea and even populous China must grapple with the aging of their populations. How these countries are attempting to deal with this challenge is instructive.

A pension scheme that functions well will be both sustainable and adequate. That is, its funding will be secure and it will provide a respectable standard of living. While both of those goals are necessary, each places tension on the other. As budget pressures grow, steps must be taken to reduce that tension. For example, replacement rates—the percentage of a worker's salary that a pension provides in retirement—are a good measure of adequacy. Given mounting budget pressures, those rates are being lowered in both Japan and Korea, to 50 percent and 40 percent, respectively—both lower than the OECD average of 59 percent. In addition, both Korea and Japan are raising their plan premiums (contributions). The cumulative effect of the reforms is to weaken the role of public pensions in supporting people in their retirement years: people are being asked to pay more for less. That obviously increases demand for private retirement plans.

But how meaningful have private pension plans been to date? Nomura explores that issue by comparing estimates of private pension assets as a percentage of GDP. The OECD average is 74.5 percent, and all three countries come in well below that rate: looking at corporate pension assets, the percentages are 12 percent in Japan, 8 percent in Korea, and 1 percent in China. Of course, the relative youth of those schemes accounts for their relatively low share of GDP, but that is only a partial explanation. Weak coverage also is a major component. In Korea, only 13 percent of companies even offer a pension plan and coverage hovers at

around 22 percent of workers; in Japan, less than half of workers are covered; and in China, only about 1 percent are covered (even the coverage of China's public system is low, at 20 percent of the population). So, while private schemes are being asked to make up for shrinking public offerings, they have a long way to go before they will fill the gaps.

Another important trend in the pension systems that Nomura reviews relates to the way that the massive public pension reserves that arise from prefunding are being handled. For example, Japan's Government Pension Investment Fund is the world's largest, at \$1.3 trillion, more than triple the next-largest fund. Korea oversees \$235 billion, and China's prefunding reserve is at \$114 billion. Nomura observes that however substantial, those funds are not being governed in a manner consistent with international best practice. The funds in China and Korea are overseen by a board of directors, but the boards are stacked with government officials. The chairman of Korea's board is also the minister of health, welfare, and family affairs. China's board includes several vice ministers. Japan's reserve fund does not even have a governing body; the bulk of all decisionmaking, including asset selection, is vested in one person. Clearly, there is much to improve in the governance of these pension reserve funds.

Nomura concludes by discussing the growing importance of DC plans in the three countries. Of the group, China is moving most aggressively toward DC systems. Indeed, its public pension scheme has a funded DC component, and newly introduced corporate pension schemes are to offer only DC plans. In Japan and Korea, DC plans have been introduced but have not yet grown to their full potential. However, changes such as the introduction of new accounting rules that mandate recognition of pension obligations on financial statements without smoothing adjustments are spurring further interest in DC plans.

The rise of DC plans has left all three countries wrestling with how to guide workers in making their investment decisions. China does not allow DC plan participants to direct any of their own monies. Instead, a designated trustee, whether a corporate pension board or a trust investment company, is responsible for investment decisions. For corporate pension schemes, Korea has asset allocation limits and bans investment in individual stocks, equity funds, or balanced funds. Japan mandates the offering of at least one "principal secured" product in DC plans.

Nomura believes that embracing DC plans is the only way to allow private schemes to make up for the shrinking role of public pensions. It remains to be seen how the three countries that she reviews will succeed in this regard; East Asia may yet provide models for the rest of the world in managing pension schemes, but that possibility is not yet a reality.

In chapter 3 Robert Novy-Marx and Joshua Rauh address an issue that has received growing attention in the United States, largely because of their own past work: how large are municipal pension obligations in the United States? One would think that producing an answer would be a straightforward proposition: make a few phone calls, download the spreadsheets, and then add up the amounts. The reality is much different and much more difficult. For one thing, reporting and disclosure by municipalities about any and all of their obligations is far from uniform. Yet even if that problem did not exist, the current accounting framework for measuring pension obligations grossly understates the amount that local governments owe.

First, what do municipalities estimate their pension liabilities to be? Using data that include approximately two-thirds of local government employees, the authors calculate that the total amount of unfunded liabilities reported by all major municipalities is \$190 billion. However, taking account of what they estimate to be the entire universe of all municipal employers, they provide a more realistic figure for unfunded liabilities: \$574 billion, roughly triple the reported estimate.

What accounts for the stark difference in numbers? Perhaps the most significant factor concerns the “discount rate,” the rate at which liabilities far in the future—often as long as twenty to thirty years—must be reduced to bring them to their present value. That must be done because a dollar today is worth more than a dollar to be paid in the future, since the dollar now can be reinvested at a given rate of interest—the discount rate—to realize a larger sum in the future. By the same reasoning, one needs less than a dollar today to pay off a dollar of obligation in the future. The more distant the time in the future that liability must be paid, the smaller the discounted present value of the liability.

A main problem with the current reporting of municipal pension obligations is that the interest or discount rate used to discount future liabilities back to the present—an assumed return on assets of 8 percent—looks far too high in the current low-interest environment. A more realistic, lower discount rate means that it takes more dollars today to pay off future dollar obligations because the investment earns a lower interest rate in the meantime. Accordingly, the use of an unrealistically high discount rate of 8 percent translates into unrealistically *low* estimates for the present value of future pension obligations.

To realize the assumed 8 percent rate of return, municipalities are driven to invest in riskier assets—for example, by moving high-quality debt to junk bonds. The authors offer a metaphor to highlight the shortcoming here. Imagine an individual writing down the value of her mortgage simply by shifting savings from a money market account to the stock market. It is convenient accounting, but does not alter the reality of the situation.

Novy-Marx and Rauh examine two alternative possibilities for discount rates to measure pension liabilities: those implied by yield curves (a graph of interest rates by length of maturity of the obligation) of taxable AA+ municipal bonds and Treasury bonds. The first method treats pension obligations as what they are—debts—and accordingly uses the cost of municipal borrowing as the discount rate. However, it is possible to argue that pensioners have greater rights even than bondholders, in which case the most appropriate discount rate would be the interest that they could earn as asset holders—the “risk free” Treasury yield. This “risk free” rate is what the authors use to arrive at the figure quotes above.

In fact, the legal rights of pensioners are ambiguous, and they are the subject of litigation around the country. Government efforts to tinker with cost-of-living benefit adjustments in Colorado and Minnesota already have resulted in court battles. Some states even have pension protection made explicit in their constitutions. So while municipalities, unlike states, can declare bankruptcy, it is not clear if that would do anything to change their pension obligations.

There is an additional reason that the current reported municipal pension obligations are understated. The authors’ (and the municipalities’) calculations are based on accumulated benefit obligations (ABO), a number that measures only liabilities accrued to date, thereby excluding the growth of obligations as employees continue to work and earn benefits. So if municipalities were to engage in a (hypothetical) hard freeze of all further pension benefits, the ABO numbers would not shrink but only cease growing. Even so, many municipalities already are headed for trouble. Even assuming an 8 percent return on existing assets, they allow for current assets and future returns to fund ABO obligations (those already accrued to date). In this exercise, six municipalities will have run out of money by 2020: Boston, Chicago, Cincinnati, Jacksonville, Philadelphia, and St. Paul. An additional thirty-six will have failed by 2030.

The point is not that collapse is imminent, but rather that the current track is unsustainable. Growing pension liabilities have the potential to crowd out other government services, and they may portend higher taxes. It is apparent that governments cannot continue to ignore their own fiscal situation any longer. What direction reforms will take remains to be seen.

Given all that has been said here up to this point about DB pension plans, which will be discussed in much greater detail in chapters 2 and 3, it is not surprising that many plan sponsors have been turning to DC plans instead. DC plans certainly have attractive features: they are portable, transparent, and cannot fail to deliver on their promises, for they make none. But DC plans gain those advantages by shifting the risks of pension plan performance from sponsors to employee participants. What exactly is the nature of those risks, to both the individual and

the larger society? What can be done to mitigate the risks? And, more important, is the DC design up to the task of ensuring a stable and comfortable retirement for plan participants? Olivia Mitchell takes up these matters in chapter 4.

The recent financial crisis underscores the need to acknowledge the danger of pension asset exposure to the markets. Pension funds, just like other funds, are susceptible to market volatility. In 2008, for example, U.S. pension assets fell by an eye-popping 20 percent, a drop that unfortunately coincided with the beginning of the retirement of baby boomers. Globally, the fallout was similar for a broad range of OECD countries. Not all of that money was invested in DC plans, but the point still holds: pension assets, like any other portfolio of assets, are vulnerable.

Mitchell identifies four particular types of risk that exist in the design of DC plans: individual risk, institutional risk, country risk, and global risk. In an ideal world (one in which what economic theory predicts should happen does happen), saving and investing during an individual's younger years provides a base of support for the individual during retirement. While this model accurately describes the profile of an average individual, across the population many people will deviate from the model. They may be out of work or in debt and therefore unable to save (or to dip into savings during hard times). Or—and this failing is all too common—they may not be aware of how expensive retirement will be.

For example, in surveys of baby boomers across the United States, Mitchell found that significant percentages of them could not perform basic division (43 percent) or demonstrate an understanding of compound interest (82 percent). Those individuals already have a lifetime of financial decisions behind them, so those percentages are cause for concern, especially since financial literacy is a strong predictor of successfully planning for retirement. While some employers do support DC participants with financial seminars and easy-to-use financial planning calculators, basic gaps in knowledge will need to be addressed. Automatic enrollment (or opt-out plans) and life-cycle funds are possible solutions to these problems.

Where else is risk present? People are living much longer now than before. That is a welcome trend, but planning for a retirement that may span decades only adds to the difficulty. By definition half of the members of the population will outlive their life expectancy, and that raises the possibility of retirees outliving their savings. In a DC plan that risk is amplified since most plans do not offer the option of an in-plan payout annuity. While retirees may withdraw their money in phases or purchase lifetime payout annuities, few actually do so.

Risk can also be found in the national and global arenas, both of which are highly unpredictable. On the national front, government budgets are a major

issue: expected payments from government programs may be reduced in the future as governments try to rein in deficits. In addition, the potential insolvency of private sector pension plans is at issue. On the global front, the recent crisis demonstrates that when asset prices in global markets are highly correlated, there are few if any safe havens. Risk cannot always be diversified away.

What can be done about these challenges? Mitchell discusses a few potential solutions. Financial education is one prominent idea; people need to understand the risks before they can begin to mitigate them.<sup>1</sup> Even with a lot of education, though, complete (naked) exposure to the markets in DC plans might not be appropriate for many people. Embedding some kind of payment guarantee in the plans could be helpful, but that would inevitably raise premiums. Other ideas include automatically enrolling participants in target maturity date funds, requiring the purchase of annuities, and creating new financial products for an aging population (such as long-term care insurance or mortality securitization).

Recognizing the new pension landscape facing DC plan participants along with its attendant risks is critical. The DC scheme has yet to be proven successful at securing the retirement income of the broader population, and the new environment will demand considerable attention and innovative solutions.

While many DC plan participants may be unaware of their own market position or lack a coherent and long-term plan to save for retirement, the same cannot be said for institutional investors who manage major funds for foundations, university endowments, and pension plans. Nevertheless, professional investors were no less immune to the recent market turmoil. Bob Pozen, Betsy Palmer, and Natalie Shapiro examine issues related to such investors in chapter 5. They look specifically at the asset allocation—the division of an institution's capital among a variety of asset classes, such as stocks or bonds—of institutional investors in the wake of the financial crisis. The authors note that over 80 percent of long-term performance is determined by broad asset allocation decisions, so clearly asset allocation is critical.

The authors identify three main trends that they believe emerged during the rocky period from 2007 to 2009. First, the allocation to equities in general declined, although there was a shift from domestic equities to international stocks. Second, there was an increase in allocations to fixed-income securities. And third, there also was an increase in allocations to alternative investments.

1. To that end, Mitchell and some collaborators invented a video game to help younger generations learn about finance. See Financial Entertainment, "Celebrity Calamity" (<http://financialentertainment.org/play/celebritycalamity.html>).

With global stocks having fallen by 50 percent in 2008, the move away from stocks during that period was not surprising, but the magnitude of the shift is still significant. Institutional investors in the United States decreased their allocation to equities from 47 percent in 2005 to 32 percent in 2009. The trend was similar in the United Kingdom and Japan.

The extent of the equity reallocations depends on the risk preferences and market outlook of various investors. Some make an argument in favor of international positions for diversification, but others, notably corporate DB plans, perceive more risk in international arenas. Removing risk is important to all these investors. That helps to explain the rising importance of fixed-income investments, particularly domestic fixed-income investments. State and local government funds increased their allocation to such investments by 19 percent and U.S. corporations by 85 percent. The exception has been European institutional investors who, given fixed-income allocations roughly three times as large as those in the United States, decreased their bond holdings from 61 to 55 percent.

The irony of the movement out of equities and into fixed income is that many institutional investors, notably pension funds, need high returns to fill their funding deficits. The market upheaval that took place during the crisis left these investors scrambling for a safe haven, but the returns on fixed income are too small to meet larger fund goals. Moreover, the market rebound in the wake of crisis was considerable—in the twelve months that ended March 21, 2010, the S&P 500 index increased by roughly 50 percent. The uptick in interest in fixed-income investments after the crash thus may have been short-sighted.

Finally there is the growing allocation to alternative investments such as private equity, hedge funds, and real estate. Historically, U.S. endowments and foundations have had the greatest interest in private equity, but recent survey results suggest broader interest. Globally, more than 10 percent of investors expressed their intent to “significantly increase” their allocations to private equity. Investors in Asia (excluding Japan) were by far the most enthusiastic—fully half of investors surveyed indicated their desire to ramp up their investments. The trends for hedge funds and real estate are broadly similar: growing interest in the asset class and an appetite among a core group of investors to “significantly increase” their holdings.

Given that holdings of alternative assets typically have been small, there is room for considerable growth. Whether returns from alternative investments have the same growth potential is another matter. Public pensions are especially high on alternative assets, putting a large burden on them to perform well; if they do not, pensions may face some hard choices down the road, such as whether to reduce benefits and/or raise contributions. However, alternative assets have not always produced positive returns, and returns across managers vary. The authors playfully

mention Lake Wobegon, the mythical town where all children are above average. The same belief in private equity and hedge funds may leave many institutions sorely disappointed.

An honest reckoning with the task of paying for an aging population is disheartening. Government budgets are under strain, personal savings are meager, and the markets will not spare us hard choices in the near future. But despair need not be the takeaway from this research. As noted above, the financial crisis has forced us to consider lots of hard questions, and we hope that one contribution of the conference and this volume will be to provide an initial round of answers. The chapters that follow document the extent of the problem and outline what trade-offs we face going forward. That is a first step. The challenge now is to dig deeper and ultimately take action.