

No. 3|2008

International Pension Papers

Retirement at Risk: The U.S. Pension System in Transition

Allianz 

Global Investors

Content

I. The Challenges of Aging – Old-age Provision in the U.S.	3
Executive Summary	3
Demographic Challenges	7
Pension System Design	8
Challenges for Social Security	8
Occupational pensions	13
Private pensions	17
The Great Shift	18
Quantifying the shift	19
Five main risks	21
Beyond auto-enrollment: Possible solutions	28
II. Perspectives – Pensions Assets Take on Weight	31
Financial Assets of U.S. Households	31
Future Pension Assets	34
Growth perspectives	34
Shift from DB to DC	35
Shift towards individual schemes	36
Strong annuity growth	36
U.S. retirement market in 2020	37
Bottom Line	41
References	42
Imprint	43

The Challenges of Aging – Old-age Provision in the U.S.

Executive Summary

The U.S. pension landscape is in a state of transition and, as a result, the population will be exposed to evermore retirement risks. The role of Social Security is uncertain and employers are continuing to move away from guaranteeing pension benefits. As a result, there has been an evident shift from collective to individual responsibility.

The evident transition in the U.S. pension landscape can be identified by three trends:

I. Less generous Social Security benefits.

Even though the situation is less severe compared to other industrialized countries, such as Japan or western Europe, demographic developments are worsening Social Security's prospects. The retiring baby-boomer generation will impact Social Security finances, placing a burden on the system's financial sustainability. Migration will keep the population growing, however at a decreasing rate.

II. A continuing shift from defined benefit to defined contribution pension plans, leaving employees holding more of the risks associated with capital markets and longevity.

Substantial legislative changes, namely the Employee Retirement Income Security Act of 1974 (ERISA) and the Pension Protection Act of 2006 (PPA), are primarily responsible for shifts in the occupational pension landscape. Their main goal was to regulate and provide more secure pension plans in order to prevent employees from losing their accumulated pension rights. Though the original moti-

vation behind securing private pension plans is plausible, it has resulted in employers being on the lookout for less engaging opportunities to cover occupational pensions.

III. A structural shift in company pension plans towards individual pension plans, such as Individual Retirement Accounts (IRAs).

This structural shift implies a different allocation of risks, with the individual now forced to work out his own pension strategy. Not only will individuals be responsible for making assumptions about their life expectancy, savings rate, capital market development and inflation, to name a few, they will also have to decide how to withdraw accumulated assets prudently so that they are not at risk of running out of money later in retirement. What is more, with health-care costs rising at a faster pace than general inflation and wages, retirement nest eggs are being increasingly threatened.

A significant portion of the population either has no access to a pension plan and/or is not profiting from current tax incentives. And of the ones that have managed to put aside a nest egg for retirement, many pension balances are considered insufficient, particularly in view of rising health-care costs. In order to adequately finance a suitable standard of living over the course of retirement, the rule of thumb is to have 10 times the accumulated pension assets than pre-retirement annual income. Current average account balances, however, are worth only a fraction of that amount and so are far from sufficient.

Notwithstanding this, the United States has the largest and most developed funded pension market in the world. Tax-favored private pension plans date back to the 19th century, making the United States one of the most mature markets in the world. Household financial assets have grown appreciably over the past decade, with total assets up by approximately 65% compared to 1997. Retirement assets today make up 40% of total financial assets and this percentage is expected to increase to 45% by 2020. The growth of total financial assets should remain dynamic, driven in particular by the growth in retirement assets.

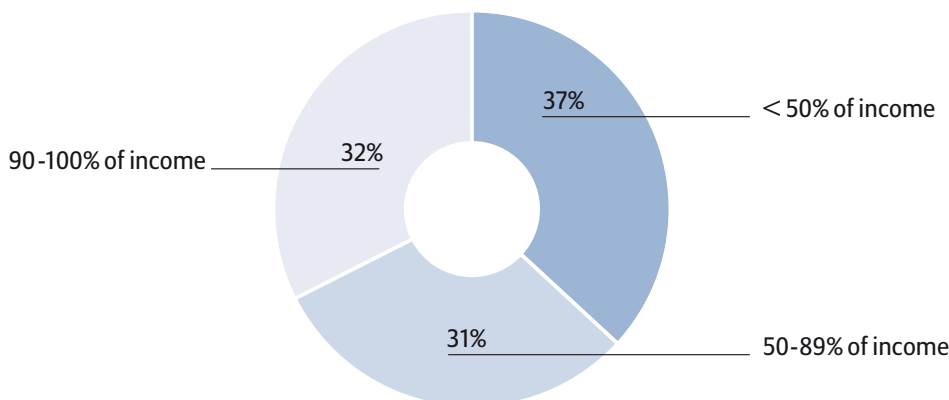
In the second section of this study, we have included projections on the development of pension assets in the U.S. retirement market from now until 2020. We have also briefly outlined current trends in the retirement market, giving projections for total second and third pillar assets and their main segments until 2020. We have based our projections on various scenarios, allowing for several uncertainties linked to a forecast of future developments. Based on these projections and varying assumptions in our scenario analysis, we expect

retirement assets to see strong growth. The pension market should grow between 3.0% and 5.8% a year, reaching somewhere between \$25.5 trillion and \$36 trillion by 2020. (see Figure 19, page 39) The drivers of this growth are almost entirely defined contribution plans and Individual Retirement Accounts. The importance of defined benefit plans will continue to decline.

Dwindling security

Traditional defined benefit plans are considered a relic of the booming 1950s and 1960s. Today, at least in the private sector, they have proved financially unsustainable for sponsoring employers as compared with defined contributions plans. The main drivers of this ongoing trend from defined benefit to defined contribution plans are financing issues and, in particular, structural changes to the composition of industry. Decades ago, with a much larger portion of the economy belonging to unions, employee benefits could be used as a heavy bargaining tool. By 2007, however, only 13.3% of the workforce was represented by a union or similar group, such as an employee association. Recent data from the

Figure 1 Percentage of elderly beneficiary income from Social Security benefits in 2007



Source: U.S. Social Security Administration 2007: "Performance and Accountability Report for Fiscal Year 2007"

U.S. Bureau of Labor Statistics shows that 85% of union workers have access to pension plans, compared to 59% of nonunion workers. Participation and take-up rates are also significantly higher among union workers.

This evident shift in the structure of pension plans has had a considerable consequence on old-age provision. Accelerating dynamics have positioned employees in the uncomfortable role of retirement planning venturers. However, it is questionable whether even employees with some measure of financial education would have the financial savvy to make informed and crucial decisions – decisions previously taken by employers – based on the foreseeable capital market development, wage development, inflation, etc. Studies show that financial illiteracy is widespread among older Americans. Generally, only a small number actually understand basic financial concepts like compound interest rates, the effects of inflation, and the benefits of investing in a diversified portfolio rather than in one single stock¹.

With the decline in defined benefit plans, future retirees can no longer depend on receiving a guaranteed income in old age.

The widening gap

U.S. households are accumulating enormous pension wealth. But although it is very high, most figures do not reflect the uneven distribution of wealth among the population. With half of the U.S. workforce participating in no form of employer-sponsored pension plan whatsoever, the accumulated pension assets are only attributable to the other half of the workforce. This means that a considerable portion of the population, those without additional pension assets, will be largely dependent on Social Security benefits upon retirement. Currently, Social Security benefits account for at least 90% of every third elderly

beneficiary income (see Figure 1). Almost 40% of workers in the private sector have no access to employer-sponsored pension plans and so are not able to build up additional pension assets at their workplaces. While the PPA focused on increasing coverage rates, it did not emphasize access, which is at the heart of broader coverage.

Furthermore, low and middle income earners are not benefiting from tax incentives, which mainly target high income earners. In fact, workers in higher tax brackets actually contribute less after-tax income to qualified pension plans than workers in lower tax brackets. In other words, the higher the taxable income, the more potential there is for tax savings.

The U.S. government introduced the Saver's Credit, a non-refundable tax credit rather than a tax deduction, to address this issue. Again, people paying little or no income tax do not profit. In 2005, while more than 73 million tax filers had incomes low enough to make them eligible for the Saver's Credit, over two-thirds failed to qualify for the credit because they had no federal income tax liability.

With Social Security benefits not expected to increase over the long term and replacement rates low, supplementary pension coverage will play a decisive role in retirees being able to maintain the standard of living to which they have become accustomed. The Pension Protection Act of 2006 (PPA) introduced features, such as auto-enrollment, to boost participation rates in existing pension plans so that a larger portion of the workforce has a chance to build up private retirement wealth. However, it does not include features that promote the introduction of new pension plans. Nearly all retirement assets are accumulated within employment-related pension plans. Private individual accounts are rarely

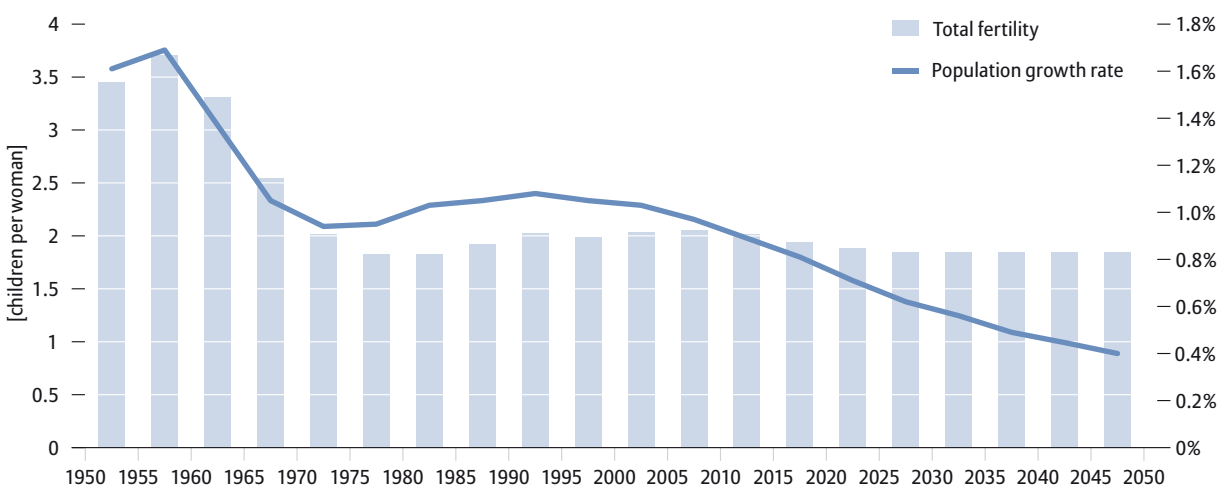
exploited, and IRAs are mainly used as a tool to preserve tax advantages should a contributor change jobs or enter retirement. Hence, occupational pension plans are playing the most important role in accumulating retirement assets.

If one of the goals of pension reform is to alleviate old age poverty and the consequent burden it places on future federal budgets, then any pension reform will have to focus on finding a way to ensure that population segments with the greatest need for sources of additional retirement income get more institutional support.

This study is organized into two sections. The first section describes the demographic situation in the United States and the organization of its three pillar pension system, followed by a discussion on the problems arising from declining Social Security benefits and the evident shift in the occupational pension landscape, namely the shift from defined benefit to defined contribution pen-

sion plans. The second section gives a broad overview of the growth in U.S. household financial assets, which has been driven by efforts to build pension entitlements. The study concludes with projections on how pension assets in the United States could develop over the next decade.

Figure 2 Total fertility and population growth in the United States (1950-2050)



Source: United Nations, World Population Prospects: The 2006 Revision Population Database

Demographic Challenges

Pension reform in different parts of the world face distinctly different challenges, with demography being a primary driver. Three broad groups have been identified.

The first group consists of emerging and developing countries that are either in the process of establishing formal pension systems or have only done so recently*.

The second group is made up of western industrialized countries. Countries with well-established and mature pension systems, but which – due to the immense pressure from demographic change – are currently in the process of reforming their pension systems towards building and strengthening funded pension. The old-age dependency ratio**, which is driven by decreasing fertility and increasing life expectancy, will worsen significantly over the next decades.

The third group consists of favorably situated countries, with Australia, Canada and the United States ranking on top. Not only do their pension systems feature strong, funded pension pillars, but as traditional immigration countries, they will be less affected by the coming demographic challenges. Positive net immigration to the United States will keep the population growing, if at a decreasing rate (see Figure 2).

As compared to other industrialized countries, the United States will be only modestly affected by demographic changes. The old-age dependency ratio in the United States will increase from its current 18 to 34 in 2050, which is less than half of what other industrialized countries are expected to face. By 2050, for example, Japan's old-age dependency ratio is expected to be 74 and western Europe is expected to have 52 people over the age of 65 years for every 100 adults of working age.

The U.S. old-age dependency ratio is expected to outnumber child dependency for the first time in 2030. As a result, total dependency will be driven by an aging population rather than by an abundance of children.

Even though the population will grow over the next decades, the structure of the population will change², with the elderly accounting for a greater share of the overall population. According to figures provided by the United Nations, the potential workforce will peak in 2010, declining thereafter. And although the increased participation of elderly, women and younger workers could partially offset the declining workforce, increasing the legal and effective retirement age would have the most positive effect.

* For a detailed discussion, see "Allianz Global Investors, Asia-Pacific Pensions 2007 – Systems and Markets," which examines nine pension systems and markets: Australia, China, Hong Kong, India, Japan, Singapore, South Korea, Taiwan and Thailand.

** Ratio of the number of people over age 65 to the number of people age 15 to 64.

Table 1 Demographics

	2005	2050
Population [million]	300	402.4
Old-age dependency ratio**	18	34
Median age [years]	36	41.1

Source: United Nations, World Population Prospects: The 2006 Revision Population Database

Pension System Design

Challenges for Social Security

The U.S. pension system is built on three pillars. The first pillar, Social Security, covers both employees in the private sector and the self-employed. State and local government employees are covered under state or local government pension plans, *and/or* Social Security. Federal government employees hired prior to 1984 are covered under the Civil Service Retirement System, while those hired in 1984 or after are covered under Social Security.

Social Security is financed by employment taxes shared equally between employer and employee on a pay-as-you-go basis. Benefits are directly linked to earnings and are based on the 35 highest income years indexed to wage growth, which means that a worker's lifetime earnings are expressed in terms of today's wage levels. Social Security benefits replace a larger percentage of lower incomes than it does higher ones*.

On an average, the Social Security replacement rate is 38.5% of pre-retirement income.

A progressive benefits formula assures redistribution among earnings groups. Whereas low-income earners with average career earnings of approximately \$17,400 can expect to have approximately 54% of their pre-retirement earnings replaced, high-income earners with average career earnings of \$86,000 can only expect to see 28% of their income replaced.

The distribution of old-age income varies considerably across income groups. Retirees in the lowest income quintile rely almost exclusively on Social Security, while the corresponding figure for the highest income quintile represents only 18.5% of their total income, with main contributions coming from gainful employment, pensions, annuities and assets. Pension benefits from private sources are virtually non-existent among low-income households (see Figure 3).

With retiring baby boomers expected to deteriorate Social Security's financing basis,

* The primary insurance amount is the sum of three separate percentages of portions of average indexed monthly earnings: (a) 90% of the first \$711 average indexed monthly earnings plus (b) 32% of the average indexed monthly earnings from \$711 to \$4,288 plus (c) 15% of average indexed monthly earnings over \$4,288.

Table 2 First pillar statistics

Financing	Pay-as-you-go
Social Security taxes [%]	12.4: employer 6.2 employee 6.2
Contribution assessment limit [\$]	102,000
Legal retirement age	66 This is scheduled to increase to 67 sometime between 2017 and 2022
Gross replacement ratio [%]	38.5

a severe solvency issue will arise and, sooner or later, governments will have to address a broader distribution of costs among current and future generations.

In 2008, first baby boomers will become eligible for Social Security early retirement benefits. Over the next two decades, approximately 78 million baby boomers born between 1946 and 1964 will enter retirement, causing a significant growth in the government spending needed to cover Social Security benefits³. Current surpluses will soon reverse, placing a heavy burden on the federal budget. Spending on Social Security is expected to jump from 4.3% of the GDP to 6% in 2030⁴.

Social Security is in bad shape. At least that's according to the 2008 Annual Report of the Social Security Board of Trustees (referred to in the following as the Trustee's). By 2011, the surplus from revenues after expenses will begin to decline, disappearing by 2017. From 2017 to 2041, the capital needed to cover retirement benefits will be financed by selling government bonds currently held in trust. After 2041, retirement benefits will

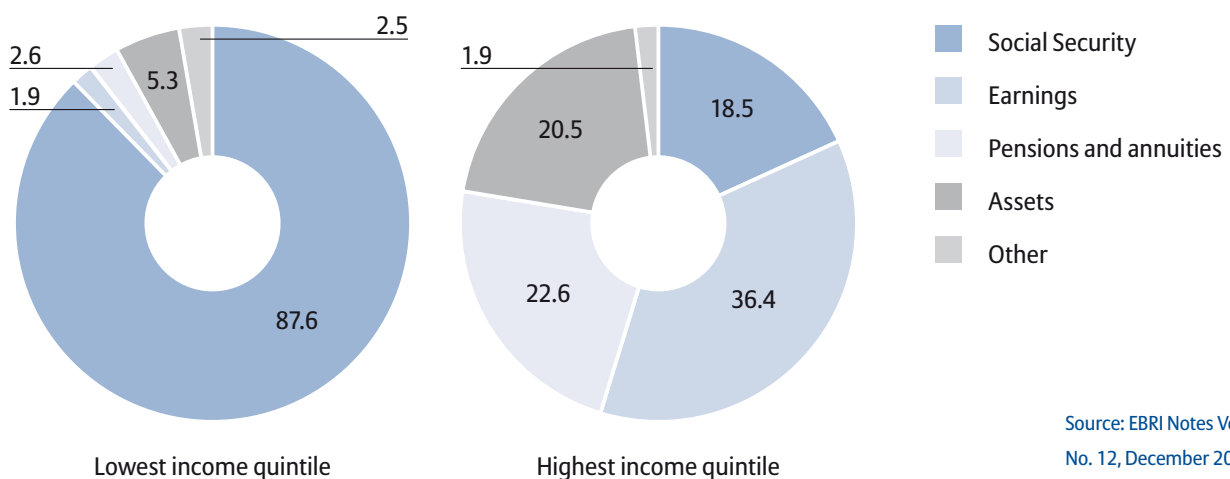
have to be financed by general tax revenues other than the Social Security payroll tax, placing a heavy burden on the federal budget.

If there is no reform to Social Security's financing and benefit formulas, the government will only have three options to finance Social Security deficits. First, it could take on new debt, thereby increasing the budget deficit. Second, it could raise taxes. Third, it could reduce expenditures other than those for Social Security.

At its current level, the United States cannot afford to add to the budget deficit. Increasing the national debt would lead to increased interest spending, which would not only place a heavy burden on the federal budget, but would also diminish budgetary flexibility*. In addition, the more that is spent on the national debt, the less fluidity there will be for other public expenditures, such as education. Last but not least, if resources for current consumption needs have to be financed by future generations, it could affect intergenerational fairness.

* Interest expense on public debt amounted to \$252 billion or almost 10% of total federal revenues in 2007. The budget deficit for 2008 is expected to expand significantly and lead to an ever increasing share of interest expense in the federal budget. (Congressional Budget Office, The Budget and Economic Outlook, September 2008)

Figure 3 Income among the elderly (lowest and highest quintile) [%]



Source: EBRI Notes Vol.28, No. 12, December 2007

Based on these scenarios, it would seem expedient to bring Social Security into actuarial balance by either reducing benefits, increasing payroll taxes or a combination of the two. According to the Trustees, this could either be achieved by immediately increasing the payroll tax to 14.1%, or immediately reducing benefits by 12%. These figures, however, only provide a perspective for the next

75 years. An actuarial balance for the indefinite future would require much greater adjustments; either payroll taxes would have to increase to 15.6% or benefits would have to be reduced by 20%.

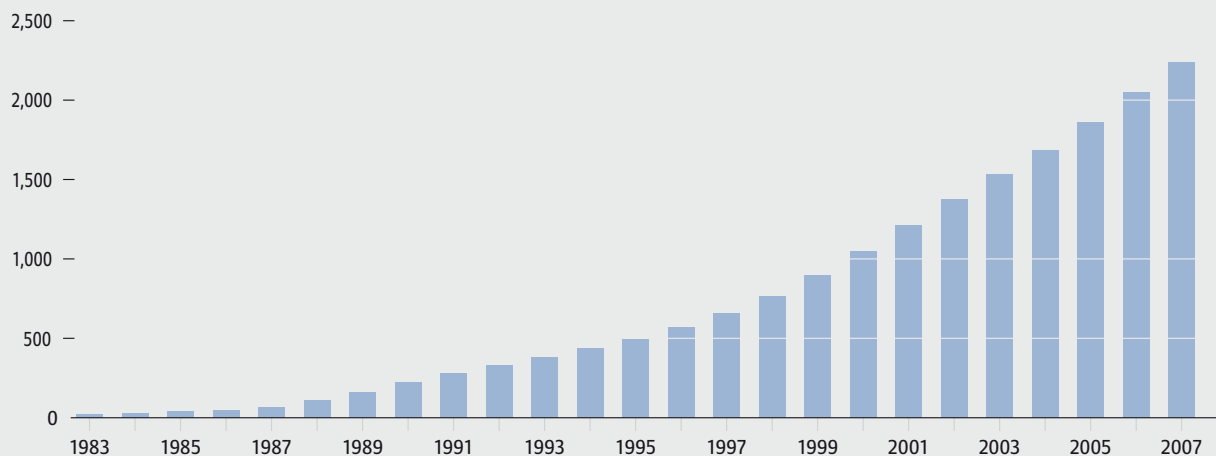
An aging population does not come without cost, even in a country only modestly affected by demographic changes.

Social Security Trust Fund

In recent years, public pension reserve funds that in part prefund pay-as-you-go financed public pension systems are gaining popularity in many OECD countries. In the 1980s, the U.S. government realized that the retiring baby-boomer generation (born between 1946 and 1964) would place a future financial burden on Social Security, and anticipated the fiscal challenges that would result from worsening demographics. The worker-per-beneficiary ratio will be significantly impacted when this cohort enters retirement and the number of contributors financing Social Security benefits is reduced. With 3.2 to 3.4 workers for every beneficiary, this ratio has been relatively stable over the last 35 years. However, over the next two decades, the large baby-boomer cohort will have almost completely retired, reducing this ratio to only 2.2 by 2030.

The Social Security tax was increased in 1983 following recommendations by the Greenspan Commission, which was formed to prevent Social Security from experiencing short-term financing crises. Since that time, cash-flow surpluses have been accumulating in the Social Security Trust Fund to meet future expenditures. These surpluses from revenues after expenses are expected to continue and accrue until 2017, afterwards expenditures will begin to exceed collected social security taxes. According to projections by the Trustees, reserves will be exhausted by 2041.

Figure 4 Social Security trust fund: assets under management [\$ bn]



Source: Social Security Administration

At the end of 2006, worldwide pension reserve fund assets totaled \$4.1 trillion. Half of these can be attributed to the U.S. Social Security Trust Fund (see Figure 4), which is by far the largest pension reserve fund in the world⁵.

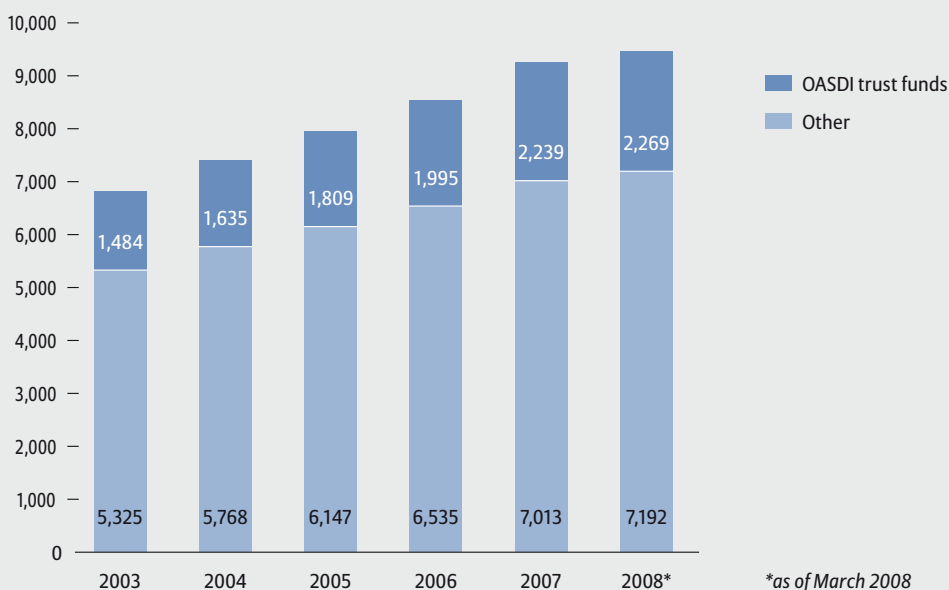
The Social Security Trust Funds were established as separate accounts in the United States Treasury to handle all financial operations of the Federal Old Age, Survivors and Disability Insurance (OASDI). Since it is included in the federal budget, Social Security is not an independent body as it is in other countries.

Surpluses are invested in non-marketable, interest-bearing government bonds exclusively issued to the trust funds. These bonds are not subject to market fluctuations and are redeemable at their face value at any time⁶.

The Social Security trust funds are a major creditor of the national debt and their involvement is increasing at a steady pace (see Figure 5). In other words, Social Security surpluses are being used increasingly to finance the budget deficit. However, assuming the national debt remains steady or increases, as Social Security surpluses turn into deficits, the U.S. Treasury will have to restructure the national debt by borrowing from other creditors such as foreign central banks or private U.S. investors (e.g. pension funds, mutual funds, wealthy individuals). Alternatively, Social Security could be brought into actuarial balance by immediately increasing the Social Security tax to 14.1%, reducing benefits by 12% or a combination of the two¹⁰.

In any case, Social Security is facing major fiscal challenges and action is required. The longer action is delayed, the greater the adjustments needed.

Figure 5 Structure of the public debt [\$ bn]



Source: U.S. Department of the Treasury, Ownership of Federal Securities

Allianz Reform Pressure Gauge

In order to visualize the importance of pension reform in a cross-national context, Allianz Dresdner Economic Research developed the Allianz Pension Reform Pressure Gauge. This indicator measures and illustrates the pressure on governments to reform their pension systems by consistently examining the various dimensions of pension systems, gauging the sustainability of pension systems and the resulting need for reform (see Figure 6).

How social pension systems will be able to overcome the challenges posed by aging populations varies considerably according to country. Australia is under the least pressure to reform its pension system as the system is comprehensive in nature and based on a strong funded and mandatory occupational pension pillar, namely the Superannuation Scheme. China, on the other hand, is in the most need of reform as the overall pension coverage is still poor. Japan has one of the fastest-aging populations in the world: Driven by a decrease in the overall population, low fertility rates and a life expectancy that is among the highest in the world, Japan's old-age depen-

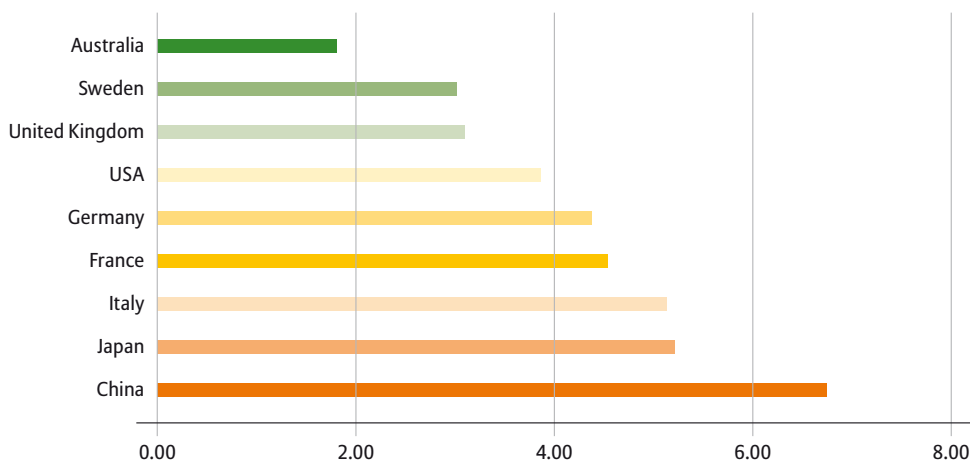
dency ratio will worsen from its current 30 to 74 in 2050. These demographic developments pose a major challenge to Japan's pension system. And on continental Europe, generous pay-as-you-go financed state pension systems coupled with unfavorable demographics are putting a strain on pension systems. To sustain their pension plans, these countries are putting real effort into strengthening their funded occupational and private pension pillars, which will account for a larger share of future retirement income.

As the reform pressure gauge indicates, the United States is under moderate pressure to reform within an international context. The ratio between public pension expenditures and the GDP, its national debt, an increase in the legal retirement age and its strong funded pension pillars are all factors in why the United States is relatively well-positioned in our index. Even so, second and third pillar pension coverage and the Social Security financing basis remain major concerns.

Technical note

The Allianz Pension Reform Pressure Gauge is based on a number of individual indicators used to recognize the need for reform and gauge reform progress. Indicators suggesting a need for reform include current and future old-age dependency ratios, size of the national debt, replacement ratio, public pension expenditures and retirement age. Indicators suggesting successful reform include increased retirement age, the reduction of a previously high replacement ratio, or a strengthening of the funded system. The lowest score indicates the least pressure to reform and vice versa.

Figure 6 Allianz Reform Pressure Gauge [Scale from 1-10: 1 low reform pressure, 10 high reform pressure]



Source: Allianz Dresdner Economic Research

Occupational pensions

Voluntary occupational pension plans form the second pillar of the U.S. pension system. With Social Security providing only very basic benefits, employer-sponsored pension plans are not only an important tool for retaining employees, they play a vital role in total compensation.

The Employee Retirement Income Security Act of 1974 (ERISA) defined minimum legal standards for most voluntarily established pension plans in the private industry so as to provide supplementary old-age protection. ERISA provides rules on reporting and disclosure, participation and vesting, funding, fiduciary responsibility, administration and enforcement.

The Pension Protection Act of 2006 (PPA) introduced the most sweeping changes to occupational pension plans since 1974. Though its key regulations are mostly geared towards changing the funding of defined benefit pension plans, it is having a significant impact on the design and operation of defined contribution plans as well.

> Second pillar participation

61% of the workforce in private industry has access to work-based pension plans, however only 51% actually participate. Defined contribution plans dominate the occupational pension landscape, covering 43% of the workforce. By contrast, only 20% of the private sector workforce is covered by defined benefit plans. All in all, however, 51% of the total workforce is participating in some type of pension plan (this figure is lower because some employees participate in both types of plans).

> Types of plans

There is a wide variety of defined benefit (DB) and defined contribution (DC) pension plans

available, the latter being the most popular. DC plans dominate the private sector in terms of active participants, number of plans available and amount of assets under management⁸. In DC plans, each employee has an individual account into which he can make tax-deferred contributions.

The most popular DC plan is the 401(k), named after the relevant paragraph in the Internal Revenue Code. Soon after its introduction in 1981, the 401(k) enjoyed great popularity and, with a share of approximately 70% of all DC assets, is the prevailing occupational pension plan today. The 401(k) is a tax-qualified deferred-compensation plan by which pre-tax contributions from employee bonuses, regular wages and salaries are invested into employer-offered investment options. Regulation requires that the employer offer at least three investment options with differing risk and return profiles. Should an employee not select an option, investments are made into the employer's default option.

Money purchase and profit-sharing plans are two more types of DC plans. In money purchase plans, employers make a defined fixed contribution. In profit-sharing plans, employer contributions are discretionary. Though usually linked to profitability, they are not limited to profits. Profit-sharing plans give employers greater flexibility in contributing to employee pension accounts and have gained a larger portion of the market share over money purchase plans, which are decreasing in popularity. Employee contributions are not permitted under the profit-sharing plan unless the plan includes a 401(k) plan feature.

403(b) plans, 457 plans and the Federal Thrift Savings Plan are DC plans designed for

specific employee groups, i.e. employees of (a) universities, public schools and non-profit organizations, (b) state and local governments, and (c) the federal government.

Another DC plan is the SIMPLE IRA, which offers small employers an inexpensive alternative in terms of maintenance and administration costs to contribute to their own and their employees' retirement accounts. This plan calls for employers to either contribute a fixed percentage of all eligible employees' compensation or make matching contributions. These plans do not have the same start-up and operation costs as conventional work-based retirement plans and contributions can be higher as compared to traditional IRAs. SIMPLE IRAs are restricted to employers who have no more than 100 employees; its assets are controlled solely by the employee. Trustees of SIMPLE IRAs are generally banks, insurance companies, mutual funds and other approved financial institutions.

Employer-sponsored IRAs play only a minor role in pension provision. According to estimates from the Investment Company Institute, total assets under management amounted to \$286 billion in 2007.

Legally speaking, a defined benefit plan is any pension plan that is not a defined contribution plan, i.e. does not have individual accounts. The benefits provided by defined benefit plans are typically based on final or average-career earnings and are not dependent on asset returns. As compared to defined contribution schemes, employers are able to make larger contributions, thereby providing substantial benefits.

By its very definition, DB plans include such hybrids as Cash Balance and Pension Equity Plans (PEP). Hybrid retirement plans combine the features of defined benefit and defined

contribution plans. Promised benefits are based on a hypothetical account balance, with risk and rewards born by the employer.

> Rollovers

Should an employee terminate or change employment, he is entitled to transfer his accumulated pension assets to another employer pension plan and IRA. In order to avoid penalties, this transfer must take place within 60 days. If not, assets are subject to a 10% early-distribution tax above the regular income tax, which generally applies to pension benefits that accrued from pre-tax contributions.

> Tax treatment of contributions and benefits

Pre-tax contributions to qualified DC pension plans are subject to certain limits. For 2008, the total maximum deferral, including employer and employee contributions, cannot exceed 100% compensation with a \$46,000 maximum. The maximum employee salary deferral is restricted to \$15,500 with a \$5,000 catch-up contribution for people aged 50 and older. Any dividends and capital gains accrued in the accounts are tax deferred, subject to taxation only upon withdrawal. In general, the EET* system applies to qualified pension plans.

Whereas tax-deferred employee contributions are vested immediately, depending on the configuration of the specific pension plan, voluntary employer contribution vestment is usually linked to a certain period of service.

Most 401(k) plans give retiring employees several options for distributing their account balances, for instance lump-sum payments or set installment payments over a fixed number of months. In addition, it is possible to defer distribution until a certain age. Federal law stipulates that retirement payments cannot be made before age 59.5, but no later than age 70.5, with payments based on the account

* EET refers to tax treatment during accumulation and decumulation and applies to contributions, capital gains & interest and benefits: (E) tax exempt, (T) taxed.

balance divided by the retiree's remaining life-expectancy.

As of 2006, U.S. employees can opt to transfer part or all of their contributions to a 401(k)-type Roth account. Since Roth contributions are taken from net rather than pre-tax income, they do not qualify as tax relief. However, as opposed to traditional 401(k) plans, investment returns and benefits are tax-free. Benefits from Roth accounts are excluded from gross income and the TEE system applies. Another characteristic of traditional 401(k) plans that does not apply to Roth 401(k) plans is that retirees have complete freedom to decide when they want to withdraw accumulated assets. Since traditional accounts impose specific age limits when assets can or have to be withdrawn, this constitutes a major departure, particularly should assets be withdrawn.

Pension Protection Act 2006

Signed into law in August 2006, the Pension Protection Act 2006 (PPA) is the most far-reaching pension legislation introduced in the U.S. since ERISA in 1974. The new provisions mainly enhance the protection of accrued pension rights for pension plan members.

New regulations introduced under PPA apply to both defined benefit and defined contribution plans. The most important regulations implemented concerning defined benefit plans are: new funding standards, rules governing the valuation of plan assets and liabilities with at-market rates, and special rules for at-risk plans. Pension plan sponsors now also face stricter funding rules. Full funding of pension promises was not previously required; however, the new legislation made this compulsory, although a transition period of seven years was allowed.

In terms of defined contribution pension plans, the PPA cleared the way for automatic

enrollment into employer pension plans and improved disclosure standards. It also confirmed higher contribution limits to IRAs and 401(k)s, which had been temporarily allowed since 2001. The PPA made the enhancements introduced by the Economic Growth and Tax Relief Reconciliation Act (EGTRRA), enacted in 2001, permanent.

Automatic enrollment already existed before the PPA came into force, however, adoption remained low as plan sponsors were potentially liable for investment losses incurred in default investment options. Employees were automatically enrolled in the default investment option if they did not actively choose an investment alternative. As participation in employer-sponsored retirement plans was seen as insufficient, the PPA 2006 removed some of the barriers that previously prevented the application of automatic enrollment.

Under the legislation, a plan fiduciary will be exempted from liability for investment losses if he complies with the final regulations issued by the Department of Labor (DOL) at the end of 2007. According to these regulations, fiduciary protection requires that automatic enrollment contributions be invested in investment options that qualify as so-called Qualified Default Investment Alternatives (QDIA). QDIAs have to apply defined mechanisms for investing participant contributions.

Basically, the product's asset mix must take certain characteristics, such as age and retirement age of an individual or a group, into account. Life-cycle funds, balanced funds and professionally managed accounts are examples that match these requirements. QDIAs must also be offered through variable annuity contracts or pooled investment funds. Furthermore, certain reporting requirements exist. Participants must be informed when they become eligible for pension plan partic-

ipation. In cases where no investment option was selected by the employee, the employer must provide notification ahead of time before investing automatic contributions in the QDIA. Pension plan members must also be provided with a notice on the investment performance and a description of the QDIA on an annual basis. The fiduciary must also inform the employee on a regular basis of the investment alternatives provided by the plan and his right to direct investments.

In addition, the employer may adopt a contribution schedule that applies a minimum set of automatic employee contribution levels and an annual increase in the percentage

of contribution amounts. Pension plans that make use of such a schedule qualify as Qualified Automatic Contribution Arrangements (QACA), which provide certain advantages for the employer. Generally, employers have to perform non-discrimination tests in order to operate a qualified pension plan. The purpose of these tests is to ensure that highly compensated employees are not advantaged as opposed to other employees. Operating a QACA relieves plan sponsors from these tests.

The legislator dictates minimum contribution levels for QACAs. The initial employee contribution needs to start with at least 3% but not more than 10% of income and has to

Table 3 Simplified overview of individual retirement options

Types of Individual Retirement Options (<i>simplified</i>)			
	Individual Retirement Account	Individual Retirement Annuity	
		Variable annuity	Fixed annuity
Investment options	Includes practically the whole spectrum of investment options. Actual selection depends on the IRA provider. A few restrictions apply to less liquid investments, e.g. collectibles and antiques.	The contract owner chooses from a pre-selected list of investment options.	No investment choice
Investment manager	Account holder	Contract owner	Insurance company
Distribution method	Either lump-sum payment or systematic withdrawal plan	Annuitization plan; discretionary and systematic withdrawal plans	Annuitization plan
Risk guaranty	None	Optional	Longevity
Return guaranty	None	Optional	Minimum guaranteed interest

Source: Allianz Global Investors

increase in the years that follow. The contribution rate is required to be increased to at least 6% in the 4th year. Under a QACA, the employer has to match employee contributions up to 3.5% or make non-elective contri-

butions of 3% of pay for all eligible employees irrespective if the employee is contributing to the plan. In addition, the vesting period for employer contributions is only two years.

Private pensions

In addition to work-based retirement plans, employees can deposit tax-advantaged retirement savings into an Individual Retirement Account (IRA); a wide range of IRA types are available (*see Table 3*). IRAs were introduced to offer people without access to workplace pension plans the possibility of accruing tax-favored pension savings. In terms of assets under management, these plans have developed into the preferred pension vehicle. IRAs play an important role, accounting for slightly more than one quarter of all pension assets in the market. Their dominance, however, is not primarily from the collection of regular contributions; IRAs are widely used as a rollover tool for depositing lump-sum payments from defined contribution plans distributed when a job has changed or upon retirement. A rollover is a tax-neutral procedure whereby accumulated pension assets are transferred from one retirement plan to another. IRAs have made it possible for a highly mobile workforce to pool assets into one vehicle instead of being subjected to a number of fractionary claims from several employer pension plans. Since an IRA is a trust or custodial account, its trustee must be a bank, federally insured credit union, savings and loan association, life insurance company, or another entity approved by the Internal Revenue Service.

> Tax treatment of contributions and benefits

Though U.S. law does not govern the total number of accounts a person may hold (multiple traditional accounts or a combi-

nation of traditional and Roth accounts are common), it does restrict total annual IRA contributions.

In 2008, the maximum permitted tax-favored contribution is 100% compensation restricted to \$5,000, with a \$1,000 catch-up contribution for persons aged 50 and over. These figures are reduced for employees who are also covered by an occupational pension plan. Should earnings exceed a specified amount, the tax advantages of IRA contributions cease.

IRA assets may not be withdrawn before age 59.5 and minimum distributions must begin no later than age 70.5. Any withdrawal prior to age 59.5 is subject to a 10% penalty tax. If mandatory minimum distributions are not taken by age 70.5, a 50% tax is imposed on any accumulation on the amount that should have been withdrawn. The result of a survey shows that people tend to postpone making withdrawals from their IRAs until they are required to do so by law⁹. IRA withdrawals are much less frequent in households under age 70. Distributions from traditional IRAs are taxed as ordinary income.

As with 401(k) plans, IRAs can be used for Roth contributions, with employees deciding whether they want to put part or all of their contributions into a Roth IRA. Since Roth contributions are taken from net rather than pre-tax income, they do not qualify as tax relief. Payments drawn, however, are tax free.

The Great Shift

The retirement landscape is in transition. Employers are steadily pulling out of traditional defined benefit plans, which guarantee pension benefits either on a final pay or average career basis, in favor of more flexible, less costly pension solutions.

The growth of defined benefit plans peaked during the economic boom of the 1950s and 1960s. In 1974, as a response to major failures in corporate pension plans, the Employee Retirement Income Security Act (ERISA) became the first comprehensive piece of federal legislation to mandate the promotion of employee and beneficiary interests in employer-sponsored pension plans. The closing of the Studebaker automotive plant and associated loss of accrued pension rights of thousands of former workers is generally regarded as the key event behind the move towards stricter regulation to prevent inadequate funding.

The Pension Protection Act (PPA) followed in 2006. Once again, high-profile pension terminations resulting from serious underfunding required further regulation*. The Pension Benefit Guarantee Corporation (PBGC), which is the federal corporation established in 1974 by ERISA to protect the pension benefits of employees in private-sector defined benefit plans, faced serious financing problems as a consequence of the terminated plans. By the end of fiscal-year 2004, total underfunding of the insured plans was estimated to be more than \$450 billion on a termination basis (or rather pension liabilities if the plan was taken over immediately by PBGC)¹⁹. The PPA introduced new funding standards applicable to defined benefit plans aimed at governing the valuation of plan assets and liabilities with at-market rates and special rules for at-risk plans.

The stock market downturn of 2002 saw asset prices and interest falling at historic proportions and sponsors of defined benefit pension plans saw a decline in their plans' funding status. These developments had a lasting impact on the financial situation of many pension plans. The stricter funding and accounting principles introduced by the PPA further increased costs to employers, who would now have to fully fund their plans over a seven year period, and the new valuation standards for liabilities increased the volatility of employer contributions.

These developments have led to an accelerated shift towards reducing the generosity of traditional defined benefit plans. Lessons learned from the momentous falling asset prices and interest rates have required pension plan sponsors to better control and determine current and future pension costs and reduce the volatility of their liabilities. Pension plan sponsors today are continuing to freeze existing DB plans, at least for new employees, opting instead for hybrid or defined contribution pension solutions.

The decrease in guaranteed pension incomes is evident and three trends have been identified. Firstly, Social Security benefits will clearly be less generous in the future than they are today. Secondly, since the shift from defined benefit towards defined contribution pension plans is not expected to reverse, employees will carry most of the risks associated with capital markets and longevity. And thirdly, there has been a structural shift from company pension plans towards individual pension plans such as IRAs. In terms of assets under management, IRAs held a 26% market share of total pension assets in 2007, outnumbering defined contribution, public pension and defined benefit plans for the first time. They now form the front line of all available pension plans.

* United Airline was the largest pension failure in American history. Other examples can mostly be found among U.S. airlines and steel companies such as US Airways and Bethlehem Steel.

The developments outlined above have had a decided impact on how risks are allocated. In DB plans, factors like life expectancy, savings rates, capital market development and inflation were managed by employers, who were able to hedge these risks over a larger group. The shift towards hybrid and DC plans means individuals will now be forced to carry this responsibility.

The road to financial security for those golden years is now paved by two major risks arising from the shift from defined benefit to defined contribution plans.

The first hurdle is actually participating in an employment-related pension plan. As opposed to defined benefit plans, most defined contribution plans operate on a voluntary basis. This voluntary participation is considered to be the main reason behind the low coverage of workplace pension plans. The PPA will tackle employee inertia by introducing auto enrollment, however take-up remains to be seen as this legislation was only introduced in 2008.

According to a research report by Fidelity Investments, which analyzed the data of more than 10 million participants in Fidelity-administered pension plans, participation

rates rose significantly above average in auto-enrollment plans, especially among low-income earners and younger employees. The default deferral rate for more than half of these plans was only 3%¹¹. These findings support the assumption that average contribution rates have a tendency to decrease if a default rate exists, even though much higher contribution rates would be necessary.

Auto-enrollment is likely to have a significant impact on retirement wealth by generating additional retirement savings. Whether these assets will be sufficient to arrive at an adequate replacement will depend on a number of factors such as continuous participation and the proper diversification of assets.

The second hurdle to financial security is distributing pension wealth prudently. Securing an adequate standard of living in retirement will mean going a step beyond mere accumulation. The 401(k) plan has become the primary vehicle of retirement savings. Large pools of assets accumulated in 401(k) accounts only allow for lump-sum payments at the end of the working life. Annuities are rarely offered as an alternative distribution method.

Quantifying the shift

Recent research from Hewitt Associates¹² further quantifies the shift from defined benefit to defined contribution pension plans and its consequences as previously described. Based on a representative sample of 72 large U.S. companies with 1.8 million employees, Hewitt studied the impact of pension plan types, participation, contribution rates, investment returns and medical costs on expected replacement ratios.

Employees expecting to receive benefits from both defined benefit and defined contribution plans will likely have 106% of their pre-retirement income replaced by combined Social Security and workplace pension plans. All things being equal, employees participating only in a defined contribution plan will see a replacement ratio of 77.6%. However, if these replacement ratios are contrasted with the actual income needed to keep pace with

inflation, rising longevity and increased medical costs, the report’s authors point out that both plans fall short of an adequate retirement income, even in the best-case scenario of combined DB-DC coverage. They estimate that the average income gap for employees with “DC only” will be 33 percentage points higher than for those with access to both types of plans. What is more, the authors question the general belief that a replacement ratio of 70-90% of pre-retirement income would be sufficient. The study population showed that an average projected income replacement of 126% of final pay would be necessary to cover post-retirement inflation and increasing medical costs.

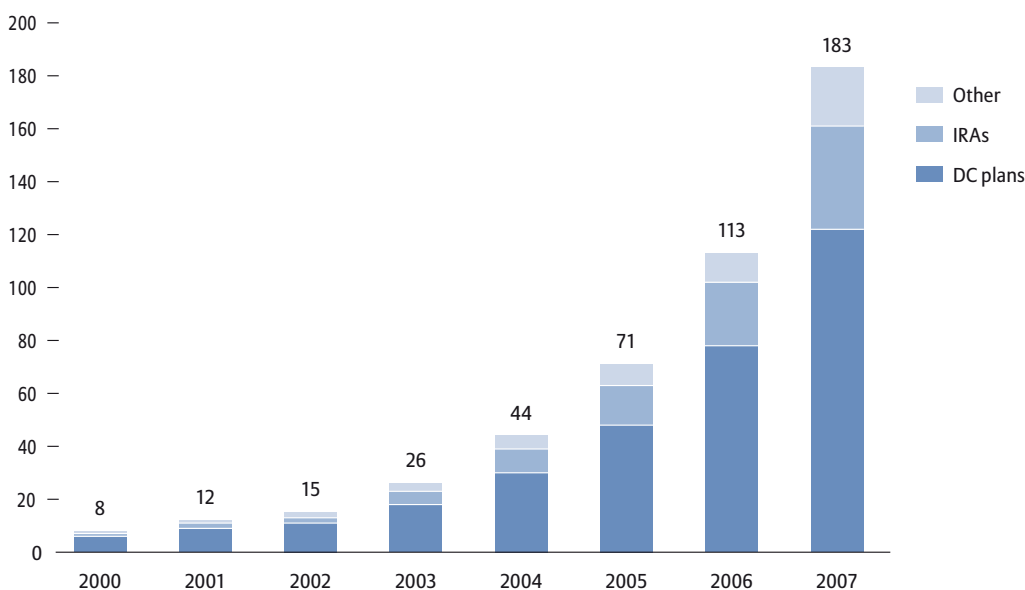
These findings demonstrate how even employees with good coverage will have to lower their standard of living during retirement. The situation will be significantly worse for employees who don’t contribute to a work-

place or private pension plans and who opt for early retirement. Compared to an assumed adequate income, they are expected to fall short by more than 104% of pre-retirement income.

The authors conclude that 401(k) plans have yet to fill the gap created by the loss of defined benefit pension plans, and draw a bleak outlook for future retirees.

There are two key factors that fundamentally contribute to achieving an adequate retirement income. The first and most important is consistently putting savings into workplace or private pension plans over the entire course of the working life so as to take advantage of lower savings rates and to exploit compound interest. The second key factor is choosing a sound investment. Diversification is key. A portfolio broadly consisting of employer stocks or over-conservative

Figure 7 Life-cycle fund assets by investor type [\$ bn]



Source: Investment Company Institute, The U.S. Retirement Market 2007, 2008

investments is not considered to be an efficient risk-return approach. According to modern finance theory, optimal asset allocation takes into account certain individual characteristics such as age, life expectancy and target retirement date. In life-cycle funds, which are now an accepted default options for employer-sponsored retirement plans,

the asset allocation of the retirement portfolio can be tailored to suit individual needs.

Life-cycle funds have become increasingly popular over the last years and are expected to continue flourishing. 88% of life-cycle funds are held in employer-sponsored DC plans and IRAs (*see Figure 7*).

Five main risks

Since Social Security benefits in the United States are low, the individual is responsible for providing for his own old age. A wide range of tax-favored retirement products are available and, compared internationally, contribution limits are considered to be above average. The U.S. pension market is the most developed worldwide and its product landscape is very complex. Retirement planning usually involves consulting financial advisors who are either independent or tied to a specific firm. There has been an observable shift towards seeking independent advice¹³.

With total pension assets of \$17.3 trillion at year-end 2007, it is clear that U.S. households have accumulated immense pension wealth. However, despite the magnitude of these pension assets and maturity of the retirement market, adequate retirement income is exposed to risks throughout the life cycle. Risks range from insufficient asset accumulation to pre-retirement misuse as a result of financial hardship, as well as risks from unsustainable retirement spending and distributions due to increased longevity and health-care costs aggravated by medical inflation.

> Coverage still not properly addressed

Supplying employees with pension plans is considered the most critical aspect of securing adequate retirement income. Or to put it

another way, the greatest source of risk is not having access to a pension plan at work, be it a defined benefit or a defined contribution plan. In fact, take-up rates are high when employees have access to a pension plan in the workplace (*see Figure 8*). In private industry, 83% of employees with access to an occupational pension plan actually participate. This figure becomes even higher when part-time employees are not considered. The take-up rate among full-time union employees is 95%, or almost complete coverage. In general, the higher the income, the higher are take-up rates, hence there is a positive correlation. What is surprising, however, is that the take-up rate of the lowest percentile of incomes earners, those with a median hourly wage of \$7.85, is still at 57%.

Though the goal of the Pension Protection Act of 2006 is to increase coverage rates, it does not place much emphasis on the question of access, which is the foundation of broader coverage. Automatic enrollment is expected to boost participation in existing occupational pension plans, but it does nothing to encourage the introduction of new pension plans. Enhancing occupational pension coverage is limited by the total number of employers currently providing pension plans, undermining the very goal of enhancing employee pension coverage. After all, coverage cannot exceed 61% of the workforce so long as only

61% have access to an employer-sponsored pension plan.

IRAs were originally conceived to address those employees without access to workplace pension plans. However, as empirical evidence shows, these accounts are more likely to be used as a rollover tool for preserving tax advantages than for regular contributions.

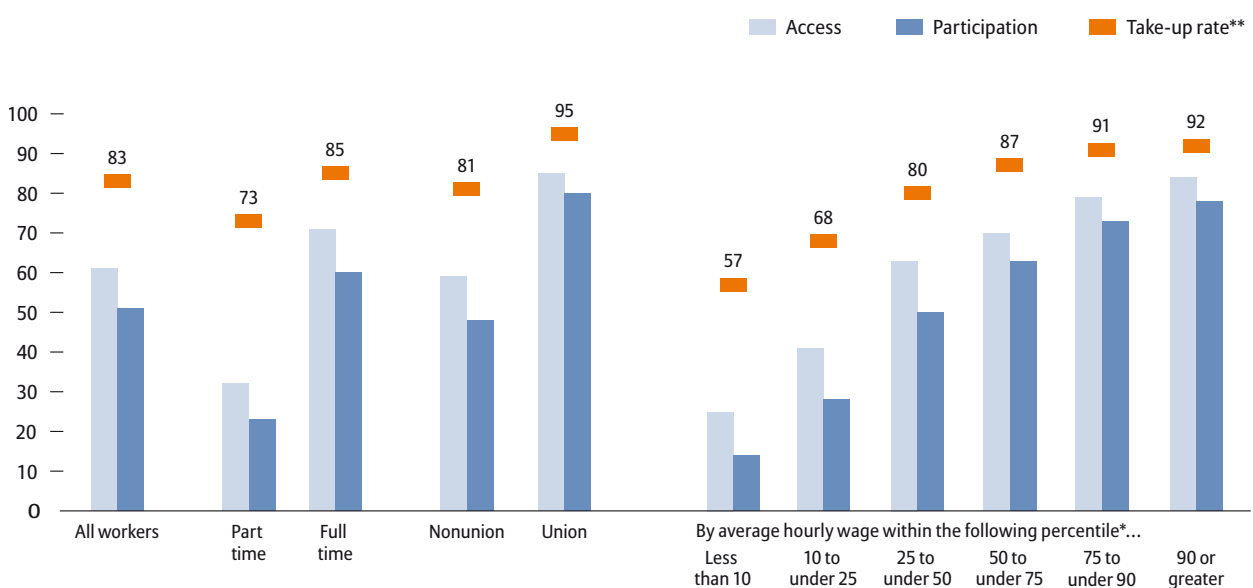
> **Current system favors high-income earners**

Savings into qualified pension plans enjoy a fairly favorable tax treatment in the United States. Within generous limits, contributions to these plans reduce taxable income, thereby reducing the overall tax burden. However, tax incentives that address additional retirement savings for low and middle-income earners are not very pronounced in the United States.

The U.S. income tax system is progressive in nature. The intention behind it is to reduce the uneven distribution of income between low and high-income earners. In the end, high-income earners carry more liability for financing public spending. What this implies is that employees with higher incomes benefit more from the current system of tax subsidies. Since the tax rebate is the product of the amount paid into the pension plan times the marginal tax rate, the after-tax cost of contributions to qualified pension plans is actually lower for workers in higher tax brackets than for those in lower tax brackets. In other words, the higher the taxable income, the higher the potential tax savings.

Survey results show that there is a direct positive relationship between income and participation in tax-favored pension plans.

Figure 8 Retirement benefits in the private industry: Access, participation and take-up rates [%]



* Median hourly wage in single percentiles: 10 (\$7.85), 25 (\$10.13), 50 (\$15.00), 75 (\$23.25), 90 (\$34.79)

** Percentage of workers with access to a plan and who participate in it

Source: U.S. Bureau of Labor Statistics, National Compensation Survey, March 2008

What is more, low-income workers are more likely to work for small firms, which are less likely to offer a pension plan at work¹⁴.

The system of tax subsidies described has not been very effective in increasing retirement savings among lower and middle-income population groups. Tax incentives are not really suited to employees who are paying no or only marginal income tax, even though these very same low-income families are in greater need of retirement savings simply to finance their basic needs.

To address these problems, the U.S. government established the Saver's Credit as part of the Economic Growth and Tax Relief Reconciliation Act (EGTRRA) of 2001. The Saver's Credit is a tax credit on savings paid into an IRA, 401(k) or other qualified retirement plan for individuals whose modified adjusted gross income does not exceed \$26,500 per year. Pension contributions up to \$2,000 are eligible, with the government matching 10% to 50% depending on the individual's adjusted gross income. However, the tax credit cannot be more than taxes owed. The Saver's Credit is non-refundable, meaning that an employee will not receive a refund if he does not owe any taxes.

Again, a key drawback of the Saver's Credit is that it is not applicable to anyone earning too little to take advantage of a tax credit. Even should a worker qualify for a tax credit, he would not be able to benefit from a Saver's Credit unless he actually owes income tax. Though millions of U.S. employees are eligible for the Saver's Credit in theory, the de facto reality is that most do not benefit due to the non-refund clause.

In 2007, tax expenditures attributable to the Saver's Credit were estimated at \$0.830 billion from a total of the almost \$134 billion

connected to total retirement savings¹⁵. The need to address low-income families as a group is obvious by the sheer number of tax filers, namely more than 72 million, who reported incomes low enough to qualify for the 50% credit rate.

In conclusion, incentives to encourage low and middle-income earners to contribute to retirement savings are not particularly pronounced in the United States even though additional retirement savings from this population segment would actually increase overall savings. Since high-income earners are more likely to shift existing assets from taxable accounts to tax-favored retirement accounts, they cannot actually be seen as contributing to an increase in overall savings.

> Rising health-care costs

With health-care costs increasing faster than general inflation and wages, there is a danger of medical inflation eroding the financial basis of retirement and posing a threat to many retirees' nest eggs.

Health-care expenditures in the United States amounted to \$2.1 trillion in 2006 (16% of the GDP) and are estimated to skyrocket to \$4.3 trillion (19.5% of the GDP) by 2017. According to these figures, the United States spent more on health than any other industrialized country, both in per-capita terms and in relation to the GDP.

Employer spending on health benefits amounted to \$624 billion in 2006 – the highest percentage increase of all benefits (see Figure 9). Whereas the percentage of total benefit spending assigned to retirement benefit costs has decreased slightly over the past years to around 46%, health-care spending is expected to take the lead position. Health care is currently a major topic of concern. With health benefits becoming ever more prized, the demand

for employer-sponsored health care is increasing over occupational pension coverage. If this trend continues, health care may eventually crowd out voluntary employer contributions to existing pension plans. According to the Employee Benefits Research Institute (EBRI), only 15% of employees rank pension plans among their first or second benefit priority, while 80% rank health insurance as their top priority.

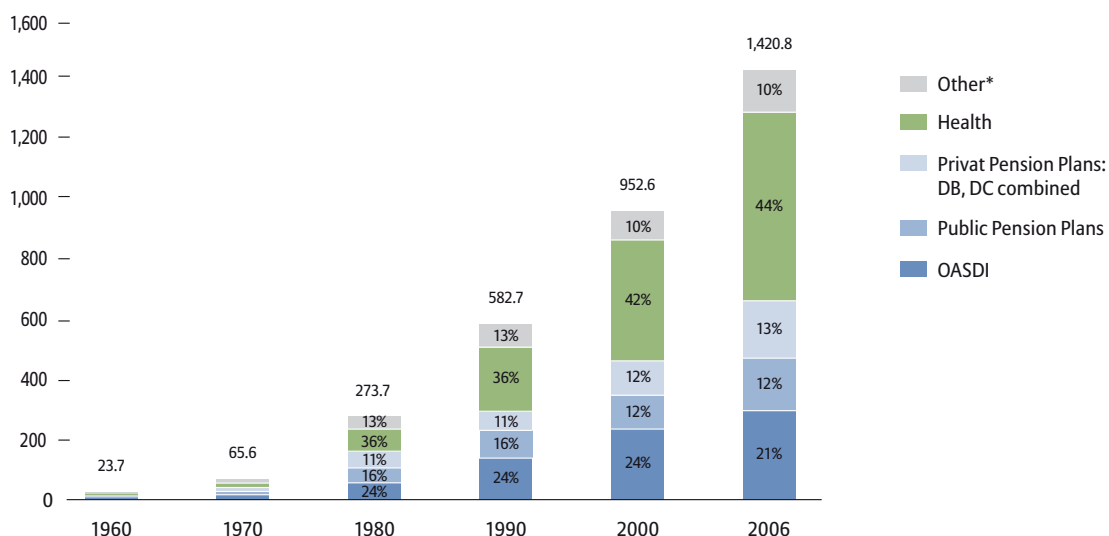
Should the U.S. government decide to mandate health-care coverage so that employees are required to enroll in a qualified health plan with no possibility of opting out, health benefits could soon be at the top of the employee benefits list, crowding out employer spending on employee retirement benefits. What is more, employers are increasingly backing away from subsidizing post-retirement medical coverage, which means that future retirees will have to use much more of their retirement income to pay for private health-care insurance premiums.

The structure of the current health-care system is very fragmented; a universal system does not exist. The system is made up of a mixture of private and public funding, with private out-of-the-pocket payments accounting for 14.6% of all personal health expenditures in 2006.

> Hardship withdrawals

Another critical issue is that qualified retirement plans include an option for taking financial hardship distributions. Individual pension plans can define circumstances under which employees may withdraw money from their accounts. The Internal Revenue Service defines hardship as an immediate and heavy financial need of the employee, stating that the amount necessary must satisfy the financial need. Certain medical expenses, costs related to the purchase of a principal residence, payments necessary to prevent eviction from a principal residence, tuition and related educational expenses, among others, are considered immediate and heavy.

Figure 9 Employer outlays for health, retirement and other benefits [\$ bn]



*Includes unemployment insurance, group life insurance and workers compensation

Source: EBRI Databook on Employee Benefits, 2007

These distributions are included in gross income and are not repaid to the plan, reducing pension account balances in one fell swoop. In the face of the current subprime mortgage crisis, a large number of homeowners or mortgage owners may feel compelled to make precisely this move, which would have negative consequences on retirement income adequacy.

> **Distributing pension wealth**

The sustainable spending of accrued pension assets is at least as important as asset accumulation in securing an adequate retirement income. However, the differing needs among income and wealth groups may cause decumulation strategies to vary significantly (see Figure 10).

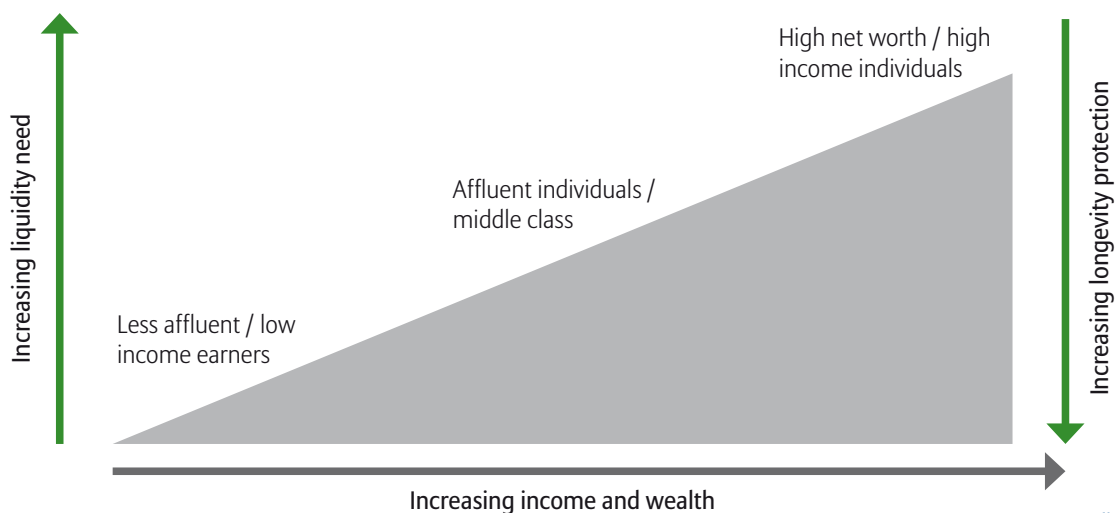
Retirees in the lowest income quintile are heavily dependent on Social Security, with only slightly more than 10% of their income coming from other sources. On the other hand, more affluent households draw the bulk of their income from earnings, pensions, annuities and asset income, making them less de-

pendent on Social Security¹⁶. There is a pronounced difference in decumulation strategies according to income status. Whereas low and middle-income households require protection against longevity and are in more need of protecting themselves financially, affluent households demand decumulation strategies that are more focused on liquidity and bequest motives.

With the shift from DB to DC, and its accompanying shift away from guaranteed pension income, financial service providers will be increasingly required to factor in that shift by offering outcome-oriented retirement solutions that replicate defined benefit characteristics. Retirement planning requires making decisions based on various factors that may overstretch the capabilities of most individuals. Customized financial products could restore some of the security previously built into employer-sponsored defined benefit plans.

Retirees in the United States are confronted by the multiple payout options being offered

Figure 10 Demand for decumulation products are dependent on the retiree’s income and financial situation



Source: Allianz Global Investors

by their qualified retirement plans. The shift from defined benefit to defined contribution plans connotes a shift from a guaranteed life-long income stream to lump-sum payments, which is the prevailing distribution method for 401(k) plans. The retiree generally has three options for turning a lump-sum payment into a regular income stream: Retirees can withdraw their assets on a discretionary basis, use tools commonly offered by financial companies to create an individual withdrawal plan based on a defined set of parameters, or buy an annuity.

Traditional annuities, either immediate or deferred, cover the longevity risk of the individual, thereby eliminating the risk of running out of money over the course of retirement. Annuity performance can either be guaranteed or market-related. Within this broad classification, there are a great variety of riders available for adjusting the product to suit individual and specific needs. Such riders include guaranteed minimum death benefits to heirs, guaranteed minimum living benefits and long-term care protection. In their purest form, variable annuities pose a particular risk of endangering underlying assets with-

out protecting the principal. An optional guaranteed minimum living benefit can either guarantee a certain amount of income benefit (GMIB), withdrawal amount (GMAB) or minimum withdrawal benefit (GMWB). All these options are at the expense of investment performance.

Annuities have become very popular over the last years, accounting for 10% of the total retirement market*. Over the next two decades, the retiring baby-boomer generation will drive annuity growth. As retirement income planning continues to target this large cohort, product innovations supporting annuitization and guaranteeing benefits will directly target baby-boomers concerned about maintaining an adequate standard of living¹⁷. Annuities are particularly popular among middle and low-income families, with two-thirds of non-qualified annuity holders having moderate household incomes below \$75,000¹⁸.

By and large, the shift from defined benefit to defined contribution means individuals will have to come up with their own assumptions about consumption patterns during retirement,

* This figure does not include annuities held by IRAs and qualified pension plans, which means that their market share may be higher.

Baby boomers are less prepared

Over the next two decades, around 78 million baby boomers will enter retirement¹⁹. As a whole, they are the wealthiest cohort ever in U.S. history, despite low savings and heavy debt. This cohort profited exceptionally from capital gains on financial assets and real estate as a source of wealth accumulation. From 1985 to 2005, almost 70% of the increase in household net worth could be attributed to capital gains²⁰.

The distribution of net worth among this cohort, however, is fairly skewed with the third quartile having more than ten times the net worth of the lowest quartile (see Table 4). This is even more pronounced among socio-economic groups; white baby boomers have a median net worth of \$200,000, which is seven times larger than a black baby boomer's and three times larger than a Hispanic baby boomer's net worth. What is more, a substantial portion of the net worth of lower wealth quartiles is tied up in home equity, which makes these baby boomers more vulnerable to housing value shocks²¹. The bursting of the U.S. housing bubble in 2006-2007 brought with it substantial wealth losses and had a particularly negative impact on those

retirees and near-retirees who had accumulated little wealth outside their homes and were planning to use home equity to finance retirement.

Surveys show that around two-thirds of baby-boomer households are financially unprepared for retirement due to inadequate savings, income and wealth inequality, and a slowing economy. Compared to previous spending levels and based on their accumulated net worth, 69% of early baby boomers will be unable to maintain their pre-retirement lifestyles over retirement as they face a large drop in spending and the accompanying financial stresses²².

Table 4 Total net worth of early baby boomers* in 2004 [\$]

Percentile	Total net worth
5 th	-3,500
25 th	36,500
50 th (Median)	151,500
75 th	403,000
95 th	1,327,000
Mean	389,494

* Baby boomers on the verge of retirement

Source: Lusardi, A. and Mitchel, O.: "Baby Boomer Retirement Security: the Roles of Planning, Financial Literacy, and Housing Wealth", 2006

life expectancy, inflation, medical costs and capital market development. Based on the individual's attitude to risk, some of this can be outsourced to financial service companies by buying the corresponding products. The optimal allocation between annuitized and non-annuitized pension wealth depends on liquidity needs and bequest motives. In general, the demand for annuities is higher among low income earners, who have a greater need to secure their income in order to cover basic needs. Since people tend to underestimate their life-expectancy, they could deplete accumulated pension assets too soon, winding up with inadequate means later on in retirement.

Beyond auto-enrollment: Possible solutions

America's future retirees are confronted with a shaky outlook. A major portion of the population either has no access to pension plans and/or is not profiting from tax incentives provided by current legislation. Among those that have managed to accumulate a retirement nest egg, a considerable number of their pension account balances are considered too low to be classified as sufficient, particularly when faced with rising health costs. Accumulated pension assets in the order of ten times pre-retirement annual income is generally regarded as being adequate for financing a satisfactory standard of living during retirement. Average account balances, however, are worth only a fraction of that and so are greatly insufficient. According to the OECD, average pension wealth in the United States is less than six times the average earnings and only two-thirds of the OECD average²³. Even today, a significant number of people who have already reached legal retirement age cannot afford to retire and so continue working. Almost a quarter of persons aged 65 to 74 are still in the workforce²⁴.

The distribution of old-age income varies considerably across income groups. Retirees in the lowest income quintile rely almost exclusively on Social Security benefits, and pension benefits from private sources are virtually non-existent. As income increases, income from gainful employment, pensions, annuities and assets take on greater significance.

With a view to its long-term fiscal imbalances, it is very likely that Social Security will have to be adjusted by either reducing benefits, further increasing the legal retirement age, increasing contribution rates, or a combination thereof. Since increasing contribution rates would directly increase labor costs, employers might be tempted to cut jobs. In-

creased unemployment, however, would have a negative impact on the growth of the U.S. economy, which is heavily dependent on domestic demand. As long as the actual retirement age is unaffected, any increase in the legal retirement age would have the same result as cutting benefits. In other words, whichever scenario is taken, retirees will likely have to lower their standard of living, with those largely dependent on Social Security feeling the greatest impact. According to the Center for Retirement Research at Boston College, 53% of the bottom third of income groups will not be able to maintain their standard of living in retirement.

Old-age poverty in future retirees is a great concern. The most recent U.S. pension reform is aimed at increasing participation in employer-sponsored pension plans through facilitating the set up of auto-enrollment and its adoption by employers expected to pick up. Though the Pension Protection Act of 2006 was acclaimed for its provisions to enhance participation in existing DC plans, it does not address several important aspects: in order to arrive at higher coverage rates, the number of employers offering pension plan access needs to be higher; low and middle-income earners lack the institutional support for additional retirement savings; and individuals need guidance on how to come up with a sustainable spending strategy. Future pension reform will have to go beyond auto-enrollment.

> Incentive system

The current system of tax subsidies does not favor low and middle-income earners. A Saver's Credit that provides for direct government-matching contributions would likely encourage additional pension savings among this group. Future pension reform

will have to focus on ensuring that those parts of the population with the greatest need for additional sources of income during retirement experience greater institutional support.

It will also be important to raise awareness of retirement planning, preferably at younger ages, and give guidance on how to make decisions. The current average contribution rate is only 3% of income, which is considered too low. The longer a savings decision is delayed, the greater the contribution rate has to be. Many employees have never made a serious calculation of what is actually needed for retirement, nor have they addressed the question of how to reach any goal.

> Asset preservation

What is more, accumulated pension wealth needs to be safeguarded against misuse (i.e. assets are used for purposes other than retirement) so that individuals are prevented from easily cashing in their pension savings or borrowing against them to finance current needs. The question of using up pension assets too quickly could be addressed by providing guidance on how to prudently spend lump-sum pension wealth. With the shift from DB to DC, individuals will have to learn to manage retirement assets themselves.

Government support could come in the form of encouraging people to annuitize using relevant tax incentives. As research shows, forced annuitization is less appropriate. In theory, individuals faced with forced annuitization would have a greater loss of utility in regards to the loss of flexibility and in the presence of a strong bequest motive²⁵.

> Mandatory DC

One of the crucial deficits of the Pension Protection Act is that, in general, it did not strengthen employer incentives for setting up pension plans. Within the private sector,

almost 40% of all employees have no access to pension plans at work. However, according to current figures from the Bureau of Labor Statistics, whenever a pension plan is in place, take-up rates are high. Clearly, the critical issue here is employer supply and not employee inertia. These findings apply to low-income earners as well.

A regulatory framework that ensures access to pension plans at work would likely contribute to higher coverage rates, especially among small enterprises where coverage is very low. Employer-sponsored IRAs such as Simplified Employee Pensions and SIMPLE IRAs are good options for small businesses, as they do not have the same start up and administrative costs of a 401(k) plan. Although their popularity is increasing, they only account for roughly 8% of the total IRA market.

The second and third pillars of the pension system are based on voluntary participation. However, cross-country comparisons show that when pension participation is voluntary, coverage rates rarely exceed half the workforce. Countries that involve greater compulsion tend to have higher coverage rates. For instance, in countries like Switzerland, occupational pension coverage is mandated by law while, in the Netherlands, the prevalence of unions makes occupational pension as good as mandatory. With rates of 80% to 90% of the workforce, both countries have achieved almost full coverage.

Auto-enrollment introduced by the latest pension reform could be interpreted as an attempt to test quasi-mandatory DC plans. It is a paternalistic approach aimed at increasing occupational pension coverage. However, if coverage rates do not develop as is expected, several steps could be considered. For instance, the government could mandate and enforce an employee's right to access in an employer-

sponsored pension plan. The current U.S. political climate makes a move towards increased compulsion easily conceivable: Barack Obama's plan to strengthen retirement security would force any employer who doesn't currently have a pension plan in place to auto-enroll using a low-cost, direct-deposit IRA. Minimum employer contributions or mandatory matching contributions are other steps that could be implemented to increase the retirement security of future retirees.

Whatever path is taken, private pension provision will further grow in importance for future retirees. Already today, over \$17.3 trillion have been accumulated in tax-favored retirement savings and we expect the growth in these products to continue.

II. Perspectives – Pensions Assets Take on Weight

Financial Assets of U.S. Households

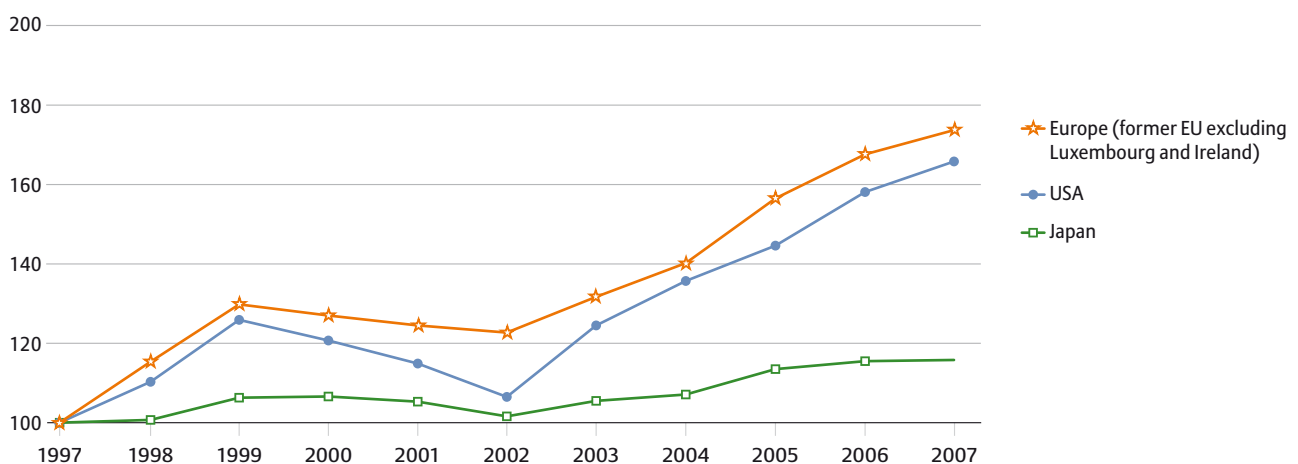
In 2007, the gross financial assets held by U.S. households amounted to \$45.3 trillion, or 328% of the GDP. Over a ten year period, assets expanded by 65% (see Figure 11), despite the fact that, according to the U.S. Bureau of Economic Analysis, personal savings have been well below 1% of disposable income over the last three years.

Compared internationally, the financial assets of U.S. private household have far exceeded those of western European and Japanese households, both in absolute as well as relative terms. Within the EU15, financial assets held by private household totaled \$36 trillion, or 218% of the GDP. In Japan, personal assets amounted to \$14 trillion, or 310% of the GDP, which is about one-third of the U.S. figure.

Even though total assets were higher in the United States, growth dynamics were different. In Europe, for example, financial assets actually grew by almost 74% as compared to 1997; however, the savings rate in many EU countries was well above that of the United States. Japan, on the other hand, achieved only a modest increase of less than 16% due to their low-risk and hence low-yield portfolios (see Figure 11). Weak economic growth, extremely low yield offerings and crises in neighboring regions prevented Japan from substantially building-up assets, despite the stock market bubble of the late 1990s.

The growth of financial assets was predominantly driven by performance (70%) in the U.S. In contrast, in Japan and Europe new inflows accounted for the lion's share of financial

Figure 11 Growth of household financial assets [1997=100]



Sources: Central banks, Statistical offices, Allianz Dresdner Economic Research own calculations

both the United States and Europe saw some revival in bank products. Professionalization of investment also advanced further as indirect investment in funds, insurance products and pension funds steadily expanded their share of household portfolios.

The importance of retirement assets is reflected by their steadily increasing share of total financial assets. Within the last decade, the share of retirement assets has increased by 5 percentage points, making up 40% in 2007 (see Figure 13).

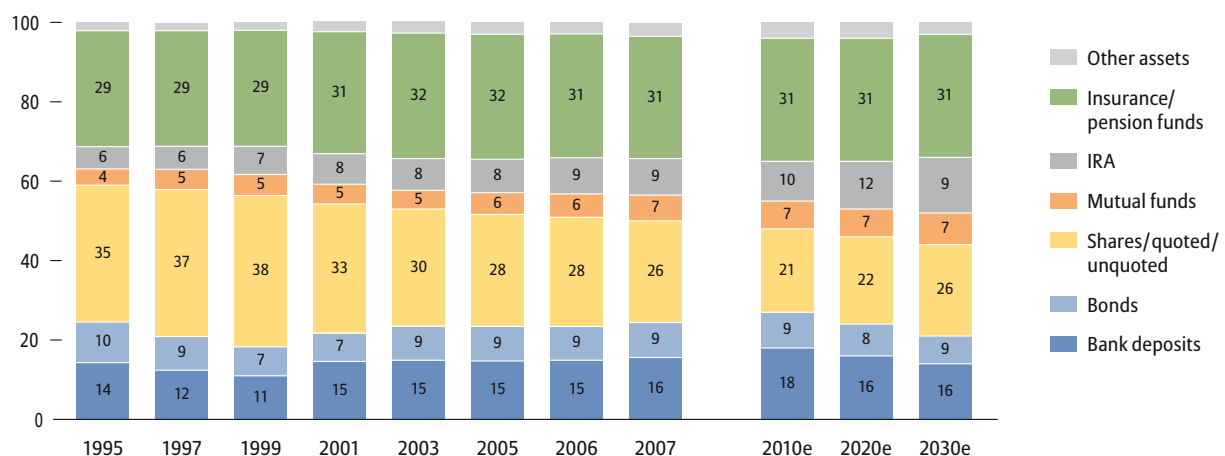
Outlook

In the coming years, the build-up of financial assets is likely to remain dynamic, with growth driven by efforts to build up pension entitlements. Further shifts in the portfolio structure are expected as first baby boomers begin restructuring their assets to generate a largely secure, regular flow of income for retirement. This can already be seen by the booming demand for annuities, which, in their various configurations, meet these requirements.

Our projection focuses first and foremost on the long-term structural shifts in the financial portfolio of private households, and projections are based on the potential growth trend in the economy. As for the shorter term, we have assumed there will be a slowdown in the U.S. economy and only a hesitant recovery on the stock markets in 2009/2010, whose mid-2008 levels were already 15% down from what they were at the end of 2007 level. As of 2010, we have assumed an equity performance of 7% p.a. over the projection period. This increase will also have an impact on holdings in pension and investment funds as a large chunk is invested in equities.

Based on these assumptions, U.S. assets are expected to grow to just over \$75 trillion by 2020 (4% p.a.). Investment in funds will see the strongest growth, continuing the trend in institutionalizing private investment. Though the share of insurance and pension funds will remain broadly stable, IRA assets will grow strongly, helping to further increase the share of pension assets to 45% by 2020.

Figure 13 Structure of total financial assets of U.S. private households in 2007 [%]



Sources: U.S. Federal Reserve, Flow of funds Statistics, Allianz Dresdner Economic Research own calculation

asset growth (70%) and only 30% stemmed from performance.

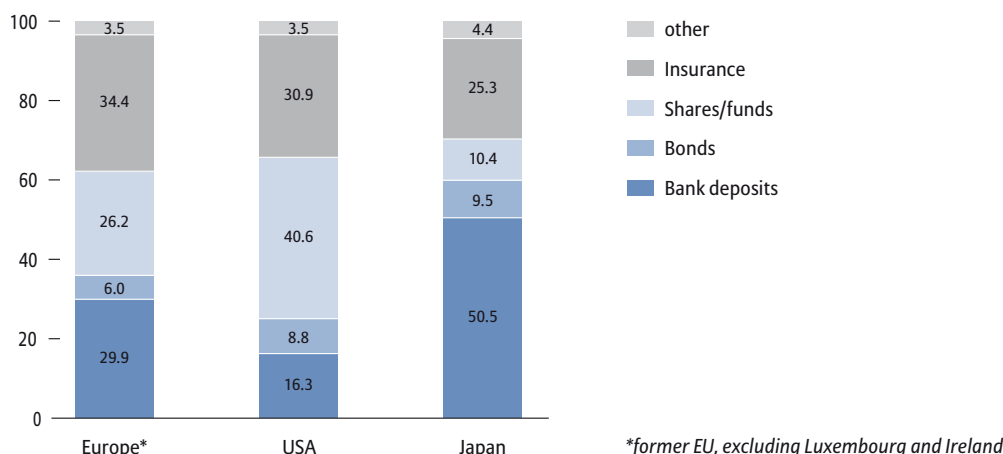
The period under review is characterized by three different phases: (I) the stock market boom of the 1990s, which led to a substantial build-up of assets; (II) the stock market slide from 2000 to 2002, which blew a particularly large hole in U.S. assets; and (III) the 2003 turnaround caused by a pickup in the economy and a growing optimism in capital markets. There has been a subsequent recovery in private financial asset formation since 2003.

Asset formation in Europe has been running in more or less parallel to the United States. However, continental Europe’s more conservative investment approach has spared Europe from losing wealth on the scale seen in the United States. Though hefty increases since 2003 brought European assets back to new heights, performance-driven growth could have been higher if a larger portion had been invested in higher yield assets. And it took Japan until 2004 to outstrip their 1999 figures.

The fairly disparate performance stems largely from differing household investment styles in the respective regions. Compared to the Europeans and Japanese, U.S. households are more willing to expose themselves to risk. While a good 40% of U.S. portfolios is invested in equity and investment assets and only 15% is invested in bank products, bank share in Europe is almost two times higher – in Japan, it is three times higher (see Figure 12).

In 1999, the equity and investment share in financial assets in the United States peaked at almost 50%. However, this level has not been re-attained since the stock market slide that took place at the beginning of millennium. Direct investment in corporate stakes has been hit the hardest and has failed to recapture the attraction it held in 1999. In fact, U.S. households on a whole have been reducing their exposure to equities. As in many European countries, the increase in overall figures stems from valuation changes over the course of the positive stock market performance up to 2007. Supported by the desire for safe investments,

Figure 12 Structure of financial assets of private households in 2007 [%]



Sources: Central banks, Statistical offices, Allianz Dresdner Economic Research own calculations

Future Pension Assets

Growth perspectives

Over the past few decades, the growth of total financial assets has been primarily driven by a build-up of pension assets and we expect this trend to continue over the projection period ending in 2020.

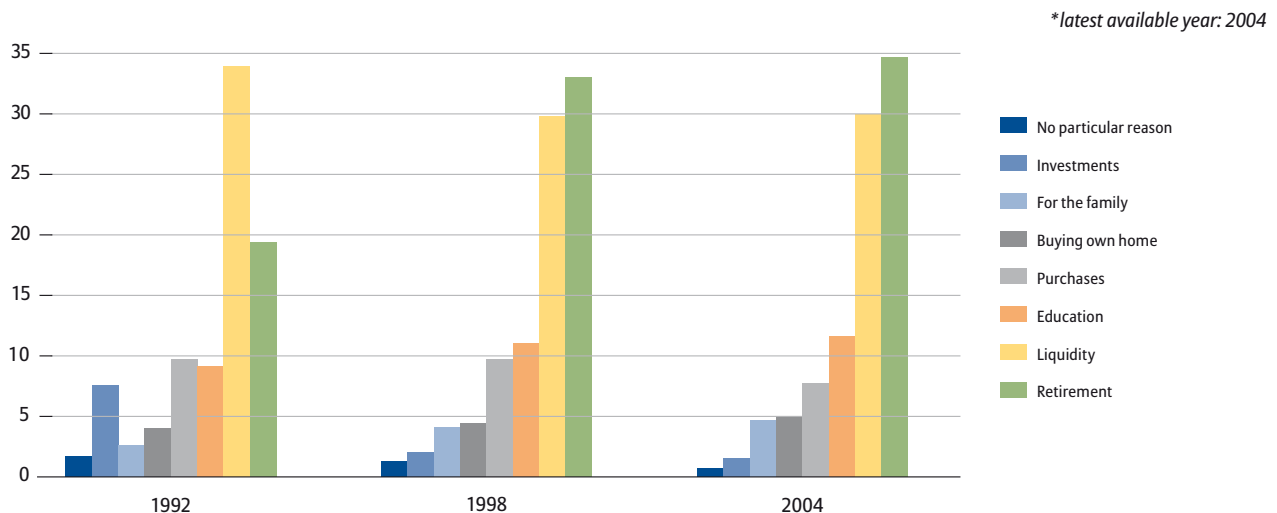
As far as assets under management are concerned, with a volume of \$17.3 trillion at year-end 2007, the U.S. pension market is still the largest in the world. Developments in the U.S. retirement market have been altogether dynamic in the past. The annual average growth rate was over 11% from 1985 to 2000 and almost 6% in the period thereafter, despite the dot-com bubble burst.

Over the last 20 years, the market has been driven in particular by the growth of Individual Retirement Accounts (IRAs). Together with defined contribution (DC) plans, they have become the most important retirement vehicles available to U.S. employees (see Figures 15 & 16). In 2007, a good one quarter of

all pension assets was invested in IRAs (\$4.53 trillion) and total pension assets held in defined contribution plans were nearly as high (\$4.33 trillion). Buoyed by legislative and tax amendments that promoted the spread of IRAs and rendered them more universally deployable, IRAs have shown considerable momentum over the last 20 years. Their share of total U.S. pension assets has risen from 15% in 1988 to nearly 26% twenty years later. In comparison, DC assets measured against total pension assets increased by only 3 percentage points between 1988 and 2007. However, it should be noted that 401(k) plans, which account for the lion's share of the DC segment, followed a more dynamic growth path. In the period under review, assets in 401(k) plans grew by 14.2% p.a. compared to 9.9% of the overall DC assets.

For a long time, assets in public pension plans made up the largest share of the retirement market, but their importance is de-

Figure 14 Saving for retirement takes on still greater significance: Development of savings motives, by type of reason* [%]



Sources: Federal Reserve Board, Survey of Consumer Finances 2004

creasing. In 2007 and for the first time, public pension assets amounting to \$4.38 trillion lagged behind the share of pension assets invested in Individual Retirement Accounts.

Due to the shift from defined benefit to defined contribution plans, pension assets in DB plans, which in 1988 amounted to \$2.35 trillion, declined from 26% of the total share of the market to only 14% today. The decline in the significance of DB plans is also reflected by the overall quantity of plans, which has

plummeted to only 25% compared to the peak it saw in the mid-1980s. A large number of small plans have been closed, while larger companies have altered the structure of company pension plans, especially for new employees, at the expense of DB pension arrangements. This development has been observed in retirement markets worldwide.

The individual annuity market is backed by reserves in the sum of \$1.75 trillion.

Shift from DB to DC

The reversal of the structural shift from DB to DC is not expected to change during the projection period. Companies will continue to favor DC plans as they are more attractive with regard to regulatory changes and increasing longevity. The Pension Protection Act is further bolstering this shift.

According to the Current Population Survey (CPS) of the U.S. Census Bureau, only about half of U.S. employees are participat-

ing in some kind of company pension plan. Strengthening the second pillar of the pension system is inevitable given Social Security's low state backing. However, considering the still voluntary nature of pension sponsorship²⁶, it remains to be seen whether the new auto-enrollment design will be able to fulfill this task. Smaller companies, in particular, may be reluctant to offer pension plans and auto-enrollment features.

Figure 15 U.S. retirement market by pension vehicle in 2007 [% of total assets]



Sources: U.S. Federal Reserve, Investment Company Institute

Shift towards individual schemes

We expect growth in the IRA segment to remain strong up to 2020. We also believe there will be a continued structural shift away from company pension towards individual pension plans, which can also be employer-sponsored. However, the special nature of inflows into these plans makes it difficult to project a trend for this product group. Capital growth in IRAs is generated by three sources: Contributions, performance and rollovers from other plans.

Contributions actually play a very minor role here. According to the Employee Benefit Research Institute (EBRI), only a small number of employees or households are actually making regular contributions. In 2005, for instance, only 6.2% of 21 to 64-year-old employees con-

tributed regularly, and only 27% of IRA contributors invested the \$4,000 maximum. The share of employees aged 50 and older who took advantage of the additional catch-up feature remained very low; around one-third of eligible employees. The bulk of asset inflows into IRAs actually stemmed from employee pension rollovers as a result of changing jobs, being laid off or entering retirement.

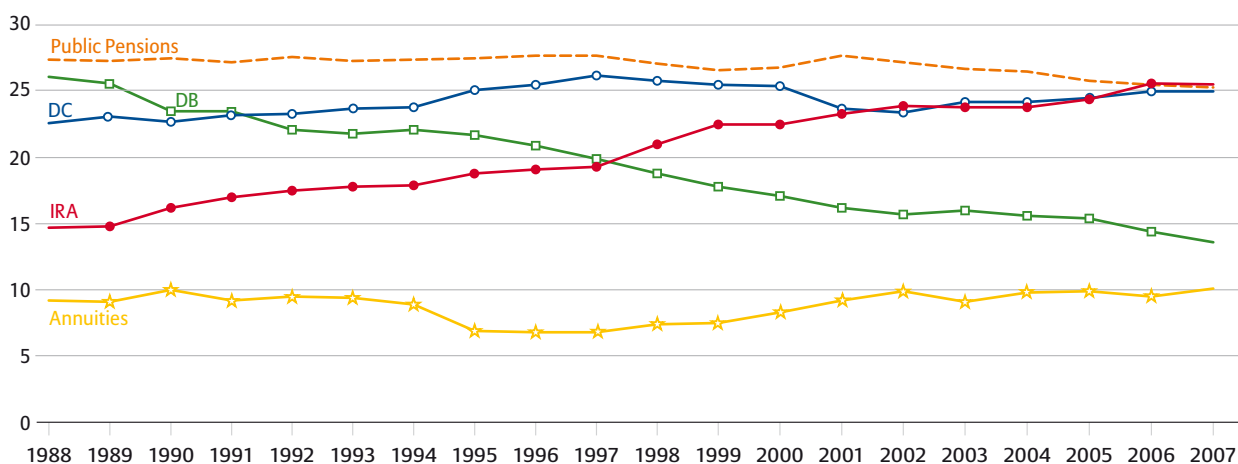
In other words, IRA savings are not usually a result of regular employee contributions. In 2002, inflows from rollovers into traditional IRAs amounted to \$204.4 billion (EBRI), or almost five times higher than regular employee contributions, which in 2002 were only \$42.3 billion.

Strong annuity growth

Our projection is based on the fact that early baby boomers are rapidly approaching retirement age and are beginning to make the

appropriate financial arrangements. Since partial or full annuitization of accumulated wealth is one way to generate regular retire-

Figure 16 U.S. retirement market: Historic trends [% of total assets]



Sources: U.S. Federal Reserve, Investment Company Institute

ment income, current average growth rates in annuity reserves are likely to continue in the coming years.

A major portion of total asset growth over the past years can be attributed to positive

developments in the equity market; however, the current market situation is likely to depress growth, at least in 2008 and 2009. Outgoings are likely to pick up in the second half of the next decade, as a larger number of baby boomers enter retirement.

U.S. retirement market in 2020

This chapter briefly outlines trends in the retirement market and gives projections for total second and third pillar assets and its main segments 2020. Based on the scenarios described below, and allowing for several uncertainties linked to a forecast of future developments, we expect pension assets from defined benefit plans, defined contribution plans, Individual Retirement Accounts, public pension plans (federal, state and local government) and annuities to see strong growth.

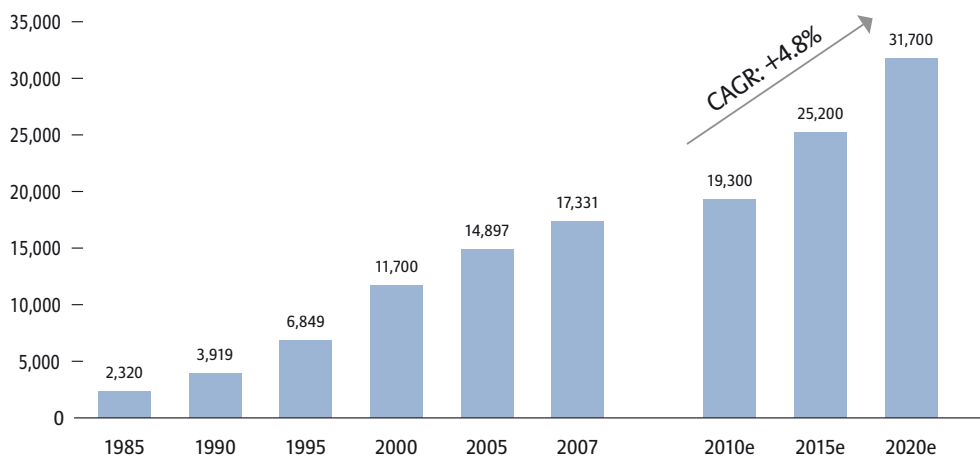
> Basic scenario (B)

The basic scenario foresees developments moving in largely pre-determined tracks,

e.g. taking into account legislative changes that are already in effect (in particular, auto-enrollment), capital markets recovering relatively quickly and continuing structural shifts in pension segments.

Using the basic scenario, we expect the pension market to increase to \$31.7 trillion in 2020, making total assets 80% higher than they were in 2007 (see Figure 17). The expected 4.8% average annual growth during this time can be attributed to the effects of three distinct phases: 1) The period lasting to the end of this decade will continue to be influenced by the repercussions of the subprime

Figure 17 U.S. pension asset under management in 2020: Basic scenario [\$ bn]



Sources: U.S. Federal Reserve, Investment Company Institute, Allianz Dresdner Economic Research own calculations

mortgage crisis and the low 3.5% growth will likely be considerably higher in the first years of the new decade; 2) With only a few baby boomers entering retirement between 2010 and 2015, outflows will not be major, so we can expect to see normal capital market development; furthermore, since these baby boomers will be preparing their financial reserves to meet future pension needs, this period could see 5.5% growth; 3) However, in the second half of the next decade, as asset decumulation intensifies, outflows will be on the march and average growth can again be expected to be somewhat lower.

IRAs and annuities are expected to grow well above the projected compound annual growth rate (CAGR) of 4.8% for the total market. Our calculations show a 7% CAGR for Individual Retirement Accounts and 7.9% for annuities. The DC market will also exceed average growth at a median rate of 5.4%, however the average growth will be depressed by a decline in total DB pension assets after 2015.

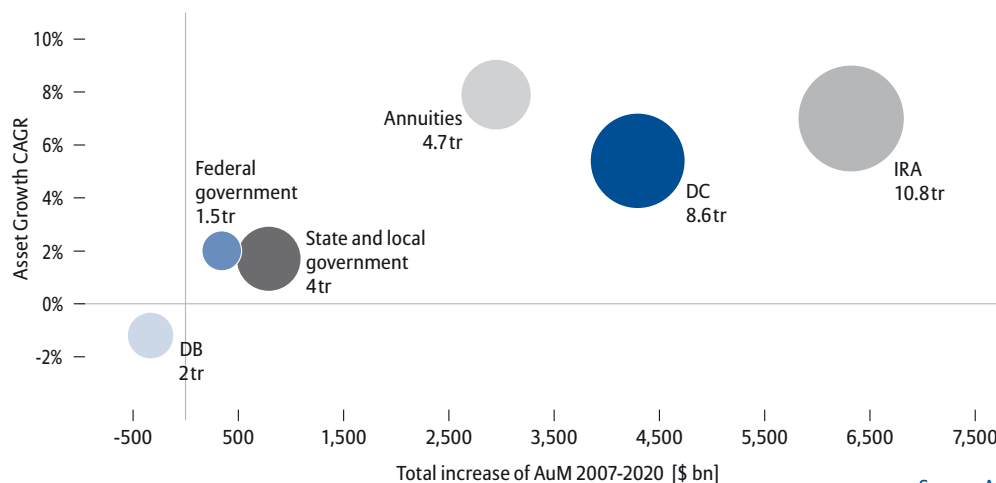
No new growth stimulus is expected for public pensions and since we presume there will be a relatively stable employment development among public sector employees, pension assets in public plans are likely to increase moderately.

In the long term, the shift towards individual pension plans is expected to continue to have a negative effect on defined benefit and public pension plans, whose share in the total retirement market will likely drop from the 40% it is today to 25% by the end to the projection period.

> Later-retirement scenario (L)

We expect there will be a relatively major change to the basic scenario as a result of the employment ratios it assumes. Future retirees will most likely have failed to adequately insure themselves, and further cut-backs in Social Security or low company pensions could prompt employees to work longer, postponing retirement in order to secure sufficient financial means to maintain the

Figure 18 U.S. retirement market 2020: Basic scenario



Source: Allianz Dresdner Economic Research

standard of living they have reached or desire. This could result in an increase in employment ratios among all older persons. This trend is already evident. According to the Current Population Survey, the employment ratio of men aged 60 to 64 rose from some 55% in 1990 to nearly 59% in 2006, and among men aged 65 to 69 from 26% to a good 34%. The U.S. Department of Labor projects it will see a slight increase in the participation rate among older persons until 2016. A study from McKinsey estimates that by 2015, 60% of older baby boomers will not be able to maintain their current lifestyle if they do not continue to work.

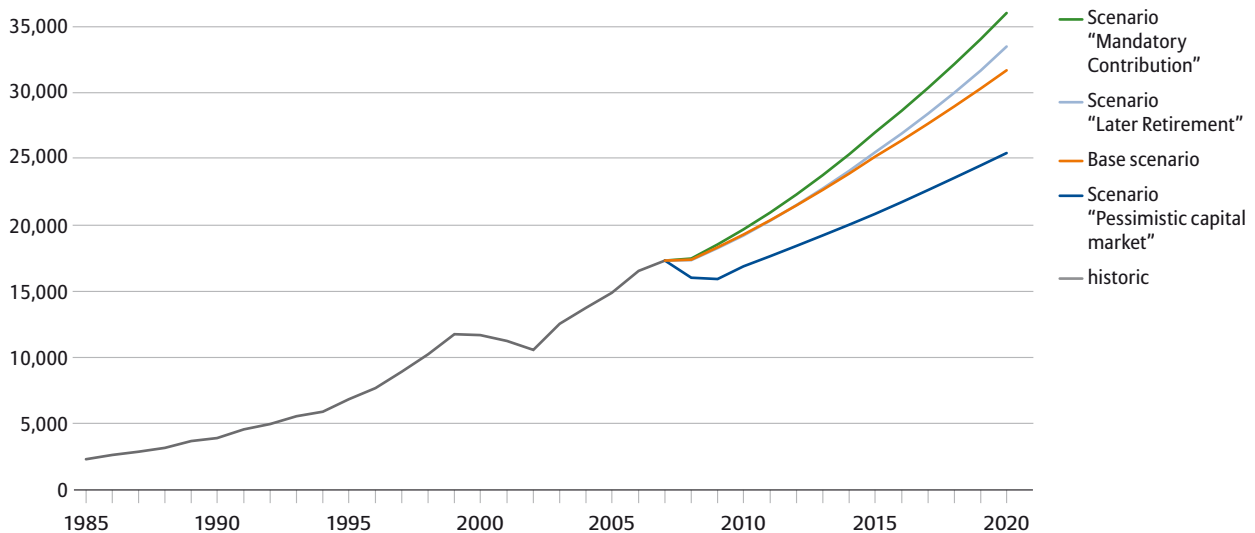
This scenario foresees an additional growth increase of approximately one half a percentage point per year. At an annual average growth of 5.2%, total pension assets will amount to \$33.5 trillion by the end of the projection period, or twice as high as they were in 2007. Given that, annuities are expected to experience somewhat slower growth, as older persons will most likely defer convert-

ing financial buffers into annuities. Since contributions into company pension plans (in particular, defined contribution plans) will be made for a longer period of time, this scenario foresees total pension plans showing higher growth (CAGR 6.6%) than they would in the basic scenario.

> Pessimistic scenario (P)

Even though many economic researchers do not believe there is much likelihood of the United States experiencing a long recession, a pessimistic take on future developments must also be considered. Repercussions from the subprime mortgage crisis will likely affect the behavior of U.S. employees and consumers given that financing problems will considerably limit a homeowner's ability to save. A pessimistic scenario would foresee employees cutting back on long-term pension savings or even drawing on pension funds as a means of boosting their current income. Although experience shows that retirement assets are usually only released for emergencies²⁷, the difficult situation that began in

Figure 19 Summary: U.S. retirement market in 2020: Scenario analysis [\$ bn]



Sources: U.S. Federal Reserve, Investment Company Institute, Allianz Dresdner Economic Research own calculations

mid-2007 and is still prevailing in mid-2008 could prompt a large number of homeowners or mortgage owners to make precisely this move. It should also be noted that it is possible to withdraw pension savings without being penalized in order to finance the acquisition of a principal residence.

The pessimistic scenario foresees IRAs, DC plans and annuities being negatively impacted by the unfavorable economic climate and financial difficulties of employees. The implication to public pensions, which are not as variable, is likely to be less serious. This also applies to DB plans even though they are generating almost no new business. Assuming a marked slowdown and restraint on the capital markets in 2008/2009 and normalization thereafter, as suggested in the basic scenario, annual growth rates can be expected to be one and a half percentage points lower during the projection period. With an expected growth rate of 3.0% p.a., total pension assets will rise to \$25.5 trillion by 2020.

> Mandatory-occupational-pensions scenario (M)

Coverage rates in and contribution rates to second pillar pension plans are considered to be too low to finance an adequate standard of living during retirement. An EBRI study shows that even after the PPA enactment, contribution rates remained at a level considered too low to generate adequate retirement income²⁸. Empirical studies²⁹ show that a con-

tribution rate of 15% to 18% would be necessary to reach a replacement rate of at least 60% to 65% of pre-retirement income. Currently observed contribution rates are far from these numbers.

As a modification of Scenario B, we also calculated what the asset growth in the retirement market would be if the government introduced a compulsory occupational system. The introduction of quasi-mandatory occupational pensions is currently discussed in Barack Obama's plan to strengthen retirement security, which maps out the introduction of automatic workplace pensions. Employers who don't already offer an employee pension plan would be required to automatically enroll their employees into a direct-deposit IRA.

We have simulated a scenario that assumes combined employer and employee contribution rates in the amount of 15% and a marked increase in the coverage rate. A scenario of this kind would generate considerable impetus for the market. As a result of the increase in the contribution rate, total pension assets would grow a good one percentage point more than the basic scenario. Defined contribution plans would profit most and assets in these plans would increase by 3 percentage points a year compared to the basic scenario. Total pension assets could reach \$36 trillion by 2020.

Chapter two was written by Dr. Renate Finke, Allianz Dresdner Economic Research.

Technical note

The key assumptions underlying our projections are described hereafter. Population figures are taken from the U.S. Census Bureau; it is assumed that the share of the population aged 18 to 64 will decline from 2011. Scenario L, which assumes a higher participation rate among older people, foresees the working population continuing to increase during the projection period. Retirement market segments follow definitions used by the Investment Company Institute; latest figures are taken from the U.S. Federal Reserve's "Flow of Funds Accounts," the American Council of Life Insurers and the Department of Labor; segments have been adopted accordingly. Assets in 403(b) and 457 plans for public sector employees are included in the figure for defined contribution plans. Assumptions have been made on the return on assets, contributions, outflows and participation in the different types of pension plans and differ according to the individual scenarios.

Bottom Line

The U.S. pension market holds a lot of promise. Based on several scenarios, total pension assets are expected to develop at a CAGR of 3.0% to 5.8%, growing between 50% and 100% by 2020 as compared to their volume in 2007. Pension asset levels are expected to be between \$25.5 trillion and \$36 trillion in 2020.

Current economic conditions may impact long-term pension savings by tempting people to draw-down pension assets to alleviate financial hardships such as mortgage financing problems. The pessimistic scenario foresees lower growth rates since their primary drivers, namely defined contribution plans and IRAs, will be adversely affected.

In comparing the need for supplementary pension coverage to actual access and participation rates, one alternative to bucking the retirement insecurity looming on the horizon is to put greater compulsion on current voluntary systems. If so, pension assets under management would be boosted to two times the current level.

Both scenarios foresee a large accumulation of pension wealth in the coming decade. With the shift from defined benefit to defined contribution and the related shift in individual responsibility, attention will have to be given to much more than just asset accumulation. The focus will have to shift from pure accumulation products to pension products spanning the entire life cycle. The key challenge is the integrated management of the different risks associated with long-term investments, such as market risk, inflation, longevity and health risks.

The strong current position and the expected robust growth of pension assets held in IRAs implies a structural shift from company pension plans towards individual pension plans, which in turn means a shift from highly standardized to more differentiated product offerings that allow for a greater adjustment to suit individual needs.

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Imprint

Publisher: Allianz Global Investors AG, International Pensions, Seidlstr. 24-24a, 80335 Munich, Germany | International.Pensions@allianzgi.com
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Layout: volk:art51 GmbH, Munich | **Printing:** repromüller, Übersee | **Closing Date:** September 30, 2008

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