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Funded Pensions in Western Europe 2008

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Preface

Traditionally, the pension systems of most Western European countries were textbook examples for the dominance of public pay-as-you-go pensions. This has changed. More and more European countries are trying to spread the retirement income of their citizens across a wider base. They have introduced new funded occupational and private pension schemes with the goal to diversify retirement income for future pensioners.

Despite different starting points, almost all Western European countries have followed the trend towards funded pensions. This has taken several forms. Besides the introduction of new schemes, many countries decided to introduce state pension reserve funds to back public pension systems and strengthen their sustainability. These funds have grown considerably and are now crucial players in the financial markets. The worldwide shift from defined benefit to defined contribution plans in occupational pension provision is also taking place in Europe, however, with a different speed and depth in the respective countries.

This study is divided into two main parts. The first part is comprised of four articles, including one on the economic impact of ageing populations. The second article focuses on the financial assets of European households in international comparison and includes forecasts on the future development of financial assets. The third article addresses trends in Western European pension markets and pension asset projections, while the concluding article of the first part is concerned with the effects of a possible application of Solvency II on defined benefit pension funds. The second part analyses the pension systems in each Western European country; for the purposes of this study we defined Western Europe as the EU-15 plus Switzerland and Norway.

The evolution of funded pensions into a crucial element of retirement income in Western Europe has important ramifications for public policy and the financial industry. For example, the regulation of funded pensions, the effectiveness of plan design, the risk management of investments and the quality of financial products become questions that will shape the financial security of many future retirees. By creating transparency about the pension system designs in Western Europe, this study aims to contribute to the discussion on the future of European pensions. We strongly believe that transparency and comparability are the foundations for mutual learning and best practice sharing.

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Content

Introduction

Western Europe – The Economic Impact of Ageing Populations

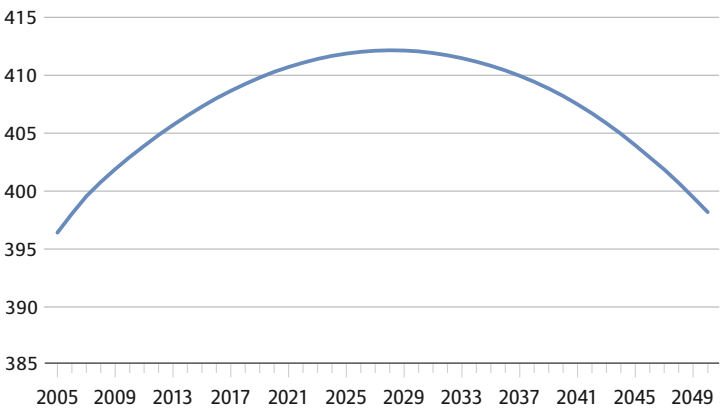
Demographic development in Europe

While Western European countries vary considerably from one another, they also have a number of commonalities. For instance, in most of Western Europe, the population is expected to stop growing within the next twenty years. It will not be the first time that European societies see a decline in their populations. The Black Death and both World Wars are two dramatic examples. Indeed, in the past, wars and pandemics led to quickly shrinking populations.

In the coming decades, the decline in Western Europe's population will certainly be more gradual. Overall population will peak in 20 years. It will then start to decrease, slowly at first and then increasingly faster. The ageing process of Europe's populations will have a significant impact on the makeup of its societies. The proportion of elderly people (i.e. people aged 65 and over) in the total population will increase from about 17% today to 30% in 2050. In this publication, we have defined Western Europe as the former EU-15 countries, plus Norway and Switzerland.

The present article examines the impact of ageing and declining populations on GDP growth. We discuss how the shrinking labour force has a negative effect on growth prospects and also address the impact of ageing. First, we look at the impact of population decline on the labour market. Next, we discuss the quality of labour, the role of education, and the impact of ageing on productivity. Third, we look at whether capital input can offset shrinking labour input and shed some light on the question of how ageing affects an economy's ability to innovate. Once we have done this, we look at the big picture to make rough estimates of future GDP growth within a growth accounting framework. Finally, we assess the impact of ageing on the Western European pension business.

Chart 1 Western European population [million]



Source: Eurostat

Longer lives, fewer children

Across Western Europe, the basic demographic trends of ageing and shrinking populations are to blame for many political reforms that have seen benefits cut – particularly pension benefits – and extended working lives. The underlying causes of low or falling fertility and increasing life expectancy are well known. However, the reasons and mechanisms behind these factors are not as well understood. A number of questions need to be answered, among them why women do not have more children and what can be done to increase fertility. Other open questions include how fast life expectancy will increase, or whether it will decrease due to less healthy lifestyles.

Since there are many possible answers to these questions, it has thus far been impos-

sible to make any sound scientific conclusions. Population development forecasts must therefore rely on assumptions about future developments.[1] For the EU-15 countries, fertility is expected to increase slightly except in France and Ireland, where current high fertility levels are forecast to decrease. Given the lack of scientific evidence on the drivers of change in fertility in industrialised countries, it is possible that actual developments will deviate from these assumptions.

Even if fertility in France keeps rising as it has in recent years and current low levels remain constant in other countries, the impact would barely be noticeable in the near future. Indeed, it will take many years for such small developments to alter the age composition of populations. After several decades of low fertility, the number of potential mothers has significantly decreased, so that an increase in fertility will not have a noticeable impact in the short term.

A similar argument can be made about life expectancy. An increase has been forecast for all countries in our sample, though it will be higher in some than in others. The highest life expectancy increase for men between 2006 and 2050 will presumably occur in Austria, with 7.2 years. For women, life expectancy will increase the most in Belgium, by 6.4 years. We have assumed the lowest increase in the Netherlands, with 3.8 years for men and 2.7 years for women. Current national assumptions may deviate from the estimates used by Eurostat. However, even if deviating national assumptions were used, changes to the overall picture would be negligible.

The continuous ageing of societies is one of the consequences of these developments, and is reflected in the old age dependency ratio. It depicts the number of people aged 65 and older per 100 people of working age (15–64 years) and demonstrates that the ageing process varies in different Western European countries. For instance, Spain, Italy and Germany are much more affected than countries like the UK, France or Sweden.

Can ageing societies remain competitive?

To answer this question, the effects of ageing on the economy and its growth prospects must be examined. The following paragraphs shed some light on this issue. We will identify the relationship between demographic change and economic growth and discuss its potential impact on Western Europe.

Demographic development affects economic activity in many areas. Gross domestic product (GDP), i.e. the sum of all goods and services produced within a given period, is the result of an application of capital and labour combined with the effects of technical progress. Clearly, labour force development has an influence on output. It should be noted, however, that not only the number

1 We have used Eurostat figures for all countries except Norway and Switzerland. For each of these two countries, we have used the figures and forecasts of national statistical offices.

Chart 2 Fertility rates in Western Europe [children per woman]

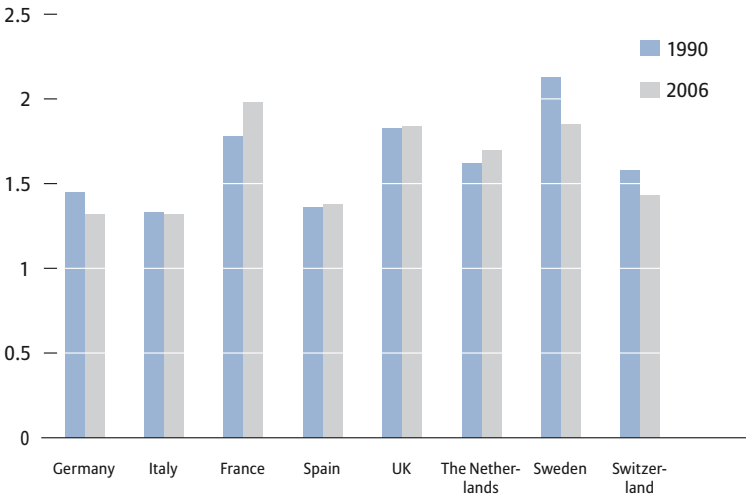
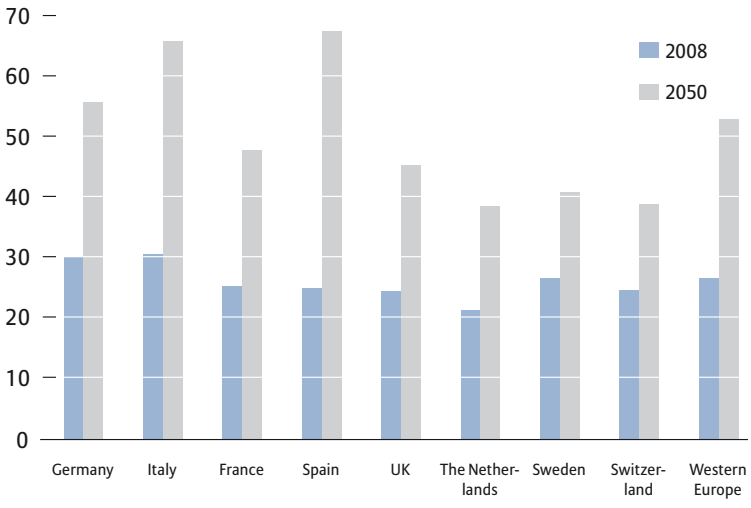


Chart 3: Old-age dependency ratios [65+-year-olds/15–64-year-olds]



Source: Eurostat

of workers matter, but also their quality. Education, i.e. the quality of human capital, is an important determinant of productivity.

Since population development and the age structure of a population affect the use and quality of production factors in a number of ways, the impact of demographic change on output is difficult to determine. Some simple economic models describe these relationships. In this basic accounting exercise, GDP is the product of the number of employed persons (working population) times the output in goods and services per employed person (labour productivity):

GDP =
labour productivity x working population

The working population is a subset of the people aged 15-64 who could potentially work (potential labour force) and do participate in the labour market.

Working population =
participation rate x potential labour force

This leaves us with:

GDP = labour productivity x
participation rate x potential labour force

Labour productivity depends on the availability of capital (i.e. tools and machinery), the quality of human capital and technological progress. All of these items are influenced by demographic development – some more directly than others. Let us begin our analysis with the most obvious variable, the potential labour force.

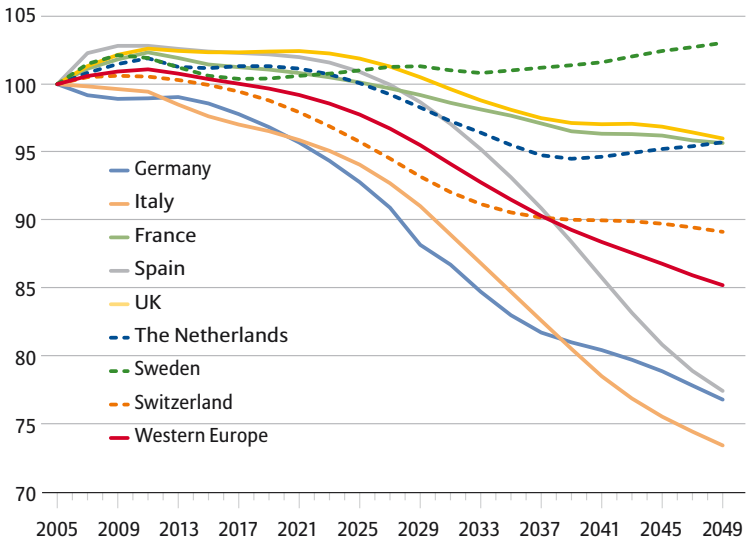
Demographic impact on the labour market

How do demographics affect the labour market? If we assume that the potential labour force comprises all people between 15 and 64 years of age, we will see some changes throughout Western Europe. According to current population forecasts, labour force potential will decline by 15% between 2008 and 2050. The development of the 15-64 age group will differ considerably across Europe. Germany and Italy will see the sharpest declines. Labour force potential in these two countries will shrink by 25% by 2050. In contrast, Ireland will see an increase of 15%, the increase in Luxembourg will be almost 30%, and Sweden's labour force potential will grow by 3%. All other countries will have to cope with a declining potential labour force.

A decline in the potential labour force does not mean that the size of the labour force automatically shrinks. This is because many people aged 15-64 are not active in the labour market. A substantial number of people are pursuing their education, some have retired early and others are currently at home to raise children or for other reasons. In 2007, the labour force participation rate (i.e. people aged 15-64 who were either employed or looking for a job) stood at 74% for men and almost 60% for women. The figures for Norway and Switzerland are well above the EU-15 average.

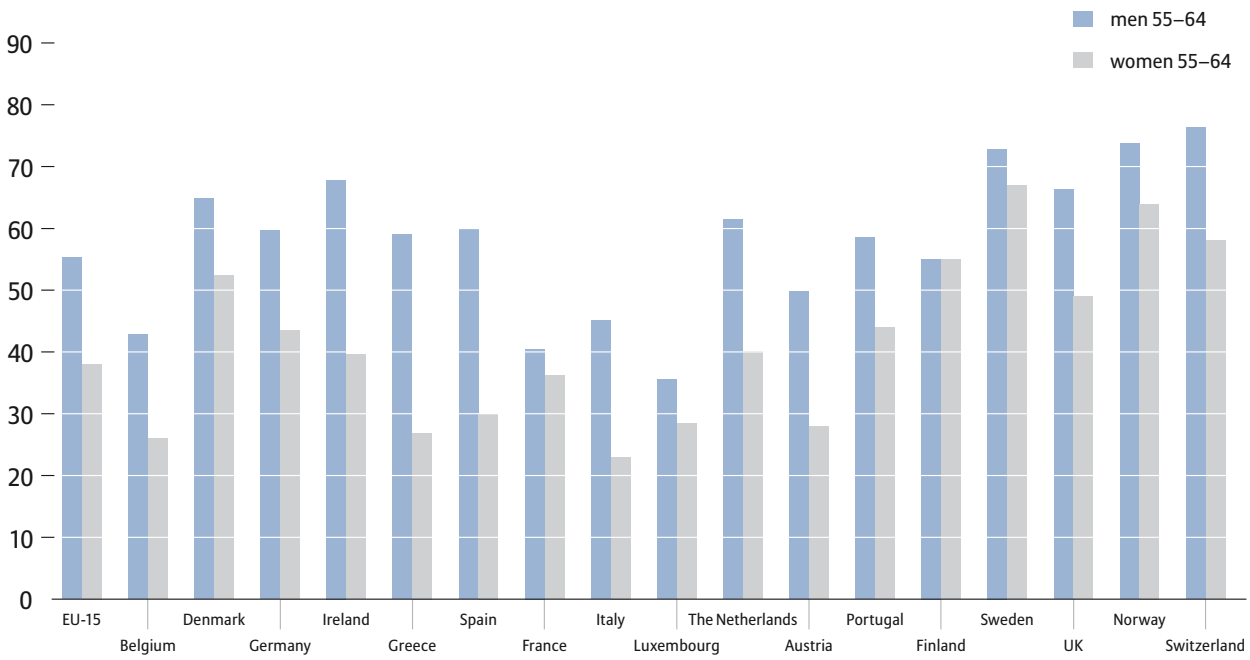
These participation rates can change for a number of reasons. Developments in the economic cycle are an important influence, but changes in the legal environment also play a role. Since 1995, the labour force participation rate in the EU-15 has increased by 3.5 percentage points for men and 10 percentage points for women. Legislation to increase

Chart 4 Development of the working age population aged 15–64 [2005=100]



Source: Eurostat, national statistical offices

Chart 5 Labour force participation rates of 55–64-year-olds, 2007 [%]



Source: Eurostat

retirement ages and an improved economy have contributed to that development. This demonstrates that a declining potential labour force does not automatically mean that fewer people are available on the labour market. Participation rates could increase, just as unemployment could decrease.

About 13 million EU-15 citizens are currently unemployed, which represents the entire combined potential labour force of Belgium and Greece. With unemployment rates between 2.5% and 4%, Norway and Switzerland have reached almost full employment. Given the high participation rates in these two countries, changes in the potential labour force will have a more direct impact on the availability of labour. In other EU-15 countries, there is still some room to manoeuvre. For instance, labour force participation rates for those aged 55 to 64 can increase substantially in most EU countries. Currently, only Sweden comes close to Switzerland and Norway.

If it were possible to increase labour force participation across EU-15 states to rates as high as Sweden's, the demographic impact on the labour market could be cushioned considerably. In fact, the expected labour force decline of 15% could be reduced by half. Even if some aspects of demographic development cannot be changed in the short term, smart policies can certainly alleviate its most dramatic effects.

For instance, extending working life and closing loopholes that lead to early retirement are two possible measures that could be implemented to protect the labour market from a declining population. Another is increasing the willingness to join the workforce by offering childcare facilities for young parents and/or more flexible working hours. Taxes play an important role, too. If taxes on a couple's secondary income are too high, the incentive to work is low, as experience in the Netherlands has shown.

Even if the total number of workers does not drop by as much as some may fear, there is no denying that the workforce is ageing. In Western Europe, the current median age is about 40 years; it is expected to increase by roughly 7 years by 2050, as will the median age of the labour force. Until now, there has not been any empirical evidence on how such a process will affect productivity.

The role of education

As already mentioned, the quality of the labour force plays an important role – especially in countries with decreasing populations. In Western Europe, Germany and Italy

in particular must cope with pronounced population decline. In these countries, and also in Portugal, Greece and Spain, efforts must be made in the realm of education to counter the effects of ageing and population decline. The decline in the absolute number of potential workers must be countered by an increase in the productivity of each individual.

To achieve this, national school systems are one of many factors that must be examined. Certainly, reducing the number of school dropouts is critical. However, the education of the workforce as a whole must also be considered. Lifelong learning should not only be a catch phrase, it must become an embedded concept in companies' personnel departments. Giving the increase in retirement age, workers aged 55 and over will have to spend a decade or more in employment before they can access their pensions. Hence, even for these experienced workers, continuing education will become increasingly common. The depreciation of human capital in a shrinking labour force must be prevented (Ludwig, Schelkle, 2007).

Age and productivity

The development of labour productivity is extremely important for an economy's long-term growth prospects. Ageing populations and workforces require that answers be found to the question of how productivity is affected by ageing. In rapidly ageing countries like Germany and Italy, this question is high on the agenda. The fact that certain mental abilities decrease after early adulthood is one of several aspects that are undisputed.

However, this does not mean that productivity decreases as workers age. Experience, which increases with age, is also important. A good balance between mental ability and experience leads to the best results. If we look at purely physical work, the picture is slightly different, as productivity undoubtedly decreases with age. In Western Europe, however, ever fewer jobs rely exclusively on physical abilities. Even in the automotive industry, it has not been proven that younger assembly line teams are more productive than their older counterparts. While younger teams tend to be faster, they also make more mistakes.

To assess the development of productivity in an economy, the weight of different jobs in the overall workforce is important. Mental abilities, such as problem-solving skills when faced with new challenges, logic and the ability to understand complex topics, seem to decrease with age. Verbal abilities and communication skills, on the other hand, tend to improve with age, as experience plays a more important role. The importance of different combinations of these abilities vary, depending on the industry. For older employees, changes that are the result of rapid technological development pose a particular challenge with regard to productivity, as they make experience acquired over decades irrelevant. For this reason, industries that are characterized by such change will suffer more from an ageing workforce than others.

There are very few empirical studies that demonstrate these dynamics, and those that are currently available do not provide clear answers to the critical questions. Most studies conclude that productivity declines with age. However, it is unclear at what age the decline sets in and whether it is significant. This leaves us with the following results: While a decline in productivity due to ageing is possible, it appears that it will not be substantial. We must also consider the possibility that the deterioration of productivity can be countered by further education and training. There is ample evidence that employees can acquire new skills at any age. If companies keep this in mind, they may be able to maintain productivity despite ageing societies. This is particularly true in sectors where experience is important.

Demography and the use of capital

When the supply of labour declines for demographic reasons, the importance of capital in maintaining economic performance grows. Capital must be used to substitute labour and increase the productivity of the remaining jobs. In other words, investment in real capital will gain importance. In ageing Western Europe, capital investment is influenced by the need to substitute labour, which will become more expensive. Production will become even more capital intensive. The necessary increases in productivity will be achieved

by investing more in human and physical capital – increasing capital demand even more.

Demography and technological progress

Technological progress is an important factor for economic growth. It results in new products or new, more efficient ways of producing existing products. Innovations are frequently the result of technological progress. For Western European economies, which trade a great deal with the rest of the world (and of course with each other), technological progress is one of the pillars of growth. Western Europe can only successfully compete on global markets with very advanced products. If ageing were to interfere with countries' ability to innovate, their international competitiveness would face a direct threat. Countries such as Germany, which is a very strong exporter of highly sophisticated machinery and cars, would suffer if it could not maintain its competitive advantage over foreign competitors. Assessing the effect of ageing on technological progress is therefore critical.

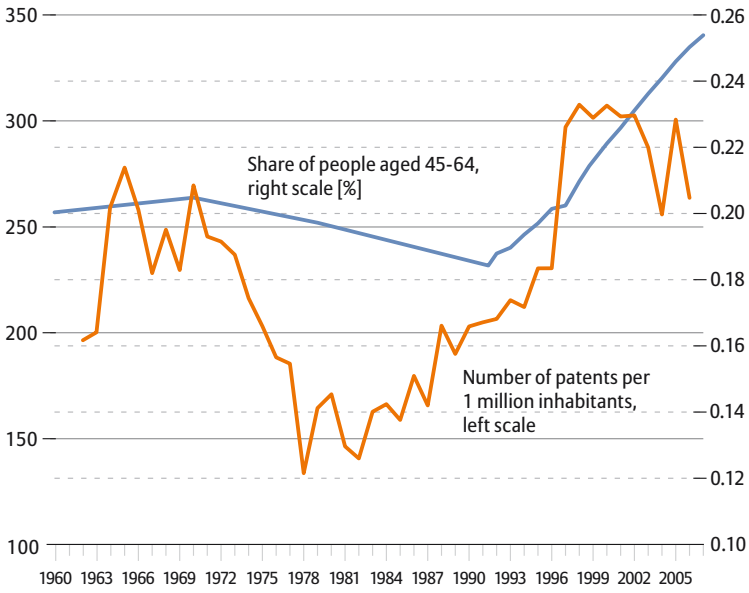
It is a commonly held thought that a society's ability to innovate suffers when it ages. This rests on the assumption that creativity decreases with age. In fact, recent empirical research has shown that age tends to correlate negatively with the propensity to innovate (Schneider, Ragnitz, 2007). The likelihood of a successful innovation (new product, major process or product improvement) peaks at an average age close to 40. Afterwards, the likelihood begins to decrease, dropping to lower than at the age of 30 when the average age of personnel is over 48. Hence, there is quite a long time span with fairly high innovation potential. What is more, empirical results suggest that a good balance of older and younger employees must be reached to achieve high innovation potential.

US data on patent activity shows a rather positive correlation between age and innovations. This means that even if age affects the likelihood to innovate negatively, this seems to take effect only at higher ages – at least compared to the average age of the workforce. Given the projected increase in the age of the workforces in Western Europe, a strong negative impact is unlikely to materialise. Since the propensity to innovate seems to increase until age 40 a positive correlation between age and innovations can be found in younger populations. Chart 6 shows that such a relationship is not contradicted by the data, even though it does not prove it. At least an increase in the share of elderly, here the number of people aged 45 to 64, correlates positively with the number of patents.

Ageing and economic growth

Having addressed all of these considerations regarding future labour force development, productivity and technological progress, we can now have a closer look at Western Europe's growth prospects. The frame of reference for this task is the simple growth accounting framework introduced above. GDP growth can be broken down into productivity growth and employment growth. The latter depends on the growth of the working age population and changes in labour utilization (i.e. labour force participation). For example, the European Commission and the European Central Bank (ECB) conducted this exercise, and the result of our own research is in line with their findings. It is very likely that GDP per capita growth will decline over the next four decades. However, this decline will not be dramatic (*Table 1*).

Chart 6 Share of people aged 45–64 and number of patents per 1 million inhabitants in the US



Note: Patents are defined as Utility Patents granted to US inhabitants

Source: US Census Bureau, US Patent and Trademark Office

Table 1 Economic growth scenarios for Western Europe [average annual changes in %]

	Labour productivity	Change in labour force	Working age population	Total population	Real GDP	GDP per capita
Past: average 1995–2005	1.1	0.8	0.4	0.5	2.3	1.8
Base case						
2011–2030	**1.7**	**0.4**	**-0.3**	**0.1**	**1.8**	**1.7**
2031–2050	**1.5**	**0.2**	**-0.5**	**-0.2**	**1.2**	**1.4**
Pessimistic assumptions						
2011–2030	1.2	0.1	-0.3	0.1	1.0	0.9
2031–2050	1.1	0.0	-0.5	-0.2	0.6	0.8
EU commission assumptions						
2011–2030	1.8	0.2	-0.3	0.1	1.7	1.6
2031–2050	1.7	0.1	-0.5	-0.2	1.3	1.5

Notes: Western Europe = EU 15, labour force participation: share of employed persons of working age population

Source: ECB, Eurostat, European Commission, own calculations

The scenarios have two main results:

- As the table shows, growth will be affected dramatically only under very pessimistic assumptions. In our base case scenario, which is slightly less optimistic than the European Commission with regard to productivity developments, but more optimistic on labour force participation, in the medium term GDP per capita growth will remain roughly at the level seen in the last decade. Towards the end of the forecast period, growth will slow down as the change in the working age population becomes more pronounced.

- The table also demonstrates the importance of maintaining high labour productivity. If the increase were to fall below the past average of one percent, GDP growth would be severely impeded. In fact, GDP growth above one percent would be difficult to obtain. An increase in labour force participation is another important precondition for economic growth to stay at levels close to those reached in the past.

EU policies currently aim to achieve precisely these goals, as summarised in the Lisbon agenda. Norway and Switzerland have similar goals with respect to growth. Indeed, policies across Western Europe are geared towards increasing labour force participation with higher retirement ages or better childcare facilities. They also aim to increase labour productivity with efforts to raise educational standards and foster research and development. While progress towards reaching these targets has not been consistent in all countries, we expect all of Western Europe to make substantial progress within the next decades. Although Europe is ageing, it will remain an economic force to reckon with in the future.

Consequences for pensions and pension investments

What does all of this mean for pensions? First, the prospect of decent economic growth rates means that there is no need

to fear the future. The consequences of ageing can be dealt with. Second, public, pay-as-you-go financed pension systems will encounter difficulties as a result of the changing ratio of people over 65 to the 15-64 age group, which finances pensions. This ratio, which is commonly referred to as the old age dependency ratio, will increase from 27 today to 52 in 2050.

This means that in the future, there will be 52 elderly people for every 100 people of working age, compared with 27 today. Still, the outlook for public pensions would be much worse if ageing automatically meant economic decline. This is not the case, as incomes are expected to keep growing. Wages, which finance public pensions, will not be affected that much by ageing. However, ageing will have a large impact on the viability of public pension systems.

The most common reaction to this foreseeable development continues to be decreasing the generosity of public pension systems and strengthening private pension provision. The latter is usually of a funded type. People save money while working and receive the proceeds of their savings after retirement. While this arrangement exposes them to investment risk, pension asset managers do their best to keep this risk manageable. They must continuously ask themselves where the best possible investment can be made. If ageing societies were doomed to slow growth, stagnation or eventual decline, the only answer would be in young and/or fast growing economies. This concept would rule out some major European countries such as Italy, Spain, and Germany, among many others. However, as the above analysis has shown, an ageing society does not necessarily face a bleak future.

The move towards a pension system that is funded to a much higher degree than past systems can be seen as a reaction to the changing needs of an ageing society. To successfully offset the decline in labour through investments in physical and human capital, an economy needs a great deal of capital. Across Western Europe, the need to adapt to demographic change varies significantly. The situations in Sweden, France and the UK differ considerably from Germany or Italy. The need for reform is highest in the countries that are ageing the most quickly and have not yet sufficiently reacted by adapting their pension systems and economies to the demographic conditions they will face in the future.

From an investment point of view, even an ageing Western Europe seems like a promising place to invest. The demand for capital to finance the investments required to offset the decline in labour will grow. In some countries, notably Germany, this process has already begun or will start sometime soon. In the end, return on investment and the associated risks determine whether or not an investment is appropriate. Even if higher returns can be expected in emerging economies, these also entail higher risk. Among others, exchange rates and political risks should be considered.

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The Financial Assets of Private Households – An International Comparison

Introduction

Over the past decade, Europe has seen many pension reforms that have paved the way for a shift from pay-as-you-go to funded pension systems. These reforms have led to a strengthening of the second pension pillar in most countries and highlighted the importance of third pillar provision, as replacement levels in the first pillar have been cut back. Especially in Continental Europe and EMU (European Monetary Union) countries, the introduction of tax-favoured savings products for retirement has triggered a build-up process in this segment.

The increasing importance of the pension segment is reflected in the financial assets of private households. In many countries, the proportion of pension products has increased in private household portfolios in recent years. To a large extent, the differently structured portfolios in European countries can be viewed as a result of differing pension systems and saving behaviours. This study generally focuses on a narrow definition of retirement assets (i.e. pension funds and life insurance reserves), as it is difficult to earmark other financial assets as destined for retirement income. However, analysing the total financial wealth of private households is a worthwhile endeavour, as most financial products can be used to top up retirement income.

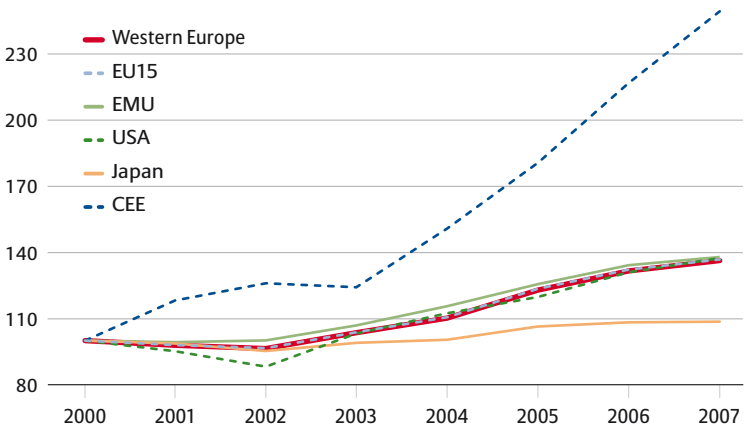
Trends in financial asset development

At the end of 2007, financial assets in Western Europe[1] reached EUR 25.8 trillion[2]. This was around 15% below the US level (EUR 30.8 trillion) and more than two and a half times above the level Japanese households had put aside (EUR 9.7 trillion). However, because of the difference in size of the regions, an analysis of the absolute values does not correctly reflect the ratios. Taking financial assets as a percentage of gross domestic product (GDP), we find that wealth in Western Europe, which amounts to about 220% of GDP, is significantly lower than in the other two regions. In 2007, the United States' monetary wealth of private households was 328% of the country's GDP. In Japan, it stood at 310%. In contrast, Eastern Europe lagged way behind, reaching only 73% of GDP.

The new members of the EU in Central and Eastern Europe (CEE) showed the most dynamic development among the regions in review. Over the past five years, they have seen annual growth rates of almost 15%. Western Europe recorded annual growth rates of 7.2% on average after 2002. That year, an economic upturn laid the foundation for resuming financial asset build-up in the household sector,

1 Former EU member states plus Norway and Switzerland, not including Luxembourg.
2 Conversion at 2007 rates.

Chart 1 Financial assets of private households [2000=100]



Note: Europe excluding Luxembourg

Source: Central banks, statistical offices, Eurostat

which had ended abruptly with the stock market crash at the beginning of the new millennium. In the US, financial assets even increased by 9.3% p.a. after the downturn had torn an exceptionally large hole in household portfolios because of the high affinity to capital market investments in the US. In contrast, Japanese households, with their low-risk and hence low-yield portfolios, recorded only a moderate increase of 2.7% per year.

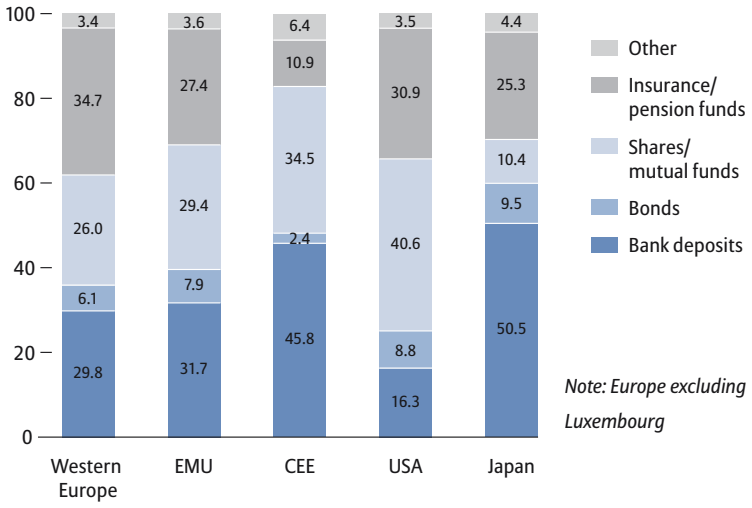
However, the investment environment changed in 2007. Growth rates dropped to half the former average at the beginning of the downturn in housing markets and due to economic uncertainties in many countries. The impact of the subprime crisis on financial markets worldwide also played a major role. In 2008, indications have thus far shown that the growth of household wealth will slow down considerably. Assuming a stock market downturn of 30 % year-end 2008 on year-end 2007 financial wealth in all major regions will even decrease.

In the US, the crisis will have an even larger impact than in Western Europe, EMU countries and Japan. This is because the disparate performance described above stems largely from differing household investment patterns in the respective regions. Compared with most Europeans and the Japanese, American households show a strong affinity to investments in stocks and mutual funds, which bears both opportunities and risks for performance in the overall investment portfolio.

About 40% of US household portfolios is invested in equity and investment assets; in 1999, this share peaked at almost 50%. Direct investment in corporate stocks is no longer as attractive as it was at that time. Indeed, on balance, US households have reduced their exposure to equities. In Western Europe, the portion of equity and mutual fund shares currently stands at 26%, after peaking at 30% in 2000.

As in the US, the increase in the overall figure in many European countries stems from valuation changes over the course of positive stock market performance up to 2007. It is not the result of new investment flows, as households began to invest more cautiously. The household portfolio mix in CEE contains a surprisingly high portion of equity investments, but this is due to the privatisation process in some Eastern European countries.

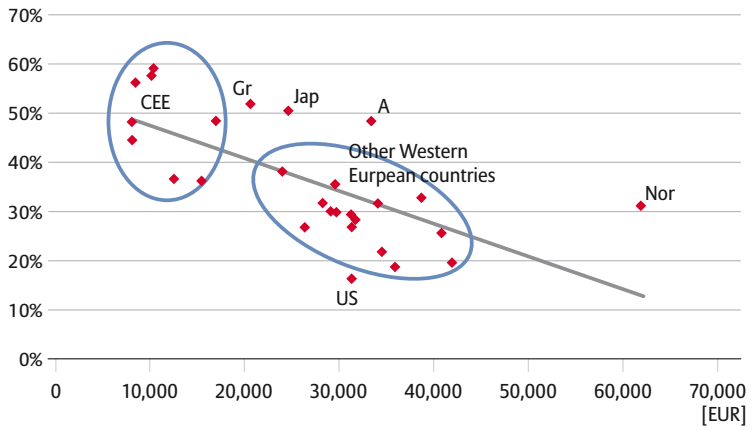
Chart 2 Private households' financial asset structure, 2007 [%]



Source: Central banks, statistical offices, Eurostat

To a certain extent, bank investments in both the US and Europe have seen a revival, which is the result of a heightened desire for safe investments. Nevertheless, US household portfolios contain only 16% bank products. In Western Europe, the bank share is almost twice as high as in the US; in Japan, the figure is more than three times higher. In CEE countries, the share of bank products is almost three times as high as in the US, which can be explained by a very low average income. Usually, the portfolio mix initially comprises less risky and liquid assets (mainly bank deposits) and shifts towards capital markets and more sophisticated products as income and wealth increase.

Chart 3 Share of bank products in household financial portfolios vs. GDP per capita, 2007 [EUR]



Source: Central banks, statistical offices, Eurostat

Insurance and pension products also make up a major portion of household financial assets. These have benefited from stronger occupational and private pension provisioning. In Western Europe, the share of these assets as part of household financial wealth has increased by 6.5 percentage points over the last decade. Moreover, in most CEE countries, capital funded pension arrangements were introduced as mandatory plans. This gave an enormous boost to this investment segment in Europe's emerging markets. Even in the US, with its traditionally stronger capital funded pillar, improvements to the system are an ongoing process. If IRA (Individual Retirement Accounts) assets are also taken into account, which are invested in other product types such as mutual funds, bank accounts, insurance products or brokerage accounts, the share of pension assets in the US further increased from an already high level of 35% in 1997 to 40% ten years later.

European countries

The Western European figure for financial assets combines a variety of investment patterns and levels of wealth. The four biggest economies combine two-thirds of total financial assets, which amounted to EUR 25.8 trillion in 2007. As the most populous country with the highest GDP, Germany ranked second behind the UK. In terms of gross financial assets relative to GDP, Germany is in a much lower position (188%) than the UK, where 295% was registered in 2007. With 373%, Swiss households are the wealthiest in Europe, and are also ahead of US or Japanese households.

These states are followed by the Netherlands, Belgium and Denmark, all of which have stronger funded pension systems than countries with traditionally more extensive pay-as-you-go pension systems such as Germany, Spain or Austria. The latter countries all rank in the lower part of the listing. Presumably, the different pension systems have an impact on asset formation and can partially explain the differing trends and financial asset levels in European countries. The share of insurance and pension fund assets[3] as part of total financial assets reflects the importance of the segment in the respective countries. The Netherlands, the UK, Denmark and Switzerland are at the very top. Very high replacement rates in the first pillar have hampered insurance/pension asset build-up in Greece, where only 3% of financial assets are allocated to this segment. This figure is far lower than in all other countries.

Nevertheless, in most Western European countries, growth in the insurance/pension segment outperformed total financial asset growth in previous years. Again, this demonstrates the importance of insurance and pension products. Below average growth can be seen in the mature pension markets of Switzerland and Denmark. It can also be observed in countries like Spain, where pension reforms have yet failed to materialise.

3 In this context, the term pension fund implies all types of investment in fully funded pension schemes. The investment vehicles have different features and names in some countries. Wherever they are subject to regulation by the insurance supervisory authorities, they are recorded for statistical purposes in the "Insurances/Pension Funds" category, in accordance with ESA '95.

Chart 4 Gross financial assets in Europe, 2007
[% of GDP, private households]

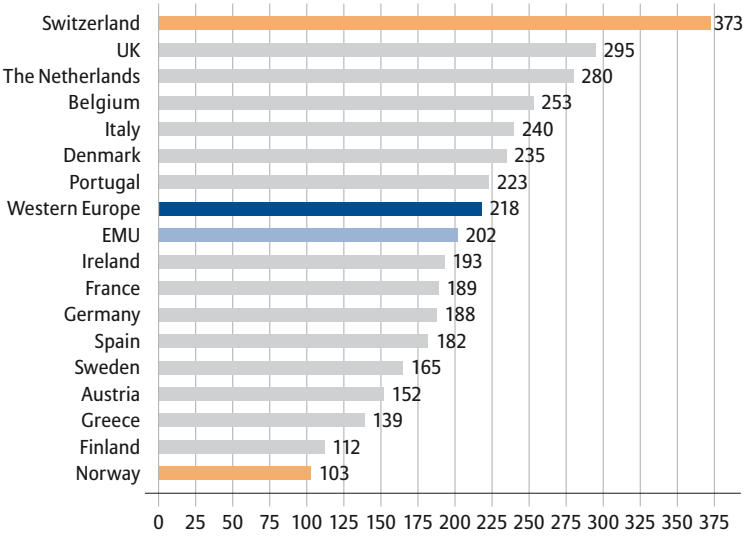
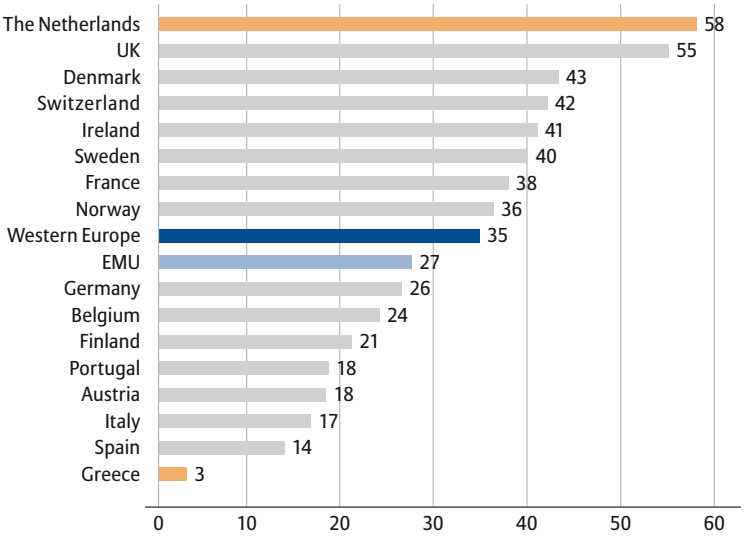


Chart 5 Share of pension and insurance assets in the total financial assets of private households, 2007 [%]



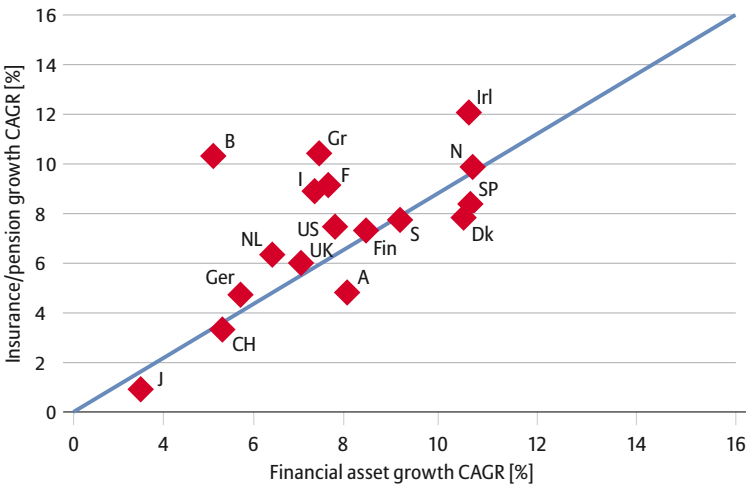
Note: Europe excluding Luxembourg

Source: Central banks, statistical offices

Very high growth rates of pension / insurance assets compared to total financial asset growth can be observed in Belgium. This has been triggered by a new occupational pension scheme ("Vandenbroucke" law), established in 2004, but also life insurance products saw a strong development. Greece also saw high growth rates in pension/insurance assets. This is likely to be the result of the generally low level reached up to now, which represents high potential to catch up. Ireland is another country where performance is high, as it belongs to a group of countries that have a very basic first pillar only. Low replacement rates must be topped up with occupational and private pension provisioning. The extremely dynamic growth of the overall Irish economy, which has shown the highest average growth rates in Western Europe in the last decade, has given households the financial leeway they need to save for retirement.

Other reasons for the varying development of total financial wealth include the general propensity to save and differences in investment behaviour itself. As already shown for the different regions of the world, risk aversion levels differ tremendously. Greek households hold the biggest share of bank products. This risk aversion may be due to a lower level of income and economic development. As one of the wealthier countries, portfolios in Austria are geared heavily towards security, with almost 50% invested in bank deposits and another 9% in debt securities. Spain and Germany are also among the countries that invest conservatively compared to other European countries.

Chart 6 Insurance/pension asset growth vs. total financial asset growth, 2001–2007



Source: Allianz Dresdner Economic Research

The different behaviours and influences from differing regulatory, statutory and fiscal arrangements have led to strongly varying trends. Depending on investment preferences, the stock market boom in the late 1990s had a number of impacts on portfolios. In most European countries, financial assets grew rapidly between 1996 and 2000. This was related directly and indirectly to stock market gains in particular, which affected both the valuation of existing stockholdings and attracted massive new inflows of funds.

The boom gripped the Finns, Swedes and Greeks in particular, generating strong growth between 1996 and 2000 – and losses in the subsequent downturn. Still, together with Spain and Norway, these countries experienced the highest asset gains. At the end of

Savings ratio

Savings ratios are often used as an indicator of savings behaviour. This can be misleading for cross-country comparisons, as contributions to pension schemes are not counted as savings. In contrast, the accumulated savings of pension assets do count as financial assets. The savings ratio is usually calculated as the difference between income and consumption. Contributions to pension schemes and investments in other financial assets, such as bank deposits, are treated differently. While the former is recorded in national accounts as a household expense that reduces saving potential, the latter is viewed as saving. However, since contributions to pension schemes increase financial wealth, countries with large funded pension systems often show low savings ratios, but high financial wealth (as share of GDP). This puts the very low savings ratio of UK households compared with the higher ratio in Germany, for instance, into a more realistic perspective.

See also: Eurostat, Savings rates in Europe, Statistics in Focus, 33/2002.

2007, their wealth was about one and a half times higher than at the beginning of 1997. In contrast, during this period Belgium and Germany registered respective increases of only 50% and 60%. By 2005, all countries that had suffered absolute losses of wealth passed their previous wealth peaks. And as a result of favourable capital market developments, they further increased their financial assets until 2007.

Financial asset projection through 2020

Moving forward, we expect the acquisition of financial assets to progress dynamically. In many European countries, the development of monetary wealth will be driven by efforts to provide for retirement. This will not only be the case in countries with already strong funded pension systems (such as the UK, the Netherlands and Switzerland), but also in states where reforms to public pay-as-you-go systems will lead to lower pension levels. Particularly in these countries (such as Germany, Italy and Austria), people are gradually learning to accept the need for supplementary private provision and are building up capital accordingly. Although this process will develop differently across European countries and depends on awareness and the progress of reform, sales of products for old-age provisioning are likely to be very successful in the coming years.

Moreover, the need for personal pension provision will encourage broader sections of the population to save beyond state-incentivised pension schemes. In most countries, our projection therefore assumes a slightly higher savings rate than in the past. However, the ratios will barely get back to the levels of the early 1990s. Additional retirement saving will likely replace other precautionary savings efforts and the increasing number of elderly people will reduce their personal savings efforts as they retire.

The increase in wealth is driven not only by savings, but also by asset valuations, as the development of financial assets has demonstrated in past decades. Stock market performance also represents an important part of the increase in monetary wealth. Rising investment in equities and equity funds will lead to higher asset valuations in the medium and long term. In turn, this will provide a partial substitute for saving. This correlation may be one of many reasons for the decreasing savings ratios that were observed in most European countries until the beginning of the new millennium. For the projection period, we have assumed a share performance of 7% p.a. from 2009 onwards.

In 2008, the financial crisis that resulted from the subprime crisis in the United States has put a burden on stock markets. The high 2007 year-end figures are unlikely to be reached by the end of 2008. Our forecasts were undertaken in the third quarter of 2008 and we have assumed that stock markets lose 30% in 2008. These performance figures also influence the assets under management of investment funds.

Investments will flow into a wide variety of product categories. A precise product-specific forecast or econometric estimate is virtually impossible for a longer period, as preferences for particular investment vehicles may depend on factors that are difficult to predict, such as legal or tax circumstances and interest rate developments. For this reason, our assumption on asset allocation is based on long-term historical structural shifts. These are driven by rising incomes and personal wealth, which lead investors to higher performing, riskier products. Although stock market volatility during this decade has reinstated the security aspect, the basic change in investment behaviour with increasing income is likely to remain stable.

In light of these patterns, countries with higher portions of direct or indirect exposure to equity markets (through mutual or pension funds), such as the UK, Sweden, Finland, Ireland or Spain, will see higher growth in household financial assets than countries with a more conservative investment approach or smaller funded pension systems. On average, we expect the financial wealth of Western European households to increase by 4.4% p.a.

Total financial assets will therefore increase by 75% until 2020, reaching almost EUR 45.3 trillion. The strongest growth will be registered in the area of insurance and pensions (5.4%)[4]. By 2020, the importance of these products in household portfolios will gain 3.5 percentage

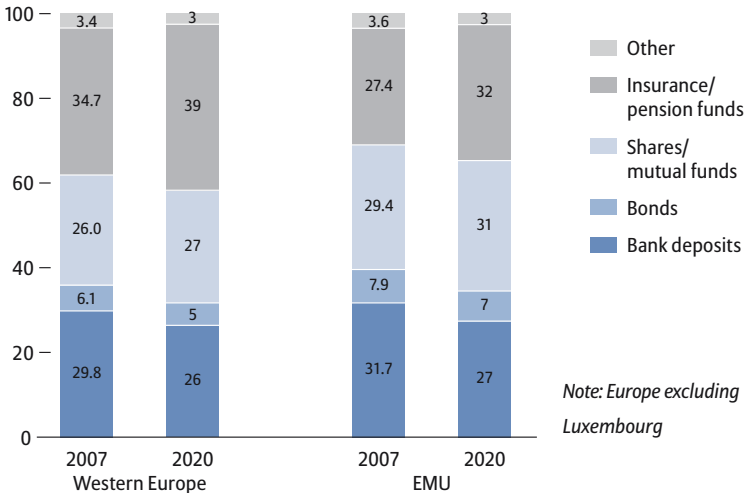
4 This growth rate differs slightly from that in the following article on pension assets. This is due to some classification differences in the financial flow statistics of national accounts and the specific pension statistics we used for the market analysis. One major difference is that non-life insurance products are included in the financial accounts.

points. Above average growth will also be observed in the shares and mutual fund segment (4.6%). This will extend their portfolio share by roughly one percentage point. The main losers in this process will be bank products.

In Continental Europe, particularly in countries that belong to the monetary union, growth rates in the insurance and pension segment are slightly higher (5.6%) due to emerging pension saving programs. With its above-average growth rate, the UK market is not included. In EMU countries, financial assets will grow by only 4.3%, amounting to EUR 30.9 trillion in 2020 from EUR 17.8 trillion in 2007.

Prospects for the long-term development of financial assets are quite good, as growth rates are expected to be higher than GDP growth. However, it should be noted that the financial turbulence of 2007/08 is yet again putting individual investors and long-term savers in capital market products to the test.

Chart 7 The financial asset structure of private households, 2007–2020



Source: Central banks, statistical offices, Eurostat, Allianz Dresdner Economic Research

At the same time, introducing fully-funded pensions in industrialised nations has become more pressing than ever.

Explanatory notes

Financial assets

The household sector's financial assets are calculated in the financial flow statistics provided by central banks or national statistical offices. The aggregate financial account shows by whom, on what scale and in which form financial resources have been made available in an economy. The system is aligned to the "European System of Accounts" (ESA), which was made binding in the European Union in 1999. Its aim is to provide a consistent set of criteria with which all economic sectors and activities can be defined.

Insurances and pension products comprise one product group in the financial accounts. In this category, investment vehicles are recorded that are subject to regulation by insurance supervisory authorities, in accordance with ESA '95. These include all types of investment in fully-funded pension schemes and insurance products. Prepayments of insurance premiums and reserves for outstanding claims are also included in this segment. The values are technical reserves. Insurance reserves and pension fund assets are not separated for all countries. This means that non-life, life and pension assets are shown in an aggregate figure in the analysis of financial assets. This figure differs slightly from the definition in the "retirement asset" part of the study (*see next article*).

Projections

While accruals in financial assets can be traced back to valuation changes and flows, flows come from savings and contributions from other sources. As far as saving is concerned, assumptions must be made on the development of disposable income and savings rates. For disposable income, an increase in line with nominal GDP growth has been assumed. The growth forecasts for real GDP and inflation in the individual countries up to 2020 are based on Allianz Group Economic Research projections. The data on savings rates up to 2009 are sourced from OECD statistics; constant or slightly increasing savings rates have been assumed for the respective countries.

Particularly with regard to allocation, assumptions are difficult to make, as preferences for special types of investment depend on interest rate trends or legal or tax conditions, for instance. Inflow allocation to the various financial instruments has therefore been based on the average behaviour of the past 10 years. Allowance has further been made for the likelihood of additional funds being channelled into private retirement provision in any one country, insofar as there are newly introduced private pension plans that are incentivised by the government.

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Allianz Dresdner Economic Research

Trends and Asset Development in European Pension Markets

Reforming public pensions

Western Europe's pension systems have changed continuously and considerably. For the most part, reforms of the last decade were triggered by the insight that ageing Western European populations would place an unbearable burden on the public pension systems in place in the medium and long term. This is because the ratio between contributing employees and retirees will worsen, in some countries dramatically. The degree of change and the depth of reform have differed across Europe. This is hardly surprising, as the pension policies of Western European countries have been based on very different foundations.

Western Europe's public pension policies are largely based on two different systems. Bismarckian systems comprise public pensions that provide earnings-related benefits and aim at maintaining income in retirement. In contrast, Beveridgean systems mainly aim to prevent poverty, often through flat-rate systems. Austria, Belgium, France, Germany, Italy and Spain belong to the former group, while Ireland, the Netherlands and the UK are examples of the latter. Mixed models can be found in the Scandinavian countries and Switzerland. Since Bismarckian systems are associated with higher public pension expenditures, they have also faced a much greater need for reform. Another factor that has determined the urgency of reform has been a widely differing demographic outlook from country to country. While Spain, Italy, Portugal, Greece and Germany must cope with strongly ageing societies, populations in Switzerland, the Netherlands, the UK, Ireland and Scandinavia are not ageing quite as dramatically.

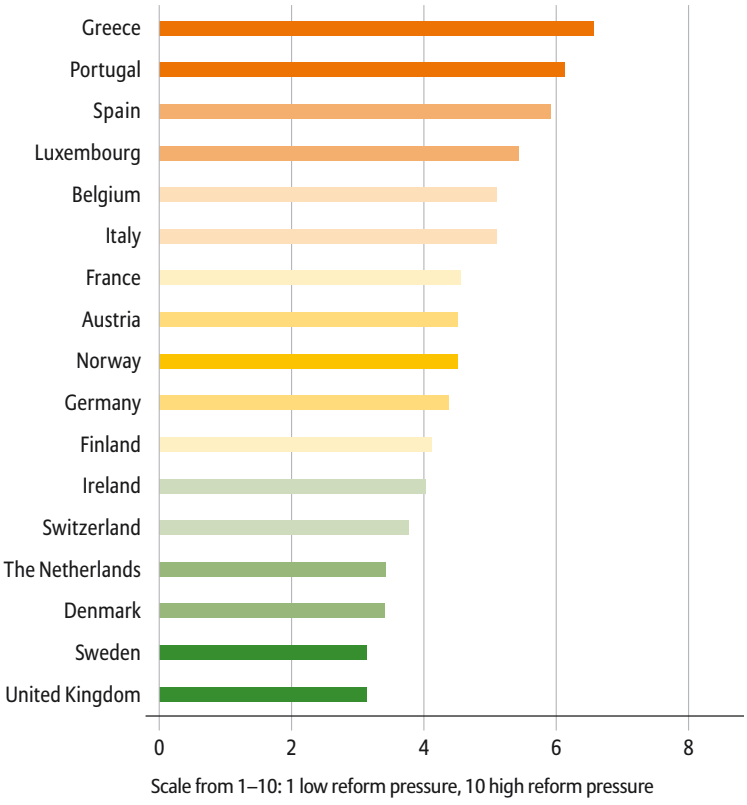
Nevertheless, almost all countries have trimmed their public pension systems to varying degrees and increased the retirement age to strengthen the sustainability of their public pension systems. Countries like Sweden, Austria and Italy have established a very strong link between contributions and benefits in the public pillar. They have introduced a notional defined contribution system in which contributions are recorded in notional individual accounts and benefits depend on the accumulated sum and cohort life expectancy.

Despite these reforms, Western Europe's public pensions are still very generous in a worldwide comparison. Some European countries show exceptionally high replacement rates, which are defined as the ratio of post- to pre-retirement income. In Italy and Portugal, the net replacement rate for average earners is around 90% of pre-retirement income. In Luxembourg, Spain and Greece, it is 100% or more. This dominating public pillar will have a strong impact on public finances in the future, which will influence the need for pension system reform.

The Allianz Dresdner Reform Pressure Gauge summarises the effects at work, compares and illustrates the sustainability of pension systems and the need to reform. It includes the likely effects of reforms already initiated. In so doing, it assesses the future sustainability of pension systems and shows that reform pressure is highest in Greece. Generally, countries with very high replacement rates and underdeveloped funded systems are under the highest reform pressure, as they will face dramatic increases in public pension expenditure in the future. Portugal, Spain and Luxembourg face this very situation. For Sweden, the UK, Denmark and the Netherlands, the Pressure Gauge

The **Allianz Pension Reform Pressure Gauge** measures the pressure on governments to introduce pension reforms. The lowest score indicates the least pressure to reform. This pressure can arise due to an expected dramatic demographic change and/or an underdeveloped or unsustainable pension system. The Reform Pressure Gauge consists of many different individual indicators that illustrate the need for reforms. The current and future old age dependency ratio, the size of government debt, replacement ratios, pension expenditure or retirement age are such indicators. The existence of a public pension reserve fund to support the finances of the public pension system is also included. This reduces reform pressure, but only if the fund invests in a broad range of assets. The Reform Pressure Gauge also encompasses indicators that capture reform progress. Evidence of reform progress is, for example, an increasing retirement age, the reduction of a formerly high replacement ratio or the strengthening of the funded system.

Chart 1 Reform Pressure Gauge



Source: Allianz Dresdner Economic Research

indicates fairly low reform pressure because of the large share of funded old age provision.

Introduced reforms have not only aimed to roll back benefits from the public pillar. They have also encouraged the private and occupational provision of retirement savings. They have done this either by providing greater incentives, or by introducing new pension schemes in the occupational and private pillars. The establishment of pension reserve funds has been another innovative facet of the move towards funded pensions. Governments have established these funds to finance a portion of public system liabilities in the future and therefore contribute to the sustainability of the public pension pillar. In the realm of European occupational pensions, we are witnessing a shift from defined benefit to defined contribution plans. However, the scope and depth of this shift vary strongly across Europe. There are also multiple differences between the various emerging defined contribution plans in each country.

Introducing new funded pension schemes

Throughout Europe, new pension schemes have been introduced in the second and third pillars. The immediate motivation was generally to compensate for the decreasing benefits of public pensions by increasing the funded share of pension provision. However, the long-term goal is to achieve a more balanced structure of retirement income between the public and funded pillars. Diversifying retirement income and makes it possible to accomplish the three functions of pension systems: redistribution, savings and insurance (World Bank, 1994).

Funded pensions in an ageing society have the additional advantage of being resistant to demographic change, as they are not as dependent on fertility and longevity developments as unfunded systems are. Rather, benefits are based on accumulated savings. Funded pensions also promise better rates of return, enhanced capital market development and reduced fiscal liabilities for governments, who are responsible for deficits in unfunded systems. There is no definitive

answer as to whether funded systems increase overall savings. They may crowd out voluntary savings, or may also be accumulated in addition to other savings.

Funded pensions are not only important in the second and third pillars; some countries in Europe have at least partially funded first pillars. In Finland, the earnings-related portion of public pensions is partly funded, and contributions are handled by private companies. In Denmark, contributions to the earnings-related pension scheme flow into a defined contribution scheme. This scheme is managed by an independent agency, which invests the money in financial markets. Nevertheless, the recently introduced pension schemes in Europe are found mainly in the second and third pension pillars, with the exception of schemes in Sweden and Portugal.

The Swedish premium pension is a very innovative approach. A share of mandatory social insurance contributions is used for the Premium Pension, and participants can choose between numerous investment funds. The recently introduced scheme in Portugal foresees voluntary additional contributions on top of social security contributions, which are managed by the Portuguese pension reserve fund and held in individual accounts.

Generally, Western Europe's new pension plans are designed in very different ways. Mandatory second pillar plans were recently introduced in Norway and Austria and are being discussed in Ireland. However, most plans operate on a voluntary basis. Some occupational schemes, like Belgium's, attempt to encourage occupational pension provision on a sectoral basis. Others, such as France's PERCO, target single employers.

Several of the new plans have been very successful. Between 2004 and 2007, assets in the French PERCO plans grew from EUR 77 million to EUR 1.4 billion. During the same period, the number of participants in Germany's *Riester* pension increased from 4.2 million to 10.7 million. In Austria, the *Prämienbegünstigte Zukunftsvorsorge* was able to attract almost one million members within three years. The popularity of the new plans is evidence of Western Europeans' growing willingness to save individually for old-age provision, even in countries with traditional-

Table 1 New funded pension schemes in Western Europe

Country	Scheme	Pillar	Year of introduction
Austria	*Mitarbeiterversorgungskasse* *Betriebliche Kollektivversicherung* *Prämienbegünstigte Zukunftsvorsorge*	Second Second Third	2003 2005 2003
Belgium	Sectoral Funds	Second	2004
France	*PERCO* *PERP*	Second Third	2003 2003
Germany	*Pensionsfonds* *Riester* pensions	Second Third	2001 2001
Greece	Occupational Insurance Funds	Second	2002
Ireland	Personal Retirement Savings Accounts	Third	2003
Norway	Mandatory Occupational Pensions	Second	2006
Portugal	Public Capitalization Scheme	First	2008
Sweden	Premium Pension	First	2000
UK	Stakeholder Plans Personal Accounts	Second/Third Second	2001 Planned for 2012

ly dominating public systems. Most of the new schemes introduced in Western Europe operate on a defined contribution basis, reinforcing a trend that we will discuss herein.

Establishing public pension reserve funds

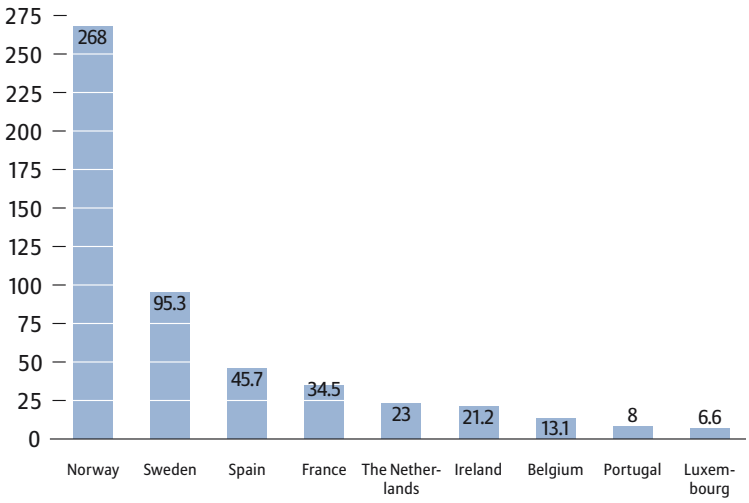
When they introduced new plans in the second and third pillars to remove the burden from the public system by achieving a more balanced pension provision structure, many countries also introduced a measure directly targeted at achieving more sustainable public pensions. The basic idea is to partially fund the public pension pillar through pension reserve funds. Ageing in a pay-as-you-go system implies that there will be fewer employees, but more retirees. Thus, either contributions must rise if benefits are to stay at the same level or benefits must decrease if contributions are to stay at the same level. To cushion the impact of ageing on the public system and prevent contributions from skyrocketing, governments use the funds to set money aside now to partially pay out benefits in the future.

Design and operation

Pension reserve funds have become increasingly popular in Western Europe, especially since 2000. Nine of the seventeen countries investigated here have introduced a pension reserve fund. In some cases, the newly established funds are successors of previously existing funds, as is the case in Norway. However, in most cases the funds were created from scratch. The common aim of these funds is to support the public system and contribute to its financing when age-related pressures become a serious threat. For this reason, the time at which funds can begin being withdrawn is generally predefined. In Spain, for example, reserve fund assets can be used once the public system has been in deficit for three years. In Ireland, the funds can be used from 2025 onwards, and from 2020 in France.

Reserve funds can be financed in a number of ways. The Norwegian Government Pension Fund, which is the biggest fund in Europe, is financed by Norwegian oil and gas revenues. The aim is to ensure that future generations will also benefit from these limited resources. In Ireland, the government has to invest 1% of GDP in the reserve fund each year. In France, the reserve fund is financed by privatisation revenues, surpluses from certain social funds and taxes. In other countries, such as Spain, assets stem from contribution surpluses in the social security system. The Portuguese fund is financed with social security surpluses, a fraction of employees' social security contributions and unclaimed tax refunds.

Chart 2 Pension reserve funds in Europe 2007 [EUR bn]



Source: OECD, national statistics

Investment policies between these funds differ greatly. In principle, the Dutch AOW *Spaarfonds* has assets of EUR 23 billion. However, the fund exists only in the Dutch government's books, and no real assets are accumulated. The Belgian Ageing Fund, for example, is only allowed to invest in Belgian government bonds that have been specifically issued for that purpose. Its Norwegian, Irish and French counterparts are on the other side of the spectrum; they pursue very sophisticated investment strategies with a focus on diversification. The target allocation of the Irish reserve fund, which is not allowed to invest in Irish government securities, is a good example. It foresees that two-thirds of assets are invested in equities, 13% in bonds and the rest in private equity, real estate, infrastructure, currencies and commodities. Also in terms of geographical diversification, the fund follows the principles of modern portfolio theory and spreads its investments around the world. The Norwegian reserve fund is not allowed to invest in Norway. Like its French counterpart, its equity share is around 60%.

Pension reserve funds and socially responsible investing

The pension reserve funds drive and strengthen the trend towards socially responsible investing (SRI). The French and Norwegian funds are especially active in this area. Norwegian reserve fund regulations subject the fund to ethical guidelines established by the Ministry of Finance. An ethics council serves as an advisory body that recommends the types of investment that should be excluded. The fund's assets are managed by Norway's central bank, which pursues a policy of active ownership. This policy aims to safeguard the fund's financial interests and calibrate its investments based on extra-financial criteria, which include social issues such as child labour and children's rights as well as climate issues.

The French *Fonds de réserve des retraites* also pursues a policy of active ownership. The fund's managers must exercise their voting rights in line with the fund's guidelines. The principles of SRI investing are also included in the portfolio. The fund has allotted several specialised SRI mandates and encourages the managers of its other equity mandates, particularly of European equities, to make extra-financial indicators part of the selection process and share data with each other. The specialised mandates do not exclude specific companies, but rather apply a "best-in-class" approach.

The *Fonds de réserve des retraites* intends to go one step further. In 2006, a process was initiated that aims to assess the entire portfolio on the basis of extra-financial criteria. In 2008, the fund established a responsible investment strategy based on five objectives, among them further efforts to include SRI criteria in portfolio management, active exercise of shareholder rights and improvement of prevention of extra-financial risks. It is an important development that state reserve funds adopt SRI principles, as doing so may have a considerable impact on financial markets and the demand for asset management services. Due to their size, state reserve funds enable SRI investing to reach a critical mass. This will help perpetuate the approach and make it part of more mainstream investment management.

The (uneven) shift from defined benefit to defined contribution

The shift from defined benefit to defined contribution plans is a worldwide phenomenon that has been driven by a variety of factors. These include the underfunding problems that defined benefit plans face and the increased volatility of pension expenses for firms that have resulted from new accounting standards. Volatile financial markets and the increasing complexity of defined benefit plans due to new regulations, which has resulted in higher administrative expenses (Clark, Monk 2006; Broadbent, Palumbo, Woodman 2006), have also played a role. Consequently, employers have come to prefer defined contribution plans, as their financial payments can be calculated, and investment and longevity risks can be transferred to employees.

As labour mobility has grown, also considerable parts of the workforce have discovered the advantages of defined contribution plans, which do not penalise job changes and are portable.[1] While employees assume investment and longevity risk in (pure) defined contribution plans, they avoid the risks that are associated with defined benefit plans, such as wage path, job tenure or default risks (Oxera 2007).

While there is a clear trend towards defined contribution in Europe and elsewhere, defined benefit plans continue to play a role. Indeed, for two reasons, the degree of the shift is sometimes over-interpreted. First, because of the much longer history of defined benefit plans, the stock of assets in these plans is still considerable. In fact, in most European countries, it dominates. Watson Wyatt estimates that in the 11 largest pension markets, defined benefit assets still account for 57% of occupational assets (Watson Wyatt 2008). Second, the trend towards defined contribution plans is uneven. While it very pronounced in some regions, including Australia, the US, Italy, Spain, Eastern Europe and parts of Asia, countries such as Japan, Germany, France and Korea have not seen the trend develop as quickly. This is because industrial structures influence the choice of pension plans and the likelihood of a trans-

1 In the UK, it is estimated that a worker who switches jobs six times over the course of his/her career experiences portability losses in defined benefit schemes of 25-30% of the full service pension (compared with a person who has the same salary, but a full career with the same employer). See Blake 2003.

Classifying defined benefit and defined contribution plans

In their pure form, defined benefit and defined contribution plans are easy to classify and distinguish. In traditional defined benefit plans plan members accrue pension promises based on a formula linked to wages, length of employment or other factors. The employer is obliged to provide these benefits, which normally come in the form of a life annuity. In this sense, benefits are fixed. In defined contribution plans, contributions are fixed and the retirement savings depend on the paid-in capital and its return. In many countries, the capital needs not to be converted into a life annuity, but can be at least partly withdrawn as a lump sum.

Classification becomes harder, when hybrid plans, which combine features of defined benefit and defined contribution plans, are considered. Cash balance plans, in which benefits depend on a notional individual account with a specified rate of return, are an example and are mostly classified as defined benefit plans. Especially challenging is the question how to classify plans in which contributions are fixed, but regulation foresees a minimum interest guarantee. This applies to some plans, for example, in Germany and Switzerland. The OECD considers all plans in which the sponsor guarantees a rate of return as defined benefit plans, while other sources (like Watson Wyatt 2008) classify them as defined contribution plans. In this study we follow the OECD approach.

formation. Defined benefit plans tend to be concentrated in unionised, well-established and large firms with a high share of long-service workers (Munnell 2006). In high-tech and service sectors, and for smaller firms, DC plans are more suitable.

In Europe, there is a wide variety of defined contribution plans. In the purest form, plan members choose their preferred saving instrument. The resulting capital, defined as the contribution plus interest and minus costs, serves as a pension. However, there are many design options, some of which are determined by regulations. In Germany, for instance, paid in contributions must be guaranteed, making pure defined contribution plans impossible. Swiss defined contribution plans are subject to a minimum interest rate. In the Netherlands, defined contribution plans are collective, meaning that risks are balanced. In contrast, Italy's open pension fund is closer to the individual defined contribution model as are the PERCO plans in France.

In defined contribution plans, the investment risk that employees are exposed to can be limited through appropriate product choice. There are various investment and insurance product hybrids on the market, among them variable annuities and outcome-oriented products. The latter aim to achieve a specific target replacement rate or outcomes by adjusting the contribution rate periodically, taking into account projected and actual investment return. Defined contribution plans do not necessarily place all investment risk on the employees, as various design and product features allow for risk re-allocation. While it is highly likely that the shift towards defined contribution schemes will continue in Europe, it is not yet clear which form will dominate.

Remaining and future challenges

Most countries in Western Europe are on the way to creating better balanced pension systems with a stronger role for funded pensions. This can be seen as a response to the missing sustainability of former public pension systems, which has been aggravated by the future ageing of European societies. In this sense, the implemented reforms were necessary to cope with demographic developments and funded pensions will disburden the public systems in the future.

Obviously, the main trends in European pensions markets – the greater role of funded pensions for retirement income security coupled with the ongoing shift towards defined contribution plans in occupational pensions – involve new challenges for citizens, regulators and product providers. Occupational defined contribution plans imply greater individual responsibility, at least when plans allow individual choice. With the level of public pensions declining, also private pension plans, where individual choice is widespread, are likely to constitute a greater share of retirement income. Hence, efficient retirement investing and planning becomes a crucial factor for retirement income. This applies to the accumulation phase, where regulation should not interfere with an efficient asset allocation; this can for example happen with quantitative investment limits, as argued by finance theory.

Rising individual responsibility will bring a topic to the forefront that has been largely neglected in Western Europe, namely the regulatory and product design of the pay-out phase. Traditionally, the dominance of defined benefit plans implied that the pay-out phase did not require special attention as life long annuities were the norm. However, with the advent of defined contribution in Europe, the pay out phase needs reconsideration. There is evidence that enforced and complete annuitisation of funded pensions, which is the norm in occupational pension systems in Western Europe, may actually result in a suboptimal level of retirement income.

Currently, annuitised pay out solutions are clearly favoured by regulation and taxation; however, in a lifecycle perspective already existing lifelong income streams from public pensions and other sources need to be included in retirement planning. Thus, partial annuitisation or annuitisation at high ages may be sufficient to prevent old-age poverty, but opens up higher return potential and would increase the flexibility and liquidity of retirees, allowing them to cope with unexpected expenses and leave bequests. Up to now, the main task of pension reforms has been to increase coverage of funded pensions. After this aim has been largely achieved in many countries, the next challenge will be to achieve efficient solutions in this market by fine-tuning regulation and design.

The growing importance of defined contribution plans may also have also beneficial side effects for labour mobility within Europe and the emergence of Pan-European pension plans. Due to regulatory differences, especially in social and labour law as well as taxation, Pan-European pension plans have thus far faced too many obstacles and have been unable to develop. Pension pooling has become an option; while real cross-border plans have often been discussed, none have been implemented until now.

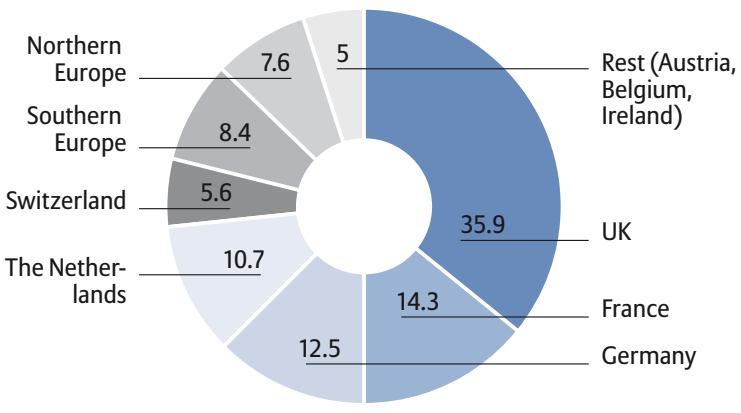
Within the framework of a single plan, managing liabilities in several countries has been far too complicated. Implementing cross-border plans of the defined contribution type is still a challenge because of different investment regulations and taxation. Still, defined benefit plans face much greater difficulties; hence defined contribution plans may eventually lead to a door being opened for Pan-European plans. This, in turn, would support labour mobility in Europe. Also within countries, defined contribution plans can support labour mobility as their lower complexity avoids the portability problems of defined benefit plans.

Retirement asset projections

In 2007, Western Europe's overall retirement market (including pension fund and life insurance assets) reached a volume of EUR 8.6 trillion[2]. This amounted to roughly one-third of overall household portfolios. Countries such as Switzerland, the Netherlands and the UK, in which state schemes provide only a basic pension that must be increased by supplementary pensions, are considerably

2 The effective total pension and insurance assets met the asset forecast in our 2004 projection: By applying previous growth rates and making adjustments for exchange rate fluctuation and country selection (ex Greece), assets should have amounted to EUR 8.58 trillion in 2007. It should be noted that the total number conceals diverging developments. The biggest difference was in Sweden, where we overestimated the trend. We also overestimated market development in Germany and Italy. In Germany, this may have to do with the reduction of tax incentives for life insurance contracts in 2005. In Italy, pension reform decisions were introduced slowly, which left people feeling insecure. This may have affected decisions on TFR flows, which we overestimated. The opposite direction was observed in the UK, where we underestimated pension growth. Strong equity market performance, high pension fund exposure to equity investments and the overall very positive economic development in the previous years boosted assets under management to a greater extent than expected.

Chart 3 Country share of retirement assets in Europe, 2007 [%]



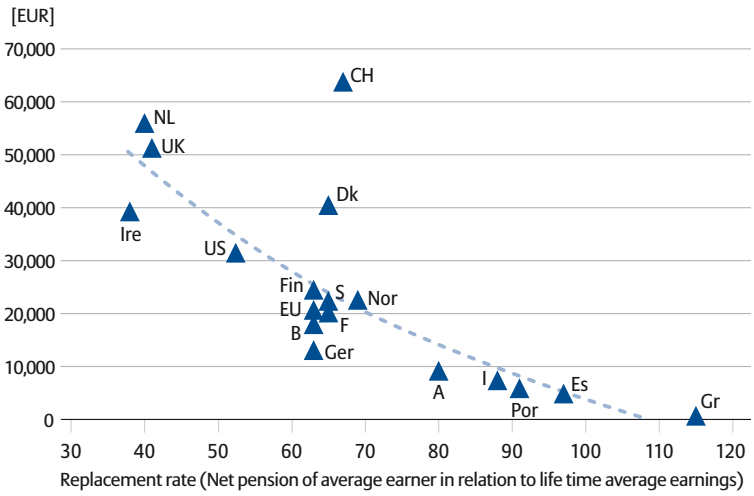
Source: Central banks, national statistical offices, OECD

above this average. The UK has the largest pension market by far, accounting for about 35.9% of all pension assets in Western Europe.

In per capita terms, British households rank behind the Swiss and the Dutch. With EUR 63,800 retirement assets per capita, Swiss households are well ahead of the Dutch, who also have a large stock of capital invested in retirement assets as a result of their mandatory occupational pension system. These countries even rank ahead of the US. With almost EUR 40,000[3] in retirement assets per capita, American households have 80% more assets saved for their retirement than their Western European counterparts (EUR 21,600 on average). Most countries with a traditionally strong first pillar rank below the European average. Southern European countries in particular have a low stock of funded retirement provision.

The size of funded pensions in European countries is shaped by public pensions. The amount of extra capital that must be saved to maintain the same standard of living after retirement depends on the anticipated level of pension benefits. The close correlation between the generosity of the state pension system and the share of funded pensions is clearly illustrated by chart 4. In countries where state pension systems have high replacement rates, such as Greece or Spain, people set aside less for old age. In contrast, people in countries with pension systems that replace a lower proportion of income, such as the Netherlands[4] or the UK, tend to accumulate more.

Chart 4 Retirement assets per capita versus net replacement rate*, 2007

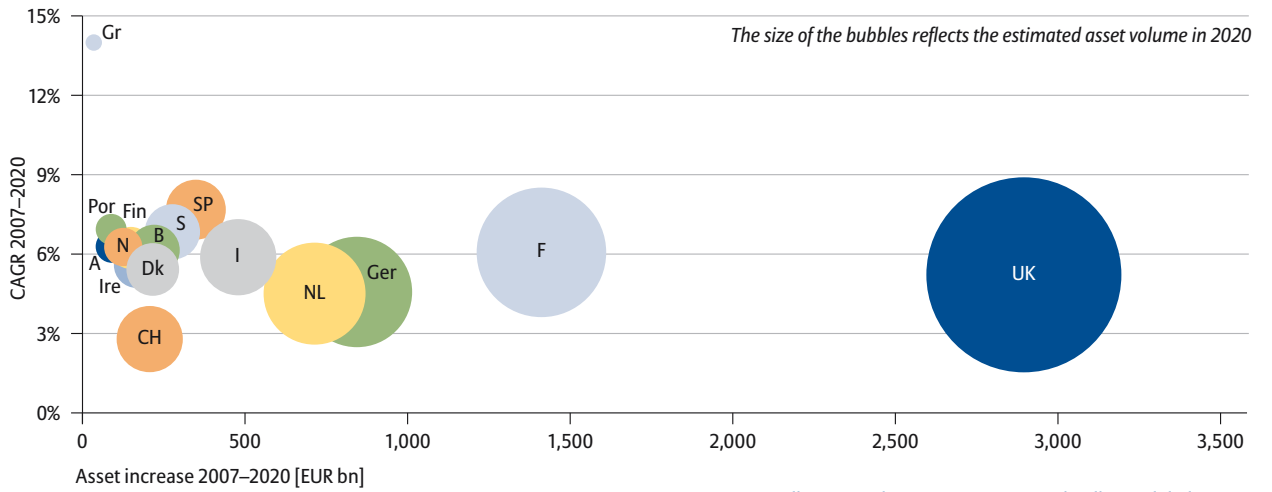


Source: Central banks, national statistical offices, OECD

In terms of assets, even the most developed funded pension systems cannot compete with the public system. According to an OECD model, future pensioners in the Western EU have implicit claims on state pension systems ranging between EUR 89,000 in Portugal and almost EUR 300,000 in Austria and Sweden (OECD 2007). For the Netherlands and Denmark, the OECD reported very high values (EUR 470,000 and EUR 435,000), but these include the (quasi-) mandatory elements of private pensions. However, steps introduced in European countries to overhaul PAYG pension regimes are lowering the implicit value of pension wealth in the state pension insurance system[5]. Incentives for private savings aim to compensate for this change.

3 Including Individual Retirement Accounts (IRA), Source: ICI – Investment Company Institute Research, 2008.
4 Here, only the first pillar is taken into account because it is contrasted to the funded part. However, with a quasi-mandatory second pillar in the Netherlands, actual retirement income is higher and enables an adequate standard of living. The same holds for Denmark, as is shown in the chart.
5 For example, the increase of the retirement age in Germany has not yet been included in the OECD model.
6 See preceding article

Chart 5 Development of retirement assets until 2020



Source: Allianz Dresdner Economic Research, Allianz Global Investors

Pension investment and pension insurance assets

In our methodological approach, we divide the retirement market into two segments: pension investment and pension insurance assets. Pension investment assets consist mainly of assets of pension funds. We have used the OECD database on autonomous pension funds, but also included, where available, all other (non-insurance type) occupational pension funds not included in this database. We have also included book reserves, making data classification comparable to our 2005 Western European Pension Study.

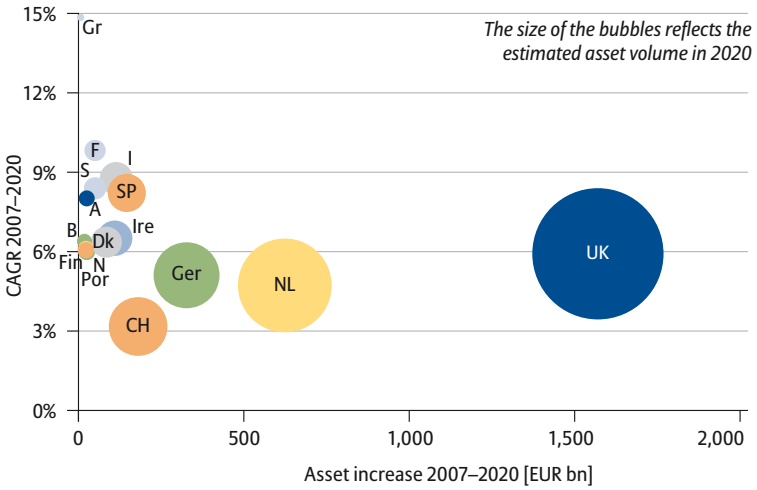
However, pension investment assets do not include the whole retirement market as many pension plans are provided under insured arrangements. Particularly through group insurance, many smaller companies organise their occupational pensions in cooperation with life insurance companies. What is more, the main part of third pillar arrangements is set up as insurance contracts. Thus, we have included the assets under management of European life insurance companies in our calculations as pension insurance assets.

We expect overall retirement assets to grow strongly within the next decade. With 5.3% annual growth, they will increase faster than overall financial assets, which we have forecast to increase by an average of 4.4% annually[6]. Retirement assets will amount to EUR 16.9 trillion by 2020. The laggards on the funded pension front – Greece and Spain – are expected to grow by 14% and 7.7%, respectively.

Mature markets like Switzerland (2.8%) are showing the slowest growth. This is likely due to a longstanding tradition of occupational pensions, which implies that more members are near retirement or are already retired. As a result, outflows play a bigger role than in countries where funded pension schemes were more recently introduced. Hence, the development of assets under management is driven far more strongly by returns on existing assets than by net contributions. For the same reasons, these developments can also be expected in the Netherlands and the UK. However, the UK will end up with a higher annual growth rate due to the introduction of personal accounts with auto-enrolment from 2012 onwards. In most of the other countries, the flow of funds into occupational or individual pension schemes is more important for the development of retirement asset volumes.

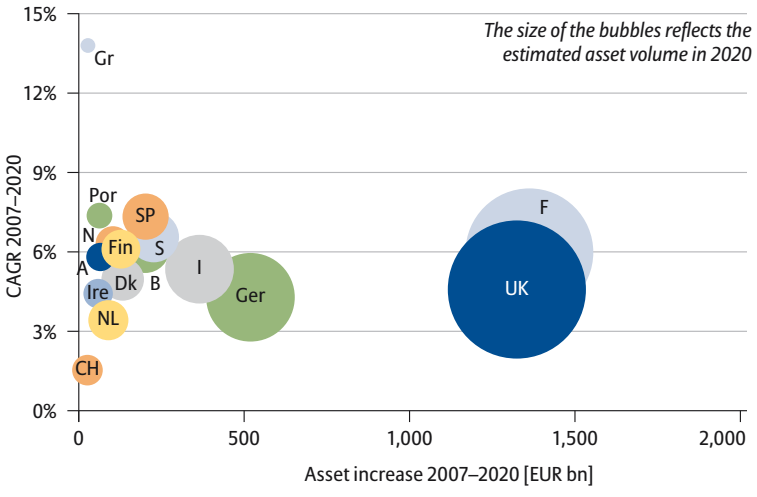
Today, most of the markets have a high level of pension insurance assets. However, this will change gradually, as we expect

Chart 6 Development of pension investment assets until 2020



Source: Allianz Dresdner Economic Research, Allianz Global Investors

Chart 7 Development of pension insurance assets until 2020



Source: Allianz Dresdner Economic Research, Allianz Global Investors

Retirement market – definition and sources

The difficulty to define the retirement market is that most assets held by individuals are not usually earmarked for any particular purpose. For instance, money set aside for a new car is often indistinguishable from retirement savings. For this reason, we focus on pension investment and pension insurance assets, leaving out assets in savings deposits, mutual funds or other vehicles that may also contribute to retirement income. For some European countries, pension insurance and pension investment assets are shown in the financial accounts of private households, which belong to the broader system of national accounting. We therefore based our approach on the financial accounts and corresponding flow statistics, which illustrate the annual change apart from valuation changes. This information was necessary, particularly for those countries without detailed data on contributions. We also added secondary statistics from insurance associations, particularly the European Insurance and Reinsurance Companies Federation (CEA), pension fund associations and supervisory bodies.[7]

7 Details on the financial asset projections can be found in the preceding article.

pension investment assets to develop faster than life insurance assets. For pension investment assets, we expect an increase of 5.5% p.a., more than doubling during the projection period and reaching EUR 6.7 trillion in 2020, from EUR 3.3 trillion in 2007. The insurance portion, in turn, will rise by 5.2%, amounting to EUR 10.2 trillion in 2020 from EUR 5.3 trillion today.

Funded pensions are becoming increasingly important for the future retirement income of Europe's citizens. For many countries, this development entails a new approach to pensions, as public pensions dominated in the past. This means that individual responsibility for old-age provision is on the rise. This may have several beneficial side effects, such as more interest in financial matters, better financial education and more highly developed capital markets. Current trends – such as the introduction of new funded pension schemes, the increasing assets of pension reserve funds and SRI investing, as well as the shift from defined benefit to defined contribution schemes – have the potential to significantly change the European pension and capital market environment. Funded pensions and their design will therefore remain a top economic and political priority in the years to come.

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Solvency II: How it Could Affect Defined Benefit Pension Funds

Introduction

The insurance industry in the European Union (EU) is facing a major regulatory change in the near future as a new solvency regime will be introduced. Solvency II is currently being drafted and is expected to come into force in 2012. The aim is the advancement and EU-wide harmonisation of solvency requirements for insurance companies towards risk-based regulation, thereby enabling better risk management of insurers. The basic idea behind Solvency II is to consider all relevant risks in the solvency requirements.

Solvency II is meant to regulate insurance companies, however, there are discussions to extend it to pension funds. In this context, the possible consequences of such an application are of critical importance to pension funds. The main question is to what extent Solvency II would impact on investment policy and plan design of pension funds, especially of defined benefit funds.

Generally, the aim of a solvency regime is to ensure the financial soundness of financial companies. The solvency regime needs to ensure that these companies can survive difficult times to protect the claims of policyholders and maintain the stability of the financial system. Solvency requirements define the minimum amount of capital deemed necessary to cover the risks to which these undertakings are exposed. As a result, solvency requirements can have a significant impact on an undertaking's business situation and its ability to fulfil its financial obligations.

Solvency II requirements will be more comprehensive than in the past. While EU solvency requirements currently concentrate mainly on insurance risks, Solvency II will take account of asset risks, liability risks and their interactions. The exact calibration of the solvency capital requirement has not yet been defined. Solvency II is being tested by way of quantitative impact studies (QIS), which are simulations performed by insurers on a voluntary basis. These simulations demonstrate the impact of the proposed new requirements on their financial resources. QIS 4 is the current status.

Solvency II and pension funds

To explore the effects of a possible extension of Solvency II on defined benefit pension funds, Allianz Global Investors, risklab and the Institute of Finance and Actuarial Sciences conducted a study on these issues as part of a joint research project with the OECD on risk-based regulations (Peek, Reuss, Scheuenstuhl 2008).

One of the study's key findings was that the funding level for a typical final pay plan would decrease from 100% under IAS accounting to 64% under Solvency II. This is mainly due to the higher valuation of pension liabilities under Solvency II and the inclusion of a solvency capital requirement to cover unforeseen risks (further details below). For pension funds with career average plans, the results were similar.

Clearly, this funding level reduction would require an adjustment strategy on the part of pension funds to restore the solvency level to the required 100%. Several actions are conceivable:

- The introduction of the Solvency II rules for pension funds could lead to **shifts in the investment strategies of pension funds**. A pension fund would need to hold a significant amount of capital to be able to invest in growth assets such as (private) equity or alternative investments. Pension funds that are in an underfunding situation would need to scale down investments in these investment classes and shift to fixed income investments. Another way to reduce the solvency capital requirement (and thus improve the solvency level) is to match the interest rate sensitivity of assets with the interest rate sensitivity of pension liabilities. Since the duration of pension fund liabilities are typically higher than asset duration, pension funds would have to invest more in higher maturity fixed income investments.

- **Rethinking the pension promises** that pension funds make to policyholders may be another consequence of the introduction of Solvency II. The study showed that pension funds with risk-sharing characteristics improve their solvency level under Solvency II. The conditional indexation of benefit payments and benefit cuts are examples of risk-sharing mechanisms. Pension funds with conditional indexation of benefit payments index the benefit payments to policyholders with inflation only if the funding level of the pension fund is sufficient. In underfunding situations, the pension fund does not index the benefit payments, or does so only in part. This shifts part of the investment risk to policyholders. Benefit cuts work in a similar way; when pension funds are underfunded, benefit payments to policyholders are reduced. These risk-sharing mechanisms would improve the funding level under Solvency II compared with pension funds that do not have these characteristics. The important point, however, is that pension fund policyholders actually take on the additional risks that the pension fund reduced in order to improve the funding level. In a way, these risk-sharing mechanisms reduce pension payments to policyholders.

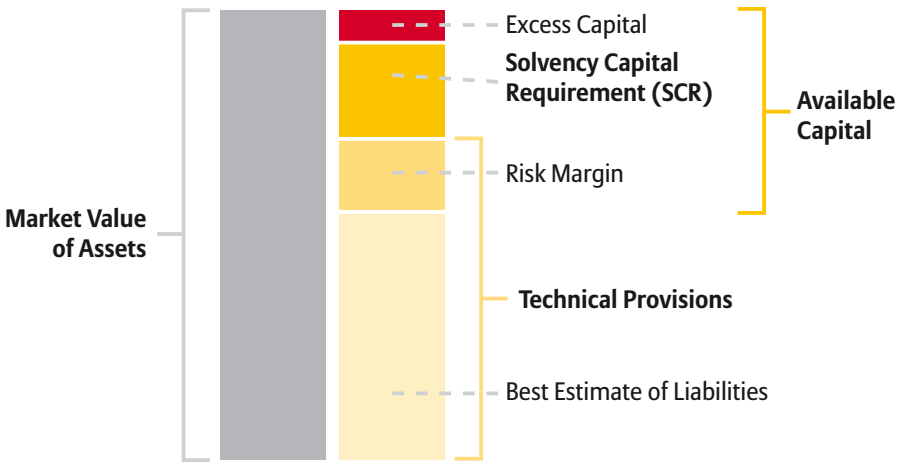
- **Additional contributions** to finance the pension fund deficit under Solvency II would be another way to improve the level of solvency. These contributions could be significant, depending on the pension fund and pension plan characteristics.

Solvency II framework

The Solvency II framework requires market-consistent valuation of assets and pension liabilities (technical provisions). What is more, the solvency capital requirement (SCR) must be calculated. This is depicted in figure 1.

Pension funds typically invest in fixed income and equity with a small portion of assets invested in alternatives such as property, commodities and hedge funds. For these asset classes, a market-consistent valuation is generally straightforward. This is because market values are either available (mark-to-market) or can be derived (mark-to-model). Under most accounting rules (IAS e.g.), pen-

Figure 1 Solvency II framework overview



sion fund investments are also valued at market value, which leads to a valuation similar to Solvency II.

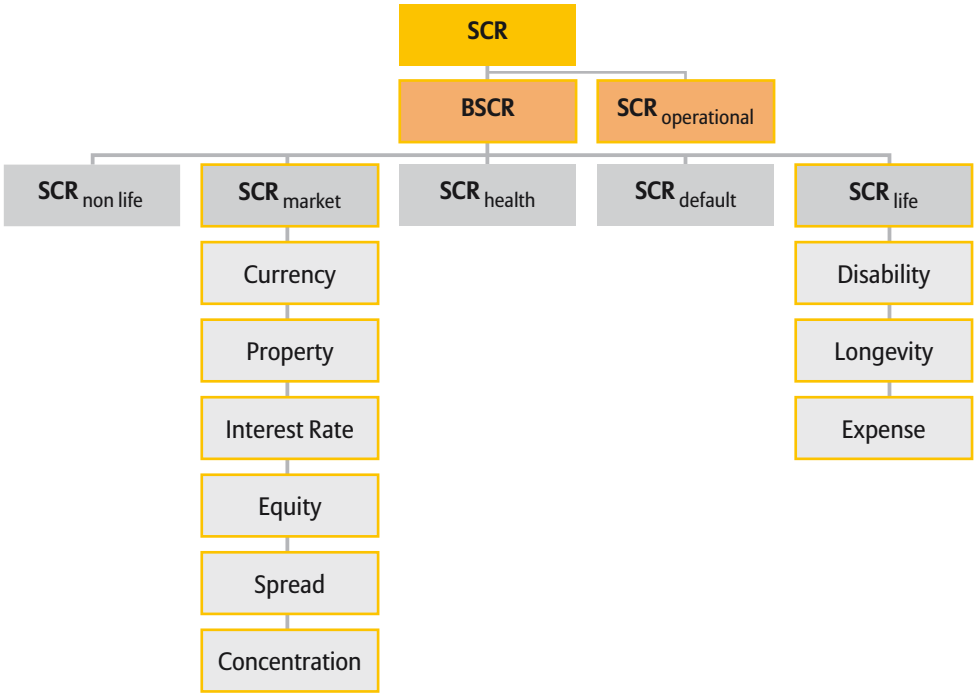
Technical provisions, however, are valuated differently. Under Solvency II, technical provisions must be valued "at the amount for which they could be transferred, or settled, between knowledgeable willing parties in an arm's length transaction" (European Commission 2008). The technical provisions of a pension fund are expected future pension payments, which do not have a readily available market value. In such instances, Solvency II requires that the technical provisions are split into a best estimate and a risk margin (European Commission 2008).

The best estimate is defined as "the probability-weighted average of future cash flows, taking account of the time value of money, using the relevant risk-free interest rate term structure" (European Commission 2008). Pension funds would need to discount the expected future pension payments with the risk free rates (swap rates), which is clearly different from accounting rules. For instance, IAS 19 prescribes that the discount rate be based on high quality corporate bonds, which is usually interpreted as the yield on corporate bonds with an AA credit rating. This discount rate is higher than the swap rates used under Solvency II, which leads to a higher valuation of the best estimate of liabilities compared to pension liabilities under IAS 19.

The difference between IAS 19 and Solvency II in the valuation of pension liabilities will depend on the difference in the discount rate and on the duration of pension liabilities. For pension funds with mainly active policyholders (high duration of pension liabilities), the increase in pension liabilities under Solvency II will be larger than for pension funds with a majority of retired plan members (lower duration of pension liabilities).

In addition to the best estimate of liabilities, Solvency II requires the calculation of a risk margin. The risk margin ensures that the value of a company's technical provisions is equivalent to the amount that a willing party would be expected to require to take over the obligation. In order to take over pension liabilities, an undertaking must put up capital. The undertaking requires compensation for the cost of capital (currently set at 6%) that it will incur in the future when paying off pension liabilities. The risk margin is the discounted value of the future cost of capital. Calculating a risk margin is not required under IAS accounting. The technical provisions will therefore be significantly

Figure 2 Solvency Capital Requirement (orange lined boxes are relevant risks for pension funds)



higher under Solvency II due to the lower discount rate and the inclusion of a risk margin.

Solvency II requires the calculation of the Solvency Capital Requirement (SCR), which is the level of capital that enables an undertaking to absorb significant unforeseen losses. It also provides policyholders with reasonable assurance that payments will be made as they fall due. The SCR reflects the amount of capital required to meet all obligations over a specified period of time (1 year) to a defined confidence level (99.5%). This aims to limit the risk that available capital deteriorates to an unacceptable level at any time during the specified period of time.

In the SCR calculation, all significant quantifiable risks are taken into account. Capital requirements are first calculated separately for each individual type of risk, assuming a worst-case change in the underlying risk factor. For most risk factors, the worst-case changes are based on actual observations in the financial markets. For example, equity risk arises from the level of volatility of market prices for equities. The stress factor for equity risk was calibrated on the MSCI Developed Markets index (total return) from 1970 until 2005 (European Commission 2008).

The capital requirements for the different risk factors are then aggregated using predefined correlation matrices (the variance-covariance approach). This results in a lower solvency capital requirement than the sum of the risk charges for each individual risk factor.

The main risk categories that are relevant for pension funds are market risks, life-underwriting risks and operational risks (*see figure 2*). The pension fund's asset and liability structure will eventually determine which risk factors have the biggest impact on the solvency capital requirement. However, some major impacts should be recognised:

- For equities that are listed in European Economic Area (EEA) or OECD countries, the risk charge amounts to 32% of the investment's market value. For other investments, such as equity listed only in emerging markets, non-listed equity or hedge funds, the risk charge is even 45% (European Commission 2008). Pension funds that are significantly invested in these asset classes will face high solvency capital requirements under Solvency II.

- Interest rate risk can be significant for a pension fund if the interest sensitivity of assets is different from the interest sensitivity of technical provisions. Both the assets and the technical provisions of a pension fund can be interest-rate sensitive. Fixed income investments change in value when interest rates change. The same holds true for technical provisions, as the expected future pension payments are discounted with interest rates. To determine the risk charge for interest rates, the net impact of changes in assets and technical provisions has to be taken into account, which is what Solvency II requires. The duration of the technical provisions of pension funds typically lies in the range of 10 to 15 years for a mixed plan member portfolio. For portfolios that contain mainly young workers, the duration is even longer. Interest rate sensitivity for such technical provisions is high, requiring a similar sensitivity on the asset portfolio to avoid a high risk charge for interest rates. This can be difficult to achieve with cash instruments if part of the asset portfolio is invested in non-interest rate sensitive investments and if the funding level is clearly below 100%.

- Longevity risk is typically an important risk factor for pension funds. Longevity risk is the risk of life expectancy among policyholders increasing to a level higher than that which a company or fund originally anticipated. If the life expectancy of their policyholders increases, pension funds must increase the valuation of the technical provisions.

Solvency II requires the market-consistent valuation of assets and technical provisions. The main differences between IAS accounting rules and Solvency II will be on the liability side of the balance sheet. The technical provisions of pension funds would increase under Solvency II due to the lower interest rates used for discounting the expected future pension payments, and the inclusion of a risk margin. After making adjustments for the higher technical provisions under

Solvency II, the pension fund would need to have enough available capital left to cover the solvency capital requirement.

Conclusion

The introduction of Solvency II for pension funds would lead to a significant reduction in funding levels compared with IAS accounting. Our research shows that pension schemes that are currently 100% funded under IAS 19 will be only 65% funded under Solvency II. Meeting this funding gap could impose an unacceptable burden on many scheme sponsors. Sponsors would have to consider a range of options, including increased contributions, a change towards more defensive asset allocations and a move to a risk-sharing structure with policyholders.

Jordy Peek,
risklab

Country Profiles

Austria

Finding a New Retirement Income Mix

Pension system design

In recent years, the Austrian pension system has undergone a transformation. The traditionally dominating first pillar has been changed into a notional defined contribution system with higher actuarial fairness. In the realm of occupational pensions, the severance pay system has been reformed and is now more formal and funded. In the market for voluntary occupational pensions, multi-employer funds dominate and there has been a major shift towards defined contribution plans. Furthermore, a new insurance-type vehicle has been established in the form of occupational collective insurance. Introduced in 2003, tax-favoured third pillar plans have been a major success. Participants can choose between insurance and investment products.

Demographic change in Austria is much in line with developments across Europe. Austria's old-age dependency ratio will reach a value of 53 in 2050, slightly above the EU-25 average of 52. We expect the overall pension market, which currently amounts to EUR 75.3 billion, to increase at a CAGR of 6.3% until 2020.

Public pensions

Austria's public pension pillar is generous, with a net replacement rate of 80% for an average earner. The public pillar has undergone substantial reforms since 2000, with the main goal of increasing actuarial fairness and the system's sustainability. A number of reforms were passed in 2000 and 2003, including early retirement discounts, a higher retirement age, an increase in the assessment period to 40 years from 15 years, and a reduced accrual rate. The 2004 reform introduced a uniform pension law for all gainfully employed people. Prior to this, there were various schemes for different occupational groups. The reform was the first effort to create a uniform system with the same contribution rates and benefit entitlements.

It also introduced a notional defined contribution system with individual accounts in the public pillar. The system is still pay-as-you-go financed and does not accumulate capital, but all paid-in contributions are recorded and credited with a pre-determined interest rate, so that a notional capital results. This notional capital determines pension benefits. For people older than 50 in 2005, the new system does not apply. For those younger than 50, a mixed system is in place, and it fully applies only to those who did not have any pension entitlements before January 2005. As a result, transitional periods are long.

Demographics and macroeconomics	
Population	8.2 million
Old-age dependency ratio*	2005: 25 2050: 53
GDP [EUR]	273 billion
GDP per capita [EUR]	33,300
GDP growth, 2002–2007 [av. in % p.a.]	2.4
Unemployment rate [%]	4.4

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Under the new system, a 45/65/80 formula applies. It foresees that after 45 years of contributions and retirement at age 65, the old-age pension will amount to 80% of average lifetime earnings. The reforms could be considered successful in fiscal terms, as the projected public pension expenditure has decreased substantially. According to the Austrian Central Bank, prior to the reforms pension expenditure was expected to amount to 17% of GDP in 2050. Following the reforms, 12.2% is expected (OeNB 2006). Contributions must be paid up to an assessment limit of EUR 3,132, while the maximum monthly pension is EUR 2,480. Benefits are adjusted in line with inflation.

First pillar design	
Contribution rate [% of gross salary]	Employer: 12.55 Employee: 10.25
Replacement rate [% of last income]	Gross: 64 Net: 80
Legal retirement age	65 men 60 women (65 by 2033)
Public pension expenditure [% of GDP]	2005: 13.4 2050: 12.2

Source: OECD, EU 2006

Occupational pensions

There are two types of occupational pension arrangements in Austria. One is a severance pay system and the other is voluntary pension provision.

Mandatory severance pay

Traditionally, employees in Austria have received severance pay when they retired or the employment relationship was terminated. This was commonly referred to as the *Abfertigung*, which was normally financed internally. In 2002, a new severance pay system was introduced (*Abfertigung neu*). Now, the employer contribution is invested in a *Mitarbeiterversorgungskasse* (MVK, staff provision fund). This system is mandatory and applies to all employees who began working in 2003 or later. It can also be extended to existing employees, provided that both sides agree. As of 2008, the self-employed are also included in the system. The contribution amounts to 1.53% of an employee's salary; employees themselves cannot make contributions. Benefits can be paid out as a lump sum or as an annuity when employees reach the official retirement age. The mandatory contribution is not taxed. However, if employers make any additional contributions, they are subject to taxes. Capital income is tax-free, as are benefits that are taken out as an annuity. If employees opt for a lump sum, a 6% income tax applies.

MVKs are independent entities that are selected through an employer/work council agreement. If none is chosen, the Association of Social Security Institutions allocates the contributions. There are nine MVKs on the market, which are operated mainly by financial institutions. They offer defined contribution type funds. The law stipulates that staff provision funds must guarantee the paid-in capital; further voluntary guarantees are possible. Assets under management amounted to EUR 1.6 billion in 2007. 2.4 million members participated, representing approximately two-thirds of Austria's employees.

MVK statistics, 2007	
AuM [EUR bn]	1.6
Members	2.4 million
Taxation	EEE

Source: Betriebliche Vorsorgekassen

Voluntary occupational pensions

Until 1990, voluntary occupational pensions were almost exclusively organised in the form of company book reserves. That year, this changed with the introduction of pension funds called *Pensionskassen*. Besides these, companies can still use book reserves for occupational pensions or support funds, but they rarely do.

Institutional framework and governance

Pensionskassen are either single or multi-employer joint-stock companies. Assets and liabilities must be kept separate from those of the pension fund company. *Pensionskassen* are subject to specific supervision, which differs from that which applies to banks and insurance companies. What is more, they must have at least 2,000 members no later than two years after their establishment. The general assembly, the board of directors and the supervisory board make up the governance

structure. An advisory committee may be required by the pension fund statutes. The general assembly elects the shareholder and beneficiary representatives to the supervisory board.

Plan types can be defined benefit or defined contribution and are financed by employer contributions. Employees may make additional contributions on a voluntary basis, provided that they do not exceed the sum of annual employer contributions. In 2005, the average annual contribution per member amounted to EUR 1,290. Up to a certain limit, benefits are paid by the pension fund itself, usually in the form of annuities.

Regulation, asset allocation and taxation

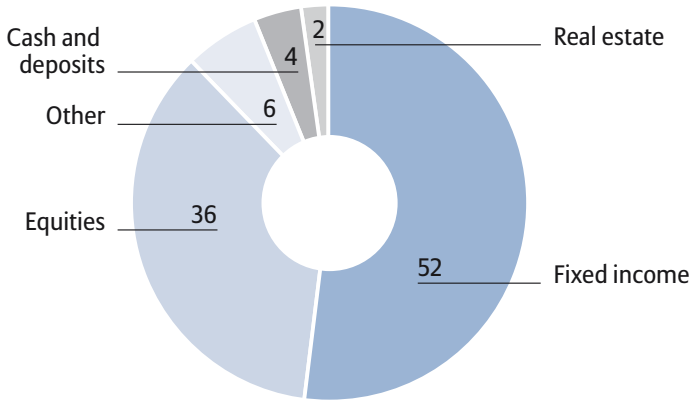
Pensionskassen must achieve a certain minimum rate of return. However, since 2005 they have been allowed to opt out of the minimum rate with consequences for quantitative investment restrictions. Most pension funds have opted out. The minimum rate of return applies to five-year averages, and pension funds that choose to be subject to the minimum rate must build up reserves to reach it. In 2007, the minimum rate stood at 1.03%. If *Pensionskassen* opt out, they may have a higher share of equities in their portfolios. The main investment limits for Austrian pension funds in general include the following:

- 70% of assets for equities, bonds and corporate bonds (50% for *Pensionskassen* with minimum return guarantees)
- 20% for real estate investments
- 30% for foreign assets
- 5% for single issuers/issue and for self-investment, 10% for issuers/issues of one group
- 10% for derivates

There are no limits for loans and bank deposits. The current asset allocation of *Pensionskassen* leans towards bonds, coupled with a significant share of equities.

Pension fund contribution taxation is a complex matter. Employer and employee contributions are subject to different taxation rules and are therefore held separately. Employer contributions of up to 19% of the employee's salary are tax-deductible. Employee contributions are tax-deductible as special expenses. Investment income is tax-exempt. In the case of benefit payments financed by employee contributions, 25% are taxed, while the rest is tax-exempt. Employer-financed benefits are fully taxed.

Pensionskassen asset allocation, 2006 [%]



Source: OECD

Trends

There are currently 540,000 people participating in the *Pensionskassen* system, representing around 20% of economically active people. There are 13 company pension funds on the market as well as 6 multi-employer funds. The latter account for around 80% of the market, and the biggest three make up two-thirds of the segment. While Austria used to be a defined benefit market with book reserves, this has changed since the introduction of the *Pensionskassen*. New plans tend to be of the defined contribution type, as are plans for new employees. According to the OECD, 75% of pension fund assets are in defined contribution plans, and the rest is in defined benefit schemes (OECD 2006). Current discussion on occupational pensions focuses on whether mandatory staff provision funds should be opened to voluntary employer and employee contributions, and whether they should be developed further in a mandatory pension pillar. The implementation of these ideas could create a major competitor for the *Pensionskassen*.

Pensionskassen statistics, 2007	
AuM [EUR bn]	13.1
Members	540,000
Taxation	EET

Source: WKO Pensionskassen

Private retirement savings

In 2003, Austria introduced new tax-advantaged pension products in the form of *prämienbegünstigte Zukunftsvorsorge* (state-sponsored pension provision, PZV). The state tops up contributions with a premium of currently 9.5% of contributions. The maximum subsidised annual participant contribution amounts to EUR 2,165.

Any taxpayer under the age of 62 can participate in the scheme. Contributions must be made for at least 10 years, during which time they cannot be accessed. If the money is withdrawn before retirement, tax advantages are lost. Contracts, particularly insurance contracts, often have durations of 20, 30 and 45 years or more. More than half of the contracts have durations of 30 years or more. Contributions are paid from taxed income, investment income is tax-exempt. If benefits are paid out as annuities upon retirement, they are also tax-exempt. Payouts are taxed when they are withdrawn before retirement age.

Participants can choose between life insurance products (traditional, index or unit-linked) and investment funds. There are about 20 providers on the market, and insurance products dominate. In 2006, there were 885,000 insurance contracts on the market; 102,000 contracts were investment fund-based. Providers must guarantee the paid-in capital.

There are investment limits for PZV. For instance, at least 40% of assets must be invested in equities. These equity investments can only be made in certain, so-called "undercapitalised" markets, among them the Vienna stock exchange. Other markets in which PZV providers are allowed to invest include 10 Eastern European stock exchanges, Portugal and Cyprus. However, the share of non-Austrian equities of total assets amounted to 0.8% in 2006 (FMA 2007). It could therefore be argued that the PZV not only served to create a retirement vehicle, but also to develop Austrian capital markets.

Besides the PZV, there is an additional third pillar pension plan, which is referred to as the *prämienbegünstigte Pensionszusatzversicherung* (state-sponsored additional pension insurance). Initiated in 2004, it is only accessible to members who already have a PZV. Contributions of up to EUR 1,000 are topped up with a bonus. Payout can only begin when participants receive a state pension in the form of an annuity.

PZV statistics, 2006	
AuM [EUR bn]	1.8
Members	987,000
Taxation	TEE (annuities)

Source: FMA Finanzmarktaufsicht 2007, OECD

Life insurance

Companies can also conclude insurance contracts for their employees as occupational pension provision. Direct insurance is one available option that existed before the *Pensionskassen* system was introduced in 1990. However, only annual premiums of up to EUR 300 are tax-deductible. The *Betriebliche Kollektivversicherung* (occupational collective insurance), a second option of insured pensions, was introduced in 2004.

The goal was to put insurance solutions on a level playing field with pension funds. The new vehicle enjoys the same tax treatment as *Pensionskassen*. However, different investment regulations apply. The collective insurance is subject to stricter investment regulations. The equity limit is 40%, and it has to offer a guaranteed interest rate of 2.25% per year, in line with general life insurance regulations. Due to the guaranteed minimum return, investment strategy has to be considerably more conservative compared to *Pensionskassen*. The initial take-up of the new vehicle has been slow. In the medium-term, however, the collective insurance could contribute to a higher penetration of occupational pensions in Austria, as the main target groups are initially small- and medium-sized companies. In contrast, *Pensionskassen* are concentrated among bigger companies.

With regard to the life insurance market in general, Austria shows below-average density and penetration rates compared to the European average. While life premiums per inhabitant stood at EUR 880 in 2007, the EU-15 average amounted to EUR 1,716. Life

premiums as a share of GDP amounted to 2.6% the same year, compared to 5.9% for the EU-15 (Swiss Re 2008). The Austrian life insurance market is driven by individual contracts, which accounted for 96.6% of total premiums in 2005 (CEA 2007).

Savings and financial markets

From 2001 to 2007, Austria's household savings ratio increased from 7.5% to 10.6%, making it one of the highest in the EU. Household assets stood at EUR 415 billion; in terms of GDP share, personal wealth in Austria is quite modest compared with the rest of Europe. In countries such as Switzerland, the UK and the Netherlands, household assets range between 280% and 373% of GDP. In Austria, the figure stands at 152%. The generosity of the public pension system is one of the main reasons for this discrepancy, as it lowers the need for private pension savings.

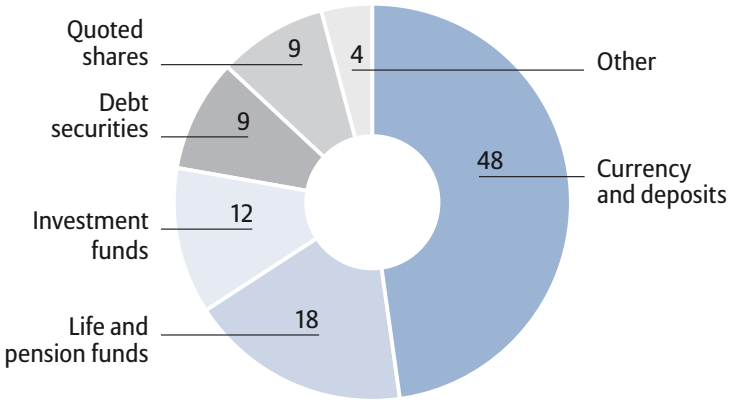
Nevertheless, up to 2007, the assets of institutional investors increased considerably, and stock market capitalisation experienced an upswing. Institutional investor assets amounted to 96% of GDP. While countries like Switzerland have much higher values, Austria is ahead of a number of states that also have strong public pension pillars, including France, Germany and Italy. The asset volume of institutional investors is particularly noteworthy with regard to growth. In 2002, it stood at 70% of GDP, meaning that it grew 26 percentage points in just four years. Investment funds make up the bulk of assets. What is more, they account for 54.9% of GDP and have been the fastest growing category, followed by insurance corporations (36.7%) and pension funds (4.7%).

The structure of household financial portfolios again reflects the dominance of public pensions. Only 18% of financial assets are invested in insurance and pension products. Austrian households are risk-averse; almost 50% of their portfolios are invested in bank deposits. In recent years, shares and mutual funds gained importance; their portion of financial assets increased to 21% in 2007 from 12% in 2000. New flows in 2007 were geared towards safe investments: 60% of inflows were directed into banking products.

Savings and financial markets, 2007	
Household savings ratio [%]	10.6
Household assets [% of GDP]	152
Average per capita financial wealth [EUR]	50,700
Assets of institutional investors [% of GDP]	96

Source: OECD, World Federation of Exchanges, Austrian National Bank

Household asset allocation, 2007 [%]



Source: Austrian National Bank

Future Market Trends

Household assets

In the near future, financial market turbulence will have an impact on asset formation. However, Austrian portfolios will not be affected as much as those in countries with a higher exposure to stock market investments. Given the solid savings rate, the asset allocation preference over the last few years and an assumed equity market performance of 7% a year (from 2009 onwards; -30% in 2008), we expect total financial assets to reach EUR 766 billion in 2020. This translates to an annual growth rate of 4.8% from the 2007 level of EUR 415 billion.

The share of pension/insurance products of total financial assets is expected to rise from 18% in 2007 to 22% in 2020, which is still significantly below the forecast European average of 39%. There are two opposite effects at work in the pension market. The advancement of occupational and private pensions is giving the pension and insurance market further impetus. At the same time, ageing Austrian households will cash in maturing

contracts. Their proportion was already high in 2006 and 2007 as a result of the introduction of single premium, 10-year contracts in the late 1990s. This influence will last for some time yet, hampering insurance asset build-up.

Pension investment assets[1]

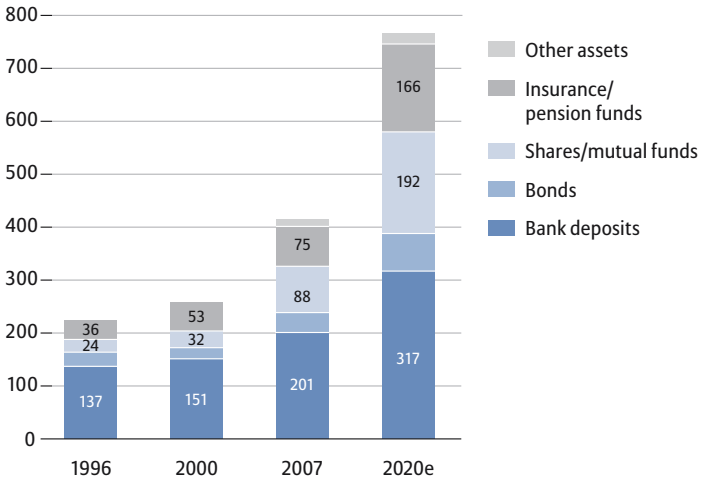
Pension assets include the assets of *Pensionskassen*, which amounted to EUR 13.1 billion in 2007. *Pensionskassen* benefit from trends towards defined contribution and funding defined benefit pension liabilities. The other main scheme is the MVK, which is still very small but expanding rapidly. Its volume increased three and a half times between 2004 and 2007, reaching EUR 1.6 billion. This new severance pay system, which became mandatory for new employees in 2003 and for the self-employed in 2008, will keep inflows high and support asset accumulation with high growth rates in this emerging segment. Together with the other second pillar instruments, we expect assets under management to reach 40 billion by 2020, which corresponds to annual growth of 7.9%.

Pension insurance assets

Insurance products play a dominant role in the Austrian market. Life insurance assets stood at EUR 60.5 billion in 2007. With the introduction of the PZV in 2003, Austria has a new tax-favoured vehicle for old age provisioning, with inflows mostly directed into insurance products. 90% of PZV plans are insurance based, and these plans will continue to be one of the main drivers of growth. At the same time, the traditional life insurance market is maturing. In an environment in which first-pillar replacement rates remain high, Austrians will not save additional money for retirement. We therefore expect some substitution processes, which will likely have a negative impact on insurance asset build-up. Annual growth may reach 5.8%, with insurance assets rising to EUR 126 billion by 2020.

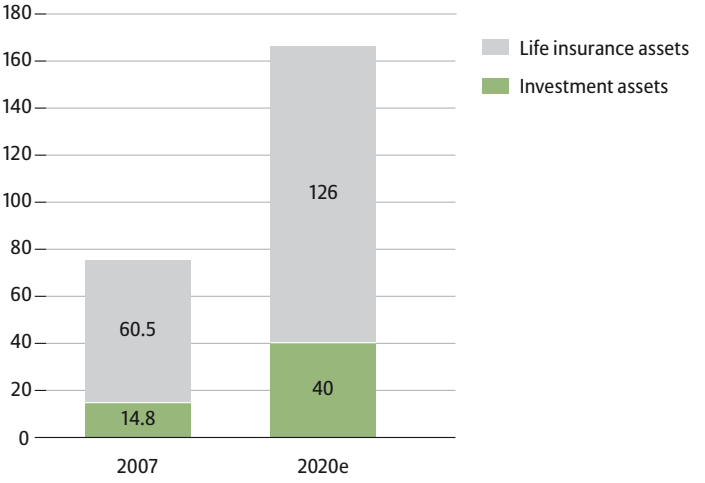
We expect the total Austrian pension/insurance market to grow at a compound annual rate of 6.3% until 2020, reaching EUR 166 billion.

Austria: Financial household assets [EUR bn]



Source: Bank of Austria, Allianz Dresdner Economic Research

Austria: Pension market development [EUR bn]



Source: National statistics, Allianz Dresdner Economic Research

Austria has laid the foundations for funded pensions to play a greater role. In fact, over the past few years, Austria has reformed more elements of its pension system than almost any other country in Western Europe. For instance, it has transformed its public pillar into a notional defined contribution system, reformed the severance pay system, and introduced a new occupational vehicle as well as a new third pillar scheme. The latter has turned out to be a great success, while the new occupational vehicle has had a slow start. Austria has also experienced a shift towards defined contribution plans, which now dominate in occupational pension provision. Clearly, the shift from a very dominant first pillar to a more balanced pension system is underway.

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

Belgium

Encouraging Sectoral Pension Plans

Pension system design

Over the past year, the main political aim of Belgium's pension policy has been to promote occupational pensions. Sectoral plans have been particularly encouraged, mainly through a new legal framework. The earnings-related public pillar is complemented by a pension reserve fund. Tax-favoured third pillar pensions offer insurance and investment products.

Demographic change in Belgium will be slightly less severe than the European average. The old age dependency ratio will reach 48 in 2050, while the corresponding value for the EU-25 will be 52. Our projections foresee that the overall pension market, which is currently worth EUR 188 billion, will grow at a CAGR of 6.2% until 2020.

Demographics and macroeconomics	
Population	10.5 million
Old-age dependency ratio*	2005: 26 2050: 48
GDP [EUR]	317 billion
GDP per capita [EUR]	30,300
GDP growth, 2002–2007 [av. in % p.a.]	2.1
Unemployment rate [%]	7.5

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

Shape of the public pillar

Belgium's public pension system covers all employed persons, with separate schemes for the self-employed and public servants. Employees contribute 7.5% of earnings and employers pay 8.86%. The legal retirement age for men currently stands at 65 years and will be the same for women from 2009 onwards. Early retirement is possible from the age of 60, provided that 35 years of contributions have been made. To receive full benefits, employees must contribute for 45 years. There is no ceiling for contributions. Full benefits are equivalent to 60% of average lifetime earnings up to a maximum of about EUR 43,300. In Belgium, the minimum pension amounts to EUR 10,190 for a single person with a full career record. In addition to this, pensioners receive an annual holiday allowance of EUR 525. The gross replacement rate for an average earner is 41%, while in net terms it amounts to 63%. In the future, public spending on pensions will be a significant burden on Belgian public finances. Public pension expenditure is expected to rise by 5.1 percentage points to 15.5% of GDP by 2050. For the EU-25, it is expected to increase 12.8% over the same period.

The Ageing/Silver Fund

In 2001, the Belgian government decided to set up a pension reserve fund called the Ageing or Silver Fund. The goal of the fund is to cushion expenditure increases in public pensions in the period between 2010 and 2030, on condition that government debt is less than 60% of GDP by 2015. The fund is financed by budget surpluses, social security surpluses and non-fiscal revenues (Oxera 2007). In 2007, 0.3% of GDP was earmarked for the fund, increasing by 0.2% percentage points each year to reach 1.3% in 2012. From 2013 onwards, a Royal Decree will deter-

mine payments into the fund, depending on the surplus situation. In 2007, assets of the Ageing Fund amounted to EUR 13.1 billion. The fund is only allowed to invest in Belgian government bonds that are specifically issued for purchase by the Ageing Fund.

Occupational pensions

Institutional framework and governance

There are three kinds of occupational pensions available in Belgium: Company, sectoral and individual plans. Sectoral plans, for which the *Vandenbroucke* law of 2004 set the legal framework, are based on collective agreements. Employers can only exit sectoral plans if the agreement allows opting out, and if they establish an equivalent plan. In individual plans, the employer promises pension benefits to individual employees as a supplement to collective pension plans. However, establishing different individual plans for workers of the same category is prohibited. Company and sectoral plans can become "social pension plans", which were introduced 2004, if they contain a "solidarity clause". This clause, which carries tax advantages, has several preconditions. Among them are waivers during times of a member's inactivity, indexation and limits to administrative costs.

Occupational plans can be implemented through pension funds, group insurance policies or collective pension savings accounts. They can be of the defined benefit or the defined contribution variety. Pension funds themselves can operate as foundations or mutual insurance associations. Pension funds must have a board of directors and a management board. Since 2007, a new type of pension funds has been available that will be discussed further below. Employers generally pay most of the contribution rate. Benefits can be paid as an annuity or as a lump sum.

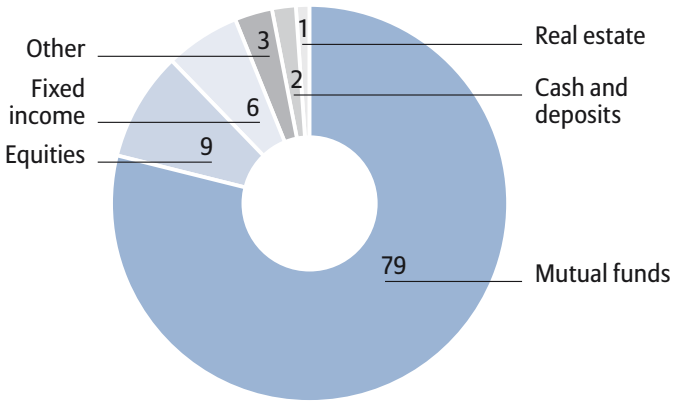
Regulation, asset allocation and taxation

Investment regulations in Belgium are liberal; the prudent person rule applies, with some quantitative asset restrictions. These include 10% limits for non-listed equities and for bonds issued by non-OECD countries or companies. In addition, there are limits for non-European investment funds, self-investments and single issuers and issues.

First pillar design	
Contribution rate [% of gross salary]	Employer: 8.86 Employee: 7.5
Replacement rate [% of last income]	Gross: 41 Net: 63
Legal retirement age	65 (from 2009 onwards also for women)
Public pension expenditure [% of GDP]	2005: 10.4 2050: 15.5

Source: OECD, EU 2006

Occupational pension funds' asset allocation, 2006 [%]



Source: OECD

The *Vandenbroucke* law of 2004 introduced a new framework for pension legislation and attempted to strengthen occupational pensions. It also introduced a minimum return requirement for defined contribution (or cash balance) schemes. Regulations now require employers to guarantee a minimum return of 3.25% on employer contributions and 3.75% on employee contributions. These figures do not apply to yearly returns, but are long-term requirements. This means that they must be met upon retirement. Hence, it refers to cumulative and not annual returns.

Almost 80% of pension fund assets are invested into mutual funds, the popularity of which can be explained by tax advantages. Investments in mutual funds allow pension funds to avoid tax on realised capital gains. A better distinction of the asset classes into which these mutual funds invest is not available. However, as an indication general investments in mutual funds can be used, which display an allocation of 23% in bills

and bonds, 47% in equities, 21% in cash and deposits and 9% in other asset classes.

In terms of taxation, employer contributions for old-age provision are tax-deductible under certain conditions. Employee contributions are taxed at 4.4%, but they receive a tax credit on their contributions. Investment income is tax-exempt. Pension benefits are taxed as income, but retirees receive a tax credit. Lump sum payments are subject to a flat-rate tax.

Trends

As of 2007, there were 20 sectoral funds with a total of 633,000 members. Six of these funds are autonomous pensions funds, which also manage company plans, with 392,000 members; the majority is managed by insurance companies. The large majority of sectoral funds are defined contribution plans with contribution rates that vary between 0.6% and 4.2% of wages. Seventeen of the sectoral schemes are exclusively funded by employer contributions. Larger companies generally set up self-administered funds.

Occupational pension fund statistics, 2007	
AuM [EUR bn]	15.6
Members	392,000
Taxation	EET

Source: OECD

The implementation of the European Union Directive on Institutions for Occupational Retirement Provision (IORP) brought regulatory change for Belgian pension funds. In 2006, Belgium implemented the directive by adopting a new legal framework for pension funds called "Organisations for Financing Pensions" (OFP), which defines the structure and the workings of pension funds. The OPF structure must be adapted by existing funds by 2012. The structure will enable pension funds to operate across borders, but will be subject solely to the Belgian legislative framework. Sponsoring companies and plan members do not have to be located in Belgium.

The law also introduced the prudent person principle for pension fund investments. At the same time, pension fund taxation was reformed, abolishing a 0.17% tax on pension fund assets. OFPs in general are subject to a special income tax regime, which has been applied to UCITS-type funds. The goal of these reforms was to offer multinationals flexibility as a means of promoting Belgium's attractiveness as a location of European cross-border pension funds.

Private retirement savings

Belgium's third pension pillar is open to every citizen between 18 and 64 years of age. Members can choose between pension insurance provided by insurance companies and pension savings funds that are offered by banks and asset management companies. Insurance vehicles must offer a minimum return of 3.75% per year. Savings funds, which are specific open-ended investment funds, are not subject to this regulation. Contributions to these pension schemes are (partially) tax deductible, up to a maximum contribution of EUR 810. Contracts have a minimum duration of 10 years and contributions must be made in at least 5 of these 10 years. Benefits are available from age 60; premature withdrawal results in a substantial penalty payment. Under certain conditions, there are also tax deductions for individual life insurance with guaranteed returns.

Life insurance

Belgium has a very developed life insurance market. Compared with the rest of Western Europe, the average premium per inhabitant was considerably higher in 2007, amounting to EUR 2,171 (EU-15 average: EUR 1,716). In Belgium, life premiums amount to 5.9% of GDP, also higher than the EU-15 average of

Savings and financial markets, 2007	
Household savings ratio [%]	10.4
Household assets [% of GDP]	253
Average per capita financial wealth [EUR]	80,000
Assets of institutional investors [% of GDP]	108

Source: OECD, EFAMA, National Bank of Belgium

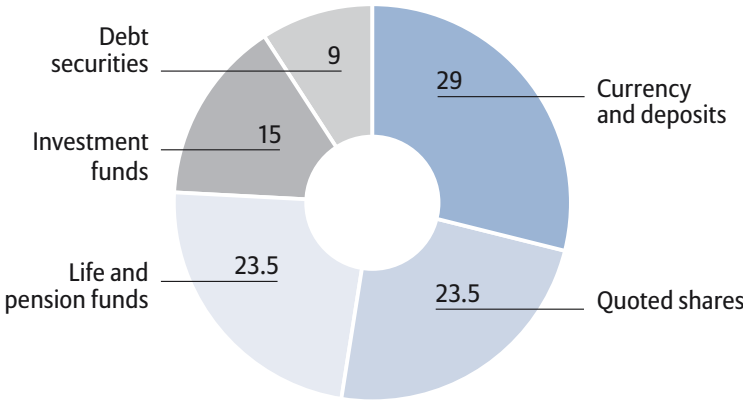
6.1% (Swiss Re 2008). The market is driven by individual life insurance, which accounted for 84% of total life premiums in 2005. A quarter of these premiums flows into unit-linked contracts (CEA 2007).

Savings and financial markets

Belgium has a high savings rate. With 10.4% of disposable income, the level is similar to those of Spain, Germany and Switzerland. However, the savings rate has been decreasing steadily since 2001 when Belgium had, at 15%, by far the highest savings rate in Europe. At the end of 2007, household financial assets stood at EUR 838 billion. Measured in terms of GDP, this amounts to 253%. While countries with a very mature second pension pillar such as the UK, the Netherlands and Switzerland have respective values of 292%, 280% and 373% of GDP, many European countries are behind. In Western Europe, the average value is 219%. Institutional investors in Belgium managed assets worth 108% of GDP, which is approximately half the Dutch value, but three times the value of Spanish institutional investors. The dominating group of institutional investors are insurance companies, the assets of which account for 67% of GDP, followed by investment funds with assets of 37% of GDP. Pension funds account for only 4% of GDP.

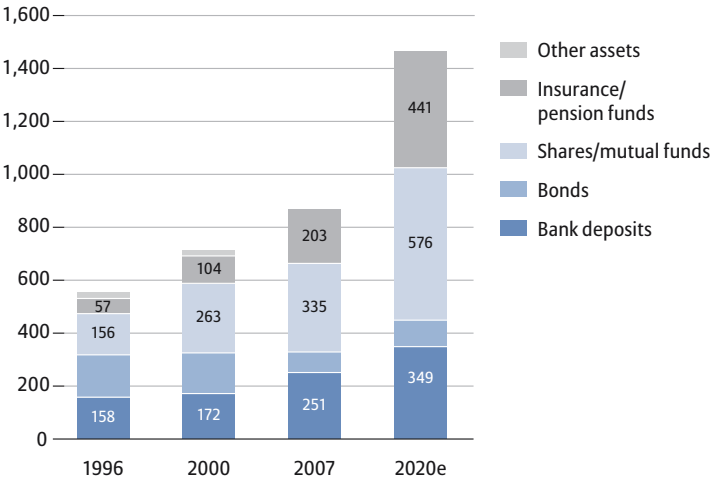
In 2007, the share of stocks and mutual funds in Belgian household portfolios (38.5%) was one of the highest in Western Europe. Over the last decade, mutual funds have shown strong growth. The insurance and pension segments have grown the most strongly. Their share rose from 11% ten years ago to 23.5% in 2007. However, this is still significantly lower than the Western European average of 35%. This branch could profit most from pension reform, increasing its portion of the market at the expense of pension funds.

Household asset allocation, 2007 [%]



Source: National Bank of Belgium

Belgium: Financial household assets [EUR bn]



Source: National Bank of Belgium, Allianz Dresdner Economic Research

Future market trends

Household assets

Since the second half of 2007, Belgian households have increasingly invested in safer assets as a reaction to the subprime crisis. This pattern may last for some time and slow down the build-up process of household financial wealth. Assuming an equity market performance of 7% a year from 2009 onwards, we expect the total financial assets of private households to increase by about 4.4% a year to over EUR 1.47 trillion by 2020, from EUR 838 billion in 2007. This will also be the result of Belgium's relatively high savings and asset allocation preferences over the last few years. The share of pension/insurance products of total financial assets is expected to rise from 24% in 2007 to 30% in 2020, which is still significantly below the forecast European average of 39%.

Pension investment and insurance assets[1]

The political aim of increasing occupational pension coverage to 70% of employees is taking longer than expected. At present, 2.3 million employees participate in occupational pensions including group life insurance schemes (around 55%), meaning that there

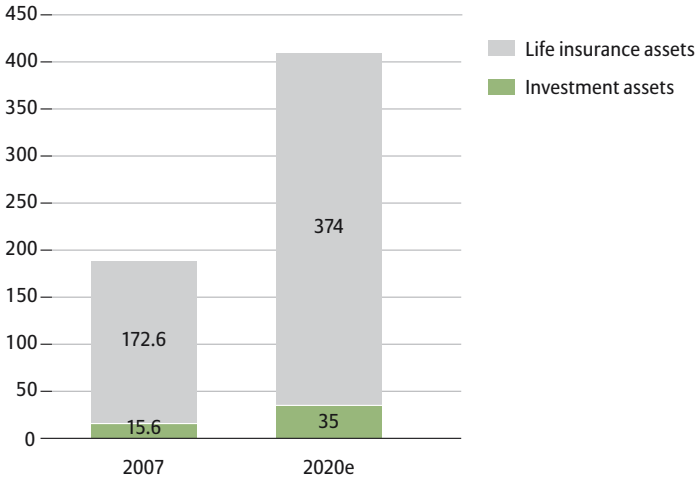
1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

is still growth potential in the second pillar. Since the majority of plans are set up as group insurance, pension fund assets lag way behind insurance assets. At present, pension investment assets amount to EUR 15.6 billion. In 2007, life insurance assets stood at EUR 172.6 billion.

Since the financial burden on public pension expenditure is still high compared with other European countries, further reforms are likely to lower the public pension level. Consequently, additional saving for old age will become increasingly important. However, the process is still ongoing. There has been a substitution effect between second and third pillar plans, as industry-wide pension schemes introduced in 2004 are limiting the attractiveness of third pillar schemes.

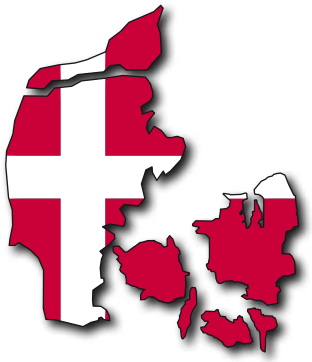
Although there is high potential in Belgium's relatively small overall pension market, we expect the overall market to grow only by 6.2% p.a. until 2020. Since the pension investment asset volume in particular is still low, we expect a slightly higher growth rate of 6.4% p.a. until 2020. Assets will reach EUR 35 billion by then. The insurance segment will display a slightly lower rate of 6.1%, which will increase insurance reserves to EUR 374 billion by 2020.

Belgium: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Like many countries in Western Europe, Belgium has been trying to encourage occupational pension provision, particularly in the form of sectoral schemes. Certainly, these schemes need time to develop. However, initial acceptance of the schemes has been encouraging, even if coverage aims have not yet been achieved. While establishing a pension reserve fund in Belgium can certainly increase the sustainability of the public system, the restriction to invest only in Belgian government bonds significantly limits its advantages. Given the exceptional burdens of ageing on Belgian public finances, it is likely that the reform process will continue.



Denmark

Banking on Funded Pensions

Pension system design

Denmark operates a pension system that is unique in Europe. The first pillar consists of a tax-financed and residence-based scheme. An earnings-related scheme that is fully funded and of the defined contribution type is also part of the first pillar. It is managed by an independent agency. Voluntary occupational pensions cover the majority of the workforce, while third pillar plans are available in several variants.

The Danish occupational pension market is one of the few pure defined contribution markets in Europe, with pension funds mostly set up in the form of multi-employer funds. The demographic outlook in Denmark is less severe than in most other EU countries. The Danish old-age dependency ratio is expected to reach 40 in 2050, while the EU average will be 52. Total current pension assets amountto EUR 220 billion; our projections foresee that the market will show a CAGR of 5.4% until 2020.

Demographics and macroeconomics	
Population	5.4 million
Old-age dependency ratio*	2005: 23 2050: 40
GDP [EUR]	227 billion
GDP per capita [EUR]	41,800
GDP growth, 2002–2007 [av. in % p.a.]	1.9
Unemployment rate [%]	3.8

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

Shape of the public pillar

Denmark operates a universal basic pension scheme that is completely financed through taxation without specific contributions. The scheme is residence-based, and full benefits presuppose 40 years of residence. There are also means tested supplements to this basic pension. The full benefit amounts to EUR 16,460 (DKK 122,748) a year including supplements, while the basic amount is EUR 7,834 (DKK 58,416).

In addition to the basic pension scheme, there are two mandatory components; a supplementary earnings-related scheme (ATP) and the Special Pension. The Special Pension was previously financed by a 1% contribution from employees and the self-employed. However, it was suspended by law from 2004 to 2008, and its future is uncertain. The ATP is employment-related and funded. The contribution rate is a fixed amount of about 1% of the average wage. It is split between employers, who pay two-thirds of contributions, and employees, who contribute the remaining third. It currently amounts to EUR 393 (DKK 2,927) per year, but is set to increase in 2009. The ATP is a defined contribution scheme and pays out lifelong pensions, which are dependent on the contribution record. Members neither have individual accounts nor the possibility to choose an investment strategy. In 2007, the ATP had 4.5 million members.

Public pension expenditure in Denmark is projected to increase from 9.5% of GDP today to 12.8% in 2050, which will match the EU-25 average. The gross replacement rate of the first pillar currently stands at 45%. If occupational

pensions are included, the overall gross replacement rate is 49%. This results in a net replacement rate of 71%. Projections until 2050 foresee that the importance of the first pillar will decline, but the contribution of occupational pensions will rise considerably. As a result, the overall replacement rate will increase (EU 2006).

The ATP Fund

Contributions to the funded ATP scheme are managed by the ATP Fund. The fund is an independent agency; the government, employer associations and trade unions nominate the members of its supervisory board. Most assets are managed in-house. The fund is subject to several investment restrictions. For example, no more than 20% may be invested in unlisted holdings, and no more than 10% in countries that are not members of the EU or the OECD, or which have special loan agreements with the IMF. 10% limits also apply to investments in the US and the UK. Up to 70% of assets can be invested in equities (Oxera 2007).

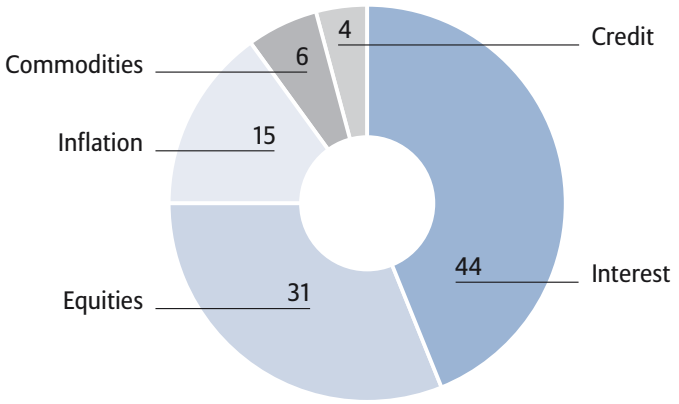
The ATP Fund's asset allocation aims to preserve pensions' long-term purchasing power. Hence, the goal is to achieve absolute returns and risk diversification. The portfolio is divided into the beta portfolio, accounting for 98% of the total portfolio, and the alpha portfolio, which aims at stable returns independent of financial markets' long-term development. Asset allocation is oriented towards five risk classes, namely equities (listed and private), interest (government and mortgage bonds), credit (low-rate government and corporate bonds), inflation (index-linked bonds, real estate and infrastructure) and commodities (oil equities, commodity-indexed bonds).

There is a longer-term target portfolio, which foresees that assets in the risk classes of inflation, commodities and credit will gain importance, while interest and equities will decrease.

First pillar design	
Contribution rate	Tax-financed (basic scheme) EUR 393 for ATP Fund
Replacement rate [% of last income]	Gross: 45 (including ATP) Net: 71 (including ATP and occupational pensions)
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 9.5 2050: 12.8

Source: EU 2006

ATP beta portfolio asset allocation, 2007 [%]



Source: ATP 2008

Occupational pensions

Institutional framework and governance

Occupational pensions in Denmark are voluntary. However, the overwhelming majority of employees is covered by some form of occupational pension provision. There are several types of pension provision available. Schemes can be operated either as multi-employer/professional funds based on collective bargaining or as company schemes and schemes operated by life and pension insurance companies and banks. Closed pension funds are established as foundations. Pension funds must have a board of directors and a general assembly. The board of directors is obliged to act in the best interest of pension fund members; it determines the investment policy and is responsible for fund administration. Half of the directors of company pension funds must be nominated by the members.

Employers and employees generally make contributions of two-thirds and one-third, respectively.

Regulation, asset allocation and taxation

Danish pension funds operate in a relatively liberal environment, but are still subject to some quantitative asset restrictions. The most important are as follows:

- A maximum of 70% may be invested in equities
- No more than 10% may be invested in hedge and private equity funds

There are several limits for investments of single issuers depending on the assets in question, but no restrictions for real estate investment, bank deposits and general investments in OECD countries. 51% of assets are allocated to bonds, slightly less than a third to equities and 12% to mutual funds.

Taxation in Denmark is of the ETT type. Contributions are tax-deductible for employers and employees, while investment income and benefits are taxed.

Trends

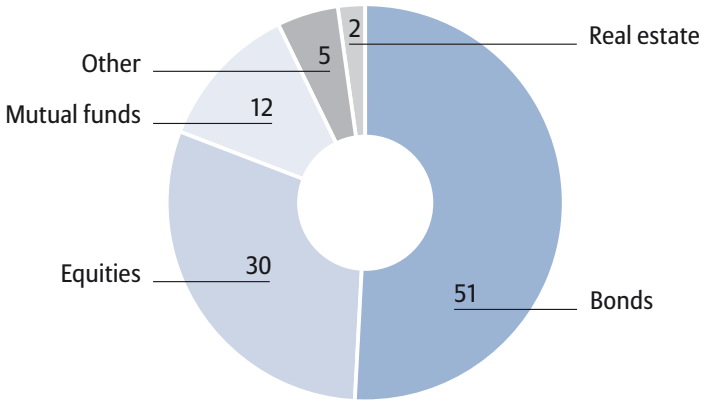
The Danish market is strongly dominated by defined contribution schemes. According to the OECD, 97% of assets in occupational plans are in defined contribution schemes (OECD 2006). Insurance companies dominate the corporate pension market. While there are 658,000 people enrolled in occupational pension funds, the number of members in occupational life insurance is approximately double as high. The overall coverage stands at 73%. While multi-employer schemes are also important, company pension funds do not play a significant role. There are around 40 single employer funds, the majority of which are very small, and most are not open to new members.

There is a growing trend towards diversification among pension funds, especially with regard to alternative assets. Socially responsible investing also ranks high on the investment agenda. In 2007, Denmark lost a trial at the European Court of Justice. As a result, tax exemption on contributions must also be granted to contracts with foreign pension providers.

Occupational pension fund statistics, 2007	
AuM [EUR bn]	68
Members	658,000
Taxation	ETT

Source: OECD

Occupational pension funds' asset allocation, 2006 [%]



Source: OECD

Private retirement savings

There are three possibilities for individual pension savings in Denmark. Contributions can be put into a saving plan that invests in unit-linked products, special deposits or bank accounts and pays out a lump sum at retirement; alternatively a saving plan with withdrawals over a fixed period of time or a life annuity can be chosen. The tax-deductible amount for individual pensions is DKK 43,100 (EUR 5,780), subject to certain preconditions. Lump sum payments are taxed at 40%, while annuities are taxed at the income tax rate. In Denmark, there is a clear tendency towards unit-linked products for individual pensions. Banks dominate the third pillar market, but cannot offer annuities. Insurance companies and pension funds are also active in the market. It is estimated that individual plans have around one million members.

Life insurance

Denmark is among the most developed life insurance markets in Europe. While the average life insurance density, premiums per inhabitant, in the EU-15 amounted to EUR 1,716 in 2007, in Denmark it stood at EUR 2,470. Life premiums as a share of GDP amounted to 5.9% (Swiss Re 2008).The

Danish life insurance market is dominated by the group business due to the strong involvement of life insurance companies in the occupational pension market. 87% of group premiums stem from group contracts. The overall share of unit-linked contracts stood at 13% in 2005 (CEA 2007).

Savings and financial markets

In recent years, Denmark's gross household savings rate has decreased to around 4%. At the end of 2007, Danish household assets amounted to EUR 535 billion[1]. This represented 235% of GDP, which was above the Western European average. With this figure, Denmark is one of the leading European nations in this respect, along with other countries that have strong funded old age provisioning systems, such as Switzerland, the UK and the Netherlands. The importance of funded pensions is reflected in the assets of institutional investors. Insurance companies hold assets of 71% of GDP, pension fund assets amount to 50% and investment funds make up 56%.

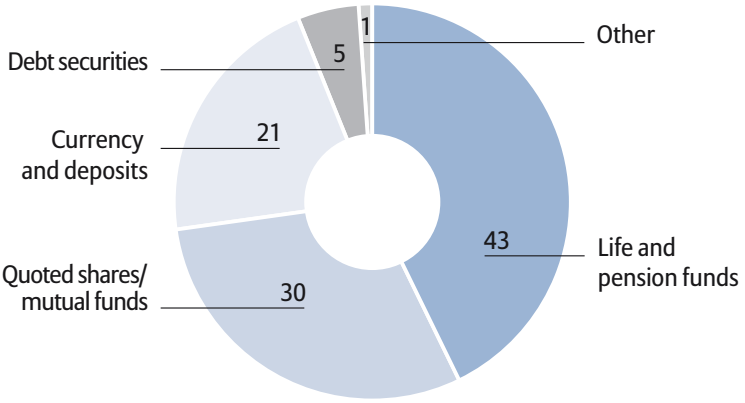
The lion's share of household asset allocation in Danish portfolios is invested in the insurance/ pension segment (43%), which is substantially above the Western European average of 35%. The other major investment is held in equity and mutual fund shares (30%).

Savings and financial markets, 2007	
Household savings ratio [%]	4
Household assets [% of GDP]*	235
Assets of institutional investors* [% of GDP]	177

** 2007, data from 2006 or latest available year*

Source: OECD, Statistical Office of Denmark

Household asset allocation, 2007 [%]



Source: Statistical Office of Denmark

Future market trends

Household assets

Considering Denmark's low savings and recent asset allocation patterns, and assuming an equity market performance of 7% a year (from 2009 onwards), we expect the total financial assets of private households to rise by 4.4% p.a., amounting to EUR 939 billion by 2020 from EUR 535 billion in 2007.

Pension investment assets[2]

In 2007, Danish pension fund assets stood at around EUR 68 billion, excluding ATP assets. Contribution flows were quite volatile in 2007 because of an unstable economic environment. In the future, benefit payments will increase due to an ageing population, which will eat up a portion of new contribution inflows. In light of the broad coverage of occupational pensions and a reserved attitude towards individual pension savings, there is no foreseeable extra impulse for this market besides wage rises or increases in contribution rates (which we have not taken into consideration). We therefore expect pension investment assets to rise by 6.3% p.a., rising to EUR 152 billion in 2020.

Pension insurance assets

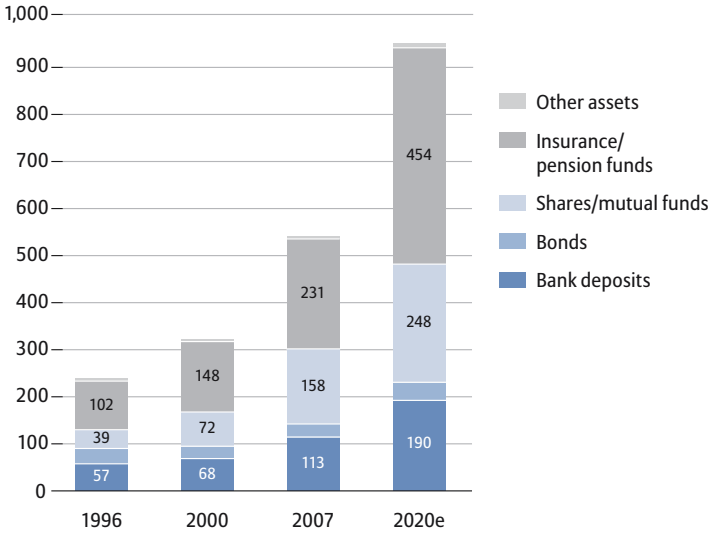
Denmark's life insurance market is more sizeable than the pension fund market, as many arrangements are on an insurance contract basis. In 2007, total life technical reserves stood at EUR 152 billion. Industry-wide pension funds, which will increase in importance, drive the market. Since insurance assets are invested more traditionally, performance may lag behind pension fund asset growth. Furthermore, given a maturing market, growth will likely be slower than in the pension fund market. We expect assets to reach EUR 285 billion by the end of 2020 (CAGR 5.0%).

The retirement market as a whole will therefore reach assets of EUR 437 billion in 2020, with an average annual growth rate of 5.4%.

1 Calculated on the basis of the 2007 year-end exchange rate.
2 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

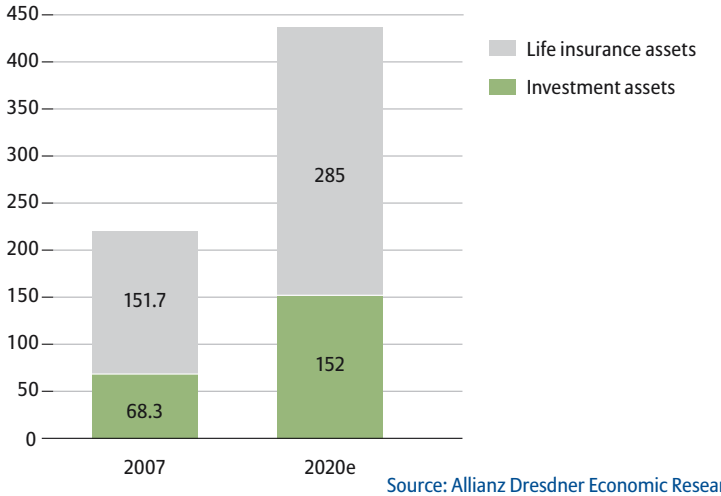
The Danish pension system is mainly based on funded pension provision through the earnings-related portion of the public pillar. With their high coverage, voluntary occupational pensions also play an important role. Defined contribution schemes dominate the occupational market, and the funded public tier is also of the defined contribution type. Clearly, Denmark has followed the two main pension market trends in Western Europe: funding and the shift towards defined contribution schemes. Coupled with relatively favourable demographic development, this demography-resistant pension system set-up has ensured the system's sustainability.

Denmark: Financial household assets [EUR bn]

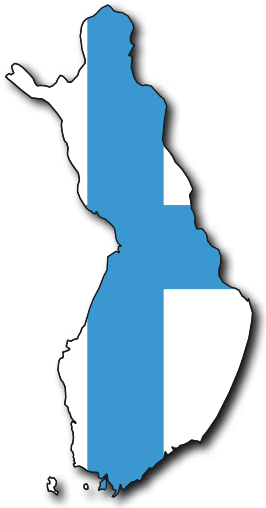


Source: OECD

Denmark: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research



Finland

Partly Funding Public Pensions

Pension system design

The Finnish pension system is centred on the first pillar. It consists of a residence-based portion, which is integrated with an earnings-related portion. The remarkable feature of the earnings-related portion is that it is partly funded and managed by private companies. Due to the dominance of this scheme, the voluntary occupational pillar is underdeveloped whereas third pillar savings are more popular.

While demographic change in Finland will have a significant impact, it will be not as sweeping as in the EU as a whole. The old-age dependency ratio will rise to 47 in 2050, while the EU-25 average will be 52. The total pension market currently stands at EUR 129 billion. According to our forecast, it will grow at a CAGR of 6.2% until 2020.

Public pensions

The national pension

The Finnish public pension system comprises two components. The first is the residence-based national pension. It provides minimum income to retirees with little or no earnings-related pensions. It is linked to earnings-related pensions in that it decreases when the earnings-related part increases. If a person has an earnings-based pension above a certain limit, they do not have access to the national pension. Until the mid-1990s, the national pension was paid regardless of other pension benefits. A full national pension is paid after 40 years of residence. In 2007, the full amount for a single person was EUR 525 a month. It is financed by employer and government contributions.

Demographics and macroeconomics	
Population	5.3 million
Old-age dependency ratio*	2005: 25 2050: 47
GDP [EUR]	179 billion
GDP per capita [EUR]	34,000
GDP growth, 2002–2007 [av. in % p.a.]	3.2
Unemployment rate [%]	6.9

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Mandatory earnings-related pensions

Finland's earnings-related pensions are unique in several respects. First, they are not of the pure pay-as-you-go type, as they are partly funded. Second, the system is decentralised and administered by private companies. Contributions are handled either by pension insurance companies, company or industry funds. The Finnish Centre for Pensions acts as a coordinating body. The system was established in the early 1960s and covers all employees in the private and public sectors. The main plan is based on the TyEL act, which covers all private sector employees. There are other schemes for certain occupational groups, including the self-employed and seamen. As the result of a 2005 reform, retirement age was made flexible; it is now between 63 and 68 years. The reform also abolished the replacement target of 60%, changed accrual rates and the benefit formula to take a person's entire working life into account rather than the last 10 years of employment only.

Contribution rates for employees differ depending on their age. Employees under 53 contribute 4.3%, while older employees pay 5.4%. The average employer contribution to pension insurance stands at 21.6% of earnings (pension providers may give bonuses or rebates). There is no income ceiling. The gross replacement rate of public pensions is 57% of pre-retirement income. In net terms, it is 63%. Public pension expenditure is projected to increase from 10.7% in 2004 to 13.7% in 2050, while the EU-25 average is projected to be 12.8% at this point in time.

Institutional framework and governance
Employers can decide which provider and vehicle they wish to use. Pension insurance companies are by far the most popular providers. They need a concession from the government to provide mandatory pension insurance. The supervisory board and the board of directors of pension insurance companies must include an equal number of employer and employee representatives, which are selected by the respective associations. Their total number must be at least half the overall number of members on the supervisory board and board of directors.

Regulation, asset allocation and taxation
Finnish mandatory pension funds are subject to quantitative limits. These include:
- No more than 50% listed equities
- A maximum of 40% real estate investments
- No more than 5% in hedge funds

No more than 10% of assets can be invested in OECD countries other than EEA (European Economic Area) countries.

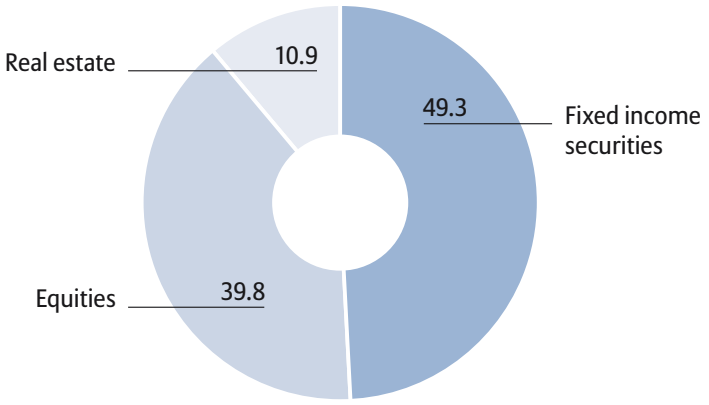
Almost 40% of assets in the earnings-related scheme (in the private sector) are invested in equities, two-thirds of which are invested in foreign equities. Fixed income securities account for 49.3% of assets and real estate makes up 10.8%. Of total assets invested, the share invested in Finland amounts to 33%. 38% is invested in the rest of the Eurozone and 29% in other countries.

Trends
There are 30 company pension funds, 8 industry funds and 7 pension insurance companies on the market. The market is strongly dominated by the latter. 85% of insured persons have policies with pension insurance companies; 12% are insured through company pension funds and 3% through industry funds. In 2007, overall assets in the system amounted to roughly EUR 112 billion. Pension insurance accounted for EUR 74.4 billion. There is also a buffer fund for state employee pensions. In 2005, the fund had assets of EUR 8.2 billion. The fund is an independent state agency; members of the board are nominated by the Ministry of Finance.

First pillar design	
Contribution rate [% of gross salary]	Employer: 21.6 Employee: 4.3 (for people under 53) 5.4 (for people over 53)
Replacement rate [% of last income]	Gross: 57 Net: 63
Legal retirement age	Between 63 and 68
Public pension expenditure [% of GDP]	2005: 10.7 2050: 13.7

Source: EU 2006

Asset allocation earnings-related pensions, 2007 [%]



Source: Finnish Centre for Pensions

Occupational pensions

Voluntary occupational insurance plays a minor role in Finland. The statutory schemes account for 95% of pension expenditure, while group pension provision has a share of 3.6% (Finnish Centre for Pensions 2007). Around 8% of employees are covered by voluntary supplementary schemes. The mandatory system structure, particularly the earnings-related scheme, explains this underdevelopment. Since there is no ceiling for pension contri-

butions and benefits in the public pillar, the need for additional provision is limited.

Employers can arrange supplementary pension provision through group insurance or individual pension insurance. Plans can be defined contribution or defined benefit. Defined benefit plans dominate due to their longer history, but in recent years new contracts have mainly been of the defined contribution type. Supplementary pension provision can be arranged with a company pension fund, an industry fund, a life insurance company, or can be set up as book reserves. Pension insurance with life insurance companies is the most popular option. In recent years, several company pension funds have been dissolved to transfer money to life insurance companies. Of the 210,000 employees covered, 71% participate in life insurance schemes.

Employees can pay up to half of annual contributions. Employer pension contributions are fully tax-deductible, and employee contributions are tax-deductible up to 5% of salaries or EUR 5,000 a year. Taxation is of the EET type.

Occupational pension fund statistics, 2006	
AuM [EUR bn]	8.7
Members	210,000
Taxation	EET

Source: Finnish Pension Alliance Tela

Private retirement savings

Personal pension insurance in Finland is more popular than voluntary occupational pensions. Around 550,000 people participated in 2005. Individuals hold two-thirds of policies, and one-third is taken out by employers (Finnish Centre for Pensions 2007). Third pillar pension provision is especially popular with the self-employed, but is not very widespread for wage earners. According to survey research, participants pay approximately EUR 100 a month into their policies.

Plan participants can choose between fixed-term policies or annuities, and between traditional life and unit-linked insurance. Traditional policies dominate overall, three-quarters of existing savings are in this type of insurance. Unit-linked insurance accounts for the bulk of new business, with almost 90% in 2006 (Finnish Centre for Pensions, 2007). Participant contributions of up to EUR 5,000 are tax deductible, while employers taking out contracts for their employees can deduct up to EUR 8,500. In the latter case, the tax limit for additional employee contributions is EUR 2,500. Pension benefits are taxed at the capital gains tax rate of 28%.

Third pillar statistics, 2005	
AuM [EUR bn]	7.6
Members	550,000
Taxation	EET

Source: Finnish Centre for Pensions 2007

Life insurance

The Finnish life insurance market is among the most developed in Western Europe. Life density, defined as premiums per inhabitant, amounted to EUR 2,258 in 2007. This was significantly higher than the EU-15 average of EUR 1,716. Life premiums accounted for 6.6% of GDP, considerably higher than the 5.9% Western European average the same year (Swiss Re 2008).

Savings and financial markets

In recent years, household savings rates in Finland have been the lowest in Western Europe. They have been negative since 2005 and currently stand at -3.6%. The main reasons behind this are rising wages and the economic growth rates of recent years, which have resulted in a high propensity to consume. The volume of household assets is also small compared to that of European countries, which amount to 112% of GDP. Only Norway has a lower volume. The same can be said of institutional investors' assets. Insurance companies manage assets of 28% of GDP, while autonomous pension funds (only voluntary plans) come to 3.2%.

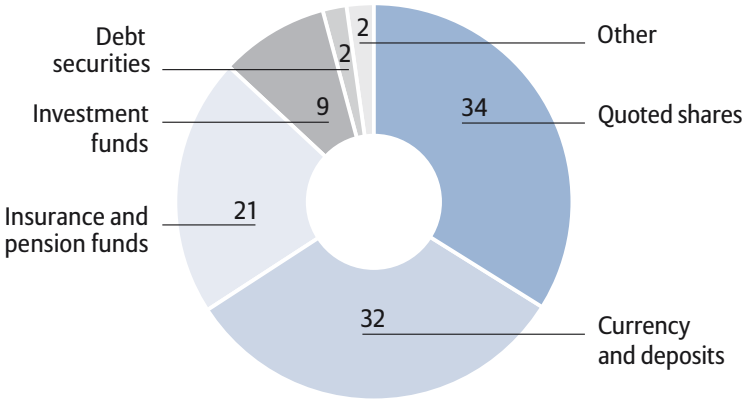
In 2007, the financial assets of private households amounted to EUR 200 billion. Throughout the 1990s, Finns increased their stock and mutual fund holdings steadily at the expense of bank deposits. In 1999, they held a very high portion of shares in their portfolios (46%). This made Finnish households vulnerable to the equity market slide in the early years of the new millennium. Their wealth more or less stagnated between 2000 and 2002, but increased considerably in the years that followed, as the Finns still have a high affinity to the stock market. 43% of their financial assets are invested in equities and mutual funds – the highest percentage in Europe. The insurance/pension segment is relatively unimportant in Finnish household portfolios. With 21%, Finland is among the countries with the lowest portion in Western Europe. Perhaps this can be explained by the strong mandatory earnings-related pension system[1], which is hampering the build-up of private voluntary old age provisioning.

Savings and financial markets, 2007	
Household savings ratio [%]	-3.6
Household assets [% of GDP]	112
Average per capita financial wealth [EUR]	38,000
Assets of institutional investors* [% of GDP]	31.2

** Insurance companies and pension funds without investment funds*

Source: OECD, Statistical Office of Finland

Household asset allocation, 2007 [%]



Source: Statistical Office of Finland

Future market trends

Household assets

As a result of the subprime crisis, Finnish investors have rediscovered their preference for less risky assets. However, the high exposure to stock market investments could put pressure on household portfolios and wealth formation. In our projection, we included a stock market decline of 30% from year-end 2007 to year-end 2008. Assuming an annual growth rate of 7% thereafter, we expect the total financial assets of private households to increase by a CAGR of 4.8% until 2020, increasing to EUR 366 billion from EUR 200 billion in 2007.

Pension investment and insurance assets[2]

In 2007, the mandatory pension market, which includes private and public funded pension arrangements, reached EUR 112 billion. Life insurance played a much bigger role than pension funds and comprised 85% of the market. Given the mandatory character of the system, growth can only be achieved through wage increases and workforce growth. The workforce will continue to grow until the beginning of the next decade and decrease thereafter. From then on, contributions will no longer be higher than benefit payments, making asset performance the only driving force. We expect the mandatory segment to increase by 6.1% p.a., assuming a 7% return on investment from 2009 onwards (-30% in 2008).

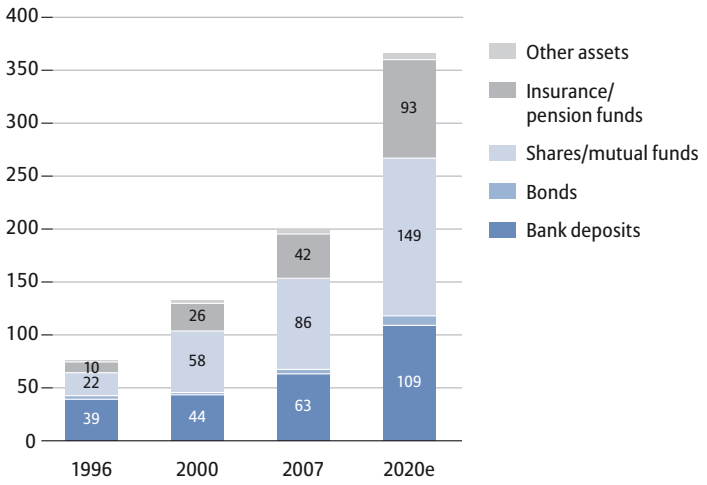
The voluntary occupational segment is very small. It amounts to EUR 8.7 billion and coverage is very low. Since there is no ceiling for contributions and benefits in Finland's mandatory system, there are limited incentives for additional old age provisioning. For the projection period, we expect a higher growth rate in this small market than the mandatory system. We expect the Finnish voluntary occupational pension market to increase by 7.3% a year. The total market, consisting of the mandatory, occupational and private segments, will amount to EUR 281 billion (CAGR 6.2%), from EUR 129 billion in 2007. Since we expect insurance assets to continue to account for more than 85% of total pension assets under management by 2020, insurance assets will stand at EUR 239 billion.

1 The pension assets which are reported in this context are much higher than the figures from the flow of funds statistics, which shows households' financial assets. This may be explained by different classifications of schemes (whether already attributed to the individual or not). The further projection is based on the wider definition of pension and insurance assets, as they can be externally managed.

2 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

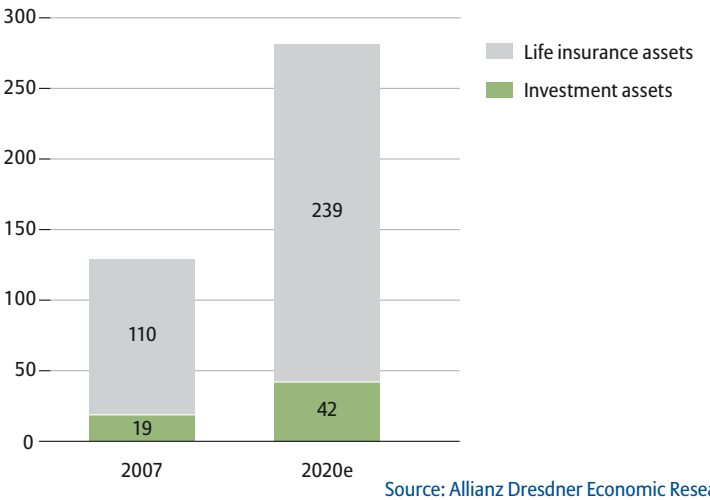
The Finnish pension system and market have a rather unusual design compared with other European countries. The earnings-related portion of the first pillar is partly funded and managed by private companies, which makes it a unique model in Western Europe. Finland is also the only country in which the third pillar is more popular than the second. Despite these differences, the set-up of Finland's pension system aims to diversify the sources of retirement income, which is in line with general Western European trends.

Finland: Financial household assets [EUR bn]



Source: Statistical Office of Finland, Allianz Dresdner Economic Research

Finland: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

France

On the Path to a Multi-Pillar System

Pension system design

Traditionally, pensions in France have been state-centred, with a dominating role for public pension provision. Through several reforms, particularly 2003's Fillon law, the system seems to be slowly changing towards a greater role for funded occupational and private pensions. The public pension pillar is still generous, and is complemented by two occupational systems for different categories of employees. These also work on a pay-as-you-go basis and are mandatory. In 2001, the French government introduced a public pension reserve fund to support the public system's finances after 2020.

In the realm of voluntary occupational pensions, several plans are available. The most important are two saving plans: the PEE, which is oriented towards the short term, and the PERCO, which was introduced in 2003 with the Fillon law and is specifically for retirement purposes. Private, third pillar pensions have seen an upswing as a result of the introduction of PERP plans in 2003. Life insurance is a very popular instrument for voluntary savings, but also features prominently in occupational pensions, where defined benefit and defined contribution group insurance plans are well established.

Demographic change in France will be slightly less severe as in other EU countries. The French old-age dependency ratio will deteriorate to 48 in 2050, compared with an EU-25 ratio of 52. According to our projection, the French pension market, currently amounting to EUR 1.2 trillion, will grow at a CAGR of 6.1% until 2020.

Demographics and macroeconomics	
Population	60.7 million
Old-age dependency ratio*	2005: 25 2050: 48
GDP [EUR]	1,892 billion
GDP per capita [EUR]	31,200
GDP growth, 2002–2007 [av. in % p.a.]	1.8
Unemployment rate [%]	8.3

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

Shape of the public pillar

France's public pillar comprises a variety of schemes. The main scheme applies to private sector employees and covers around 70% of the workforce. There are special schemes for public sector workers, which represent around 20% of employees, and for liberal professions and artisans, which account for the remaining 10% of the labour force. All of these systems work on a pay-as-you-go basis.

Pension benefits depend on the duration of professional life, income level and a multiplier. There are both maximum and minimum pensions. In general, the French public pillar provides generous provision for the elderly. In net terms, public pension payments replace 80% of pre-retirement earnings for an average worker with a 40-year career. However, the replacement ratio is projected to decline substantially, to 66% in 2030 and 63% in 2050 (EU 2006).

In recent years, reforms have focused on ensuring the sustainability of public sector pensions. To this end, required years of service for a full pension were extended and will continue to increase until 2012 (to 41 years). What is more, incentives for later retirement have been strengthened, and differences between pension schemes in the public and private sectors have been reduced in some regards. However, full or substantial harmonisation of the schemes has been met with considerable political resistance.

Public pension reserve fund

In 2001, the French government established the FRR (*Fonds de réserve des retraites*), a pension reserve fund that aims to cushion the impact of demographic change on public pensions. By the end of 2007, the fund had accumulated EUR 34.5 billion and is expected to grow to EUR 150 billion by 2020. From then on, the capital will be used to finance public pension payments. The fund is financed through privatisation revenues, surpluses of certain social funds and a portion of the revenues from the 2% social tax on capital returns. The FRR is an administrative agency of the French state, which is run by an executive board and controlled by a supervisory board comprising representatives of the National Assembly, ministries, trade unions, employers and experts. The Ministries of social security and of the economy share responsibility for the FRR, the assets of which are solely managed by external asset managers that are selected by the executive board.

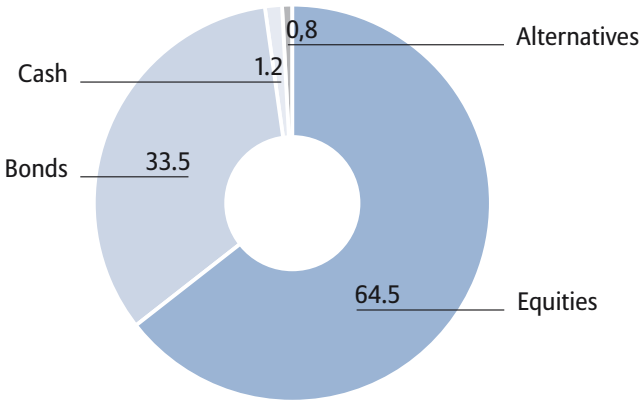
The FRR's strategic asset allocation was initially defined in 2003 and reformed in 2006. The list of admissible instruments was broadened to include alternative assets, such as private equity, commodities and infrastructure. At the same time, the target asset allocation for equities was increased from 55% to 60% and the share of European equities was decreased. Also bond investments were decreased, while the target asset allocation for alternative assets increased from 0% to 10%.

The FRR aims to incorporate environmental, social and governance (ESG) criteria into its investment decisions. Several equity mandates are managed according to ESG criteria, and the fund initiated a process to assess its entire portfolio based on ESG criteria.

First pillar design	
Contribution rate [% of gross salary]	Employer: 8.3 Employee: 6.65
Replacement rate [% of last income]	Gross: 66 Net: 80
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 12.8 2050: 14.8

Source: OECD, EU

FRR asset allocation, 2007 [%]



Source: FRR

Occupational pensions

While France's occupational pensions comprise a variety of schemes, a distinction can be drawn between mandatory pay-as-you-go schemes and voluntary funded pensions, which often take the form of saving plans.

Mandatory schemes

ARRCO (*Association des régimes de retraites complémentaires*) and AGIRC (*Association générale des institutions de retraites des cadres*) are statutory complementary schemes for blue (ARRCO) and white collar workers (ARIGC). Both operate on a pay-as-you-go basis and are based on collective agreements. AGIRC was set up in 1947, and ARRCO was founded in 1962. Contributions to these schemes are converted into pension points, which determine the amount of future pension payments. The value of each pension point is determined each year by the national associations AGIRC and ARRCO, and is currently set in line with prices. The legal retire-

ment age is 65; full benefits are payable from age 60 if a member qualifies for a full pension under the public scheme. Both schemes are part of the state's social security system. ARRCO has approximately 18 million active members and 10 million beneficiaries, while AGIRC has 3.6 million active members and 2.1 million beneficiaries.

Voluntary schemes

Clearly, the scope of public pensions and mandatory occupational plans means that the importance of voluntary occupational plans is limited. Nevertheless, a variety of plans exist, several of which have been introduced in the last decade. Some of these are of the insurance type and will be discussed in one of the following paragraphs. There are also book reserve systems and severance pay systems in place. PESI and PERE plans, which were established in 2005 and 2003, respectively, are geared towards smaller companies, which can participate on an industry or geographical basis.

The two most important plans are the PEE (*Plan d'épargne entreprise*) and the PERCO (*Plan d'épargne retraite collectif*). Both are saving plans, the main difference being that the PEE is a short-term saving plan and therefore not a retirement vehicle in the strict sense. The PERCO, on the other hand, is explicitly designed for retirement purposes. Assets in a PEE must be held for at least five years, after which they can be withdrawn, but can also be paid into a pension plan. The company must at least bear the administrative costs, but can also contribute to the plan. Employees can invest up to 25% of their net income into mutual funds or shares. PEE is well established; if it were classified as a pension product, it would amount to almost 50% of the overall pension market, including collective insurance (Oxera 2008). Companies have the option of setting up a joint PEE, in which case it is called a PEI (*Plan d'épargne interentreprise*), which is mostly used by small- and medium-sized enterprises.

The m ain difference between the PEE and the PERCO is that PERCO capital is available upon retirement only. Premature withdrawal is only possible in rare circumstances, such as long-term unemployment. The PERCO was introduced by the Fillon law in 2003 with the aim of creating a dedicated retirement vehicle. PERCO plans can be set up at the company or industry level; firms that do so must have a PEE in place. Collective agreements determine the coverage of each PERCO scheme, meaning that the PERCO is introduced after negotiations with union representatives. The scheme must be offered to all employees, who can join voluntarily. There are also PERCO schemes for multiple companies (PERCOI).

Employees can make contributions of up to 25% of their gross annual salary. Employers can match contributions up to EUR 5,149 per year (or three times the employee contribution). Benefits are paid out as annuities or a lump sum. Employer contributions up to EUR 4,600 are not considered part of the employee's income for tax purposes. Employers themselves are not taxed on contributions up to EUR 2,300, but pay an 8.2% tax for contributions between EUR 2,300 and EUR 4,600. Voluntary contributions made by employees are subject to normal taxation. Investment income is exempt from income and social taxes. Retirement benefits are tax-exempt as well. Contributions can also originate from corporate profit sharing schemes that are paid to the employee, or from asset transfer from PEE plans.

PERCO plans are managed by external financial institutions and are of the defined contribution type. Providers must offer at least three investment options with different profiles from which employees can choose; a default option is normally also provided. Contrary to PEE plans, investment in the company's own shares is not possible. Fund providers and administrators are selected by the company and union representatives. Due to their short history, assets in PERCO plans have thus far been modest, but the scheme's growth has skyrocketed in recent years. Between 2004 and 2007, assets grew from EUR 77 million to EUR 1.4 billion. The plans are offered to around

Perco statistics, 2007	
AuM [EUR bn]	1.4
Members	334,000
Participating firms	56,000

Source: Association Française de la Gestion Financière

1 million employees, a third of whom have joined so far.

Private retirement savings

The 2003 pension system reform not only established PERCO plans, but also an individual pension plan in the third pillar, the PERP (*Plan d'épargne retraite populaire*). Participation is voluntary and independent of the employment relationship. PERPs are life insurance contracts and can be invested in different forms, including unit-linked products. Contributions to PERP plans are flexible: regular and one-off contributions are usually permitted. They are deductible from taxable income (up to 10% of income or eight times the social security ceiling). Benefits are locked until the participant reaches retirement age and are paid out as annuities. If a primary residence is purchased, benefits can also be paid out as a lump sum. Within just three years, the PERP plans attracted almost 2 million participants.

PERP statistics, end of 2006	
AuM [EUR bn]	2.4
Members [m]	1.9
Taxation	EET

Source: Drees 2008

There are also special pension plans for the self-employed called Madelin plans. These plans covered 940,000 persons in 2006 and assets under management amounted to EUR 13 billion (Drees 2008). Another saving vehicle, which could be seen as pension-related in the broader sense, is the PEA (Plan d'épargne en actions). It is a tax-favoured saving plan in stocks; access to capital is restricted for five years, and full tax advantages apply for an eight-year period. The PEA is used mostly by wealthy individuals.

Life insurance

There are two main types of group life insurance in France, namely Article 83 and Article 39. The former is defined contribution life insurance, while the latter is of the defined benefit type. The defined contribution plans can be financed by the employer alone, or contributions are shared between employers and employees. The defined benefit plans are financed by the employer only; employee contributions are not possible. Both types of plan enjoy tax advantages and benefits are paid out as annuities in both cases. Defined benefit plans tend to be set up for senior management. However, the bulk of new plans is set up in the defined contribution form, and defined contribution or PERCO plans are increasingly replacing defined benefit schemes.

Life insurance is a very popular instrument for financial investments in France. The penetration rate, defined as life premium to GDP, amounted to 7.2% in 2007. This is substantially higher than the EU-15 average, which stood at 5.9%. Life density, premiums per capita, amounted to EUR 2,248; the corresponding value for the EU-15 was EUR 1,716 (Swiss Re 2008). 92% of life premiums stemmed from individual contracts in 2005. This highlights the prominence of life insurance for individual savings. The share of unit-linked contracts stood at 21% in 2005 (CEA 2007).

Savings and financial markets

At 12%, the household savings ratio in France is among the highest in Europe. Only Belgium, Germany and Spain save to a similar extent. As a percentage of GDP, France's household assets are more than 100 percentage points lower than figures for the Netherlands, Switzerland and the UK. However, this is mainly due to the pension system in place and typical of public pillar-centred systems in Europe. The higher the funded part of the pension system, the higher the financial assets, while contributions are not included in the household saving rate.

This is the also the main reason why the average financial wealth of French households is slightly below the Western European average. Countries with funded pension systems, such as Switzerland, Denmark, and the UK have higher levels of wealth. Between 2000 and 2007, financial assets in France grew at a CAGR of 7.2% and reached EUR 3.57 trillion. As a result of the growing institutionalisation of savings, institutional investors play an important role on French financial markets. They hold assets amounting to 93% of GDP if only assets of insurance companies

(91.6%) and pension funds (1.1%) are considered. Data for investment funds are not available for France. Assets of insurance companies have grown considerably since 2000, when they amounted to 70% of GDP.

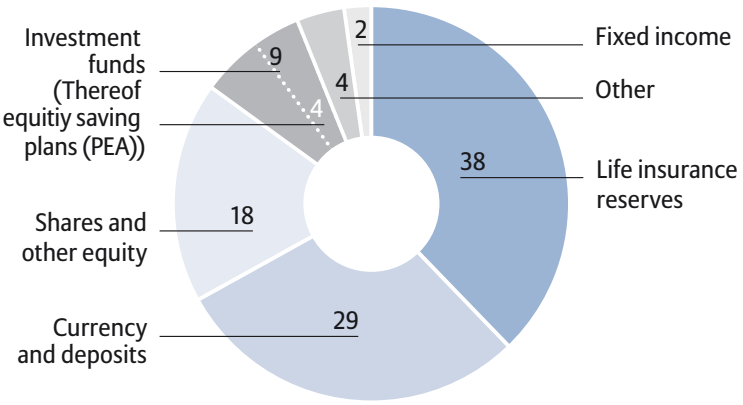
Over the last eight years, household asset allocation in France has been subject to incremental, but steady change. Around one-third of household financial assets are currently invested in less risky assets (currency and deposits, bonds); more than a quarter are invested in shares and mutual funds; and the lion's share is invested in insurance and pension assets. Apart from a minor increase during the equity market boom of the late 1990s, the portion of shares and mutual funds has not changed much over the past ten years. The portion of currency and deposits in total financial assets has decreased by ten percentage points since 1997. Clearly, the insurance and pension markets benefited from this development, particularly the life insurance segment. Its share of total financial assets increased by ten percentage points during the same period. Interestingly, investment funds via life insurance policies saw the biggest upswing within the investment fund category. They account for slightly more than half of investment fund assets, which indicates a growing demand for hybrid products.

Savings and financial markets, 2007	
Household savings ratio [%]	12
Household assets [% of GDP]	189
Average per capita financial wealth [EUR]	58,800
Assets of institutional investors* [% of GDP]	93

** Only insurance companies and pension funds, data for investment funds not available*

Source: OECD, Bank of France

Household asset allocation, 2007 [%]



Source: Bank of France

Future market trends

Household assets

Assuming an equity market performance of 7% a year (from 2009 onwards) and in light of France's high savings rate and asset allocation preferences over the last years, we expect the total financial assets of private households to increase by about 4.7% a year to over EUR 6.5 trillion by 2020, from EUR 3.6 trillion in 2007.

Pension investment assets[1]

Pension investment assets stood at EUR 21 billion in 2007[2]. Since this segment is still in its infancy, we expect pension investment assets to grow more strongly than insurance assets, by a CAGR of almost 10%, reaching EUR 71 billion by 2020. However, we do not expect growth to be stronger than in other markets with emerging funded occupational pensions, as people are still building on the strong first and mandatory second pillars.

Retirement saving will pick up on a broader scale only if French households begin to realize the impact that pension reforms are having on their benefits.

Pension insurance assets

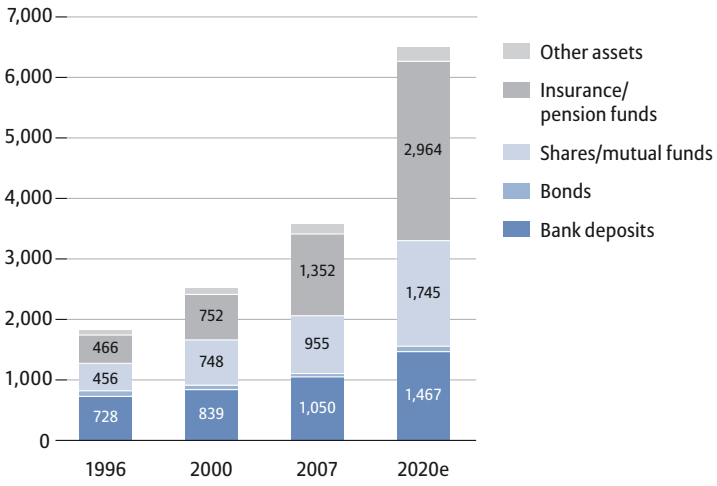
French household portfolios contain a relatively high portion of insurance products. These are used primarily as a general savings instrument and it is difficult to distinguish between old age provisioning and other types of savings. The share of insurance in wealth formation is very high, which is partly due to favourable tax rules (incl. inheritance tax rules and capital gains tax). We do not expect French households to change this behaviour substantially. Only the unit-linked contracts, which have boomed due to positive stock market performance in recent years, may suffer from volatile equity markets in 2008. With the high savings rate, we expect life insurance assets to increase from an already high level of EUR 1.2 trillion in 2007 to EUR 2.57 trillion in 2020. This translates into a compound annual growth rate of 6.0%.

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.
2 This volume is reported by the OECD in its "Pension market in Focus"; most of these assets come from defined benefit pension funds. The figure does not include the company saving schemes (PEE), as they are not earmarked as pension savings plans. This procedure differs from our previous pension study. For this reason, French pension assets in these two studies cannot be compared directly.

Overall, we expect assets under management in the French retirement market to more than double, increasing from EUR 1.2 trillion in 2007 to EUR 2.6 trillion by 2020. This will represent an annual growth rate of 6.1%. The share of pension/insurance products in total financial assets is expected to rise from 38% in 2007 to roughly 46% in 2020, which is significantly above the forecast European average of 39%. This can mainly be explained by the strong life insurance segment.

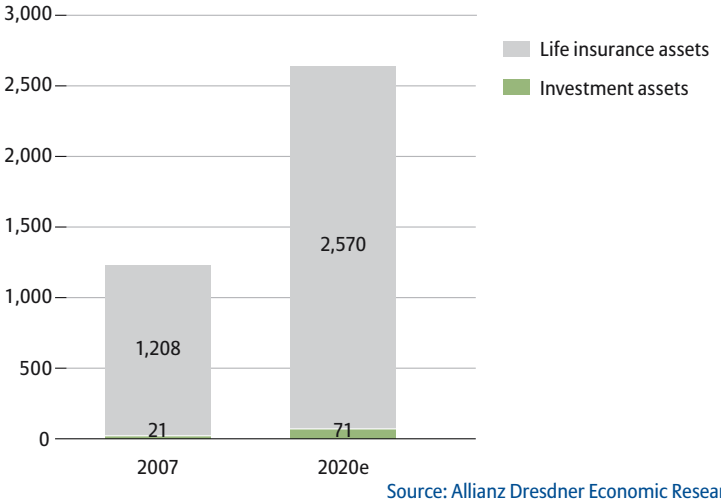
France's pension system is in a process of major change. Previously a showcase for the dominance of pay-as-you-go systems, even in an occupational pension context, new schemes are changing the shape of the pension market. Since 2003, a number of new and funded pension plans such as the PERCO, PERP, PESI and PERE have been introduced. These new plans are very likely to boost funded pensions in France. The introduction of a pension reserve fund also demonstrates the importance of funded pensions, even for French public pensions. Indeed, France has initiated a change in its approach to pensions. It is very much in line with European trends and aims to diversify retirement income by introducing new pension schemes.

France: Financial household assets [EUR bn]



Source: Banque de France, Allianz Dresdner Economic Research

France: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Germany

From Unfunded to Funded Occupational Pensions

Pension system design

Germany has been one of Western Europe's prime examples for a pension system dominated by the public pillar. Under demographic pressure, reforms were initiated at the beginning of the millennium to achieve a more balanced structure of old-age income. The first pillar has experienced several parametric reforms in recent years. Occupational plans, which can be set up in five different ways, saw an upswing in terms of coverage, as did third pillar pensions.

While the German occupational market was long characterised by unfunded pension promises, this pattern is changing and the funding of pension promises has been strongly increased. Pure defined contribution plans are not possible under German law, but the introduction of a new vehicle in 2001 allowed to introduce defined contribution elements, plans with capital preservation guarantees. Germany faces a severe demographic challenge. The old-age dependency ratio will stand at 56 in 2050, four years older than the EU-25 average. Our projections indicate that the overall retirement market, which currently counts assets of EUR 1.07 trillion, will grow at a CAGR of 4.6% until 2020.

Demographics and macroeconomics	
Population	82.2 million
Old-age dependency ratio*	2005: 30 2050: 56
GDP [EUR]	2,424 billion
GDP per capita [EUR]	29,500
GDP growth, 2002–2007 [av. in % p.a.]	1.2
Unemployment rate [%]	8.4

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

The public pension pillar still dominates the German pension system, contributing more than two-thirds of retirement income to people over 65 years of age. The earnings-related, pay-as-you-go system is mandatory for all employees. Certain professions, such as lawyers or architects, are covered by special, funded schemes in the first pillar, while the self-employed can choose between contributing to these funded systems or the public pillar. Public service schemes are financed directly through public budgets. Recent reforms will increase the retirement age from 65 to 67 in the period between 2012 and 2029. The taxation regime has also been changed. Since 2005, at least 50% of pension benefits have been taxed (with a tax-exempt amount). This share will stepwise rise to 100% by 2040, at which point contributions will become fully tax-deductible. The contribution rate, which is shared equally between employer and employee, amounts to 19.9% of salary. There is a contribution ceiling of EUR 63,600 (West Germany), and 25% of the system's proceeds are funded by government subsidies.

Public pensions are calculated using a point system. One point is credited for annual contributions at average earnings: higher contributions are attributed more than one point, and lower contributions earn less. Upon retirement, annual pension points are added up and the sum is multiplied by a

"pension point value". This value currently amounts to monthly benefits of EUR 26.50 (West Germany) for each year of average earnings. Each year, it is adjusted to the development of net wages and a sustainability factor, which considers the relations between contributors and retirees.

In 2004, public pension expenditure stood at 11.4% of GDP. It is projected to increase to 13.1% by 2050. The corresponding values for the EU as a whole are 10.6% and 12.8%. The replacement rate amounts to 43% in gross terms and 63% in net terms. As a result of the enacted reforms, the gross replacement rate will decrease to 34% in 2050. However, this should be counterbalanced by a stronger role for occupational and private pensions. If this occurs, the overall gross replacement rate will actually increase to 48% by 2050.

First pillar design	
Contribution rate [% of gross salary]	Employer: 9.95 Employee: 9.95
Replacement rate [% of last income]	Gross:43 Net: 63
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 11.4 2050: 13.1

Source: OECD, EU 2006

Occupational pensions

Employers can offer occupational pension provision in five ways.

- **Direct pension promises** (*Direktzusage*) are made to employees and financed by book reserves, which are tax-deductible. Employers may build up pension reserves to fund these pension promises.
- **Direct insurance** is a life insurance contract between the employer and an insurance company in favour of employees. The employer is the policyholder, who takes out an individual or group life insurance policy for the employee. The employee has a direct claim against the insurer.
- **Support funds** (*Unterstützungskasse*) are legally independent institutions; employees do not have a legal claim to benefits. However, employers are obliged to fulfil their pension benefit promises. Support funds are not subject to insurance supervision. This means that capital, for instance for loans to the employer, is freely disposable.
- ***Pensionskassen*** are separate legal entities sponsored by one or more companies that provide funded schemes. They are a special type of life insurance company.
- ***Pensionsfonds*** were introduced in 2001 and are separate legal entities. They were intended to be more return oriented than *Pensionskassen* as defined contribution arrangements with minimum benefit guarantee (capital preservation) are also possible. What is more, they are subject to more liberal investment regulations than the other vehicles.

Direct pension promises remain by far the most popular vehicle for pension provision in terms of assets (EUR 234 billion). They are followed by *Pensionskassen* (EUR 96 billion), direct insurance (EUR 47 billion), support funds (EUR 37 billion) and *Pensionsfonds* (EUR 2 billion, all data from 2006, source: aba). Since 2001, employees have had the legal right to access occupational pensions, at least of the deferred compensation type.

Institutional framework and governance

Pensionskassen and *Pensionsfonds* are the only vehicles subject to the EU's IORP directive. They are separate legal entities. Employee representatives of the establishing company have a say in design issues, but not in the choice of vehicle. *Pensionskassen* are insurance undertakings. If they belong to a single company, they are usually set up as mutual associations. In this case, they are subject to the same regulatory, supervisory and governance framework as other insurance companies. Large mutual associations in Germany must be governed by a managing board, member representatives and a supervisory board.

Regulation, asset allocation and taxation

Investment regulations for the respective vehicles vary. There are no investment limits for direct pension promises and support funds, as neither is a regulated entity. Direct insurance and *Pensionskassen* are subject to investment regulations, the most important of which are as follows:

- A maximum of 35% of assets may be invested in equities
- No more than 25% of assets in real estate
- No more than 50% in bonds, loans and bank deposits
- International investments are limited to 30% of assets

Moreover, insurance products such as *Pensionskassen* have to provide a guaranteed interest rate of currently 2.25% a year. The *Pensionsfonds* is subject to much more liberal rules of the prudent person type. There are no limits to equity investments, foreign investments or other asset classes. There are limits to investments in single issuers or issues (the same which apply to *Pensionskassen*) and a 70% currency matching requirement. *Pensionfonds* have to guarantee the paid-in capital minus costs.

In Germany, pension fund (*Pensionskassen* and *Pensionsfonds*) asset allocation is dominated by fixed income instruments. Almost 60% of assets are invested in them, while about a third of assets is invested in equities. Other investments account only for a minor share.

Since 2005, P*ensionskassen, Pensionsfonds* and direct insurance have been taxed in the same way. Contributions of up to 4% of the social security ceiling are tax-deductible, up to an amount of EUR 2,544. While investment income is tax-exempt, benefits are taxed. This means that in Germany, occupational pensions operate according to the EET principle.

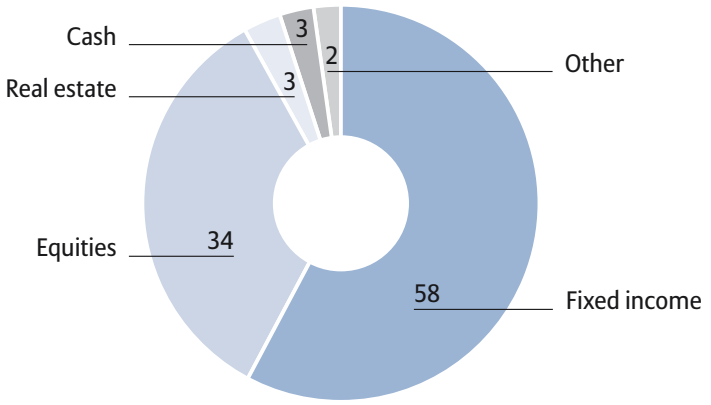
Trends

Occupational pension coverage in Germany has been on the rise in recent years, increasing from 52% of employees in 2001 to 65% in 2006. Certainly, improved incentives for retirement provision as a result of the 2001 reform and an increased awareness of the importance of occupational pensions have contributed to this rise. The recent government decision to extend the social security exemption of pension contributions, which was originally limited until 2008, will also help the funded occupational pillar in the future.

In the occupational pension market, there has been a trend towards funding unfunded pension liabilities through contractual trust arrangements (CTAs) for the past few years. This was triggered by the introduction of IFRS accounting standards, especially among larger companies. By setting up a CTA, companies are able to finance their pension liabilities off the balance sheet. This allows them to place assets into a trust that is legally separate and belongs to the employer. CTAs are not regulated, thereby allowing a free choice of investment strategies. The *Pensionsfonds* has intensified competition for the CTA, as it also allows the funding of pension liabilities, but has to pay lower contributions to the insolvency protection system. Moreover, it makes the complete outsourcing of pension administration possible. Among the DAX 30 companies, 70% of pension obligations are funded (Watson Wyatt 2008b). In addition, partial funding of pension schemes for public servants has begun. The majority of Germany's state governments have decided to create their own state pension funds.

The *Pensionsfonds* is the only vehicle that allows defined contribution-type pension plans. Traditionally, the German occupational pension environment has been driven by insurance and defined benefit schemes. In the framework of *Pensionsfonds*, both defined

Occupational pension funds' asset allocation*, 2006 [%]



*includes Pensionskassen and Pensionsfonds

Source: OECD

Occupational pension funds' statistics*, 2006	
AuM [EUR bn]	98
Members [m]	7.3
Taxation	EET

*includes Pensionskassen and Pensionsfonds

Source: OECD

benefit and defined contribution-type plans are possible. However, defined contribution plans in Germany must guarantee paid-in contributions, so that pure defined contribution plans are not permitted. Some large companies have established a *Pensionsfonds* and the segment has been growing dynamically, but on a very low level. Sector-wide occupational pensions are another important part of the occupational pension environment. These resulted from collective bargaining; the biggest schemes are found in the metal and the chemical industries.

Private retirement savings

The German pension system provides two possibilities to set money aside for old age in the form of *Riester* and *Rürup* pensions. Available since 2002, *Riester* pensions are open to all persons covered by the social insurance system. This includes employees, their spouses, unemployed persons, self-employed persons who have chosen to be covered by the social insurance system and other groups. The idea behind the *Riester* pension was to compensate for the coming decrease in public pension benefits.

There are three kinds of products available in the framework of *Riester* pensions: insurance contracts, bank deposits and mutual fund saving plans. These products must meet certain criteria and be certified by the financial service authority. *Riester* products cannot be withdrawn before the age of sixty. What is more, the provider must guarantee the paid-in capital, and 30% of accumulated capital can be withdrawn as a lump sum at the beginning of the withdrawal period. Benefits can be paid out as an annuity or in the form of withdrawal plans (which run until the age of 82, after which pension insurance takes over). *Riester* products are subsidised in two ways, with an allowance of EUR 154 a year and a child allowance of EUR 185. Both subsidies have been continuously increased and the allowance for children born in or after 2008 will rise to EUR 300. In addition, contributions are tax- deductible, depending on the income level. 4% of income up to a limit of EUR 2,100 is tax-deductible. Taxation is based on the EET principle.

After a slow start, 10.8 million *Riester* contracts were in force at the end of 2007. 78% were insurance contracts, 18% were mutual fund saving plans and the rest were bank deposits. Despite the dominance of insurance contracts, saving plans are growing quickly: in 2004, their share stood at 7.5%.

Third pillar (*Riester* pensions) statistics, 2007	
Members [m]	10.8
Taxation	EET

Source: Ministry of Finance

Available since 2004, *Rürup* pensions are especially designed for the self-employed to substitute for public pensions, though employees can also participate. The maximum annual contribution limit is EUR 20,000 (EUR 40,000 for a married couple). While the tax-deductible portion is currently set at 66%, it will increase to 100% by 2025. Taxation of benefits follows the reforms in the public pillar. Benefits are paid as an annuity after the age of 60; lump sum payments or early withdrawals are not allowed. Accrued pension rights are not inheritable or portable. At the end of 2007, there were around 630,000 *Rürup* contracts in force. Since 2007, banks and asset managers have also been allowed to offer *Rürup* products. Previously, customers could choose between traditional pension insurance and unit-linked life insurance.

Life insurance

At EUR 74.8 billion, Germany is Europe's third largest life insurance market in terms of premiums. Nevertheless, life premiums per capita and as a share of GDP amount to about half the European average only. In 2007, life premiums amounted to 3.1% of GDP, while life premiums per capita stood at EUR 909. The corresponding values for the EU-15 were 5.9% and EUR 1,716 (Swiss Re 2008). The share of premiums for individual life insurance contracts amounted to 86% in 2005; the rest was made up of group insurances. The same year, unit-linked contracts accounted for 11% of premiums, while the EU-15 average stood at 25% (CEA 2007).

Savings and financial markets

In Germany, the household savings rate is among the highest in Europe. At 10.9%, it was second only to France in 2007. Despite this, household assets as a share of GDP stand at 188%, far behind the Western European average and countries such as Switzerland, the Netherlands or the UK. In these countries, household assets range between 280% and 373% of GDP. In absolute terms, the financial assets of German households stood at EUR 4.56 trillion at the end of 2007. The modest overall level of household assets largely reflects the dominance of the public pension pillar. Consequently, the assets of autonomous pension funds, including *Pensionskassen* and *Pensionfonds*, are also quite modest. They amount to 11% of GDP, while the assets of insurance companies account for 62% of GDP. However, these assets do not include all pension assets, as the numbers do not cover unfunded obligations and funding through CTAs.

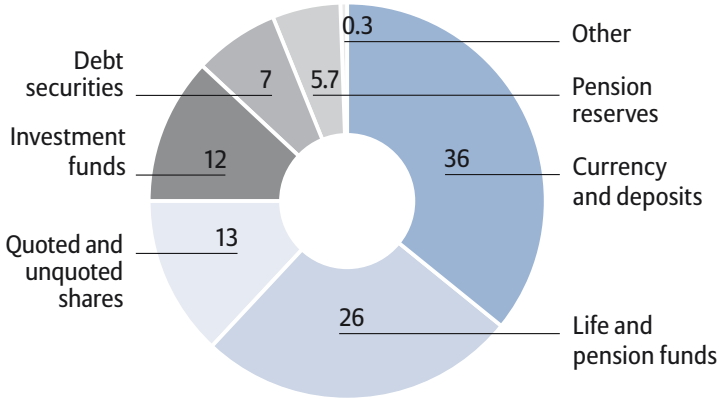
As in most other countries, Germany's overall wealth has clearly improved since 2003 as a result of stock market recovery. However, people did not take advantage of this boom to increase equity exposure. Instead, households withdrew from engagements they started in the late 1990s. The portion of listed equities in households' portfolios decreased from 14% in 1999 to 8.5% in 2007. The long-term trend of the declining importance of bank deposits was halted, as German investors sought low-risk investments. In addition, insurances were able to gain larger shares of household portfolios. Insurances and pension funds combined accounted for 26.4% of household assets in 2007. Another 5.7% is earmarked for retirement, namely as book reserves on company balance sheets.

Savings and financial markets, 2007	
Household savings ratio [%]	10.9
Household assets [% of GDP]	188
Average per capita financial wealth [EUR]	55,500
Assets of institutional investors* [% of GDP]	73

** without investment funds, for which no comparable data are available*

Source: OECD, Deutsche Bundesbank, EFAMA

Household asset allocation, 2007 [%]



Source: Deutsche Bundesbank

Future market trends

Household assets

German households have turned to low-risk investments because of the stock market downturn at the beginning of the new millennium and new financial market uncertainties. The introduction of a flat rate withholding tax on capital returns and gains in 2009 is unlikely to trigger a new equity boom, even if capital gains from equities purchased until 2008 will not be taxed in the future. For this reason, we do not expect much change in the coming years. Investments with safety guarantees, some types of structured products and insurance-based products are likely to profit from this trend. Assuming an equity market performance of 7% p.a. (from 2009 onwards and -30% in 2008) and in light of the relatively high savings rate in Germany, we expect the total financial assets of private households to increase by 3.8% a year to EUR 7.4 trillion by 2020, from EUR 4.6 trillion in 2007.

Pension investment assets[1]

With EUR 1.07 trillion in assets under management, Germany is the third largest retirement market in Europe in absolute terms. The pension reform of 2001 introduced incentives to strengthen occupational and individual old age provisioning. After a slow start, the measures have begun to bear fruit. As an increasing number of people become aware of the need for personal and occupational pension provision, pension products will continue to grow strongly. As the smaller part of the total market, pension investment

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

assets (adjusted for direct insurance) are expected to increase by 5.1% p.a., reaching assets of EUR 684 billion in 2020 from EUR 358 billion in 2007. It should be noted that growth will be split into two diverging trends: Companies will continue to switch their unfunded pension liabilities to external funding, thus reducing their book reserves. At the same time, this money will be shifted into investment vehicles, investments with insurance companies and pension plans. Thus, there will be shift within the pension segments. The legal entitlement to deferred compensation will be the decisive driving force of pension investment asset growth.

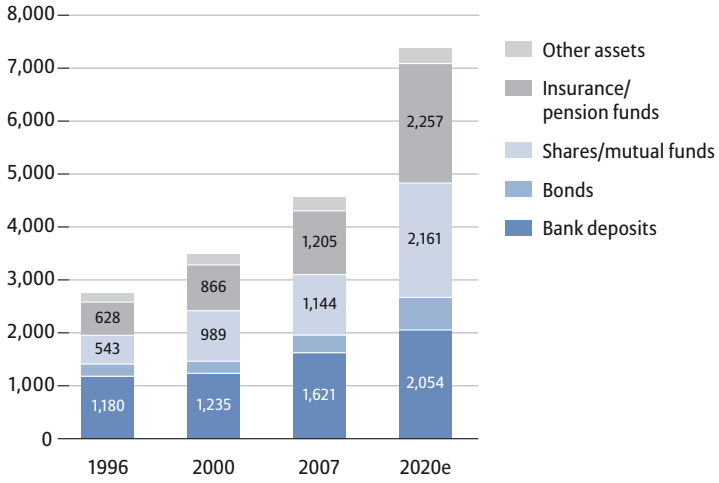
Pension insurance assets

The retirement market has traditionally been insurance-driven, with insurance assets accounting for 66% of retirement assets under management. Private life endowment insurance has long been the most popular product for old-age provision, but it has lost ground since tax advantages were reduced. In this changing environment, the already emerging trend towards the annuity business has been further strengthened. Until now, annuities have made up the bulk of new insurance business.

Due to the impact of pension reforms and the new success of *Riester* savings plans, we expect additional inflows for old-age provision. At the same time, life insurance companies will face major outflows in the coming years as households begin to cash in maturing contracts concluded during the reunification boom of the early 1990s. This will hamper the build-up of insurance assets. We therefore expect a moderate yearly growth rate of 4.3% for insurance assets up to 2020. Technical reserves will increase to EUR 1.24 trillion at the end of the projection period, from EUR 716 billion in 2007.

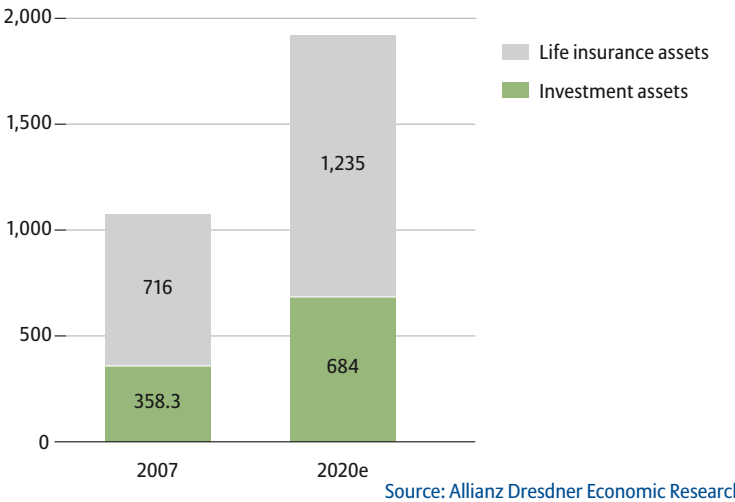
Overall, we expect the German market to grow 4.6% on average up to 2020, when it will amount to EUR 1.92 trillion.

Germany: Financial household assets [EUR bn]



Source: Deutsche Bundesbank, Allianz Dresdner Economic Research

Germany: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Pension reform in Germany has aimed to encourage funded pensions to compensate for decreasing public pensions and to diversify retirement income. The stronger incentives for occupational and private pensions seem to be effective. Occupational pension coverage has increased. What is more, after a slow start, the third pillar Riester plans have gained wide acceptance and membership. Funding pension promises is an unbroken trend in the occupational market; the main question here is whether the Pensionsfonds will compete with CTAs or whether it will complement them. Another question is whether the Pensionsfonds can gain significant market share. In light of demographic projections for Germany, funded pensions will have to play a significant role in retirement income. This is a process that needs time, but is well underway.

Greece

Relying on the Public Pillar

Pension system design

Greece runs the most generous public pension system in Europe. In fact, pensions for average earners are higher than their income before retirement. For this reason, saving in the occupational and private pillars is not a priority, and these are therefore underdeveloped. The legal foundations for occupational plans were established only in 2002 and coverage is very limited. There are no specific tax advantages for third pillar products.

Greece is among the European countries that are highly affected by demographic change. Its old-age dependency ratio will worsen from 28 to 59 in 2050, while the EU-25 average will stand at 52. Our projections foresee that the overall Greek retirement market, which currently amounts to EUR 7.8 billion, will grow at a CAGR of 13.9% until 2020.

Public pensions

Greece operates a public pension system with a gross replacement rate of 105% and a net replacement rate of 115% (for a 40-year career with average earnings). The structure of the first pillar is complex, as there are main schemes and auxiliary pension funds for various professions. The biggest of the main schemes is the Social Insurance Institute (IKA). Through a reform passed in March 2008, these 133 vehicles are to be merged into 13. Other parts of the reform eliminate many early retirement options and give greater incentives for longer working lives. The schemes operate based on pay-as-you-go principles, but have accumulated a considerable amount of assets.

Demographics and macroeconomics	
Population	11.2 million
Old-age dependency ratio*	2005: 28 2050: 59
GDP [EUR]	229 billion
GDP per capita [EUR]	20,500
GDP growth, 2002–2007 [av. in % p.a.]	4.3
Unemployment rate [%]	8.3

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Employees contribute 6.67% of their wages, while employers pay 13.33%, and the government contributes 10%. The public pillar covers employees and certain groups of self-employed people. While there is no minimum limit for contributions, there is a maximum limit for an annual income of EUR 68,300. The minimum pension is EUR 428 and the maximum pension amounts to EUR 3,200. A means-tested scheme targets low-income elderly people. The official retirement age is 65, but retirement is also possible after 30 years of contributions, or based on a combination of age and contribution periods. The generosity of the pension system will be a heavy burden on public finances in the years to come. According to OECD data, public pension expenditure will increase from today's 12.4% of GDP to 24.8% in 2050, which is about twice as high as the value projected for the EU-25.

Occupational pensions

Institutional framework and governance

As a result of the exceptionally high replacement rate of the public pillar, the occupational pension market is very underdeveloped. In fact, the legal foundations for occupational pensions were only introduced in 2002. Through a collective agreement, employers and employees can establish Occupational Insurance Funds on a voluntary basis in companies and in some sectors. The pension funds are autonomous, non-profit private entities with own legal personality. They are supervised by the Ministry of Employment and Social Protection.

Regulation, asset allocation and taxation

Pension funds are subject to quantitative limits, which include the following:

- A maximum of 70% of assets may be invested in equities or corporate bonds
- No more than 5% may be invested in investment funds
- Investments in non-EU and non-EEA countries are generally not permitted

According to industry sources, taxation of occupational pension funds is unclear at the moment, as the relevant law does not explicitly refer to it (IPE June 2008). The tax status of new plans is therefore unclear and the government has not yet taken steps to clarify the situation. This is another reason why second pillar funds have been slow to start.

Trends

The delimitation of occupational pensions in Greece is difficult and depends on the question whether auxiliary funds are included or not. The financial accounts for Greece record a value of EUR 1.4 billion, which we took as a starting point for our projection. The coverage of the newly created Occupational Insurance Funds is very limited, with only four funds currently in operation. At the end of 2006, these four funds had 47,000 members and assets of EUR 18.7 million.

Private retirement savings

In Greece, private retirement savings generally take the form of life insurance (endowment or unit-linked policies) with lump-sum payments. There are no other specific retirement products or private retirement plans available. While tax relief is not granted specifically for pension products, there is tax relief of EUR 1,000 a year for all insurance contributions.

First pillar design	
Contribution rate [% of gross salary]	Employer: 13.33 Employee: 6.67 Gov: 10
Replacement rate [% of last income]	Gross: 105 Net: 115
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 12.4 2050: 24.8

Source: EU, OECD

Life insurance

Greece's overall life insurance market has considerable potential. The life premium per capita stood at EUR 202 in 2007, about 11% of the EU-15 average. The penetration rate is also low. While life premiums amounted to 5.9% of GDP on average in the EU-15, in Greece they accounted for just 1.0% of GDP (Swiss Re 2008). Unit-linked contracts accounted for 27% of premiums in 2005; group life insurance made up 33% of life premiums in the same year. This is around 10 percentage points higher than the EU-15 average (CEA 2007). The provision of group insurance is common among large Greek companies or the subsidiaries of multinational companies. Small- and medium-sized companies are much more hesitant to offer such plans.

Savings and financial markets

Household financial assets in Greece amounted to EUR 318 billion at the end of 2007. In terms of per capita assets, Greece ranks at the bottom of the Western European league. In relation to GDP, the figure is 139%, which is among the lowest values of the 17 countries considered in this study[1]. Institutional investors' assets account for 17% of GDP, while pension fund assets account for less than 1% of GDP. The corresponding figure for Switzerland and the Netherlands, the most developed pension markets in Eu-

1 Data for Luxembourg or Greece's savings rate are not available.

rope, is around 120% of GDP. At 5% and 11% respectively, the assets of insurance companies and investment funds are far below the European average.

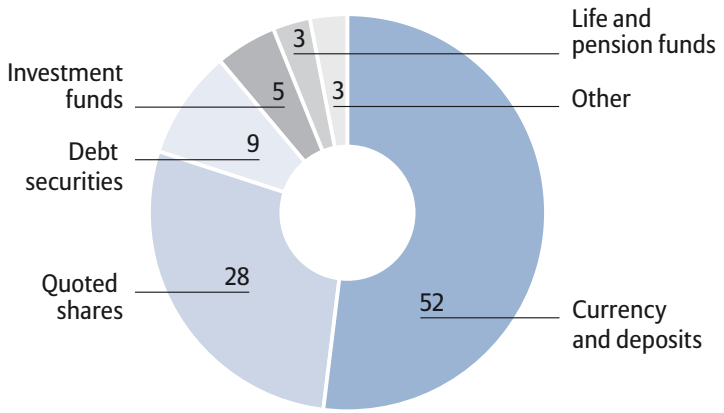
The lion's share of Greek households' financial assets is held in bank deposits. Together with bond investments, Greek investors hold around 60% of their portfolios in low-risk assets. However, the proportion of shares and investment funds accounts for 33%, which is a high value in European comparison. This is partly due to positive stock market development in the second half of the 1990s. In 1996, Greek households held only 17% in shares and mutual funds. Life insurance and pensions funds play a subordinate role in Greek household portfolios, accounting for only 3% of assets. To a certain extent, this is a reflection of Greece's underdeveloped funded pensions and the very high replacement rates of the first pillar social security system.

Savings and financial markets	
Household assets [% of GDP]	139
Average per capita financial wealth [EUR]	28,500
Assets of institutional investors* [% of GDP]	17

**Only insurance companies and pension funds, data for investment funds not available*

Source: OECD, EFAMA, Data from 2006

Household asset allocation, 2007 [%]



Source: Eurostat

Future Market Trends

Household assets

By the end of the projection period, we estimate that savings as a percentage of disposable income will increase from around 10% to 12.5%. We also expect the total financial assets of private households to increase by about 7.2% a year, from EUR 318 billion in 2007 to over EUR 790 billion by 2020. This high growth rate stems from the relatively low level of average wealth, high inflows and a high portion of stock market engagement. We have assumed an equity performance of -30% in 2008 and of 7% a year from 2009 onwards.

Pension investment and insurance assets[2]

Greece is still at the beginning of the pension reform process. At present, regulations are not transparent and the system remains opaque. Steps to strengthen the second and third pillars are likely to be taken during the next decade. We expect pension reforms to reduce pension levels and result in a greater individual need to set money aside for retirement. In the years ahead, the government will likely succeed in lowering the public deficit (high on the policy agenda). This will open up a financial scope for tax incentives for private and occupational pensions, which would in turn give the market some impulse. The market is still in its infancy compared to the rest of Western Europe, which means there is a great deal of development potential.

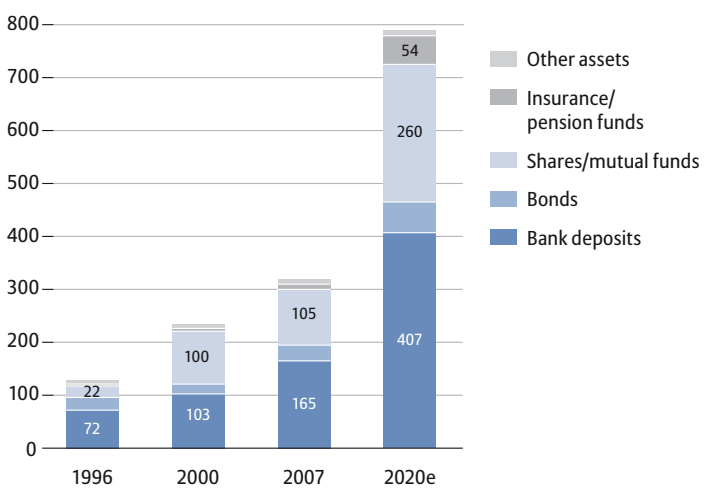
In 2007, pension investment assets amounted to EUR 1.4 billion and life insurance technical reserves stood at EUR 6.4 billion. We expect high growth in both segments. Pension assets will benefit slightly more than insurance products, and we expect the total market to grow by 13.9% p.a. until 2020, at which point assets will reach EUR 42 billion (pension investment assets +14.8% CAGR to EUR 8 billion; insurance assets +13.7% CAGR to EUR 34 billion). The share of pension/insurance products of total financial assets is expected to reach 6.9% in 2020, which is still far below the forecast European average of 39%.

2 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

Greece is subject to two unfortunate developments. It is not only one of those Western European countries that will be hardest hit by upcoming demographic developments, it also runs the most generous state pension system in the EU. In the medium and long term, this will seriously threaten the

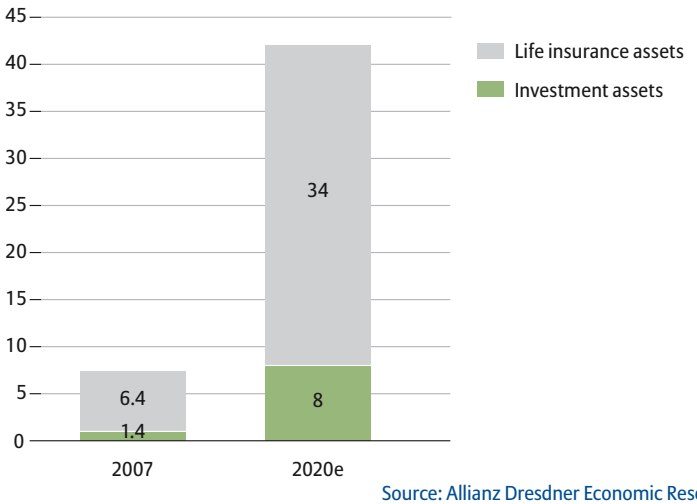
sustainability of public pensions. Despite this, reform efforts in Greece have lagged behind other European countries. One of the main challenges is the complexity of the first pillar, with its main schemes and auxiliary pensions as well as its unparalleled generosity. Another major challenge is the further promotion of funded pensions. While the introduction of a legal framework for occupational pensions in 2002 was a first step, more reforms may be necessary to achieve a more balanced retirement income structure.

Greece: Financial household assets [EUR bn]



Source: Eurostat, Allianz Dresdner Economic Research

Greece: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Ireland

Further Encouraging Occupational Pensions in a Multi-Pillar System

Pension system design

The Irish pension system attributes a high level of importance to occupational and private pensions. Since state pension benefits are modest and provide only basic pension provision, supplementary pensions are key to maintaining living standards after retirement. To secure the sustainability of the public pillar, a pension reserve fund has been in operation since 2001 that receives 1% of Irish GDP each year.

In Ireland, there is an ongoing and heated political discussion on how to increase supplementary pension coverage. Proposals range from providing better incentives to introducing mandatory occupational pensions. The main ongoing trend in the occupational pension market is the shift from defined benefit to defined contributions plans, which is very pronounced in Ireland.

Demographic change in Ireland is not as severe as in most other European countries. The old-age dependency ratio is projected to reach 45 in 2050, while the EU-25 average will be 52. Currently, total retirement assets under management amount to EUR 164.3 billion. Our projection foresees that assets will grow at 5.6% per year until 2020.

Demographics and macroeconomics	
Population	4.2 million
Old-age dependency ratio*	2005: 17 2050: 45
GDP [EUR]	161 billion
GDP per capita [EUR]	38,600
GDP growth, 2002–2007 [av. in % p.a.]	5.6
Unemployment rate [%]	4.6

Data from 2007 or latest available year
**Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

Shape of the public pillar

Ireland's public pillar covers both private and public sector employees. Employees with weekly earnings of less than EUR 300 do not have to contribute, while everyone else must contribute 4% of their earnings up to a ceiling of EUR 46,600. Employers contribute 8.5% of wages for employees with weekly earnings of less than EUR 356, and 10.75% for those above this threshold. There is no ceiling for employer contributions. Maximum weekly pension benefits amount to EUR 193, and there is also a means-tested pension. The replacement rate of Ireland's public pension pillar is low, amounting to 38% in net terms. The Irish system is designed to avoid old-age poverty, but not to replace income. Despite this, Ireland's public pension expenditure will more than double in the coming decades, from 4.6% in 2005 to 11.1% in 2050. While this will be lower than the projected EU-25 average (12.8%), the gap is decidedly shrinking. Today, Ireland's pension expenditure is less than half of the EU-25 average.

The National Pensions Reserve Fund

In 2001, the Irish government established the National Pensions Reserve Fund (NPRF) to help ensure the stability of public pensions. The fund will receive 1% of GDP each year until at least 2055. It aims to cover as many costs as possible stemming from public

pillar and public service pensions between 2025 and 2055 at the earliest. Capital inflows to the fund are taken from general taxation. According to projections, the fund's assets will peak at 50% of GDP around 2040 and will cover a quarter of total pension costs by mid-century. If these projections prove accurate, the fund will be depleted by 2070. Current assets stand at EUR 21.2 billion (NPRFC 2007).

The fund is legally required to achieve the best possible investment return under the condition of prudent risk management. Consequently, there are no investment restrictions except that the fund is not allowed to invest in Irish government securities. This is a major difference to many other reserve funds, which are obliged to invest a considerable portion or even all of their assets in government securities.

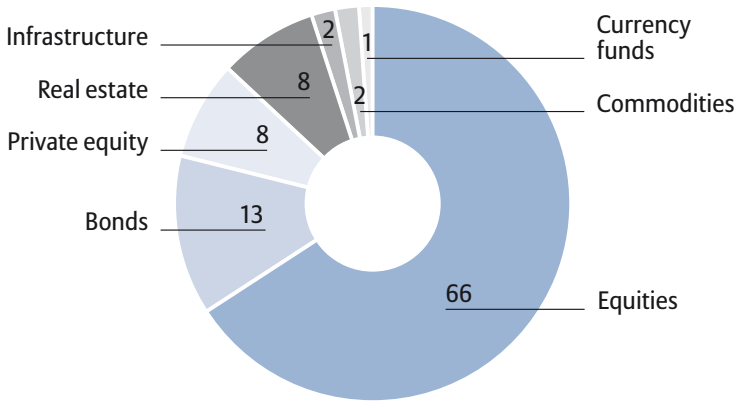
The target asset allocation of the fund, which is to be reached by the end of 2009, is based on the principle of diversification. Two-thirds of assets will be devoted to equities. 21% will be allocated to alternative investments such as private equity, real estate, infrastructure, commodities and currencies. At the end of 2006, allocation in equities amounted to 76.5%, which was invested primarily in large caps. There is no overweight of Irish equities, the fund views the Eurozone as its domestic market.

The Minister of Finance appoints the seven members of the NPRF Commission, which manages and controls the NPRF. For the first ten years of existence, the operating manager is the National Treasury Management Agency. It advises the Commission, selects investment managers, implements the investment strategy and fulfils administrative roles. The Commission is required to perform its functions through the National Treasury Management Agency.

First pillar design	
Contribution rate [% of gross salary]	Employer: 10.75% (8.5% for low- income earners Employee: 4% (0 for low-income earners)
Replacement rate [% of last income]	Gross: 32 Net: 38
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 4.6 2050: 11.1

Source: EU, OECD

NPRF target asset allocation, end of 2009 [%]



Source: NPRF 2007

Occupational pensions

Institutional framework and governance

Occupational pension funds in Ireland must be established in the trust form. Trustees can be individuals selected by the employer, possibly after consultation with scheme members, or corporate trustees, for example specialised trustee service firms or the sponsoring company itself. Occupational plans can be of the defined contribution or the defined benefit type. Employers and employees generally contribute to both. Benefits can be paid out as annuities or as a lump sum coupled with a pension.

Regulation, asset allocation and taxation

In Ireland, the prudent person principle prevails. The law requires trustees to act in accordance with it, especially with regard to asset diversification. There are no limits for investments in equities, real estate, bonds, investment funds, loans and bank deposits, nor is there a limit for international investments. At least 50% of assets must be invested in regulated markets.

Equities account for the largest share of Irish pension fund assets, with two-thirds of assets invested in equities. Eurozone equities dominate, followed by the US and Ireland. Although there is significant overexposure to

the domestic market if its international weight is considered, investments in Irish equities have decreased in recent years.

Taxation of occupational funds is of the EET type. The tax-deductible amount depends on age and is capped at a certain earning limit. For members up to 30 years of age, it amounts to 15% of total pay; it progressively increases up to 40% of total pay for people aged 60 and over.

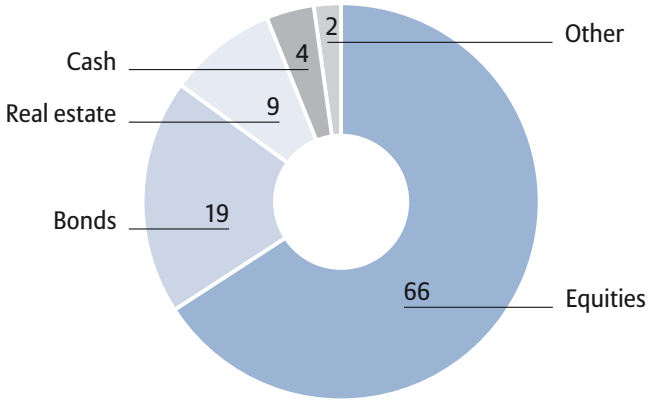
Trends

There is an ongoing shift from defined benefit to defined contribution plans in Ireland; this particularly applies to new schemes and to the affiliates of multinational companies. In total, 20% of pension assets are managed in defined contribution schemes. 76% are managed in defined benefit schemes, and the rest is managed in special schemes (IAPF 2008). Total assets under management amount to EUR 86.6 billion.

Of the 795,000 members (a coverage rate of about 50%) in occupational plans, 255,000 are in defined contribution schemes. However, if only private sector schemes are considered, almost 50% of members are enrolled in defined contribution plans. What is more, the share of firms that offer solely defined benefit plans has decreased from 67% to 37%, while the share of firms that offer only defined contribution plans increased from 8% to 24% between 2002 and 2007. 39% of defined benefit schemes are completely closed to new members (IAPF 2007). In slightly more than half of defined contribution schemes, members are required to make an active choice. If investment options are available, five or more investment options are offered (IAPF 2007) in 54% of the cases. Some large schemes have taken action and introduced hybrid plans in an attempt to combine defined benefit and defined contribution advantages and accommodate the preferences of trade unions.

Pensions are a central topic in the Irish public policy debate. The political aim is to reach a supplementary pension (occupational and private) coverage rate of 70%, from 62% today. There are also worries that current inflows into defined contribution plans are too low. To initiate discussion on the future of public, occupational and private pensions, the government published a green paper in 2007 that outlines possible reform options. The government intends to reform the system based on the results of the consultation process. One of the key questions is whether coverage should be increased through higher incentives in the voluntary systems or by introducing some form of mandatory participation.

Occupational pension funds' asset allocation 2007 [%]



Source: IAPF 2008

Occupational pension fund statistics, 2007	
AuM [EUR bn]	86.6
Members	795,000
Taxation	EET

Source: IAPF 2007/2008

Private retirement savings

The distinction between occupational and private pensions in Ireland is fluid, and both pillars are often subsumed under the heading of supplementary pensions. Consequently, individual pensions are often linked to occupational pensions in some way. This is the case for Retirement Annuity Contracts (RAC), which are open to employees and the self-employed, except for those who are enrolled in a company pension plan. Employers can contribute to RACs. RACs are insurance contracts of the defined contribution type and can be combined with various types of insurance coverage. Benefits are payable from age 60 onwards; retirement is not a prerequisite. Contributions are tax-exempt up to 15% of net earnings for people under 30, increasing to 40% for those over 60. The earnings cap is

set at EUR 262,382. While investment income is tax-exempt, benefits are taxed. Up to 25% of funds can be paid as a tax-free lump sum. RACs are offered by insurance companies and have different investment options.

Personal Retirement Savings Accounts (PRSA) are another type of retirement saving that was introduced in 2003. It is a defined contribution type pension plan that is offered by authorised PRSA providers. Everyone under 75 years of age can take out a standard or non-standard PRSA. The former is subject to maximum charges and investments are in pooled funds only. Employers who do not offer company pension plans are obliged to provide access to at least one standard PRSA. Employers may contribute on a voluntary basis. PRSAs are taxed in the same way as Retirement Annuity Contracts. They are offered by banks, investment managers, insurers, building societies and credit unions. Each PRSA offers several investment options and must provide a default investment strategy. The plans are transferable, even to company pension plans. At the end of 2006, 131,000 people participated, with total assets amounting to EUR 1.25 billion.

Introduced in 1999, Approved Retirement Funds (ARF) and Approved Minimum Retirement Funds (AMRF) are a specialty of the Irish system. These funds are designed for the post-retirement phase and have done away with the requirement for annuitisation. ARFs are investment funds into which pension fund (additional voluntary contributions), RAC and PRSA capital can be invested; they are managed by a Qualifying Fund Manager. To put money into these vehicles, several prerequisites must be met. For example, ARF holders must have a pension income of at least EUR 12,700 per annum for life. If they do not, they must purchase an AMRF. The capital in an AMRF cannot be withdrawn before the age of 75 and must amount to at least EUR 63,500. If this is the case, additional money can be put into an ARF.

Third pillar statistics (PRSA, end of 2006)	
AuM [EUR bn]	1.25
Members	131,000
Taxation	EET

Source: The Pensions Board 2008

Savings and financial markets, 2007	
Household savings ratio [%]	5
Household assets [% of GDP]	193
Average per capita financial wealth [EUR]	74,700
Assets of institutional Investors [% of GDP]*	131

** insurance companies and pension funds without investment funds*

Source: OECD, Central Statistical Office Ireland. Financial Regulator

Life insurance

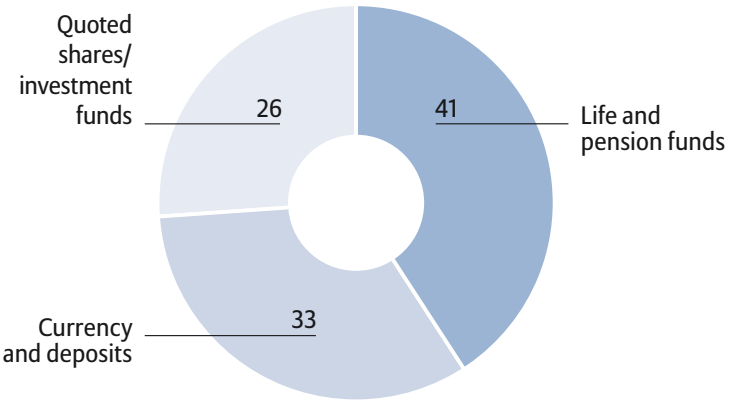
Ireland is one of the most mature life insurance market in Europe. In 2007, premiums per capita amounted to EUR 3,882; the EU-15 average stood at EUR 1,716. The country's life premiums as a share of GDP accounted for 9.3% compared with the EU-15 average of 5.9% (Swiss Re 2008). Both values exclude cross-border business that is very significant for the Irish life insurance industry.

Savings and financial markets

Ireland's household savings rates have decreased over the past few years, from around 7.5% at the beginning of the millennium to 5% in 2007. At the end of 2007, Irish household assets amounted to EUR 312 billion. Assets stood at 193% of GDP, which is slightly below the Western European average, but ahead of larger EU member states such as France, Germany and Spain. The asset volume of Irish pension funds stands at 50% of GDP, and those of life insurance companies account for 81%. This value is high compared with most countries in Continental Europe. For instance, Austria, Belgium, France, Spain and several other countries have pension fund assets of significantly less than 10% of GDP. The Netherlands and Switzerland have values of around 120% of GDP, mainly due to the mandatory or quasi-mandatory character of their occupational pension systems.

Since Ireland offers only a basic pension level in the first pillar, the lion's share of Irish household portfolios is invested in the insurance/pension segment (41%). A high portion of these savings is held in equities, meaning that a waning stock market has put pressure on Irish households' financial assets. After years of double-digit growth resulting from strong equity market performance, the asset volume was only 1% higher in 2007 than at the end of 2006. In addition, about 26% of assets are invested in the stock market and mutual funds, which makes Irish portfolios vulnerable to current financial turbulence. However, much like their counterparts in other European countries, the Irish have already reacted to this development by increasing the weight of bank deposits in their household portfolios.

Household asset allocation, 2007 [%]



Source: Central Statistical Office Ireland

Future market trends

Household assets

Continuing financial market uncertainty will put pressure on Irish investors in the immediate future. However, this very uncertainty will also open up opportunities throughout the projection period, as the portion of shares held directly or indirectly (through pension funds) is quite high. According to our projection, total financial wealth will increase to EUR 621 billion by 2020, from EUR 312 billion in 2007. This represents an approximate annual increase of 5.4%. This projection assumes a 30% stock market decrease from the end of 2007 to the end of 2008 and an equity market performance of 7% a year from 2009 onwards. It also presupposes that Irish households will save moderately throughout the projection period and that economic and income growth will be above average.

Pension investment assets[1]

Irish pension fund assets[2] are highly exposed to the stock market and have been affected by the stock market downturn. From the end of 2006 to 2007, Irish pension fund assets had already declined from a peak of EUR 87.7 billion to EUR 86.6 billion. Since Ireland is discussing reform options for its pension system and the introduction of higher incentives for voluntary pensions or a mandatory system, more impulses for old age savings can be expected. Ireland aims to increase coverage to 70% of the workforce. According to the Irish Association of Pension Funds, contributions must double to guarantee a 50% replacement rate. There may therefore be more potential than we can currently consider, as the next steps for reform have not yet been planned. The projection indicates a growth rate of around 6.5% p.a., which will amount to pension investment assets of EUR 197 billion by 2020.

Pension insurance assets

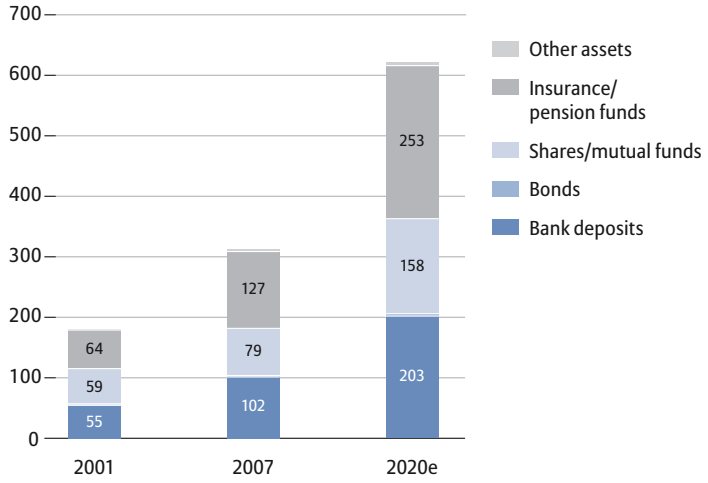
While Ireland's life insurance market is quite strong with technical reserves of EUR 77.7 billion in 2007, there are no strong impulses to be expected for this mature market. PRSAs are still very small and only partly used as insurance plans. RACs, which are open to those without an occupational plan, might be substituted as soon as second pillar coverage increases. We therefore expect very moderate growth of 4.4% p.a. in the coming years. Assets will amount to EUR 136 billion at the end of 2020.

The overall retirement market will reach assets of EUR 333 billion by 2020, growing 5.6% per year on average.

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.
2 There are no separate figures for pension fund assets and insurance assets in Irish flow of funds statistics. In the pension asset projection, we used the figures reported by the Irish Association of Pension Funds (IAPF). The insurance figures are taken from the statistics of the European Insurance and Reinsurance Federation (CEA). The sum of both differs from the mathematical technical reserves, which are reported as pension/insurance assets in the flow of funds statistics for private households. This may be explained by different classifications of schemes (whether already attributed to the individual or not). In this context, the projection is based on the broader definition of pension and insurance assets (IAPF/CEA), as they can be externally managed.

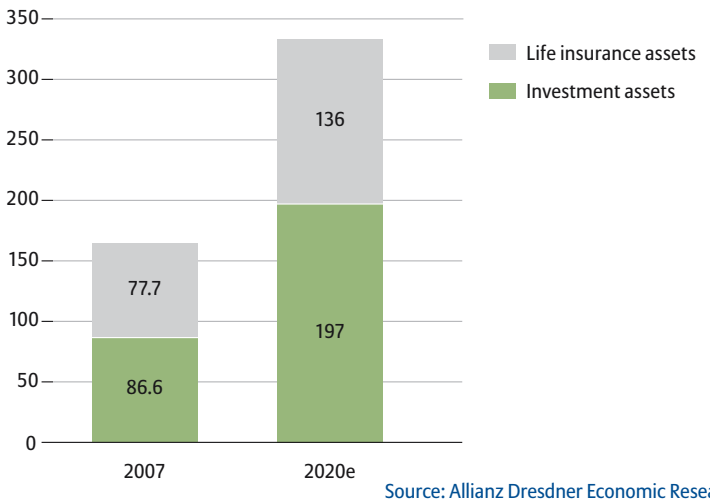
The main challenge for Irish pension policy has been tackling the coverage rate of occupational and private pensions. This is vital, as the replacement rate from the public pillar is only moderate. New schemes have been introduced to increase coverage, and there is a growing link between second and third pillar pensions. The topic remains high on the political agenda and a reform framework is currently being developed. In the occupational market, Ireland is experiencing a strong shift from defined benefit to defined contribution plans. Although it is less affected by demographic change than most other European countries, Ireland has taken measures to cushion the impact of ageing on public pensions in the form of a pension reserve fund with very reliable sources of finance and best practice investment management. All in all, funded pensions play a crucial role in Ireland's retirement income, and the expected reforms are likely to expand this role.

Ireland: Financial household assets [EUR bn]



Source: Central Statistics Office Ireland, Allianz Dresdner Economic Research

Ireland: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Italy

Strengthening Formal Occupational Pensions

Pension system design

The Italian pension system is dominated by its public pillar, which provides a very high replacement ratio. As a result, other pension pillars have traditionally been underdeveloped and have a short history. The first pillar was gradually transformed into a notional defined contribution system in the mid-1990s. The main vehicle for occupational retirement savings was traditionally the TFR, a kind of severance pay scheme. However, it was not a dedicated retirement plan. Closed and open pension funds were legally introduced in 1993, but the first emerged only in 1997. Reforms in 2004 aimed at strengthening occupational pensions by re-directing TFR contributions to pension funds. Third pillar pensions consist mainly of PIPs, which are tax-favoured life insurance contracts. Individual, tax-favoured contracts are also possible in the framework of open pension funds.

Except for Spain, no country in Western Europe will be more severely hit by demographic change than Italy. Its old-age dependency ratio will rise from 30 today to 66 in 2050, while the EU average for the same year is projected to be at 52. Overall pension market assets currently amount to EUR 435 billion, and our projections foresee that they will grow at a CAGR of 5.9% until 2020.

Public pensions

The Italian public pillar has seen many reforms. In the 1990s, reforms gradually unified systems that were once very fragmented. The 1995 reform introduced a shift to a notional defined contribution scheme, which has applied to new labour market entrants from 1996 onwards. At this time, employees with more than 18 years of contributions remained in the old system. A 2004 reform set the retirement age to 65 for men and 60 for women. However, as the length of contributions also counts, actual retirement ages can be considerably lower.

With a net replacement rate of almost 90%, the Italian public pension system is very generous. However, coupled with the adverse demographic situation, this generosity made reform necessary. The main aim of reforms introduced to date has been to stabilise public pension expenditure. The introduction of the notional defined contribution system will lower the replacement rate substantially in the future, which will stabilise pension expenditure at around 15% of GDP. Private sector employees currently contribute 8.9% of their gross wages, and employers pay up to 23.8%. Under the new system, benefits are directly linked to annual contributions. For low-income earners a minimum pension exists. As part of the first pillar, there are different

Demographics and macroeconomics	
Population	58.5 million
Old-age dependency ratio*	2005: 30 2050: 66
GDP [EUR]	1,535 billion
GDP per capita [EUR]	26,300
GDP growth, 2002–2007 [av. in % p.a.]	1.0
Unemployment rate [%]	6.1

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

schemes for certain professions, such as architects or engineers. 19 of such schemes are in operation with a total of 1.3 million members and EUR 30 billion in assets.

Occupational pensions

Institutional framework and governance

Clearly, the replacement rate of first pillar pensions determines the need for and the size of occupational pensions. Basic legislation for occupational pension provision was introduced only in 1993. There are four types of occupational pension:

- **Pre-existing funds:** occupational pension schemes that were introduced prior to the 1993 legislation and are still in operation, even though they cannot accept new members. The plans can be structured as defined benefit, defined contribution or hybrid, but an increasing number of funds has been converted into defined contribution schemes. Almost all pre-existing funds are sponsored by financial companies, and they are not subject to the rules and regulations of the other pension funds.
- **TFR** (*Trattamento di fine Rapporto*): a mandatory severance pay scheme for private sector employees. During employment, 7.4% of the employees' salary is set aside in the form of book reserves to pay a lump sum when employment ends for whatever reason. Additional employer contributions are not mandatory, but may be required by collective agreements. Combined employee and employer contributions can amount to 12% of taxable income, up to a contribution ceiling of EUR 5,154 per year. Contributions appreciate each year at 1.5% plus 75% of the inflation rate.
- **Closed pension funds** are funds that can be set up at the company, industry or regional level. They are negotiated between trade unions and employers. Membership is restricted to participating companies. They offer defined contribution plans only.
- **Open pension funds:** membership is open to all employers and individuals, allowing them to join either the occupational or private pillar. Banks, insurance and asset management companies manage open pension funds; only defined contribution schemes are possible.

First pillar design	
Contribution rate [% of gross salary]	Employer: 23.8 Employee: 8.9
Replacement rate [% of last income]	Gross: 79 Net: 88
Legal retirement age	65 men, 60 women
Public pension expenditure [% of GDP]	2005: 14.2 2050: 14.7

Source: EU 2006, OECD

In 2004, a potential sea change in Italian occupational pensions was initiated though a change in the legal framework. With a view to developing funded retirement savings, a reform was passed stipulating that TFR contributions should be redirected into pension funds. The transfer works as follows: In the first half of 2007, employees had to choose which pension fund they wanted to join (they could not decide on employer contributions). They could opt for either industry funds, company funds or open pension funds. If they did not make an explicit choice, the rule of "silent consent" stipulated that TFR contributions would be transferred to a closed pension fund. If there were no such fund, contributions would be directed to a government pension fund for TFR (FondINPS). If employees preferred to stay in the TFR system, they had to write to their employer. While employees who joined the new system could not return to the old TFR system, those who remained in the TFR system may join a pension fund at any time.

According to Italian regulator Covip's data, subscriptions to the occupational pillar doubled to 2.7 million accounts in the first six months of 2007. Given that the reform affected over 12 million employees, this meant that only 22% were enrolled in second pillar funds. Originally, the Italian government aimed to see 40% of all employees diverting their TFR contributions to pension funds by mid-2007.

Closed and open pension funds differ in their governance structures. Closed pension funds have their own legal personality, are separate from the sponsoring company and can be set up as foundations or associations. Asset management and benefit payments

must be delegated to authorised institutions. On the boards of closed pension funds, employers and employees are represented in equal numbers. The biggest closed funds are found in the mechanical and engineering industry, the chemical and pharmaceutical industry and the oil and energy sector. Open pension funds operate in the contractual form, do not have a legal personality and are offered by financial institutions that are authorised to manage them. The managing company must appoint a general manager or supervisor of all the managing company's activities related to the open pension fund.

Regulation, asset allocation and taxation

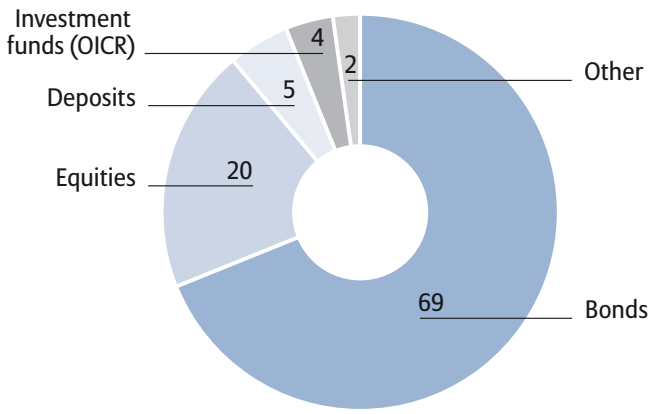
Italy applies a fairly liberal regulatory regime to pension funds, with some quantitative investment restrictions in place. There are no limits for bond and equity investments in OECD member countries. The main limits include the following:

- A maximum of 20% of pension fund assets can be invested in bank deposits, including short-term bills
- No more than 20% of fund assets can be invested in retail and private closed-end funds
- A maximum of 5% can be invested in equities and debts issued by non-OECD residents if they are traded on regulated markets; if they are not traded on regulated markets, a 0% limit applies
- No more than 15% of assets may be invested in securities issued by a single issuer or a connected group of companies
- A maximum of 20% may be invested in the sponsoring employer

The asset allocation of closed and open pension funds differ with regard to the use of investment funds. While these figure prominently in the portfolios of open pension funds, they are insignificant in the portfolios of closed pension funds, where bonds dominate.

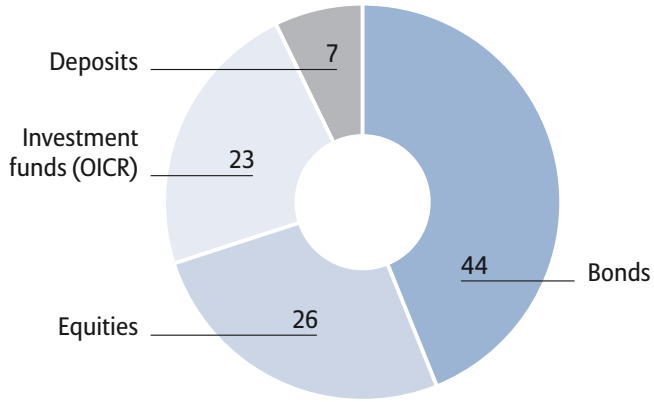
In terms of taxation, Italian pension funds are subject to an ETT regime. Employee contributions are tax-exempt up to 2% of salary, while benefits are taxed at a flat rate of 15%. To encourage long-term contributions, the 15% flat rate is reduced by 0.3% for every year beyond 15 years of membership, with a minimum tax rate of 9% after 35 years of membership. To encourage employer contributions, tax credits have been introduced.

Asset allocation of closed pension funds, 2007 [%]



Source: Covip 2008

Asset allocation of open pension funds, 2007 [%]



Source: Covip 2008

Trends

Closed pension funds are the most widespread retirement plans in terms of members. In 2007, 1.9 million members were enrolled in closed pension funds. Open pension funds counted 745,000 members and pre-existing funds had 650,000 members. The picture changes when the number of plans and assets is considered. There are 42 closed pension funds in operation, 84 open pension funds and 455 pre-existing funds. The latter still hold the bulk of assets, EUR 36 billion. Closed pension funds hold EUR 11.6 billion in assets and open pension funds hold EUR 4.3 billion. Until recently, employees covered by closed funds were not allowed to join open pension funds.

The dominance of the pre-existing funds is mainly due to their longer history. The first closed funds emerged in 1997 and the first open funds were established in 1998, meaning that they have had much less time to accumulate assets. It should also be considered that the pre-existing funds cannot accept new members. The trend is therefore much more favourable to open and closed pension funds, both of which increased their assets 3.5-fold between 2002 and 2007. While open and closed pension funds are exclusively of the defined contribution type, the trend towards defined contribution is also visible in pre-existing funds. Although all sorts of plans are permitted, around 84% of the funded plans are currently of the defined contribution variety (a significant share are book reserve plans).

The development of individual choice is very significant. While open pension funds have generally offered participants three to five portfolio options with different risk/return characteristics, closed pension funds did not. However, this has been changing. In 2006, 36% of closed fund members were able to choose. By 2007, the figure had increased to 93%. In the majority of cases, three to four investment options are offered, with most members opting for very secure options with low equity shares. All closed and open funds offer an option with guaranteed return, as this is a precondition for receiving TFR contributions by default. The overwhelming majority of members does not choose, and is therefore enrolled in the default option with a low to modest equity share.

In Italy, the decisive driver of occupational pensions will be the acceptance of pension funds and employee willingness to redirect TFR contributions to open and closed pension funds. Estimates for annual TFR contributions that could be redirected to pension funds range between EUR 15 and 19 billion.

Occupational pension fund statistics, 2007	
AuM [EUR bn]	51.9
Members [m]	2.4
Taxation	ETT

Source: OECD

Private retirement savings

The main schemes for individual pension provision are PIP (*polizze individuali pensionistiche*) personal insurance policies, which were introduced in 2001. Since open pension funds are open to all citizens and also geared towards the self-employed, the boundaries between these two schemes are blurred. One main difference is that PIPs are insured plans. Almost 70 insurance companies currently offer PIPs, and there are 1.3 million participants with total assets of EUR 5.8 billion. PIP schemes enjoy the same tax advantages as pension funds. The split between traditional insurance and unit-linked products is around 60 to 40.

PIP statistics, 2006	
AuM [EUR bn]	5.8
Members [m]	1.3
Taxation	EET

Source: Covip 2008

Life insurance

PIP schemes are part of the broader life insurance market. Group life insurance plays only a subordinate role in the life market due to the high replacement rate of public pensions. According to European Insurance and Reinsurance Federation data, in 2005 individual contracts had a share of 96% in total life premiums and unit-linked contracts accounted for 36% of premiums (CEA 2007). If the total market is considered, life premiums per inhabitant stood at EUR 1,102 in 2007, and the proportion of life premiums to GDP was 4.2%. Both values are lower than the EU-15 average, which amounted to EUR 1,716 and 5.9% of GDP (Swiss Re 2008).

Savings and financial markets

At 6.8%, Italy's 2007 household savings ratio was slightly higher than the Western European average. However, it has decreased significantly in recent years, dropping from 11.4% in 2002. Recent economic stagnation in Italy is likely to have been the major reason behind this decrease. At 240%, household financial assets are higher than the Western European

average of 219%. The assets of institutional investors amount to 61%, which is below average in a European comparison. Insurance companies are the biggest institutional investors in Italy, with assets of 37% of GDP. They are followed by investment funds (22% of GDP) and autonomous pension funds (2% of GDP).

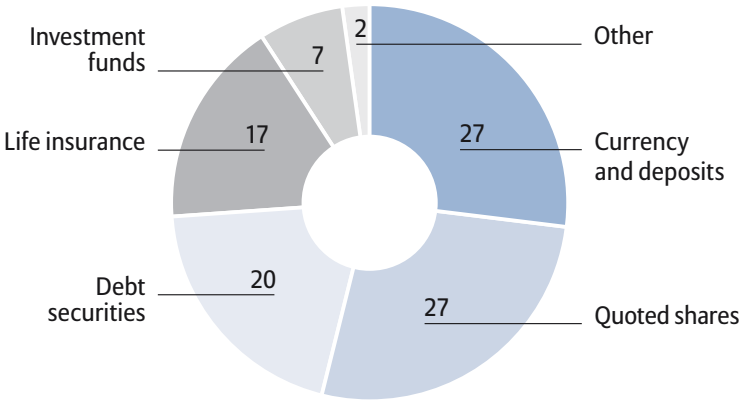
In absolute terms, household financial wealth amounted to EUR 3.69 trillion in 2007, the third highest value in Western Europe behind the UK and Germany. Italian households have a relatively high proportion of shares and mutual funds in their portfolios (34%). This is the result of an extreme reallocation of assets in the 1990s. In 1996, 70% of financial assets were in bank deposits and bonds; only 19% of Italians' portfolios were made up of shares and mutual funds. By 2000, this had changed, as the equity market boom dramatically increased demand for shares and mutual funds. The combined share of equities and mutual funds rose sharply at the expense of bank deposits and bonds, increasing to 44% in 2000. After 2001, the bear market led to a decline in the value of financial assets. Thereafter, Italian households withdrew from direct and indirect engagements in the stock market.

Coupled with high replacement rates, the slow pension reform process did not help the pension segment develop compared with many other European countries that have initiated pension reforms. Only the life insurance market developed fast after the deregulation processes of the 1990s, and it has caught up well. The share of insurance and pension assets in household portfolios, which stood at only 10% in the mid-1990s, increased to about 17% in 2004 and has stayed at that level since.

Savings and financial markets, 2007	
Household savings ratio [%]	6.8
Household assets [% of GDP]	240
Average per capita financial wealth [EUR]	63,000
Assets of institutional investors [% of GDP]	61

Source: OECD, Banca d'Italia, EFAMA

Household asset allocation, 2007 [%]



Source: Banca d'Italia

Future market trends

Household assets

Financial market turbulence will have an impact on asset formation in the immediate future. For the projection period, we have assumed relatively slow economic and income growth, but have also considered that Italian households will intensify efforts to compensate decreasing levels of public pensions. We therefore expect a slight increase in savings rates. Furthermore, given the asset allocation preference during the last couple of years, and assuming an equity market performance of 7% a year (from 2009 onwards; -30% in 2008), we expect to see total financial assets reach EUR 5.96 trillion in 2020. This translates to an annual growth rate of 3.8% from the current level of EUR 3.69 trillion.

Pension investment and insurance assets[1]

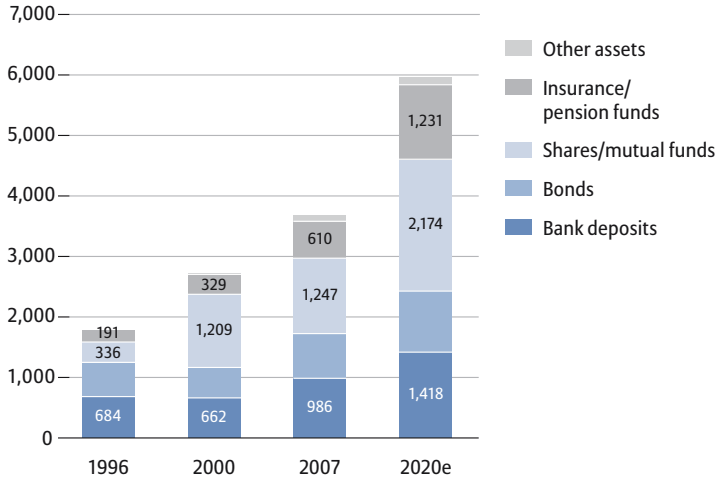
Italian pension investment and life insurance assets currently amount to EUR 435 billion, making it one of the largest European markets[2]. In recent years, insurance and pension fund products have gained in importance. In light of measures to strengthen the second and third pillars of the pension system, we expect this trend to continue. The life insurance market dominates the retirement segment, with technical reserves of EUR 377 billion in 2007. Given this relatively high level and more conservative asset allocation, we expect these assets to grow at a compound annual growth rate of 5.3% until 2020, reaching EUR 742 billion.

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.
2 The higher value for pension/insurance assets in the preceding section is due to the inclusion of TFR assets in the financial flow statistics. As TFR assets are not specifically earmarked for retirement provision, we did not include them as pension assets.

The comparatively small market for occupational pensions will likely grow faster. We expect 8.8% growth, which will split into diverging segments: the pre-existing schemes, the open and closed funds and the PIP. The former still make up the bulk of the market, with a market share of 62%. However, as these schemes are closed to new entrants, this portion is decreasing rapidly, down from 80% five years ago. We expect this segment to grow by about 3.4%, while the other segments should see much stronger growth of around 14%. Although the process of transferring TFR contributions into pension funds is proceeding more slowly than expected, it will fuel pension fund assets, as TFR accruals are substantial. Given these diverging trends, we expect pension investment assets to rise to EUR 172 billion by 2020. Overall, we expect the Italian pension/insurance market to grow at a compound annual rate of 5.9% up to 2020, reaching EUR 914 billion.

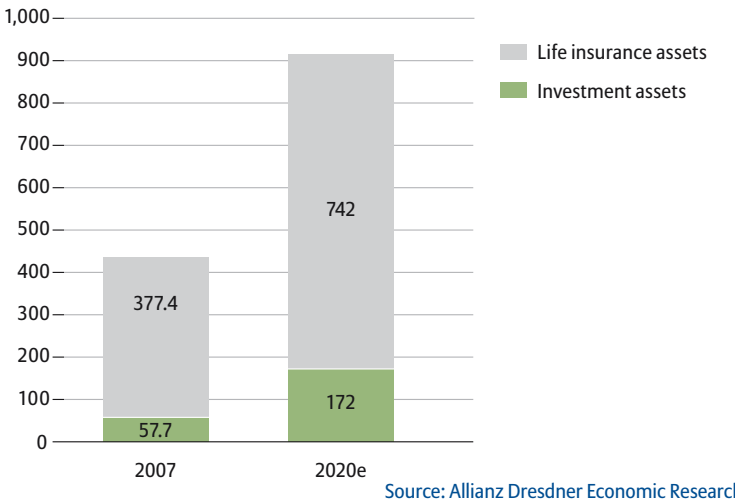
Italy has begun to move away from a first pillar-centred to a more multi-pillar system by encouraging occupational pensions and introducing third pillar pension plans. Greater diversification of retirement income seems critical for Italy to cope with demographic change and to ensure pension sustainability and security. The short and medium-term outlook for Italy's pension markets will clearly depend on employee willingness to transfer TFR contributions into pension funds. The implementation of individual choice may also help create an awareness of individual responsibility for retirement. In the long run, the outlook for Italy's pension markets depends on the path towards political reform and acceptance of funded pensions as an integral part of old-age retirement income provision.

Italy: Financial household assets [EUR bn]



Source: Banca d'Italia, Allianz Dresdner Economic Research

Italy: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Luxembourg

Favourable Demographics, Dominating Public Pensions

Pension system design

Luxembourg's pension system is clearly dominated by the first pillar, which almost fully replaces pre-retirement income for average earners. A legal framework for pension schemes was first established in 1999, but coverage is still very low. Tax advantages for third pillar products were increased in 2002, which opened up the market. Demographic development in Luxembourg is the most favourable in Western Europe. In 2050, its old-age dependency ratio will stand at 36; at the same point in time, the EU-25 average will have reached 52.

Demographics and macroeconomics	
Population	0.5 million
Old-age dependency ratio*	2005: 21 2050: 36
GDP [EUR]	36 billion
GDP per capita [EUR]	77,800
GDP growth, 2002–2007 [av. in % p.a.]	4.4
Unemployment rate [%]	4.1

Data from 2007 or latest available year
**Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

Shape of the public pillar

Luxembourg operates a very generous first pillar with an exceptionally high gross replacement rate of 91% of pre-retirement income and a net rate of 98%. According to EU forecasts, this rate will remain stable over the next decades. The public scheme covers employees in the private and public sectors as well as the self-employed. Employers contribute 8% of wages, as do employees. Luxembourg's government also subsidises the system with 8% of salary, boosting the overall contribution to 24%. There is a contribution ceiling for monthly earnings of EUR 7,500 and above, and the maximum pension is EUR 6,270. There are also minimum earnings for contribution purposes (EUR 1,500) and a minimum pension (1,350 for 40 years of insurance).

First pillar design	
Contribution rate [% of gross salary]	Employer: 8 Employee: 8 (Gov: 8)
Replacement rate [% of last income]	Gross: 91 Net: 98
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 10.0 2050: 17.4

Source: EU

The public scheme has flat rate and earnings-related components. The flat-rate component amounts to EUR 353 a month if the insured have participated for 40 years or more (reduced pro rata for those with less than 40 years of participation). There is also an end-of-year allowance of up to EUR 50 a month. The earnings-related component is measured over lifetime earnings and accrues at a rate of 1.85%. The rate is higher for older workers and those with longer contribution periods. Public pension expenditure is projected to increase by 7.4 percentage points to

17.4% of GDP; the EU-25 average is projected to rise to 12.8%.

The Pension Reserve Fund

To stabilise the first pillar and secure its sustainability, Luxembourg introduced the requirement of a reserve fund that could cover 150% of total yearly benefits. Thanks to surpluses in the system, the fund surpassed this minimum requirement and reached EUR 6.6 billion in 2005. In 2004, a new law established a Pension Reserve Fund and changed the investment policy for reserves, aiming at strategic portfolio management and asset outsourcing. Until then, the fund had held most of its assets in bank reserves. The target asset allocation foresees that 50% of assets should be invested in fixed-income securities from the Eurozone, 17% in other fixed-income securities and one-third in equities (Oxera 2007).

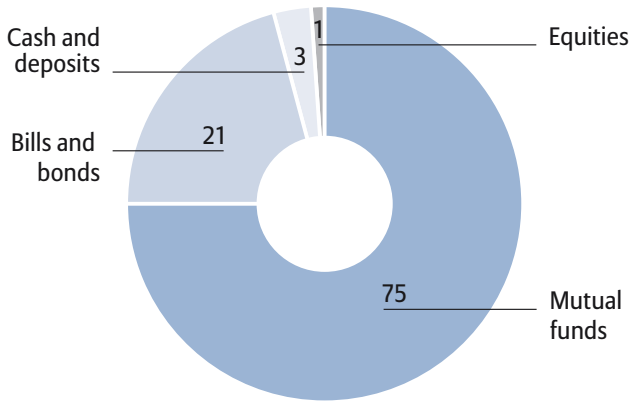
Occupational pensions

Institutional framework and governance

Due to the generosity of first pillar pensions, Luxembourg's occupational pension pillar is underdeveloped. Before 1999, there were several insured schemes, but most occupational schemes were of the book reserve type. Autonomous pension funds did not exist. At the time, most occupational schemes targeted upper management and were more common at multinational enterprises. There was generally no explicit legal framework for pension schemes. This changed in 1999 with a new law that established a framework for pension funds. Under this law, two types of autonomous pension funds can be created:

- SEPCAV (*Societies d'épargne pension à capital variable*) is a corporate pension fund company. Members (future beneficiaries) are shareholders that own a set number of shares in the SEPCAV. They can withdraw their capital at retirement. The SEPCAV is therefore similar to an investment fund (SICAV). Under this arrangement, only defined contribution plans and lump sum payments are possible. SEPCAV plans offer their members different investment options.
- ASSEP (*Associations d'épargne-pension*) are pension funds in the form of non-profit associations. Defined benefit and defined contribution plans are possible under this structure, as are lump sum payments and annuities.

Asset allocation of occupational pension funds, 2006 [%]



Source: OECD

These funds can be established as single or multi-employer funds. As a third option, employers can continue to use book reserves for pension provision. It is also possible to establish pension funds as insurance vehicles. Employers may restrict membership to employees above the social security ceiling; employee contributions to occupational plans are voluntary, but they may not contribute in book reserve systems.

Regulation, asset allocation and taxation

Pension funds in Luxembourg are subject to the prudent person principle. This means that only a few quantitative restrictions apply. These include limits for investments in the sponsoring employer and related companies. There are no limits for investments in other asset classes or for international investments. Three-quarters of pension fund assets are invested in mutual funds, for which a more detailed distinction according to asset classes is not available.

In terms of taxation, the system is of the TEE type for employer contributions; employee contributions are subject to EEE taxation. Pension benefits are not taxed, as a considerable number of retirees are expatriates who are unlikely to stay in Luxembourg after retiring.

Trends

At the end of 2006, there were 14 occupational pension funds on the market. Four of these were SEPCAVS, and the remaining 10 were ASSEPs. The coverage rate of occupational pensions is very low, and stood at 5.4% of the economically active population in 2006. In

2005, pension fund assets amounted to EUR 315 million. Luxembourg strives to become a destination for cross-border and pan-European pension funds. To this end, the country has introduced several tax advantages for its pension pooling vehicles as well as tax neutrality.

Occupational pension fund statistics, 2005	
AuM [EUR m]	315
Members	12,000
Taxation	TEE (employer contributions)

Source: OECD

Private retirement savings

Individual, tax-favoured pension provision is open to all citizens and is available from banks and insurance companies. Tax advantages were strengthened in 2002. While the system in place until 2002 required the purchase of insurance policies with minimum guarantees, the new system is of the defined contribution type. The maximum annual tax deduction is EUR 1,500 for members up to the age of 40. Members over 40 can deduct an amount that increases as they age, up to a maximum of EUR 3,200. Half of the benefits are tax-exempt and can be taken out as a lump sum. The remaining annuity is taxed at a low tax rate.

Life insurance

Regulations applying to insured group pension schemes in Luxembourg were updated in 2005. They are sometimes referred to as CAA pension funds and are named after the insurance regulator. Other pension funds are supervised by the bank and investment fund regulators. CAA pension funds can offer defined contribution and defined benefit schemes as well as supplementary benefits such as death or disability coverage. Contrary to the other two types of pension fund, its investments are subject to quantitative limits. In 2007, life premiums per inhabitant amounted to EUR 961, while life premiums as a share of GDP stood at 1.3%, excluding cross-border business (Swiss Re 2008).

Savings and financial assets

While Luxembourg does not currently publish flow of funds statistics for private households, this is likely to change from 2010 onwards. At present, there is no comparable information on savings and financial assets for Luxembourg.

The only comparative information available is for institutional investing. Luxembourg has a sizeable institutional investors sector. The assets of insurance companies account for 151% of GDP, by far the highest number in Europe. However, this figure likely includes insurance policies issued in Luxembourg, but not sold there. With pension funds accounting for only 1% of GDP, Luxembourg is clearly a tiny pension fund market.

Future market trends

Due to the lack of flow of fund statistics for private households in Luxembourg, we have no starting point and input data for comparable financial asset and pension asset forecasts.

Much like in several other Western European countries, Luxembourg's first pillar almost completely replaces wage income. For this reason, private and occupational pension provision lags behind most other European countries. The foundations for occupational pensions were first introduced in the late 1990s, and the coverage rate is very low. The extent to which this situation will change in the future depends on reforms to the public pillar.

The Netherlands

Setting Occupational Pension Trends

Pension system design

The Netherlands has the most developed pension market in Continental Europe. In fact, the country's pension system is often portrayed as a role model. This is because of the very strong second pillar and its institutional set-up. The first pillar provides flat-rate pensions to all residents. The occupational pillar is quasi-mandatory and dominated by industry-wide funds, while the third pillar offers insurance options for additional retirement savings.

The Dutch occupational market is strongly dominated by defined benefit schemes. Some changes have been made to defined benefit plans, and average career plans are now the prevalent form of defined benefit plans. Defined contribution plans have become more widespread, but only in the form of collective defined contribution. New regulations drive the interest among Dutch pension funds in liability-driven investments and fiduciary management.

Demographic change in the Netherlands is much less pronounced than in most other Western European countries. The old age dependency ratio will worsen to 39 in 2050; the EU-25 average in the same year will be 52. Overall pension assets in the Netherlands currently amount to EUR 922.9 billion. According to our projections, the overall Dutch pension market will grow at 4.5% per year until 2020.

Public pensions

Holland's public system (AOW) aims to provide basic old-age retirement income that is linked to the minimum wage. All persons residing in the Netherlands are eligible for pension benefits from age 65 onwards, including civil servants, non-working spouses and the self-employed. There is a minimum and maximum limit for contribution purposes. Employers do not contribute to the public system, which is unique to the Dutch system. The contribution rate of 17.9% is borne by plan members alone.

The pension benefit aims to replace 70% of the minimum wage. A full pension for a single person currently amounts to EUR 932 a month; couples over 65 receive EUR 637 per person. In both cases, there are additional holiday allowances. The full pension is payable to persons who have resided in the Netherlands for 50 years between the ages of 15 and 64. Benefits are reduced by 2% for each year of non-contribution, and are adjusted twice a year in line with minimum wage changes. What is more, benefits are subject to income tax. Social assistance is available to those with a total income of less than 70% of the minimum wage.

Demographics and macroeconomics	
Population	16.5 million
Old-age dependency ratio*	2005: 21 2050: 39
GDP [EUR]	567 billion
GDP per capita [EUR]	34,400
GDP growth, 2002–2007 [av. in % p.a.]	1.9
Unemployment rate [%]	3.2

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

The gross replacement rate of the public scheme amounts to 30% of an average employee's last income. However, the combined gross replacement rate of state and occupational schemes stands at 71%, or 92% net. The overall target replacement rate from all pillars stands at 70%. The 30% replacement rate from the public pillar is forecast to remain constant until 2050. As the Dutch population ages, the constant replacement ratio will result in increasing pension expenditure, which is projected to rise from 7.7% of GDP in 2004 to 11.2% in 2050.

In 1998, the AOW *Spaarfonds* was established. It is a public pension reserve fund that is financed through general tax revenue and is meant to reach assets of EUR 135 billion by 2020. From then on, it is expected to use its capital to support the public scheme. The fund does not invest in assets, but is rather a notional reserve fund that exists only in the general budget (Oxera 2007).

First pillar design	
Contribution rate [% of gross salary]	Employer: 0 Employee: 17.9
Replacement rate [% of last income]	Gross: 30 (including funded pensions: 71) Net: 92 (including funded pensions)
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 7.7 2050: 11.2

Source: EU 2006

Occupational pensions

Institutional framework and governance

The occupational system in the Netherlands is quasi-mandatory and covers over 90% of the workforce. The system rests on collective branch agreements; a branch can request that the Ministry of Social Affairs and Employment declares membership obligatory for the respective industry. Contribution levels and plan design are subject to collective bargaining, and plans must be funded. The overwhelming majority of occupational schemes are of the defined benefit type. There are four types of occupational pension provision:

- Company pension funds (730)
- Industry-wide pension funds (71)
- Group insurance contracts (30,000)
- Professional pension funds (11)

Industry-wide pension funds, which cover around 80% of all occupational plan members, are the biggest vehicle by far, with the largest funds originating in the public sector. Dutch pension funds are of the closed type and accessible only to participating members of the respective industries, as they are tied to a specific collectively bargained scheme. Companies can leave the industry-wide pension funds if returns over a period of five years are below an agreed performance target, referred to as the Z-score.

The foundational form (*Stichting*) dominates. Pension funds are governed by a board, which is responsible for deciding on the pension scheme, investment policy and other strategic issues. The boards of industry-wide funds must be composed of an equal number of employee and employer representatives, who are appointed by employer associations and trade unions. Company pension funds must have at least as many employee representatives as employer representatives. While operational functions can be delegated to external institutions such as a pension fund managing company, asset management can only be delegated to institutions licensed by the Dutch Securities Board.

Further co-determination is achieved by a council of members, which is composed of plan members and pensioners. The council is obligatory for industry pension funds and can be instituted for company pension funds if the parties concerned request it. Plan members and pensioners are represented on the council in proportion to their numbers in the

Occupational pension fund statistics, 2007	
AuM [EUR bn]	759
Members [m]	5.9*
Taxation	EET

**active members*

Source: OECD

plan. The representatives are nominated by plan members and pensioners, but can also be designated by associations that represent the respective interests. The council of members has the right to be informed by the board and has an advisory function. The board must meet with the council at least twice a year.

Regulation, asset allocation and taxation

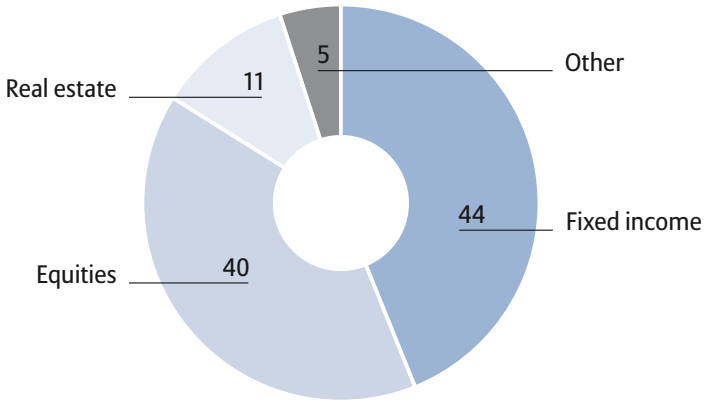
Dutch pension fund investment regulations are very liberal and follow the prudent person principle. There are no investment limits for equity, real estate, bonds, investment funds, loans, bank deposits or international assets. There is, however, a 10% limit on investment in shares of the sponsoring employer. In terms of asset allocation, Dutch pensions invest 44% of their assets in fixed income instruments, 40% in equities and 11% in real estate. The bulk of equity investments are in non-euro currencies, while most bond investments are denominated in euros. Interest in alternatives such as private equity and hedge funds is increasing, but from low levels.

Since most Dutch funds are defined benefit, other types of regulations are also important, particularly indexation and solvency rules. In most average-salary schemes, the accrual rate is between 1.75% and 2% per year of service. The maximum accrual rate is 2.25%; it stands at 2% for final salary plans. The latter results in a replacement rate of 70% after a 35-year career. Benefit indexation is conditional and depends mainly on the funding level. Approximately half of all pensions in payment are indexed to wage growth in the respective industry, and around a quarter is indexed to prices or other indicators. The majority of Dutch schemes employs conditional indexation, which makes benefits dependent on the pension fund's financial situation.

In 2007, a new set of regulations came into effect in the form of the Financial Assessment Framework (FTK). The main points of the FTK are the following:

- Assets and liabilities must be calculated according to their market value rather than with a predetermined discount rate
- Pension funds must fully fund their nominal liabilities with a solvency buffer of 5%
- The probability that the funding ratio falls below 100% may not be larger than 2.5%, and this must be proven in a solvency test

Asset allocation of occupational pension funds, 2007 [%]



Source: De Nederlandsche Bank

The new funding regulations imply that the average pension fund must be funded at approximately 130%. If the pension fund falls below the 105% level, it has a recovery period of three years. If it has a funding level between the targeted solvency balance (130% for the average fund) and the minimum funding level (105%), it is requested to prepare a recovery plan with a planned recovery period of up to 15 years. This plan must get regulator approval. Pension funds must also pass a continuity test every three years, which serves to prove their long-term financial stability, including their indexation objectives, on the basis of an ALM study.

Pension rights are portable and benefits generally vest after one year of membership. They can be paid out as a lump sum or as annuities; the latter enjoy advantageous tax rules, making lump sum payments very rare. Employer and employee contributions to an occupational plan are tax-deductible. While investment returns are tax-free, benefits are subject to income tax.

Trends

The quasi-mandatory nature of occupational pension provision and the long history of the system, which was expanded shortly after the second World War, make the Netherlands Continental Europe's largest pension market. In 2007, the assets of Dutch pension funds amounted to EUR 725 billion, and 5.9 million active members are enrolled in the system. The asset volume corresponds to 130% of GDP, the second highest value in the OECD after Iceland.

Defined benefit schemes dominate the Dutch pension market, accounting for 91% of occupational scheme assets. Nevertheless, there is significant ongoing change in the defined benefit market. In 1998, 67% of plan members were enrolled in final-pay schemes. By 2006, the number had dropped to 10%. Average-pay schemes benefited from this trend; in the same period, their share of plan members increased from 25% to 76%. Defined contribution schemes increased their share from 0.5% of members to 3.6%.

The advent and increasing interest in collective defined contribution schemes has been another significant development in terms of plan design. These schemes aim to combine the characteristics of defined benefit and defined contribution plans. There is still a collective pension fund, but the sponsor's contribution is fixed for a certain period of time, and sponsors are under no obligation to compensate future shortfalls. Benefits accrue according to an average-pay formula. However, if contributions are insufficient, pension rights are lowered, making benefits conditional. Contrary to individual defined contribution schemes, participants share the risk of underfunding, and the possible cut in benefits is applied to all plan members.

The rise of fiduciary management and increased demand for liability-driven investments (LDI) are two further market trends; both are driven by the new FTK framework. Complying with the new requirements for pension fund risk management is difficult especially for smaller pension schemes with limited internal resources. Fiduciary management makes it possible for pension funds to outsource either the entire value chain or certain parts of it to external asset managers. This means that the pension fund board makes decisions that include setting benchmarks and determining the strategic asset mix. In turn, the fiduciary manager takes over operational functions and asset management.

The strong interest in LDI is driven by new market-based accounting standards and the new funding regulations. Both factors highlight the need for pension funds to focus on the liability structure when making asset allocation decisions. The political promotion of the FGR (*Fonds voor Gemene Rekening* / Fund for Joint Account), which is a vehicle for cross-border asset and pension fund pooling, has been another development. It was intended to strengthen the Dutch position in the competition among several European countries as a location for cross-border pension funds.

Private retirement savings

The third pillar of private retirement savings is voluntary and not linked to an employment relationship. There are two options: annuity or endowment insurance; the latter provides lump sums and is tax-advantaged only under certain conditions. These schemes are provided by insurance companies, and annuity insurance contracts must offer a minimum return of 3% to 4%. Contributions to annuity contracts are tax-deductible up to EUR 1,036. Further tax relief is possible if the plan participant does not reach the targeted overall pension entitlement of 70% of final salary. While investment income is tax-exempt, benefits are subject to income tax. Benefits can be paid out as a fixed or unit-linked annuity.

Life insurance

Insurance companies play a significant role in the Dutch occupational pension market, even if their role is subordinate to that of pension funds. Around 30,000 group insurance contracts or direct arrangements are in force, mainly for smaller enterprises. In 2006, these schemes had 886,000 members (pension funds: 5.9 million). Surprisingly, the share of defined contribution contracts is much higher than in the case of pension funds. In terms of members, around 50% of people participating in direct arrangements are enrolled in defined contribution contracts.

Still, the Dutch life market is more driven by individual life insurance, the premiums of which accounted for 70% of the entire market in 2005. Around one quarter of premiums flow into unit-linked policies (CEA 2007). In 2007, the Netherlands' overall penetration rate, which is defined as life premiums to GDP, stood at 4.6%. This was below the EU-15 average of 5.9%. Life premiums per capita, which amounted to EUR 1,596, were also below the EU-15 average (EUR 1,716) in the same year.

Savings and financial markets

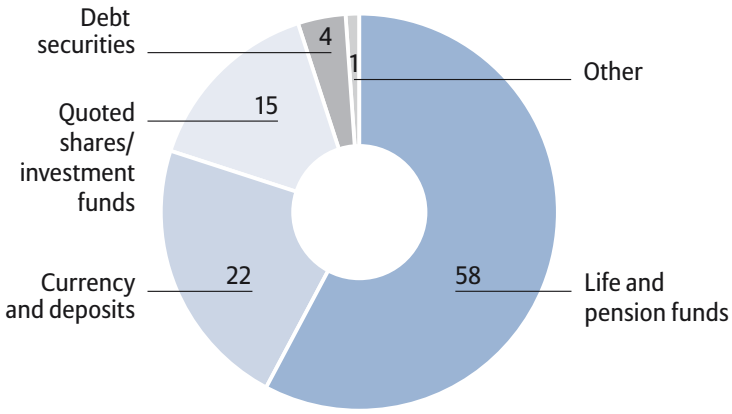
Compared with other Western European countries, the Netherlands has an average savings rate. In 2007, the Dutch saved 7.2% of their disposable income. This is significantly lower than savings rates in Austria, France, Germany and Spain, which have values of more than 10%. However, household assets amounted to EUR 1.59 trillion in 2007, or 280% of GDP. This ratio was the third highest value in Western Europe after Switzerland and the UK. The assets of institutional investors are also considerable, amounting to 206% of GDP. Disaggregating them makes it possible to see the role of the pension system for Dutch household assets. The assets of investment funds amount to 17% of GDP, while insurance assets make up 64% and assets of pension funds account for 125%. The assets of pension funds have increased considerably in recent years, rising 36 percentage points as a share of GDP since 2002. Indeed, pension funds are by far the biggest institutional investors in the Netherlands, making a major contribution to the high volume of household assets.

This is also evident in the way households allocate their assets. 58% of household portfolios are invested in life insurance or pension funds. This portion has increased by 7 percentage points over the past ten years. This high level of financial protection for old age covers major future financial uncertainties. As a result, additional saving efforts are relatively limited. Only about a fifth of the portfolio is held in currency and deposits, and 15% is invested in shares and investment funds. These portions are among the lowest in Western Europe.

Savings and financial markets, 2007	
Household savings ratio [%]	7.2
Household assets [% of GDP]	280
Average per capita financial wealth [EUR]	96,500
Assets of institutional investors [% of GDP]	206

Source: OECD, Statistics Office of the Netherlands, EFAMA

Household asset allocation, 2007 [%]



Source: Statistics Office of the Netherlands

Future market trends

Household assets

Since Dutch household portfolios are characterized by a high share of insurance and pension assets and relatively high exposure to the stock market through pension funds, current financial turbulence will put pressure on wealth formation. In our projection, we assumed a stock market decrease of 30% for 2008, which will result in a decrease in overall financial wealth. We expect the total financial assets of private households to increase by about 4.1% a year to over EUR 2.67 trillion by 2020. Our projection is based on the Netherlands' solid savings rate and its mature insurance and pension market with increasing outflows. We have also considered asset allocation preferences over the past years and assumed equity market performance of 7% a year starting in 2009.

Pension investment and insurance assets[1]

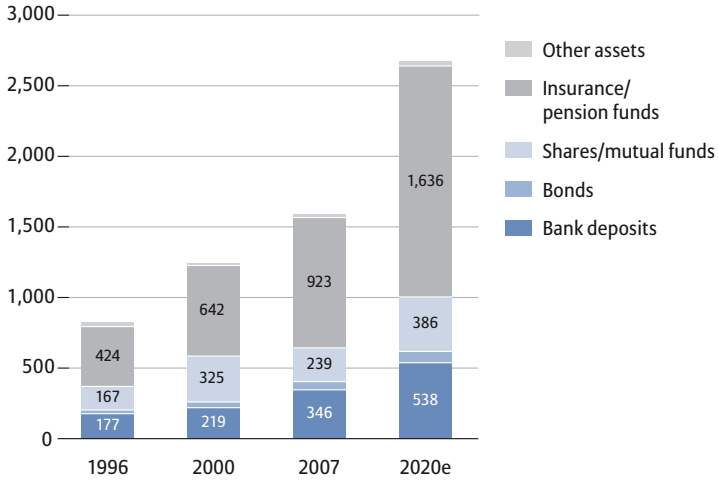
In 2007, the Dutch retirement market was split into EUR 163.6 billion in insurance assets and EUR 759.3 billion in pension fund assets. We expect the Dutch pension market to grow mainly from performance and contributions due to the quasi-mandatory nature of occupational pensions. Rising outflows as the first baby boomers reach retirement age also have to be taken into consideration. Pension fund assets are expected to grow by 4.7% a year to around EUR 1.38 trillion by 2020. The insurance market will see slower growth due to more conservative investment regulations. We expect insurance assets to increase by 3.4% p.a., amounting to about EUR 253 billion in 2020.

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

Overall, the retirement market will reach assets of EUR 1.64 trillion in 2020, growing at an average annual rate of 4.5%.

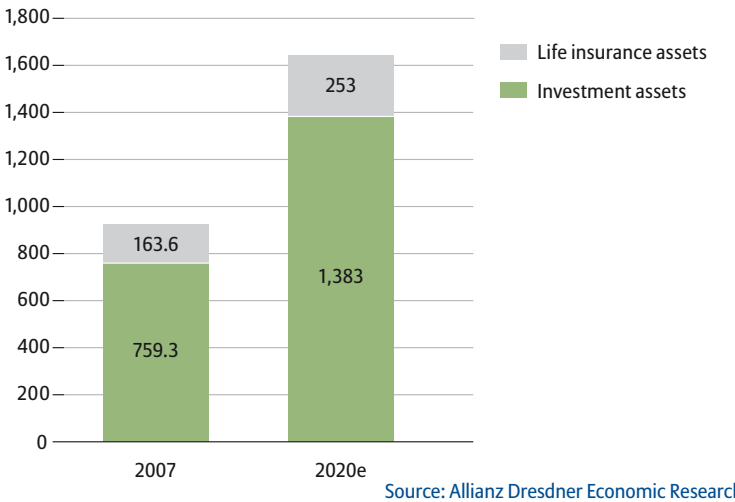
The Dutch pension system relies very strongly on funded pensions. The Netherlands' occupational pension pillar is strong and nearly all-encompassing. The system is a role model for occupational pension provision through industry-wide pension funds. This makes near universal coverage easier, supports acceptance for the system, and facilitates the inclusion of unions. Thanks to its long history, the occupational market is among the most sophisticated in Europe. Many pension industry innovations started here, including fiduciary management. The Netherlands continue to have a strongly defined benefit oriented market. This is made possible by the flexibility of Dutch defined benefit schemes and the shift from final career to career average schemes.

The Netherlands: Financial household assets [EUR bn]

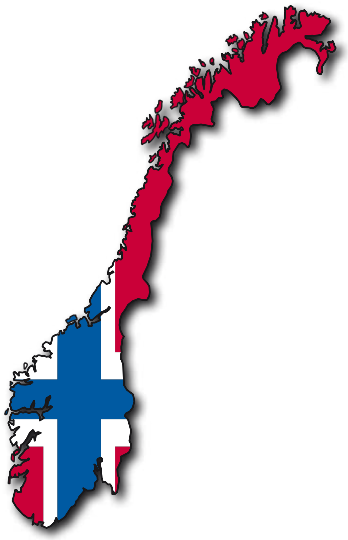


Source: Statistics Netherlands, Allianz Dresdner Economic Research

The Netherlands: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research



Norway

Making Occupational Pensions Mandatory

Demographics and macroeconomics	
Population	4.6 million
Old-age dependency ratio*	2005: 22 2050: 41
GDP [EUR]	286 billion
GDP per capita [EUR]	61,800
GDP growth, 2002–2007 [av. in % p.a.]	2.4
Unemployment rate [%]	2.6

Data from 2007 or latest available year
**Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Pension system design

The Norwegian pension system features a first pillar that combines residence-based and earnings-related pensions. The public system is supported by a pension reserve fund that is one of the biggest pension funds worldwide. Occupational pensions are currently experiencing an upswing after they were made mandatory in 2006. Defined contribution plans, which have been allowed for a few years only, are also becoming increasingly popular. Tax incentives for third pillar products were initially abolished when occupational pensions became mandatory, but have been re-introduced on a lower level.

Similarly to its other Scandinavian neighbours, Norway's population is not ageing as dramatically as many other countries in Western Europe. The old-age dependency ratio is expected to increase to 41 by 2050, which is considerably lower than the projected EU-25 average of 52. Our pension asset projections foresee that the overall pension market, which currently amounts to EUR 104.5 billion, will grow at a CAGR of 6.3% until 2020.

Public pensions

Shape of the public pillar

Norway's public pillar consists of a flat-rate basic pension and an earnings-related component. Persons between the ages of 17 and 66 who have resided in Norway for at least three years are entitled to the basic pension. Full benefits require a 40-year residence period. The basic pension is the equivalent of approximately 17% of average earnings. The earnings-related component is based on pensionable income and the number of pension points earned. Contributions to the pension system have no ceiling, but are limited for employees older than 62. Recent reform initiatives focused on increasing incentives for longer working lives and on considering longer life expectancy in benefit calculation; these will be phased in from 2010.

Norway's retirement age is 67. However, there are several collectively bargained early retirement schemes (AFP) that allow retirement from age 62 onwards. The plans are financed mainly by employers and the state, and cover around 60% of the Norwegian workforce. Their reform is currently under discussion and subject of government initiatives. The gross replacement rate for average earners in the Norwegian system is 59%, or 69% in net terms. At 5.2% of GDP, public pension expenditure is currently very low. However, OECD projections foresee that it will more than double by 2050.

The Government Pension Fund

The Government Pension Fund (GPF) was established in its current form in 2006 and is one of the biggest pension funds in the world. It includes the former Petroleum Fund, which was established in 1990, and the National Insurance Scheme Fund, into which surpluses from national insurance accounts flowed. These schemes continue to exist in the form of the Government Pension Fund Global and the Government Pension Fund Norway. The goal of the fund is to support government savings for the public pillar scheme and ensure the long-term management of revenues from oil and gas resources in the North Sea. The fund is not specifically earmarked for pension liabilities.

At the end of 2007, the fund had assets of EUR 268 billion (NOK 2,136 billion). It is fully integrated with the Fiscal Budget. Revenues from petroleum activities are directed to the Government Pension Fund Global, which also holds 95% of assets. The GPF Global is managed by the Ministry of Finance, while the Norges Bank, Norway's central bank, is responsible for operational management.

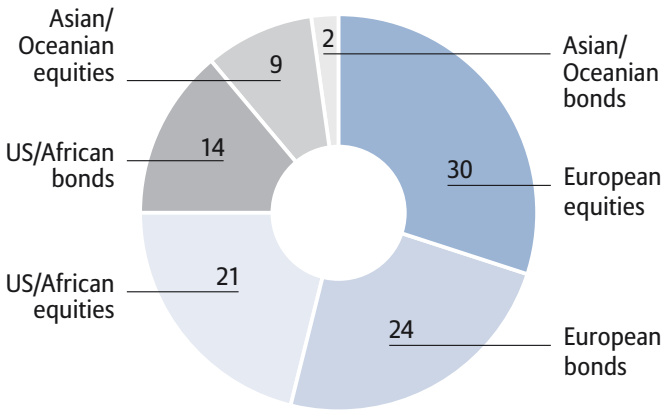
While the GPF Global invests only outside Norway, the scope of its investments has evolved considerably in recent years. The fund has been investing in equities since 1998 and in emerging markets since 2000. In 2002, assets were invested in non-government guaranteed bonds for the first time. Investments in small caps were included in the benchmark portfolio in 2006. The same year, the equity portion increased from 40% to 60%. In years to come, real estate will be included in the portfolio at the expense of bond investments. The benchmark portfolio for the GPF Global foresees an asset allocation of 60% in equities and 40% in bonds.

The GPF applies guidelines based on the principles of ethical investing. Companies may be excluded if screening reveals a negative ethical record. While a Council on Ethics advises the Ministry of Finance on these issues, the Ministry makes the final decision. The Norges Bank exercises ownership rights of the fund's equity holdings. The fund itself is a purely financial investor; its ownership share in listed companies is usually less than 1%, with a maximum of 10%.

First pillar design	
Contribution rate [% of gross salary]	Employer: 14.1 Employee: 7.8
Replacement rate [% of last income]	Gross: 59 Net: 69
Legal retirement age	67
Public pension expenditure [% of GDP]	2005: 5.2 2050: 12.9

Source: EU, OECD

GPF benchmark portfolio 2007 [%]



Source: Norwegian Ministry of Finance, 2008

Occupational pensions

Institutional framework and governance

In 2006, Norwegian pensions underwent a major change. From then on, occupational pensions became mandatory for companies with at least two employees. The obligation to establish occupational plans did not apply to companies that already had pension schemes, provided that they fulfilled the new minimum requirements of the act. If employers opt for a defined contribution scheme, the minimum contribution is 2% of salary. For defined benefit schemes, benefits must be at least as high as the expected benefits with mandatory contributions. Employees may be required to contribute.

Norwegian pension funds are closed. They operate as foundations and are independent institutions. Most funds are established at the company level. The governing body is the board of directors, which must comprise at

least four members, two of whom must be elected by pension plan members. The employer selects the remaining members. The board of directors can decide to outsource assets to an external asset manager, which must be either life insurance companies licensed for group pension fund management or specialised companies licensed for pension fund asset management.

Regulation, asset allocation and taxation

Norwegian investment regulations are currently in transition. In 2007, the government announced a reform that will lift the 35% limit on equities and the 30% limit on corporate bonds. The limit for alternative investments will be increased from 5% to 7% of assets. While the current asset allocation of Norwegian funds is dominated by bonds, a third of assets is invested in equities.

Contributions to defined benefit and defined contribution plans are tax-deductible, with certain maximum limits for pension benefits from the first and second pillars combined. Investment income is tax- exempt and benefits are taxed.

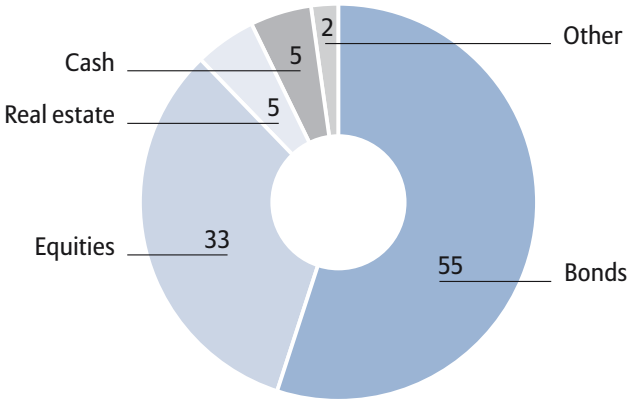
Trends

In Norway, defined contribution plans were legalised in 2001. Traditionally, defined benefit plans have dominated the overall occupational pension environment. Nevertheless, and despite maximum contribution limits to defined contribution plans that range from 5% and 8% of wages, most new plans are of the defined contribution type. They are especially popular with small and medium-sized companies without prior plans. Since occupational plans were made mandatory in 2006, the occupational sector has been expanding. It is estimated that around 560,000 new participants have joined the new system.

Occupational pension fund statistics, 2007	
AuM [EUR bn]	19.5
Taxation	EET

Source: Statistics Norway

Occupational pension funds' asset allocation, 2007 [%]



Source: OECD

Private retirement savings

Individual pension products in Norway are available in the form of individual pension contracts and *livrente* (annuity) contracts. In 2006, the government abolished tax relief for individual pension contract premiums, and did the same for *livrente* contracts in 2007. This move was based on the government's view that tax-favoured third pillar pensions were no longer justified following the introduction of mandatory occupational pensions. However, a compromise was reached that foresees tax-deductibility for individual retirement savings of NOK 15,000 (EUR 1,880), down from the previous amount of NOK 40,000 (EUR 5,020). While banks and fund managers hold small fractions of the market, insurers dominate the individual pension business. The asset volume of individual pension contracts is estimated to be around EUR 12.5 billion.

Life insurance

Norway is one of the more mature life insurance markets in Western Europe, at least in terms of life insurance density. In 2007, the life premium per capita stood at EUR 1,823, around EUR 110 more than the EU-15 average. Nevertheless, premiums as a share of GDP are far below the Western European average and amounted to 3.0% in the same year, while the EU-15 average stood at 5.9% (Swiss Re 2008). Contrary to most other European markets, most premiums are written in the group business, which had a share 54% of total life premiums in 2005. At 6.9%, the share of unit-linked contracts is very low (CEA 2007).

Savings and financial markets

Thanks to strong economic growth rates in recent years, Norway's private consumption has increased considerably. In 2007, it grew at the strongest rate since the mid-1980s. This resulted in a strong decline of the savings rate, which dropped to 0.9% in 2007 from 8.8% in 2005. Household financial assets totaled EUR 294 billion in 2007, or 105% of GDP. This is the lowest value in Western Europe. Assets of autonomous pension funds, which amounted to 7% of GDP, were also modest in international comparison. In Europe, the figure ranges from 0.6% of GDP in Greece to 125% in the Netherlands.

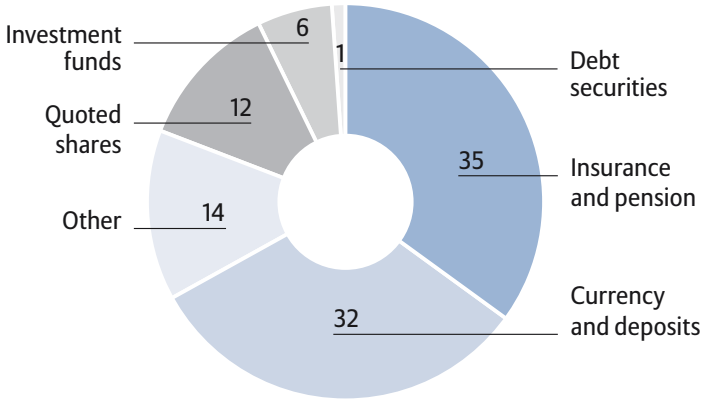
The financial portfolios of Norwegian households hold a lower portion in shares/mutual funds than many other Western European countries. This means, however, that they are not as highly exposed to volatile equity markets. As a result, Norwegian portfolios saw a steady increase in financial assets even at the beginning of this decade. Around 30% are invested in banking products, a portion close to the European average. The bulk of assets (35%) are held in insurance and pension products. In part, this is due to relatively strong second pillar pensions in the public sector.

Savings and financial assets, 2007	
Household savings ratio [%]	0.9
Household assets [% of GDP]	105
Assets of institutional investors *[% of GDP]*	41

**Insurance companies and pension funds without investment funds*

Source: Norges Bank, OECD, data from 2006 or latest available year

Household asset allocation, 2007 [%]



Source: Norges Bank

Future market trends

Household assets

The relatively risk-averse portfolio will leave Norwegian households relatively unaffected by current financial market turbulence. Assuming that savings rates remain low and that recent asset allocation patterns do not change drastically, and assuming an equity market performance of 7% from 2009 onwards (-30% in 2008), we expect the total financial assets of private households to increase by 5.1% a year to about EUR 563 billion by 2020.

Pension investment and insurance assets[1]

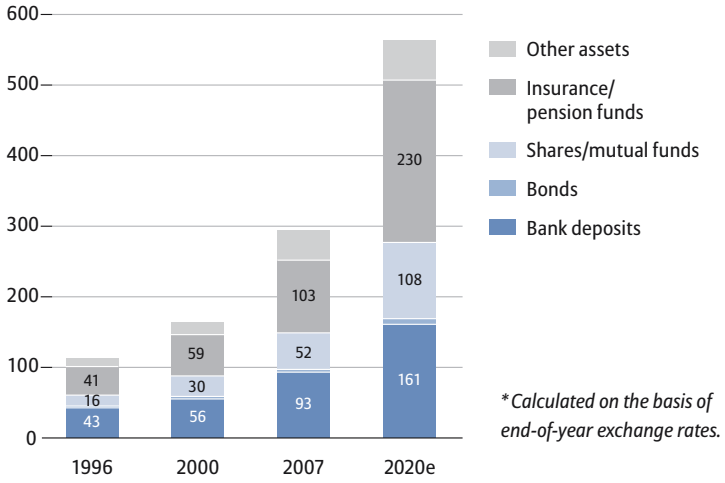
The introduction of the mandatory occupational pension system will lead to regular inflows into pension products. But given the low minimum contribution rate of 2%, the additional impulse will be rather weak. What is more, government tax advantage cuts for other products, particularly in the third pillar, will hamper growth. Thus, we do not expect any further impetus to the market within this projection period[2].

In Norway, there is no clear distinction between pension and insurance assets. This is because the lion's share of assets in the Norwegian pension market is funded by insurance contracts. According to Statistics Norway, the autonomous pension fund segment stood at EUR 19.5 billion in 2007. We expect this segment to develop slightly more slowly than the insurance segment, as it has not yet profited from new mandatory arrangements as much as the insurance industry has. Pension investment assets will increase from EUR 19.5 billion in 2007 to EUR 42 billion (6.1% CAGR). The insurance segment dominates the market; with its image as a traditionally strong industry for old age provisioning, it is getting new inflows from the new mandatory system. In 2007, assets were more than four times as high as pension investment assets. We expect insurance technical reserves to amount to EUR 188 billion in 2020, a CAGR of 6.3%.

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.
2 We do not consider assets of the Government Pension Fund as these assets are subject to political decisions and therefore impossible to predict. Moreover, they are not available for external asset management.

In recent years, changes to Norway's pension market have mainly been driven by the emergence of mandatory occupational pensions. Since 2001, many of these new plans have been of the defined contribution type. In terms of asset volume, the pension reserve fund is clearly dominant, as it is one the biggest pension funds in the world. The fund has evolved gradually, especially with regard to the scope of investments. Mandatory occupational plans and the reserve fund have made funded pensions the focus of pension provision in Norway, even though this form of funded pensions differs from most other European countries.

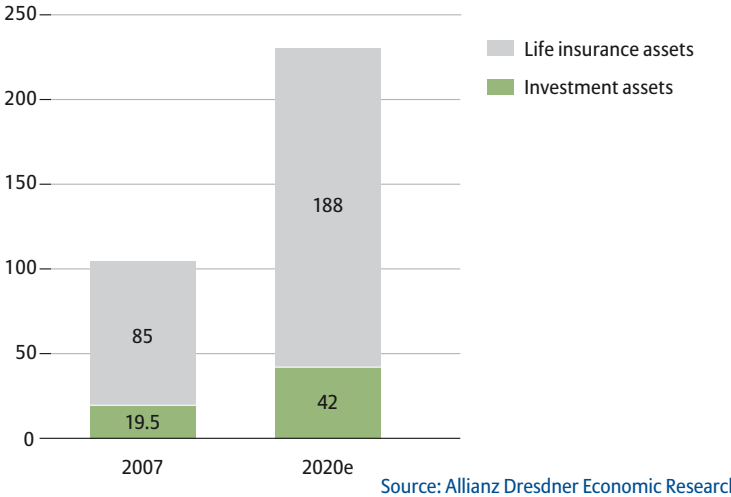
Norway: Financial household assets [EUR bn]



*Calculated on the basis of end-of-year exchange rates.

Source: Norges Bank, Allianz Dresdner Economic Research

Norway: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Portugal

Dominating Public Pensions With a New Component

Pension system design

Portugal's pension system is characterized by a generous public pillar. The country took steps early on (at the end of the 1980s) to create a pension reserve fund to help reinforce its public pillar for the long term. In this respect, Portugal was a forerunner among its European neighbours. Due to the size of the public pillar, occupational pension provision is modest. It is concentrated in certain sectors only. When it comes to tax-favoured third pillar pension schemes, the Portuguese can choose between several products.

Portugal will be one of the countries in Europe hardest hit by demographic change. The old-age dependency ratio in Portugal will climb to 58 in 2050, whereas the EU-25 average will be 52. Only Italy and Spain are forecast to have more unfavourable ratios. According to our projections, the overall Portuguese pension market, which currently amounts to EUR 62.8 billion, will grow at a CAGR of 6.9% until 2020.

Demographics and macroeconomics	
Population	10.6 million
Old-age dependency ratio*	2005: 26 2050: 58
GDP [EUR]	163 billion
GDP per capita [EUR]	15,300
GDP growth, 2002–2007 [av. in % p.a.]	0.9
Unemployment rate [%]	8.0

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

Shape of the public pillar

Portugal's first pillar covers employees and the self-employed who earn above a certain threshold. Individual plans exist for specific occupational groups such as civil servants, railway workers, fishermen, lawyers and others. The public pillar provides generous benefits. The gross replacement rate is 75% and the net replacement rate is 91%. The overall social security contribution amounts to 34.75% of earnings, 16% of which is earmarked for old-age benefits. According to EU projections, Portugal's pension system will heavily burden fiscal resources in the future and the sustainability of the system will be under threat. Public pension expenditure will rise from the 2005 level of 11.1% of GDP to 20.8% in 2050. This is one of the highest values in the EU and one of the largest increases. Pension expenditure in the EU is forecast to rise to 12.8% on average until 2050.

A sustainability factor that adjusts future pension benefits to changing life expectations has been introduced, thanks to reforms agreed upon in 2007. As part of these reforms, the calculation base is about to change from the best ten of the last fifteen years to lifetime earnings (phased in until 2017) and pension benefits have been capped (at EUR 4,774 in most cases). Benefits are now indexed based on inflation and earnings growth. The country provides a minimum pension as well as a means-tested social safety net. Early retirement is possible from the age of 55, but requires 30 years of contributions. Benefits are reduced if early retirement is taken.

To offset the decrease in pension benefits caused by the introduction of the sustainability factor, a new defined contribution scheme (Public Capitalization Scheme) was introduced in March 2008 that enables workers to make additional contributions of either 2%, 4% or 6% of earnings. Contributions are invested in a fund managed by the institution in charge of the pension reserve fund and converted into shares called Retirement Certificates. At retirement, the money can be used to buy a life annuity or taken as a lump sum. The fund has investment limits: it can only invest in OECD countries. In addition, no more than 25% of the fund can be invested in equities, 40% in investment grade corporate bonds, and 10% in real estate and infrastructure. At least 50% must be invested in government bonds. Between March and August 2008, 4,350 people joined the scheme.

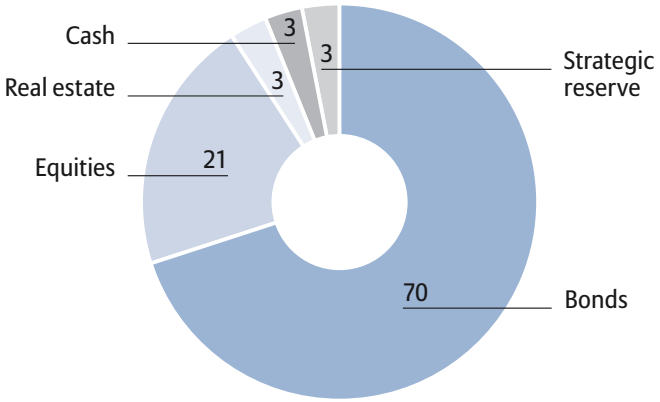
Pension reserve fund

In 1989, Portugal introduced the FEFSS, a pension reserve fund that aims to bolster its public pension pillar against the pressure that will inevitably arise from demographic change. It is supposed to meet the pension system's future shortfalls. Capital from social security surpluses, a fraction of employees' social security contributions and unclaimed tax refunds feed into this fund. The FEFSS is a public institution controlled by the Ministry for Labour and Social Security. The Fund is subject to several investment restrictions. It has to invest at least 50% of assets in Portuguese public debt, equities are capped at 25% and the maximum amount of corporate bonds cannot exceed 40% (Oxera 2007). Assets under management are currently around EUR 8 billion. Asset allocation is dominated by bonds.

First pillar design	
Contribution rate [overall social security contribution; % of gross salary]	Employer: 23.75 Employee: 11
Replacement rate [% of last income]	Gross: 75 Net: 91
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 11.1 2050: 20.8

Source: EU, OECD

FEFSS asset allocation, 2007 [%]



Source: epn 2008

Occupational pensions

Institutional framework and governance

There are two types of occupational pension providers in Portugal: pension fund management companies (SGFPs) and insurance companies. Both may offer defined benefit and defined contribution plans. Pension funds can be closed or open and they can be set up by a company, group of companies, associations or by a collective agreement between trade unions and employer associations. The SGFPs must have a general assembly and a board of directors. When the IORP directive was implemented in 2006, it became necessary for SGFPs to form a steering committee with employee representatives when managing closed pension funds. Employer contributions in defined contribution plans usually amount to around 3% of wages; employees normally do not contribute to occupational plans.

Regulation, asset allocation and taxation

Until recently, Portuguese pension funds were subject to various quantitative investment limits, including an equity limit of 55%. However, new investment principles were introduced in 2007 that follow the prudent person principle. As a result of these new investment principles, the equity limit is effectively abolished. However, the 30% limit on non-euro denominated assets remains valid (IPE 2007).

Assets in Portuguese pension funds are allocated in diverse vehicles. Hedge funds are included in the portfolio. International

equity investments are higher than those inside the country.

Employer contributions to pension funds are tax-deductible up to a limit of 15% of earnings, while 25% of employee contributions are tax-deductible up to a certain limit. Investment income is tax-exempt, while benefits above a certain threshold are taxed at the normal tax rate for incomes.

Trends

Portugal's occupational pension market is small partly because of the small size of the country, but mostly because of the high replacement rate of first pillar pensions. Occupational pensions mostly cover employees at multinational companies and employees working in the banking, telecommunications and transport sectors. Total assets under management amounted to EUR 21.5 billion in 2007. However, some occupational schemes – schemes in the banking sector substitute state pensions for instance – are not second pillar funds in the true sense. By and large, pension funds are defined benefit. Most of these plans, however, are closed to new members. New plans are almost exclusively defined contribution. Most funds, measured both in terms of numbers and assets under management, are of the closed type. There are 27 pension fund managers on the market (14 life insurance companies and 13 SGFPs).

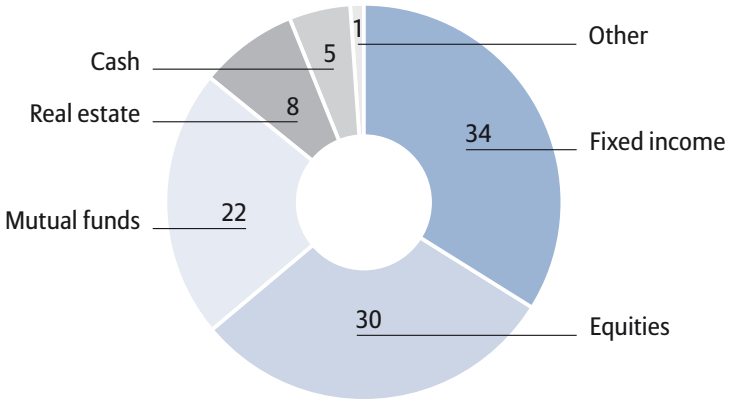
Occupational pension fund statistics, 2007	
AuM [EUR bn]	21.5
Taxation	EET

Source: OECD

Private retirement savings

Tax-favoured third pillar products have been available on the Portuguese market since the 1980s. The Portuguese have three products to choose from when building up their retirement nest with voluntary payments. They can use insurance products offered by life insurance companies, investment products from investment companies, or individual pension plans from open pension funds that are provided by SGFPs and life companies. The amount invested is tax-deductible to 20% of the amount invested, but there are certain limits to this depending on the age of the member. The maximum tax deduction is EUR 400 for members under 35, EUR 350 for members between 35 and 50, and EUR 300 for those above 50 years. Investment income and benefits are taxed for the duration of the contract.

Occupational pension funds' asset allocation, 2006 [%]



Source: OECD

Life insurance

The share of life premiums as a percentage of Portugal's GDP – 5.8% in 2007 – is slightly below the EU-15 average of 5.9%. At EUR 892 in 2007, Portugal's life premiums per capita were significantly under the European average of EUR 1,716 (Swiss Re 2008). Still, Portugal is ahead of countries like Spain and Greece. The individual segment accounted for 64% of the total life market in 2005. The group market accounted for 36%, significantly above the EU-15 average. In 2005, around 37% of premiums came from unit-linked contracts (CEA 2007).

Savings and financial markets

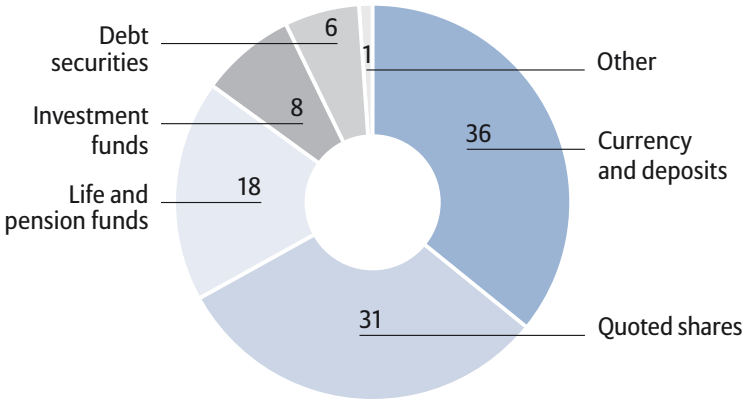
While the savings rate in Portugal was stable at more than 10% between 2000 and 2004, it has fallen to 7.5% in recent years. Household assets amount to 223% of GDP, which is above the Western European average. Measured in absolute terms, Portuguese household assets amounted to EUR 363 billion at the end of 2007. Assets of institutional investors account for 65% of GDP. Pension funds manage assets amounting to 13% of GDP, investment funds 20% and insurance companies 32%.

The lion's share of household financial assets in Portugal is held in low-risk assets, with roughly 42% invested in bank deposits and bonds. However, equities and mutual funds are also very popular and come to 39% of assets. Few other countries in Western Europe put so much of their household assets in these sorts of products, especially direct investments. It could be argued that investors are forced to channel money into these riskier capital market products because of the low rates of return and relatively high inflation rates that characterize the domestic market. It could also indicate that Portugal has a greater degree of income and wealth inequality than in other Western European countries, which allows those on a higher income and with greater wealth to create a more diverse investment portfolio that includes capital market products in addition to low-risk assets. The insurance/pension segment plays a minor role in the portfolio of Portuguese households, accounting for only 18%. Portugal thus allocates less of its household assets in insurance/pensions than almost any other country in Western Europe.

Savings and financial assets, 2007	
Household savings ratio [%]	7.5
Household assets [% of GDP]	223
Average per capita financial wealth [EUR]	34,200
Assets of institutional investors [% of GDP]	65

Source: OECD, Bank of Portugal, Eurostat

Household asset allocation, 2007 [%]



Source: Bank of Portugal

Future market trends

Household assets

Since a large portion of household assets are held in shares, financial market troubles will put pressure on wealth formation. In our projection we pencilled in a stock market decrease of 30% between the end of 2007 and year-end 2008. Since the Portuguese are only moderate savers, their savings will not be able to compensate for stock markets decreases. We assume that the equity market will perform at 7% a year from 2009 onwards. In our forecast, the allocation of assets in Portugal will move towards the Western European average during the projection period. We expect the total financial assets of private households to increase by about 4.9% a year to EUR 676 billion by 2020. In 2007, household assets amounted to EUR 363 billion[1].

Pension investment and insurance assets[2]

Some EUR 21.5 billion was invested in the pension fund segment in 2007. The life insurance market is almost twice the size of the pension market in volume, with technical reserves of EUR 41.3 billion in 2007. In the past, individuals and companies alike have found life insurance contracts more attractive than pension funds as occupational pension vehicles. Since no new incentives for pension fund membership have been introduced, we do not expect this to change. If, however, the fiscal deficit continues to shrink and new incentives were introduced, this might change.

By and large, we expect the total pensions/insurance segment to increase at an above average rate, with the share of the pension/insurance segment in household portfolios widening. This development implies that the asset mix of Portuguese households will move towards the European average, meaning that the share of bank deposits will shrink further. Employee contributions are stagnating at a very low level and occupational pension schemes rely on employer contributions.

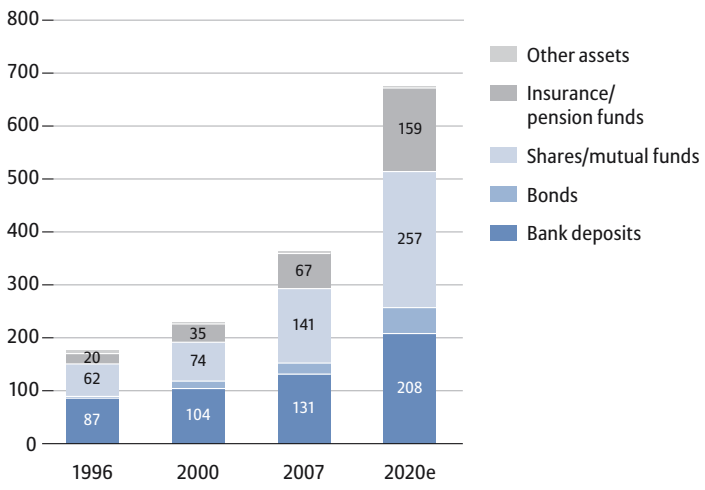
1 Differences between the values for pension / insurance assets in this section and those of the overall retirement market in the following section are due to classification differences in the financial flow statistics of national accounts and the specific pension statistics we used for the market analysis. One major difference is that non-life insurance products are included in the financial accounts.
2 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

Growth rates are thus lower than they could be. We expect the pension fund segment to grow by 6.0% (CAGR), resulting in assets worth EUR 46 billion in 2020. Insurance products will profit slightly more from savings for old age provisioning. Technical reserves will increase by 7.4% p.a., with the total volume amounting to EUR 104 billion by the end of the projection period.

We expect an overall growth rate of 6.9%, with the total volume of pension/life insurance products reaching EUR 150 billion by 2020. The share of pension/insurance products as part of household assets is expected to rise from 18% in 2007 to 24% in 2020, which is still significantly below the forecast European average of 39%.

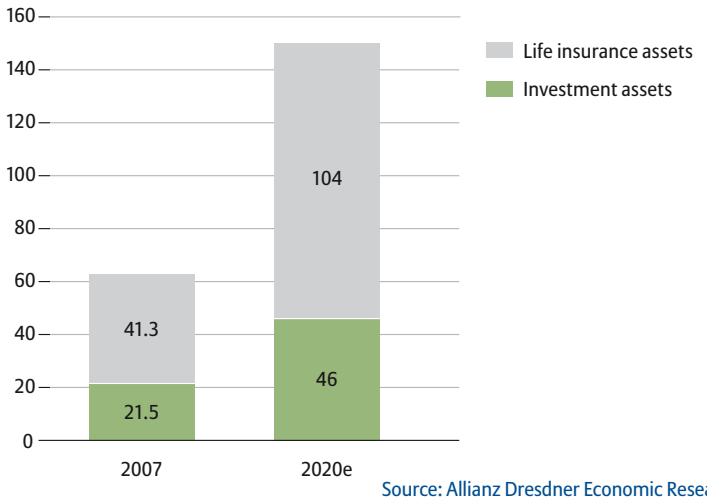
Portugal has not yet taken the sorts of steps other Western European countries have to reform their pension systems. Retirement income diversification is lacking, as the high replacement rate provided by first pillar pensions makes supplementary pensions superfluous for many. The adverse demographic developments in coming decades will likely drive pension system reform. Such reform would result in a more important role for funded pensions (occupational and private). The introduction of a voluntary defined contribution scheme to complement the first pillar is a step in this direction. The speed with which Portugal's pension market will develop further rests largely on the willingness of the Portuguese to make contributions into voluntary schemes.

Portugal: Financial household assets [EUR bn]



Source: Bank of Portugal, Eurostat, Allianz Dresdner Economic Research

Portugal: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Spain

Defined Contribution in a Small Occupational Market

Demographics and macroeconomics	
Population	43.9 million
Old-age dependency ratio*	2005: 24 2050: 67
GDP [EUR]	1,050 billion
GDP per capita [EUR]	23,900
GDP growth, 2002–2007 [av. in % p.a.]	3.4
Unemployment rate [%]	8.3

Data from 2007 or latest available year
**Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Pension system design

The three-pillar system in Spain is dominated by the first pillar, which is one of the most generous public pension schemes in Europe. The occupational pension pillar is underdeveloped as a result and covers only a small part of the workforce. In terms of assets, the third pension pillar is more developed than the occupational pension pillar. A reserve fund was established to help bolster the financial viability of the public system. Occupational pension plans are common among large enterprises, but less so among small and medium-sized companies. Until the 1990s, Spain was a defined benefit market. This has changed and today Spain has one of the most pronounced defined contribution markets in Europe.

Since Spain will experience one of the most severe demographic challenges faced by any country in the world, its generous public pension scheme will likely come under acute pressure in coming years. Spain's old-age dependency ratio is projected to worsen to 67 by 2050, the highest value in the European Union. The average old-age dependency ratio in the EU is forecast to be 52 in 2050. According to our projections, the Spanish pension investment and insurance market will grow from its current level of EUR 216 billion at a CAGR of 7.7% until 2020.

Public pensions

Shape of the public pillar

Public pensions in Spain are exceptionally generous. Workers who retire at 65 after working for forty years and earning an average wage can expect to receive a pension payment that is only slightly lower than their income before retirement. In net terms, it would amount to 97%. The public system is pay-as-you-go and earnings related. It is mandatory for all employees and for the self-employed and requires a minimum contribution period of 15 years. The total contribution is 28.3% of gross wages, with employers paying 23.6% and employees 4.7%.

Early retirement is possible at the age of 60, but pension payments are reduced substantially when this option is taken. Pensions are adjusted each year in line with inflation. The maximum pension amounts to EUR 32,000 a year. There is a minimum pension and a means-tested pension for the elderly without claims on the earnings-related part.

The state budget will be burdened significantly in the years to come because of the current generous pension system and a gloomy demographic outlook. Expenditure for public pensions in 2050 is projected to increase to 15.7% of GDP, three percentage

points higher than the EU-25 average. Spain is trying to tackle the issue of public pensions at the political level through the Toledo Pact. The main political parties and social partners signed the pact in 1995, agreeing to check the viability of the pension system at regular intervals and make necessary adjustments. This means consensus between the main actors is ensured when reforms are required. The pact was revised in 2003 to set the framework for reform over the following five years. Several reforms have been introduced as a result of the revision, including incentives for longer working lives and extending minimum contribution periods.

The Social Security Reserve Fund

The public pension system is complemented by the Social Security Reserve Fund. This fund became operational in 2000. Surplus from the public scheme and its assets is fed into the fund, which amounted to EUR 45.7 billion at the end of 2007. The surplus in the public system stems mainly from the lower birth rate during the Spanish Civil War. As a result of the lower birth rate then, the number of new retirees is now below average. The surplus is expected to disappear by 2015. The assets of the reserve fund are to be used when the public scheme has been in deficit for three years. The fund is directed by a management committee, which is responsible for investments and asset allocation. It is regulated by the General Treasury of the Social Security System.

Supervision is carried out by the Treasury, an advisory committee and a monitoring committee comprising both employers and employees. Investment regulation stipulates that investments must be in public debt and that at least 50% of assets must be invested in Spanish bonds. A maximum of 50% may be invested in foreign bonds, which in this context means German, French, or Dutch bonds (Oxera 2007). At the end of 2007, 50.5% were invested in Spanish bonds and 49.5% in foreign bonds (*Fondo de reserve de la seguridad social 2008*). There is a draft law that would allow greater flexibility in investment policy by widening asset classes. This law has not yet been passed.

First pillar design	
Contribution rate [% of gross salary]	Employer: 23.6 Employee: 4.7
Replacement rate [% of last income]	Gross: 91 Net: 97
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 8.6 2050: 15.7

Source: OECD, EU

Occupational pensions

The generosity of public pensions negatively affects occupational and private pensions by restricting the need for them. The number of people in occupational funds, which are voluntary, is modest: 1.7 million people used them in 2007. In addition to this system, there are mutual welfare companies that provide pensions for certain occupational groups. Yet these institutions garner a very minor share of the market.

Institutional framework and governance

Qualified occupational pensions may be implemented through pension plans (*planes de pensiones*) or group insurance contracts. Pension plans are implemented through pension funds, which are autonomous entities. They can be closed or open. Pension funds in turn are managed by authorised pension fund management entities (*Entitad gestora*) that are set up either by financial institutions or employers. The pension fund management entity is appointed and supervised by a Pension Plan Control Commission. This Commission has between five and nine members, a majority of which must be plan members. Employer participation is permitted, but not required. The Commission is responsible for determining the investment policy, unless it decides to leave that to the pension fund managing company.

Regulation, asset allocation and taxation

Spanish pension funds are subject to liberal investment regulation. Only a few quantitative restrictions exist. There are no limits to investments in equities, foreign assets, bonds, retail investment funds (when UCITs satisfy

legal requirements) or in bank deposits. Some restrictions apply to securities traded on non-regulated markets within these categories. Investments in real estate are limited to 20% (joint with mortgage loans), and several limits apply for investments in securities issued or guaranteed by the same entity and for self-investments. Spanish investment regulation thus comes very close to the prudent person principle. Bonds dominate the current asset allocation of Spanish pension funds, with two-thirds of assets invested in this vehicle. Equities account for one-fifth of assets, mutual funds for 10%.

Taxation of Spanish pension funds follows the EET principle. Combined employer and employee contributions of up to EUR 10,000 (or 30% of salary) are tax-deductible if the employee is younger than 50. If the employee is older than 50, EUR 12,500 or 50% of earnings is tax-deductible. These limits were changed in 2007. Another change introduced at this time concerns the partial tax deductibility of lump sum payments, which was abolished to encourage annuities.

Trends

While Spain was a defined benefit market with unfunded book reserves in the 1980s, this has now changed. Since the 1990s, almost all new pension plans are of the defined contribution type and unfunded defined benefit plans have been converted in most cases. Book reserves had to be dissolved by 2002. The OECD reports that 97% of occupational assets are in defined contribution plans. Currently, there are 1,900 plans with 1.7 million participants and assets of EUR 30.5 billion. This means that around 8% of the workforce is covered by a pension plan.

Pension plans are found primarily in large enterprises. Small and medium-sized firms are very hesitant to introduce them, despite targeted incentives to encourage their establishment. Neither employers nor unions actively push for the introduction of pension plans, as the generosity of the public system does not make them see the need for occupational pensions. This is the main reason for the modest penetration rate of pension plans in small companies. A pension fund for 500,000 central government civil servants was set up in 2003, which might encourage the development of occupational pensions. In terms of investment management, a trend towards multi-management is emerging, although it is still in its infancy. The market is strongly dominated by domestic banks.

Occupational pension fund statistics, 2007	
AuM [EUR bn]	30.5
Members [m]	1.7
Taxation	EET

Source: Allianz Dresdner Economic Research, OECD

Private retirement savings

Individual pension plans are more popular than occupational pensions in terms of assets and members. Individual plans are open to employees, the self-employed and the non-employed. The rules and tax advantages are identical to those provided in occupational schemes. The providers are also the same. Participants can choose from a variety of regulated products offered by banks or insurance companies. The total tax-deductible amount refers to the sum of occupational and individual plans. Some 8.3 million members participated in this pillar in 2007, with assets amounting to EUR 51.5 billion.

Third pillar statistics, 2007	
AuM [EUR bn]	51.5
Members [m]	8.3
Taxation	EET

Source: Inverco

Life insurance

In addition to the qualified pension plans offered through pension funds, Spanish companies can also offer group insurance contracts (*planes de jubilacion*). From the employer's perspective, the advantage of these compared to pension funds is that there is no contribution limit. They also provide a greater degree of control, owing to the fact that there is no control commission. Separate data for these group contracts are not available, as they are included in overall life insurance statistics.

With the exception of Greece, Spain has the lowest life insurance density and penetration rate within the EU-15. Life premiums per capita in Spain amounted to EUR 518 in 2007 compared to EUR 1,716, the average of the EU-15 countries. Life premiums as a percentage of GDP were 2.2% in the same year, whereas the EU-15 average was 5.9% (Swiss Re 2008). Unit-linked products had a share of 11.5% in 2005. Individual life insurance clearly dominates the life market, with a share of 80% in 2005 (CEA 2007).

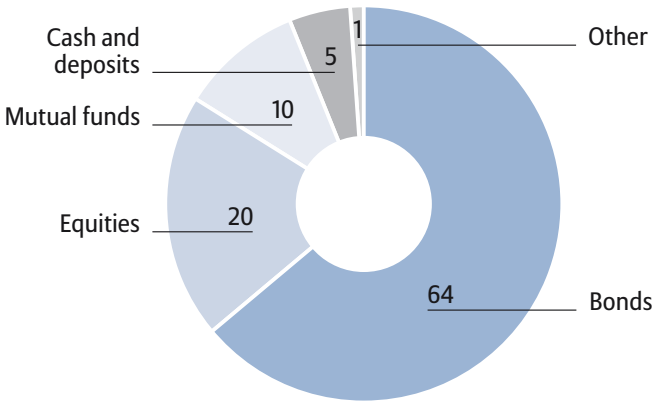
Savings and financial markets

Spain, with a saving rate of slightly over 10%, is one of Europe's top saving countries. Only France and Germany had higher savings rates in 2006. Nevertheless, the country ranks in the lower half of European countries when it comes to the volume of household assets compared to GDP. It reached 182% in 2007, whereas the Western European average was 219% of GDP. In absolute terms, household assets amounted to EUR 1.91 trillion. Assets managed by institutional investors are also quite modest in European comparison, amounting to 62% of GDP. The corresponding figure for the Netherlands for example is 205%. Pension fund assets accounted for 7% of GDP, investment funds for 30% and insurance companies for 25%.

Spanish households tend to invest in real estate rather than in financial vehicles. Spain has the highest share of home ownership in Europe (around 85%). Thus a large portion of savings is used for building up real assets. Until the mid-1990s, the bulk of financial assets were invested in bank deposits. Shares and investment funds accounted for a third of portfolios. These products grew to 46% during the equity market boom between 1995 and 1999. When turbulence hit the stock market, Spanish households suffered a setback, and financial assets more or less stagnated.

Spanish households, however, never withdrew substantially from the stock market and they continue to hold a higher proportion of stocks than most other Western European countries. Insurance and pension funds have a modest share of only 14%. As in several other European countries, Spain's low level of household assets reflects the dominance of public pensions and the resulting underdevelopment of capitalised savings.

Asset allocation of occupational pension funds, 2006 [%]



Source: OECD

Savings and financial markets, 2007	
Household savings ratio [%]	10.3
Household assets [% of GDP]	182
Average per capita financial wealth [EUR]	43,500
Assets of institutional investors [% of GDP]	62

Source: OECD, Banco de Espana

Future market trends

Household assets

In the years ahead, we expect the savings rate to stay at the relatively high level of around 10%. Although the coming years might be difficult given the problems in Spain's real estate market, we expect wealth to continue growing. The country's strong engagement in the stock market will dampen growth potential in 2008, as we assume year-end stock market valuations 2008 to decrease by 30%. But given the longer term opportunities provided by capital market investments and the investment behaviour of Spanish households, annual growth for the projection period can reach 5.2% annually. This will push financial assets to EUR 3.7 trillion at the end of 2020[1].

Pension investment and insurance assets[2]

The insurance segment will show higher growth rates than total financial assets. This is due to the low share of life insurance as

1 Differences between the values for pension / insurance assets in this section and those of the overall retirement market in the following section are due to classification differences in the financial flow statistics of national accounts and the specific pension statistics we used for the market analysis. One major difference is that non-life insurance products are included in the financial accounts.

2 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

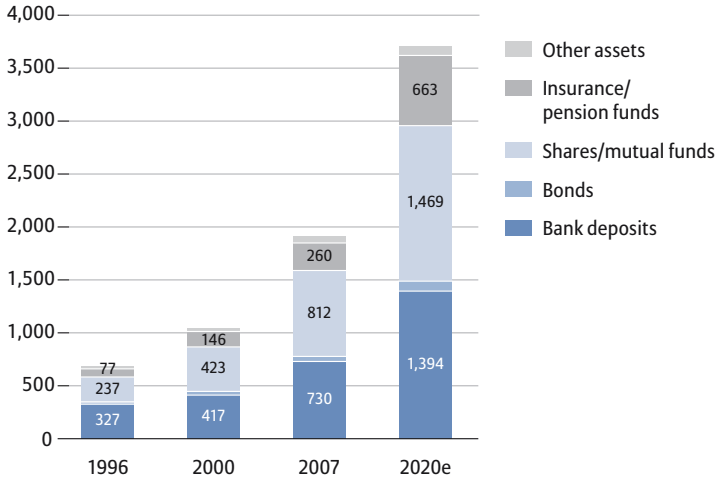
a proportion of total assets, which again is caused by the country's strong state pension system. High growth rates, however, were seen in the 1990s, and this development was boosted by Spain's rising prosperity. After years of strong economic growth, some catch up demand still exists. Life insurance technical reserves were EUR 134 billion in 2007[3], and we expect these assets to increase by 7.3% annually to reach EUR 336 billion in 2020.

The pension investment segment is developing more slowly than expected in terms of coverage, particularly with respect to occupational pensions. High replacement rates in the first pillar and only small parametric reforms do not encourage people to increase pension savings. However, interest in private pension plans will increase as private households become wealthier. Problems in the real estate market will likely retard pension asset growth. After that occurs, we expect pension fund asset growth to pick up speed during the projection period. With an annual growth rate of 8.2%, pension investment assets will jump from EUR 82 billion in 2007 to EUR 229 billion in 2020[4].

Overall, we expect the Spanish pension/insurance market to grow at a compound annual rate of 7.7%, reaching EUR 565 billion in 2020.

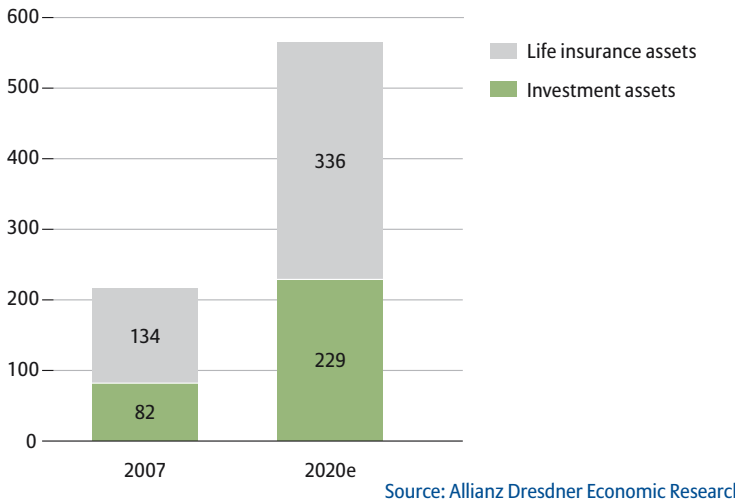
Spain has laid the foundations for creating a strong occupational pillar and the country has already undergone the transformation from defined benefit to defined contribution schemes. However, owing to the generosity of the public pillar – which almost fully replaces the wage income of average workers – the occupational pillar still remains underdeveloped. Given that Spain faces the most unfavourable demographic development in Europe, the financial pressures on the public pillar will escalate. Thus, a further promotion of funded pensions in Spain in the future is very likely. The high participation rate in third pillar schemes shows that Spaniards are aware of the future need for additional retirement savings. In light of this awareness, diversifying retirement income and increasing coverage of occupational pensions, especially among smaller enterprises, seems to be the main challenge facing Spain's pension policy.

Spain: Financial household assets [EUR bn]



Source: Bank of Spain, Allianz Dresdner Economic Research

Spain: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

3 This figure is based on the technical reserves of EUR 130 billion in 2006 reported by CEA and an asset growth of 2.5% for 2007, as provided in the financial accounts of the Banco de Espana.

4 This figure is provided in the financial accounts of the Banco de Espana for the pension fund sector.

Sweden

Innovating the First Pillar, Shifting Toward DC in the Second

Pension system design

Sweden's pension system is based on the traditional three pillar design, but it features some remarkable innovations. The first pillar consists of a notional defined contribution system. A portion of contributions made to public pensions is paid into the premium pension system; this portion is invested into investment funds, selected by the insured. The public pillar is complemented by five buffer funds. Voluntary occupational pensions are based on collective bargaining, and coverage is very high as a result. The two main schemes have been restructured towards defined contribution arrangements. In the tax-favoured third pillar, participants can choose between insurance products, investment funds and bank accounts.

Demographic change will be less severe in Sweden than in other parts of Europe. While the old-age dependency ratio in Sweden is projected to rise to 41 in 2050, the EU-25 average will be 52. According to our projections, the current pension assets of EUR 203.5 billion will grow at a CAGR of 6.8% until 2020.

Demographics and macroeconomics	
Population	9.1 million
Old-age dependency ratio*	2005: 26 2050: 41
GDP [EUR]	325 billion
GDP per capita [EUR]	35,800
GDP growth, 2002–2007 [av. in % p.a.]	3.1
Unemployment rate [%]	6.1

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Public pensions

Shape of the public pillar

Sweden's public pension system was extensively overhauled in the late 1990s. Reforms to the public pillar apply fully to those born after 1954. While the old system was largely based on tax-financed flat rate pensions, today there are different tiers within the first pillar: the guarantee pension, the income pension and the premium pension. The guarantee pension is meant for low-income earners. It is tax-financed and coordinated with the other first pillar programs. Other pension benefits reduce the guarantee pension.

The income pension is a pay-as-you go scheme of the notional defined contribution type. This means that all members have an individual "notional" account into which their contributions (notionally) flow. The contributions are credited with a rate of return in line with average earnings growth. At retirement, the pension balance will be divided

by cohort life expectancy to take into account demographic development and to have an automatic stabiliser for the scheme. The pension contribution amounts to 18.5% of salary, the bulk of which is paid by the employer, 16% of which flows into the income pension.

The remaining 2.5% of pension contributions are deposited into an individual premium pension savings account. Members can invest their money in one of 779 investment funds. If they fail to select an investment fund, their contributions are transferred into a default fund. The scheme is administered by the Swedish Premium Pension Authority (PPM), which distributes the capital to fund managers, registers the funds and undertakes all clearance activities.

The normal retirement age is 65, but early retirement is possible from age 61 onwards. The guarantee pension is only available at age 65. In 2004, the first pillar's gross replacement rate was 53% of last income. Including occupational pensions, the replacement rate was 68%. This combined replacement rate is projected to decrease to 56% in 2050 due to decreasing first pillar benefits. Currently, Sweden's public pension expenditure is exactly the EU average of 10.6% of GDP. Whereas Sweden's public pension expenditure as a percentage of GDP will rise to 11.2% in 2050, the EU average will increase to 12.8%.

First pillar design	
Contribution rate [% of gross salary]	18.5
Replacement rate [% of last income]	Gross: 53
Legal retirement age	65
Public pension expenditure [% of GDP]	2005: 10.6 2050: 11.2

Source: EU 2006

Assets AP funds 2007 [billion]				
AP 1	AP 2	AP 3	AP 4	AP
EUR 23.2 [SEK 218.8]	EUR 24.2 [SEK 227.5]	EUR 23.8 [SEK 224.9]	EUR 22.0 [SEK 207.3]	EUR 2.1 [SEK 19.6]

Source: AP funds annual reports

The AP funds

There are five buffer funds in Sweden. These exist to even out temporary fluctuations in the pay-as-you-go system. They are called AP 1 – AP 4 and AP 6 (AP 5 no longer exists) and were reorganized as part of pension reform in 2001. Each of the five funds fulfils basically the same function and objective. The government brought them into existence to create competition and encourage investment strategy diversity.

The funds are subject to investment restrictions. For example, at least 30% should be invested in low-risk fixed income securities and no more than 40% of assets should be exposed to currency risk. In 2007, the funds managed a combined asset volume of EUR 95.3 billion.

The AP 6 is the smallest fund. It is also unique in that it invests only in the Swedish private equity market, directly or indirectly. At least 10% of the AP funds' assets must be outsourced to external managers (Oxera 2007). The biggest of the AP funds, AP 2, has a strategic portfolio that aims to allocate assets based on the following structure: 20% of assets should be invested in Swedish equities, 35% in foreign equities, 5% in emerging markets, 36% in fixed income, 3% in real estate and 1% in private equity.

Sweden also has an AP 7 fund, which is not a buffer fund, but the default fund of the premium pension system. The Premium Savings Fund had assets of EUR 9.2 billion [SEK 87.4 billion] in 2007. The AP 7 also runs the Premium Choice Fund, which can be chosen just like any other fund in the Premium Pension System. The Premium Savings Fund is by far the largest fund in the Premium Pension System, accounting for around 28% of the total capital invested in the scheme. 17 external managers are involved in managing its assets. The asset allocation of the fund is equity driven, with 82% invested in this asset class.

Occupational pensions

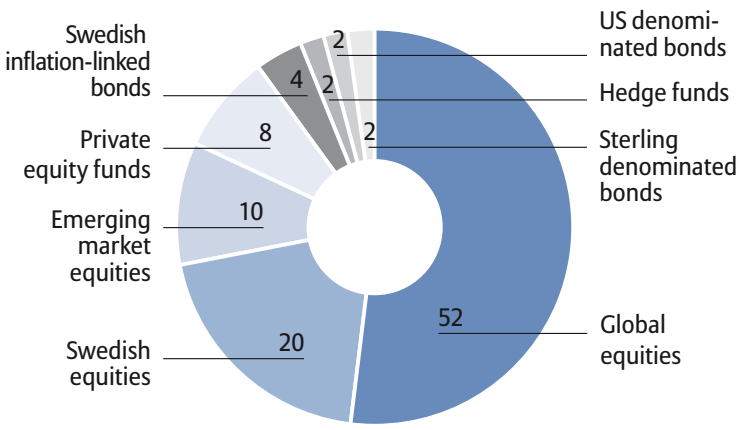
Institutional framework and governance

Around 90% of employees in Sweden are part of a voluntary occupational pension scheme, if public plans are included. Since voluntary occupational pension provision is driven and based on collective agreements, it is quasi-mandatory for most of the workforce, especially since agreements require employers to take out pension plans for their employees. There are two main schemes: SAF-LO for blue collar workers and the ITP plan for white-collar workers. Special plans for certain occupational groups, such as architects, or for certain industries such as insurance, also exist. Companies not bound to a collective agreement may operate their own plans. This refers mostly to senior executives, who can opt out of the ITP scheme, and to employees of Swedish subsidiaries of multinational corporations. Contributions are generally between 2% and 5% of wages.

The SAF-LO plan is a defined contribution plan and contributions can be invested with around 25 providers. Following extensive revision in 2007, the ITP plan is now divided into two parts. Part 1, introduced in 2007, is a defined contribution scheme and covers all employees born after 1978. Participants can select among eight different providers and can choose between traditional and unit-linked insurance contracts. However, 50% of contributions must be placed in a traditional insurance policy. ITP Part 2 has been operating for years and covers all employees born before 1979. It is largely a defined benefit plan that is based on final salary. A certain part of the contribution, however, is directed into a defined contribution plan. The defined benefit part can be financed through a pension fund, book reserves or through insurance.

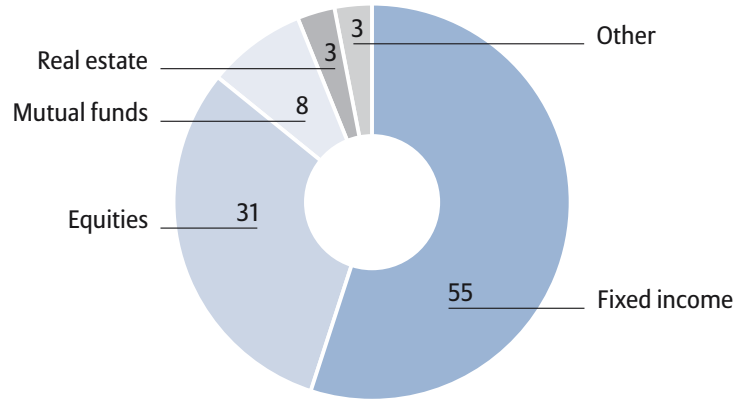
In addition to these two plans, Sweden has a collective pension plan for employees in the municipal sector and for state employees. Employees do not contribute to these collective occupational plans. Generally, pension funds in Sweden can be founded by one or more employers.

Premium Savings Fund strategic asset allocation, 2007 [%]



Source: AP 7 2008

Occupational pension funds' asset allocation, 2006 [%]



Source: OECD

Regulation, asset allocation and taxation

Swedish pension funds are subject to relatively liberal investment regulation, but some quantitative limits must be observed regarding investment policy. The quantitative limits depend heavily on the vehicle chosen. As occupational pensions are normally of the insured type, the investment restrictions differ between friendly societies, insurance companies and occupational pension providers in accordance with the EU occupational pension directive. The prudent person principle applies for occupational pension providers. Insurance companies are allowed to hold a maximum of 25% in equities and a maximum of 75% in bank deposits. There is no limit for investments in international assets, but no more than 20% of assets may be invested in assets not denominated in the currency of the liabilities. The limits for friendly societies are more restrictive.

In terms of asset allocation, the lion's share of Swedish pension fund assets is invested in mutual funds, followed by fixed-income instrument and equities. Occupational pensions are taxed according to the ETT principle. Contributions of up to 35% of the employees' wage may be deducted, while investment income and benefits are taxed.

Trends

The occupational pension market in Sweden has changed tremendously since the 1990s. In 1996, the defined contribution type SAF-LO replaced its predecessor, a defined benefit plan. The ITP was similarly overhauled in 2007. The market has been transformed as a result of these changes. When the occupational pension market was based on defined benefit, all occupational business was split between two monopoly insurers, one responsible for each plan. This has changed with the introduction of the defined contribution schemes. Members now enjoy choice among several providers and between traditional and unit-linked policies.

On the regulatory side, a so-called traffic light system was introduced in Sweden in 2006. Pension funds have a set of benchmarks – using stress tests – to help them monitor and calculate their exposure to risk. A trend towards alternative investments and socially responsible investments can be seen in the investment strategy of Sweden's pension funds.

Occupational pension fund statistics, 2006	
AuM [EUR bn]	27
Taxation	ETT

Source: OECD

Private retirement savings

Private retirement savings, the third pillar of Sweden's pension system, are substantial and mainly comprise two products: traditional/unit-linked insurance or individual pension accounts either held in investment funds or bank accounts. Contributions are tax-deductible. The level of participation in the corporate pillar determines the extent to which contributions can be deducted. When people do not have occupational pension rights, like the self-employed, then the maximum amount that can be deducted is around EUR 50,000 (base amount plus 35% of income). For employees with an occupational pension, the tax-deductible amount is considerably lower at around EUR 4,300. Benefits can not be taken before the age of 55. Investment income and benefits are taxed. It is estimated that around 40% of the workforce participate in the individual pension pillar.

Life insurance

Sweden has a developed life insurance market. The life premium per inhabitant was EUR 1,889 in 2007, higher than the EU-15 average of EUR 1,716. Life premiums as a share of GDP are 5.3% in Sweden, below the EU-15 average of 5.9% (Swiss Re 2008). Sweden's high share of group business differentiates it from the rest of Europe. In terms of life premiums, group business accounted for 50% in 2005, which is almost double the European average volume. The share of unit-linked policies was 41%, which is also much higher than is usual for Western Europe (CEA 2007).

Savings and financial markets

Compared with their European counterparts, Swedish households have a high savings ratio of 9.9%. With 12%, France had the highest savings ratio in 2007. Belgium, Spain, and Switzerland all had values of around 10%. The volume of assets in Swedish households amounts to 165% of GDP, well below leading European nations. UK households' assets are 292% of GDP, for instance, and Swiss households have assets amounting to 373% of GDP. In absolute terms, financial assets amounted to EUR 536 billion at the end of 2007. Institutional investors hold assets of 147% of GDP, one of the highest values in Western Europe.

Pension funds, however, only have assets amounting to 2.3% of GDP. The corresponding value for investment funds is 50% of GDP and 95% for insurance companies. The latter is the highest value in Europe, even if data for some countries are missing. The strength of insurance companies in the pension market contributes decisively to this top position.

The financial position of Swedish households improved considerably during the bull market in the 1990s. During that time, Swedish investors increased their direct and indirect equity exposure from 30% in the mid-1990s to 45% in 1999. When the stock market collapsed, they suffered badly. Although financial wealth dipped in 2002, it regained strength in the following years. Equities and mutual funds are again the most popular investment vehicles. This makes Swedish portfolios vulnerable to financial turbulence. Change is afoot. Swedish households – like many of their European counterparts – started to withdraw from the stock market in 2006 and began investing in less risky assets, particularly in bank deposits. The share of bank deposits in the portfolios of households is regaining weight (20%), up from the low level of 16% in 2005. This was in fact the lowest level in Western Europe. As Sweden supports a funded pension system, the portion of this segment reached about 36%, slightly above the European average.

Future market trends

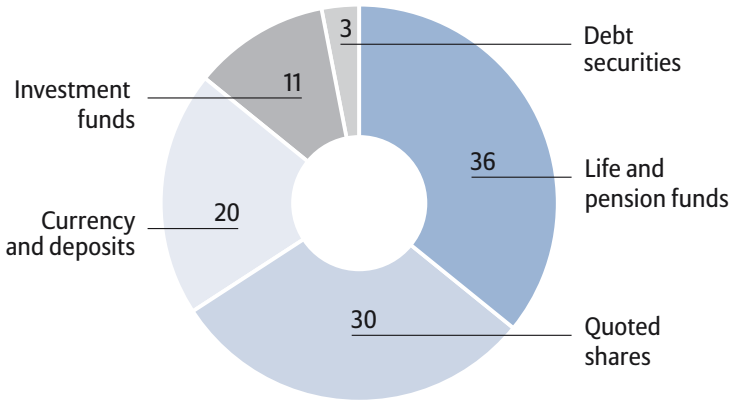
Household assets

Swedish households' high exposure to equities, directly and indirectly through mutual funds and pension funds, has put pressure on wealth formation. Assets increased by only 1.8% from year-end 2006 to year-end 2007. We assume a stock market decrease of 30% from year-end 2007 to year-end 2008.

Savings and financial markets, 2007	
Household savings ratio [%]	9.9
Household assets [% of GDP]	165
Assets of institutional investors [% of GDP]	147

Source: OECD, Statistics Sweden

Household asset allocation, 2007 [%]



Source: Statistics Sweden

Given the comparatively high saving rate in Sweden, the asset allocation patterns over the past years, and assuming an equity market performance of 7% a year (from 2009 onwards), we expect total financial assets of private households to increase by about 5.7% a year to over EUR 1.1 trillion by 2020, from EUR 536 billion in 2007. At the end of the projection period, pension and insurance products will contribute the bulk of financial assets[1].

Pension investment and insurance assets[2]

As the Swedish government supports occupational pensions and as payments into private pension schemes are tax-deductible to a high degree, we expect strong inflows into pension products in coming years. The new ITP scheme based on defined contribution will generate further inflows, too. Overall retirement assets will grow at a rate of 6.8% and rise to EUR 481 billion, compared with EUR 203.5 billion in 2007.

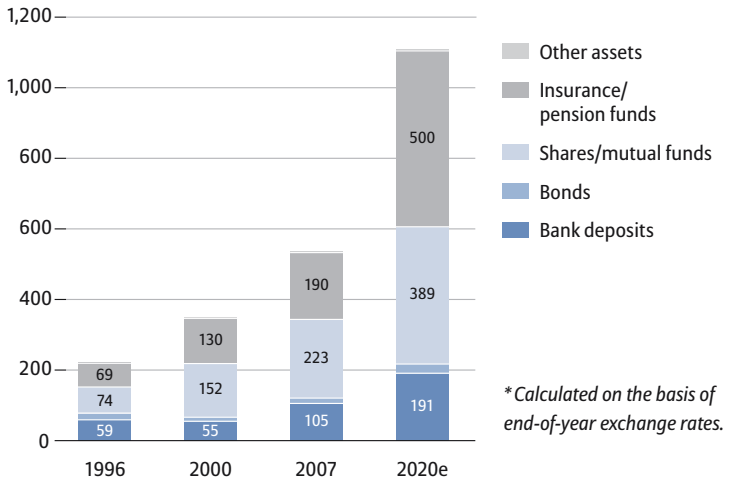
1 Differences between the values for pension / insurance assets in this section and those of the overall retirement market in the following section are due to classification differences in the financial flow statistics of national accounts and the specific pension statistics we used for the market analysis. One major difference is that non-life insurance products are included in the financial accounts.

2 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

Insurance contracts play a major role in the second and third pillars of Sweden's retirement market[3], but because of a more conservative asset mix and the much bigger market, growth rates will be lower than those of pension fund assets. We expect insurance assets to grow at an annual rate of 6.6% to EUR 403 billion by 2020, more than doubling their current level of almost EUR 176.5 billion. The much smaller pension fund market will grow at 8.5%, to EUR 78 billion in 2020.

Sweden is one of the most interesting pension markets in Europe. Innovative reforms initiated over the past decade include the introduction of a notional defined contribution system in the first pillar and the creation of a funded part within the public pension pillar in which members can freely choose between investment funds. A trend towards defined contribution is plainly visible in occupational pension schemes. These innovative elements within the pension system coupled with the near-universal coverage of occupational pensions and the high participation rate in third pillar schemes show that a true multi-pillar system is in place in Sweden; this enables Swedes to draw on retirement income from multiple sources.

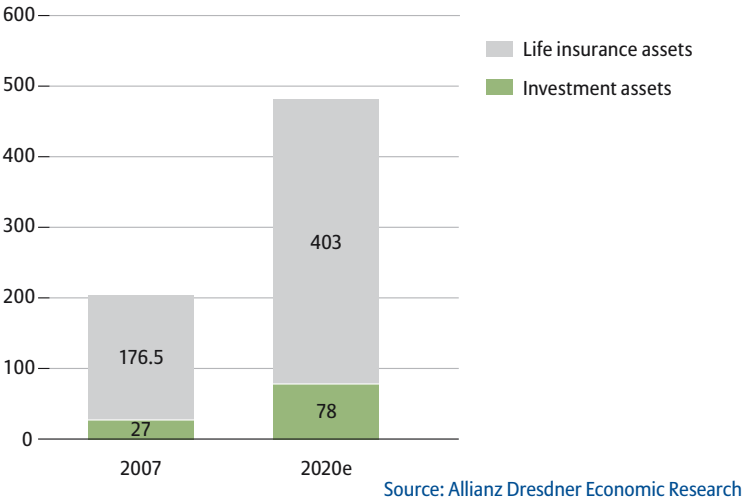
Sweden: Financial household assets [EUR bn]*



*Calculated on the basis of end-of-year exchange rates.

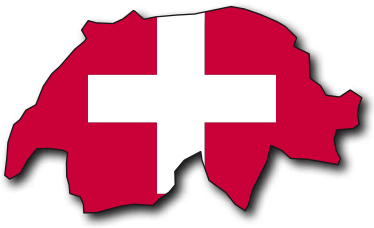
Source: Sveriges Officiella statistik, Allianz Dresdner Economic Research

Sweden: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

3 The distinction between insurance assets and pension assets is not straightforward; the flow of funds statistics (for household assets) show a 40/60 split between insurance and pension savings, whereas the OECD pension statistics and the CEA insurance technical reserve figures display a 15/85 split. This is probably due to the fact that "pension savings" encompasses more than just pension funds in the flow of funds statistics. In this context, we use the OECD/CEA distinction as base figure for our projection.



Switzerland

Operating a Truly Multi-Pillar System

Pension system design

Despite its moderate population size, Switzerland is the third-largest pension fund market in Europe in absolute terms – behind the United Kingdom and the Netherlands – largely because its occupational pension system is mandatory. Switzerland is often viewed as a role model for pension policies, as it has successfully created a pension system with balanced income streams from the respective pillars. Swiss pensions are based on a truly multi-pillar system. The first pillar provides state-run basic pension provision. The universal social insurance policy underpinning the first pillar has a strong redistributive component. The second pillar – the mandatory occupational pension system – is based on independent pension funds, which are either attached to a specific company or open to all companies. The third pension pillar is tax subsidised. Here participants can choose between bank, insurance and investment products.

Demographic change in Switzerland will be much less pronounced than in the rest of Europe. The projected old-age dependency ratio of 39 in 2050 is far below the forecast of 52 for the EU. Current retirement assets, investment and insurance, amount to EUR 482 billion. According to our projections, the overall retirement market will grow at a CAGR of 2.8% until 2020.

Public pensions

The first pillar, called AHV (*Alters- und Hinterlassenenversicherung*/old-age and surviving dependants insurance), offers truly universal coverage. In addition to including all employees in Switzerland, it provides coverage for the self-employed and all persons residing in Switzerland, including non-working spouses, students, unemployed persons or people living purely from capital income.

Demographics and macroeconomics	
Population	7.6 million
Old-age dependency ratio*	2005: 24 2050: 39
GDP [EUR]	308 billion
GDP per capita [EUR]	40,700
GDP growth, 2002–2007 [av. in % p.a.]	2.0
Unemployment rate [%]	2.8

Data from 2007 or latest available year
** Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Employers and employees each have to contribute 4.2% of salary. The self-employed contribute 7.8%. The government (federal and cantonal) pays approximately 20% of benefits. These are adjusted against prices and wages every two years.

To be eligible for a full pension, members must have paid contributions for 44 years. There is a minimum pension of CHF 1,075 (EUR 655) and a maximum pension of CHF 2,150 (EUR 1,309). Since the country has no assessment limit for contributions, redistribution between low- and high-income earners is substantial. High-income earners pay contributions on all of their income, but receive only the capped maximum pension. As a result, replacement rates for higher-income earners are significantly below the

OECD average, whereas replacement rates for average earners, at 58% gross, are fairly high and slightly above the OECD average.

Occupational pensions

Institutional framework and governance

Occupational pensions constitute a very strong pillar of the Swiss pension system. Around one-third of pensioners' retirement income comes from occupational pensions. Occupational pension provision was made compulsory in 1985. Employees above a certain income threshold (CHF 19,350) must contribute to the second pillar pension system. The coverage rate is around 80%. The self-employed can join voluntarily. Contribution rates vary between 7% and 18%, depending on the participant's age and earnings up to a maximum of CHF 77,400 (EUR 47,120). Employer contributions must at least match employee contributions. The level of contributions is determined by the pension fund. Higher contributions are possible and common in certain industries. The retirement age in the occupational pillar is tied to that of the first pillar. Benefits are usually paid out as annuities, but members can take out 25% as a lump sum when they retire.

Pension funds must be created as independent institutions and can be established in the legal form of a foundation or a cooperative society. Foundations dominate strongly, with 98% of private pension funds set up under this legal form. Larger companies tend to have their own closed pension fund (*Pensionskasse*), while smaller companies usually join an open multi-employer foundation (*Sammelstiftung*). Members of professional associations can usually join a professional pension fund (*Gemeinschaftseinrichtung*). A distinction can be drawn between autonomous pension funds that manage investment and actuarial risks by themselves and partially autonomous funds that insure death and disability risks with an insurance company. Multi-employer foundations are mainly managed by life insurance companies and banks, and are fully insured. The bulk of the market, however, is made up of autonomous pension funds. Pension rights are fully transferable between pension funds.

First pillar design	
Contribution rate [% of gross salary]	Employer: 4.2 Employee: 4.2
Replacement rate [% of last income]	Gross: 58 Net: 67
Legal retirement age	65 for men 64 for women
Public pension expenditure [% of GDP]	2005: 13.1 2050: n.a.

Source: OECD

Swiss pension funds are governed by a board of directors and an investment committee. The board of directors must comprise an equal number of employer and employee representatives. Employer representatives should not include senior managers. In the case of multi-employer foundations, equal representation takes place on the level of each associated company. Every company constitutes a separate pension fund within the foundation corresponding to a closed company pension fund. The investments can be managed in-house or outsourced to third parties.

Occupational pension fund statistics, 2006	
AuM [EUR bn]	361
Members [m]	4.3
Taxation	EET

Source: OECD, Swiss Federal Statistical Office

Regulation, asset allocation and taxation

Swiss pension funds have to consider several quantitative investment limits. The main limits include:

- 50% in equities and 30% in domestic equities
- 50% in real estate; the combined limit for real estate and equities is 70%
- 30% for foreign assets overall; 25% for foreign equities and 20% for foreign currency bonds
- 10% for equities of a single company and 5% for investments in the sponsoring employer

Swiss investment limits, however, are not strictly enforced. When a pension fund can show that it is in solid financial shape and formally justify its actions, it can exceed these limits, which most pension funds do.

In terms of asset allocation bonds account for 37.5% of assets; non-Swiss bonds have a slight preponderance in this class. The same is true for equities, foreign equities dominate clearly. The share of real estate in pension fund portfolios is high, with a strong bias toward domestic real estate. Alternative assets make up a noticeable share, at 5%. So far, investments in alternative assets had to be approved by the regulatory agency. From 2009 onwards, alternatives are included in the list of approved assets and a 15% investment limit applies.

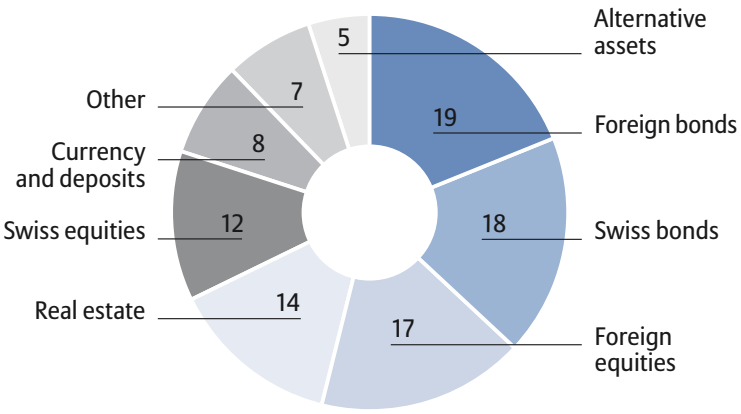
Mandatory occupational pension funds are subject to a minimum rate of return – at least on the mandatory part of their assets. This is reviewed annually. The rate of return was increased to 2.75% in January 2008 from 2.5%. In 2009 it will be lowered again, to 2%. Taxation follows the EET principle. Benefits, however, are taxed separately from other income and at a lower rate.

Trends

There is an ongoing, but gradual trend towards defined contribution schemes. Watson Wyatt estimates that 54% of occupational pension assets are now in defined contribution plans and 46% in defined benefit plans (Watson Wyatt 2008). Looking at active members, data from the Swiss Federal Statistical Office show that 2.6 million members were enrolled in defined contribution pension funds and 730,000 in defined benefit funds in 2005. However, pure defined contribution plans are not possible in Switzerland owing to the guaranteed minimum rate of return. Viewed from this perspective, Swiss defined contribution plans can be considered as a form of cash balance plans. Individual choice is not foreseen.

In terms of asset allocation, one significant trend has become visible over the last couple of years: diversification of pension funds has increased. Comparing asset allocations in 2002 and in 2006, the share of Swiss bonds decreased, while the share of foreign bonds increased by 3.2 percentage points. The share of international equities has risen by 4.1 percentage points. Alternative assets experienced an upswing of 3.5 percentage points. It would appear that demand for external asset managers in the marketplace is increasing, especially for foreign currency bonds, international equities and alternative investments, while domestic asset classes tend to be managed in-house (Mercer 2008).

Asset allocation of occupational pension funds, 2006 [%]



Source: Swiss Federal Statistical Office

Private retirement savings

In the realm of individual pension provision, there is a distinction between two sub-pillars in Switzerland, 3a and 3b. Pillar 3a is tax-subsidised, while pillar 3b generally offers no tax advantages. It broadly encompasses all private savings, from house ownership to all other financial assets. Life insurance contracts enjoy some tax advantages.

The tax advantages in pillar 3a, established in 1987, depend on whether or not a participant is enrolled in a second pillar pension fund. If they are enrolled, they can claim a tax allowance of at most CHF 6,365. If they are not enrolled in the second pillar, the tax allowance is up to 20% of income up to a maximum amount of CHF 31,824 (EUR 19,198). Taxation is of the EET type. Payments are taxed separately from other income and at a lower rate.

Participants have the choice between life insurance products, bank deposits and investment funds with different asset allocations. Structured products have also become available recently. Regulations limit the share of equities to a maximum of 50%. The amount

of assets in 3a accounts is estimated to be around CHF 100 billion (EUR 61 billion). Insurances account for around 50% of these assets, roughly a third is invested in bank accounts, and 17% is invested in investment funds. Payout is possible in the form of lump sums, withdrawal plans or, in the case of insurances, annuities. Lump sum plans are most popular. Taxation is of the EET type.

Life insurance

Switzerland is a major life insurance market. Life premiums per capita were EUR 2,302 in 2007, considerably above the EU-15 average of EUR 1,716. At 5.7%, life premiums as a share of GDP were slightly below the EU average of 5.9% (Swiss Re 2008). The importance of group contracts compared to individual contracts is shown in a breakdown of the pension market. Two-thirds of life premiums stemmed from group contracts in 2005, whereas unit-linked contracts amounted to 11.1% (CEA 2007).

Group insurance contracts are mainly used for multi-employer contracts, the *Sammelstiftungen*, but insurance companies also insure the actuarial risks of semi-autonomous pension funds. Life insurance is the dominant saving vehicle in the state-promoted third pillar and is also important as a general savings product.

Savings and financial markets

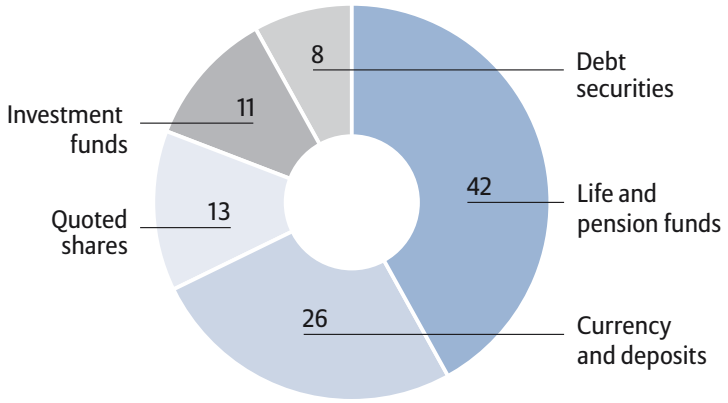
With a household saving ratio of 10%, the Swiss level is substantially above the Western European average of 6.6%. In terms of (relative) household assets, the Swiss top the list of Western European countries by far with assets of 373% of GDP. This is largely due to the important role of funded old-age provision in the country. The importance of funded old-age provision is also reflected in assets held by institutional investors. Pension funds account for 119% of GDP, while insurance companies account for 89%. This suggests that putting savings in institutionalised vehicles has become the norm in Switzerland and that the bulk of assets are devoted to old-age provision. These numbers do not even include the assets of investment funds, which are not available on a comparable basis. National data would suggest that investment funds accounted for 127% of GDP in 2006.

Savings and financial markets, 2007	
Household savings ratio [%]	10
Household assets [% of GDP]	373
Average per capita financial wealth [EUR]	152,000
Assets of institutional investors* [% of GDP]	208

**Only insurance companies and pension funds, data for investment funds not available*

Source: OECD, Swiss National Bank, EFAMA

Household asset allocation, 2007 [%]



Source: Swiss National Bank

Household asset allocation is also dominated by savings for old age. Some 42% of household assets are invested in life insurance or pension funds. A substantial share of savings is directed towards currency and deposits, followed by shares and investment funds. In terms of volume, equity funds were the most popular type of fund in 2006, followed by bond and strategy funds.

Future market trends

Household assets

Household financial assets amounted to EUR 1.15 trillion at the end of 2007[1]. Swiss households are heavily exposed to the stock market, as their portfolios favour mutual funds and pension funds. Financial turbulence will put pressure on wealth formation. We project a stock market decrease of 30% from year-end 2007 to year-end 2008. How-

1 Calculated on the basis of year-end 2007 exchange rates. The value of household financial assets was reported for 2006 only; the 2007 figure is estimated on the basis of different individual statistics from the Swiss National Bank.

ever, we expect private households' total financial assets to increase by about 2.5% a year to over EUR 1.59 trillion by 2020. The reasons for this are the country's solid savings rate, the mature insurance and pension markets, the asset allocation patterns during the past couple of years, and an equity market performance of 7% a year (from 2009 onwards).

Pension investment assets[2]

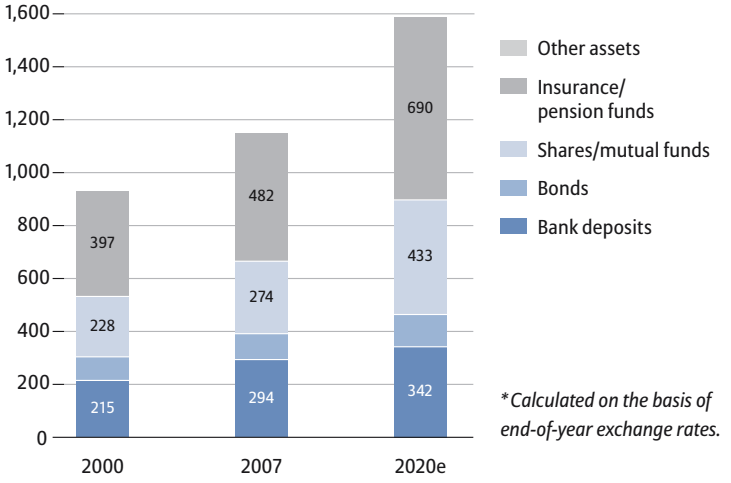
With an estimated EUR 361 billion in pension investment assets in 2007, Switzerland is the third-largest pension investment market in Europe. Being a mature market with high coverage and rising claims, growth is expected to be driven by asset performance and contributions to pension plans. As 30% of assets are invested in equity, we estimate an average annual growth rate of 3.2% up to 2020. Pension assets will amount to EUR 542 billion by the end of the projection period.

Pension insurance assets

Since pension funds dominate the Swiss retirement market, the insurance segment is clearly smaller. Insurance technical reserves reached an estimated EUR 121 billion in 2007, accounting for a third of pension assets. The market has a high portion of maturing contracts. At the same time, it is difficult to attract new business in an environment of low interest rates. The good stock market performance of the years up to 2007 drove growth in unit-linked products and helped strengthen the market. With turbulence hitting financial markets, growth perspectives will dampen. We expect Swiss insurance technical reserves to grow by a mere 1.5% p.a., reaching EUR 147 billion by 2020.

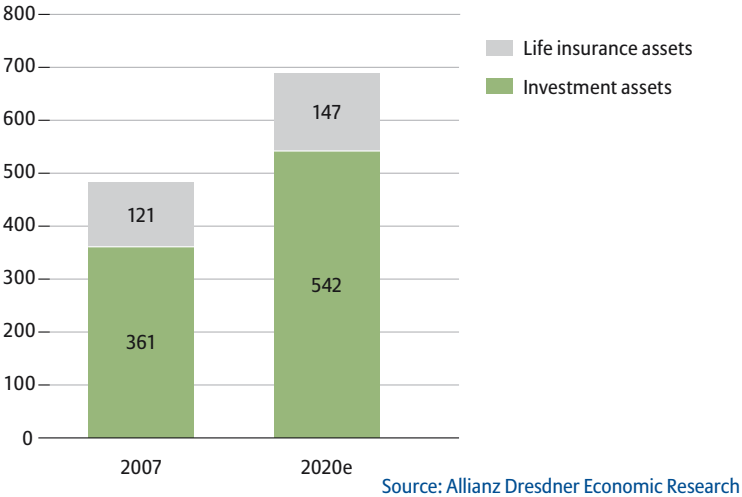
The whole retirement market will have assets of almost EUR 689 billion in 2020, growing annually by an average of 2.8%.

Switzerland: Financial household assets [EUR bn]



Source: Bank of Portugal, Eurostat, Allianz Dresdner Economic Research

Switzerland: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Switzerland has managed to create a well-balanced pension system with a strong – and mandatory – occupational pillar. The volume of the second pillar makes Switzerland one of the biggest pension markets in Europe. Switzerland is also a good example of how funded pensions can boost financial assets, financial markets and institutional investors. An ongoing trend in the Swiss market is the slow but gradual shift towards defined contribution plans, which must achieve minimum returns. A further trend is the increasing diversification of pension fund assets. Putting Switzerland in a European context, it can be argued that Switzerland is one step ahead of its neighbours as diversifying retirement income sources, which is a reality in Switzerland, has been the main goal of pension reforms in most Western European countries.

2 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

UK

Reforming Public Pensions and Extending Occupational Pension Coverage

Demographics and macroeconomics	
Population	60.3 million
Old-age dependency ratio*	2005: 24 2050: 45
GDP [EUR]	1,884 billion
GDP per capita [EUR]	31,200
GDP growth, 2002–2007 [av. in % p.a.]	2.7
Unemployment rate [%]	5.3

Data from 2007 or latest available year
**Ratio of over 65-year-olds to 15–64-year-olds*

Source: Allianz Dresdner Economic Research

Pension system design

The UK has one of the most mature occupational pension markets in Europe. Due to the low replacement rate of the public pillar, retirement income has to rely to a large degree on funded pensions. Occupational pensions are mostly implemented through pension funds or insurance schemes. In the third pillar, there are two tax-favoured schemes, which are increasingly intertwined with the occupational pillar.

The British pension system is in the midst of reform. Changes for schemes in the public pillar will be implemented in the years to come. Regarding occupational schemes, plans are well advanced to introduce personal pension accounts with automatic enrolment. This should increase the coverage of occupational pensions. The pension market in the UK has been undergoing a pronounced shift from defined benefit to defined contribution schemes. Only a minority of defined benefit plans is still open to new members.

The UK will experience a more favourable demographic development than the EU as a whole. The old-age dependency ratio will worsen from 24 to 45 between now and 2050, while the EU average will then be 52. According to projections, overall pension assets will grow at a CAGR of 5.2% until 2020. They currently amount to EUR 3.1 trillion.

Public pensions

The UK has been actively reforming its public pension system over the past years. Implementing the reforms will be the main task in the years to come. The current system features two pay-as-you-go schemes: the Basic State Pension and the State Second Pension (S2P). Both are compulsory for employees with weekly earnings between GBP 84 (EUR 114) and GBP 645 (EUR 875). The Basic State Pension is a flat-rate scheme and financed from National Insurance contributions. A complete contribution record, currently amounting to 44 years for men, will result in a weekly Basic State Pension of EUR 123 (GBP 90.7).

The second element of public pillar pensions, the S2P, started in 2002 and replaced the former SERPS scheme. S2P is earnings-related, except for low-income employees, who have a guaranteed flat-rate pension. It is possible to contract out of the S2P scheme by joining occupational pensions, stakeholder pensions or personal pension plans, provided that the schemes grant benefits at least as high as in the S2P scheme. According to estimates, around 60% of employees are in contracted-out schemes and receive a rebate

on their National Insurance contributions. In addition to these two schemes, there is a tax-financed and means-tested scheme in operation, the Pension Credit consisting of the Guarantee Credit and the Savings Credit.

The present system has a very low replacement rate. In 2005, it was 17% of pre-retirement income in gross terms. However, including second and third pillar schemes the replacement rate increased to 66% gross, or a net value of 82%. Public pension expenditure between 2005 and 2050 is projected to increase from 6.6% of GDP to 8.6%, which is very low when compared to the EU-25 average of 10.6% now and 12.8% in 2050.

The past years have seen far-reaching reform of the British pension system. In 2005, a new Pensions Regulator was established, as was the Pension Protection Fund, based on the Pensions Act of 2004. The Finance Act of the same year unified the taxation of occupational and private pension savings. In 2006, the government published two White Papers, which were largely based on the proposals of an independent Pension Commission and dealt with public and private pensions. In a first step of reform, mostly relating to public pensions, the Pensions Act 2007 was passed, while the second part, the Pensions Bill 2007/2008, is currently in the legislative procedure.

The Pensions Act 2007 decreased the necessary period for a full Basic State Pension, the earnings-link of which will be restored. At the same time, the S2P will become fully flat rate until 2030. The retirement age for women will rise from 60 to 65 by 2020. It will increase to 68 for both sexes by 2046. The new regulations also foresee that contracting out of the S2P scheme will no longer be possible for defined contribution schemes. The Pensions Bill proposes the introduction of personal accounts from 2012 onwards for those employees without access to occupational schemes; the plan is to introduce automatic enrolment into this scheme. Employees will contribute 4% of their wages and employers 3%; the state will contribute 1% in the form of tax relief. These measures are meant to counteract the trend towards decreasing coverage of occupational pensions.

First pillar design	
Contribution rate [% of gross salary]	Employer: 12.8 Employee: 11
Replacement rate [% of last income]	Gross: 17 (66 including 2nd and 3rd pillar schemes) Net: 82 (including 2nd and 3rd pillar schemes)
Legal retirement age	65 for men 60 for women
Public pension expenditure [% of GDP]	2005: 6.6 2050: 8.6

Source: EU 2006

Occupational pensions

The occupational pension system in the UK is voluntary and plans have traditionally been implemented through pension funds and insurance schemes. Unfunded schemes are possible, but uncommon. However, the occupational pillar is increasingly intertwined with the personal pension pillar, as employers can also use third pillar plans as alternatives to traditional occupational plans. Since 2001, employers with five or more employees must provide access to a Stakeholder Pension, a third pillar scheme, or operate an occupational pension scheme themselves. Similarly, the planned implementation of mandatory personal accounts for those without occupational pension coverage goes in the same direction.

Institutional framework and governance

Closed pension funds, which dominate the occupational pension landscape, must be set up in the form of a trust. Trustees are responsible for all pension plan functions, are personally liable for their decisions and are obliged to act for the exclusive benefit of plan members and beneficiaries. In most cases, trustees outsource investment management to external providers. Trustees normally include representatives of the employer, members and beneficiaries. The Pension Act of 1995 states that one- third of trustees should be nominated by the members. Schemes with over 100 members must have at least two employee trustees, schemes with less than 100 members must have one.

There is no minimum number of members for occupational pension plans. Pension plans can be of the defined benefit, defined contribution or hybrid type. Employers and employees can contribute to occupational plans and employees can make additional voluntary contributions (AVCs).

Regulation, asset allocation and taxation

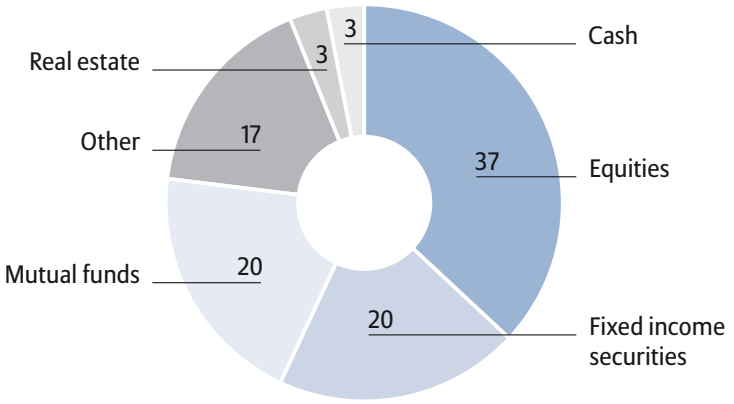
Pension funds in the UK are subject to the prudent person principle and diversification is encouraged. The only quantitative limit relates to investments in the sponsoring company, which is restricted to 5%. The asset allocation of British pension funds is geared to equities. Some 37% of assets are invested directly, and a significant part of mutual funds – which account for a share of 20% – is likely to be invested in equities. Around 8% of assets are invested in unallocated insurance contracts.

Taxation was completely reformed in 2006 as part of the Finance Act of 2004. The new regime greatly simplified taxation of pensions by including all pension savings. There is now a universal lifetime allowance and an annual allowance. The lifetime allowance is the overall limit of an individual's tax-favoured retirement savings and amounts to EUR 2 million (GBP 1.5 billion). The yearly limit for retirement savings is EUR 292,000 (GBP 215,000). Contributions beyond this sum are taxed at 55%. The taxation principle is EET. A quarter of a person's entire pension capital can be drawn as a tax-free lump sum.

Trends

The UK is one of the prime examples for the shift from defined benefit to defined contribution plans. While defined benefit plans were traditionally the preferred option for company pensions, this has changed remarkably. Survey research by the Pensions Regulator shows that in 2007, 46% of defined benefit schemes in the sample were closed to new members, 15% were closed to new accruals and 38% were open to new members. The probability that schemes are open increases with scheme size, survey research shows (The Pensions Regulator 2007).
The reasons for the shift include the underfunding of pension plans, increasing labour mobility, the introduction of market-based accounting standards, the (regulatory) complexity of defined benefit plans and increased financial market volatility (Clark, Monk 2006).

Asset allocation of pension funds, 2006 [%]



Source: OECD

Related to these problems of defined benefit plans, the past years also saw the emergence of a pension buyout market, through which insurance companies take on the responsibility for the pension scheme and assume its assets and liabilities. Hybrid plans have gained in importance. Nevertheless, due to their long history, defined benefit plans dominate the overall asset volume and number of members. Defined benefit schemes (including public occupational schemes) have 22.2 million members, while there are 6.2 million defined contribution members.

Currently two-thirds of private sector companies offer a defined contribution plan. Defined contribution schemes can be trust-based or contract-based. In the latter case, the arrangement is directly between the members and the provider. This type of defined contribution plan has experienced a considerable upswing over the past couple of years. Most defined contribution schemes are very small. Three- quarters of them have five or less members. Current discussions focus on investment choice and the design of defined contribution schemes' default option (Byrne, Harrison, Blake 2007).

Occupational pension fund statistics, 2006	
AuM [EUR trn]	1.4
Taxation	EET

Source: OECD

Private retirement savings

There are two main schemes for private pension savings: personal pension plans and stakeholder pensions. Personal pension plans were introduced in 1988. Eligible persons are those under the age of 75 who fulfil British residency conditions. Personal pension plans are defined contribution in nature. They are increasingly used as occupational schemes due to their flexibility and cost effectiveness. In this case, they are set up as Group Personal Pensions. The taxation of personal pension plans and for stakeholder pensions is subject to the general limits for pension savings, which were reformed in 2006 (*see above*).

The second option for personal pension savings is stakeholder plans, which were introduced in 2001. Employers with more than five employees must provide their employees with access to stakeholder pensions if they do not offer an occupational pension plan themselves. Stakeholder pensions are defined contribution in nature, with the employer selecting the provider. Stakeholder pensions were introduced to encourage higher savings for retirement, especially among the lower paid. Fees on stakeholder products are limited (maximum 1.5% of fund value per year, dropping to 1% after 10 years of membership) and must fulfil certain standards, for example with regard to flexible contributions or low minimum payments. Stakeholder plans need to offer a default investment option, which has to include lifecycle concepts.

Life insurance

The UK is Europe's leading life insurance market. At EUR 684 billion, it is by far the biggest market in Europe. The country has also the highest values in terms of life premiums per capita and as a share of GDP. Life premiums amount to 12.7% of GDP or to EUR 3,950 per head. This is more than twice as high as the EU average of 5.9% of GDP or EUR 1,716 per head (Swiss Re 2008). In 2005, 63% of life premiums originated from individual contracts, the remainder from group policies. In the same year, unit-linked policies had a share of 25%, identical to the EU average (CEA 2007).

Savings and financial markets, 2007	
Household savings ratio [%]	3.3
Household assets [% of GDP]	295
Average per capita financial wealth [EUR]	92,200
Assets of institutional investors* [% of GDP]	178

** Insurance companies and pension funds without investment funds*

Source: OECD, National Statistics Office

Savings and financial markets

The savings rate in the UK – 3.3% in 2007 – is low when compared with the rest of Europe. Only Norway, Finland and Denmark have lower rates of saving. Nevertheless, household assets reached EUR 5.56 trillion, which is the highest financial wealth value in Western Europe in absolute terms. Only when measured as a share of GDP does the UK rank second with a ratio of 295%, trailing Switzerland's 373%. In both countries, these high ratios can be attributed to the strong role of funded pensions. The importance of institutional investors is reflected in the asset volume that (autonomous) pension funds manage, namely 76% of GDP. In this respect, the UK is only surpassed by the Netherlands and Switzerland. Insurance companies account for 102% of GDP, the highest value in Europe.

Consequently, the bulk of British household portfolios is invested in life insurance and pension funds. With 56% of household portfolios comprising life insurance and pension funds, Britain shares the top spot with the Netherlands among European nations. Around one quarter of financial assets are held in bank deposits and 13% in equity and mutual funds. These shares are among the lowest in Western Europe. But in contrast to pension funds and insurance reserves in other countries, Britons are heavily invested in capital market products, mainly indirectly through institutionalised savings, like in pension funds. As a consequence, they were hit hard by the stock market downturn at the beginning of the millennium. It took almost five years for pension/insurance reserves to regain the level reached in the late 1990s. In the aftermath of the downturn, institutional investors cut back their equity exposure, but

60% remains invested in this asset class. The portfolios of institutional investors and thus of British households are vulnerable to current financial market turbulence. British households, however, have started to withdraw from the stock market and diversify in bank deposits. Bank deposits accounted for 27% of household portfolios in 2007, up from 19% in 1999.

Future market trends

Household assets

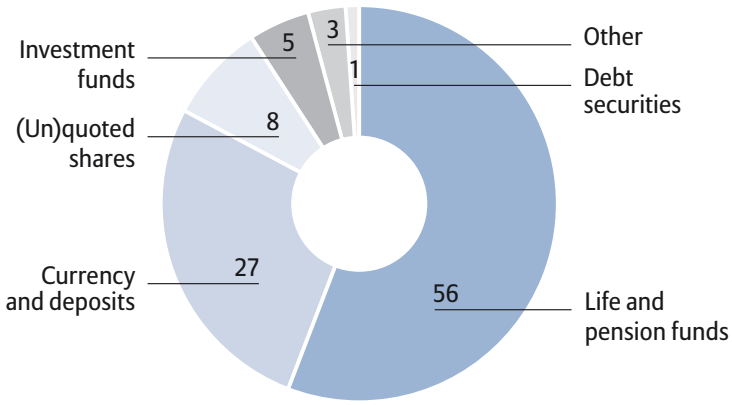
As the bulk of wealth formation in the UK is directed into pension and insurance assets, this segment dominates asset development of households. The small additional savings flow is divided into low risk investments such as bank deposits and into investments in equities and mutual funds. Overall, personal financial assets of British households are expected to rise to EUR 10.2 trillion by 2020, from EUR 5.56 trillion in 2007. This increase corresponds to an annual rate of 4.8%.

Pension investment assets[1]

The UK pension fund market currently has EUR 1.41 trillion in assets under management. Since they are still highly exposed to equity markets, pension fund assets will lose some of their value due to the market downturn (we assume a stock market performance of -30% in 2008 and +7% from 2009 onwards). Inflows will not be high enough to compensate for this downturn. In uncertain economic environments, companies are reluctant to pay extra money – in the form of single premium payments – into pension schemes. When it comes to saving, people also tend to hesitate when job and income prospects are clouded.

The outlook for pension savings is expected to improve markedly when the new legislation comes into force starting in 2012. In our projection, we have factored in the auto-enrolment process through increasing coverage. The effect on average contribution levels is not as obvious as the effect on coverage. Employers who are already contributing higher than required levels might reduce their contributions. In our view, the additional increase might not be as dynamic as it could be. Considering this extra money stream, however, we expect an increase of 5.9% p.a. for this already very mature market. At the end of the projection period assets should grow to EUR 2.98 trillion.

Household asset allocation, 2007 [%]



Source: National Statistics Office

Pension insurance assets

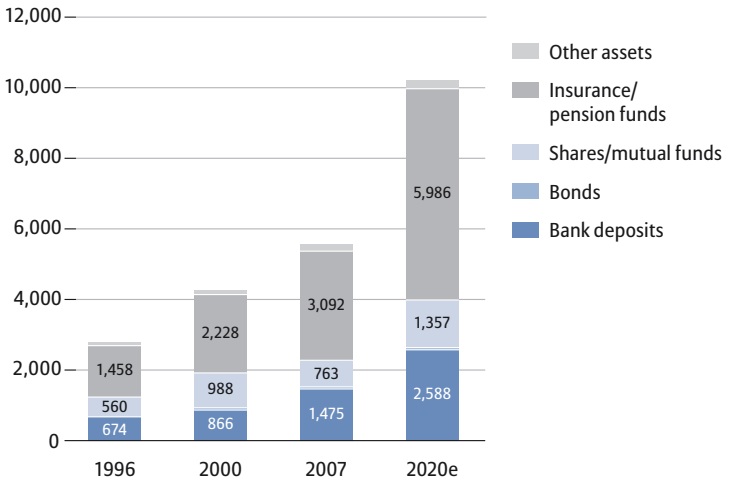
The life insurance market is even bigger than the pension investment market, as many arrangements are based on insurance contracts. The total life technical reserves amounted to EUR 1.68 trillion in 2007. Since insurance assets tend to be invested in more traditional forms, performance might lag pension asset growth. Growth will probably be lower here than in the pension market, given the market's already high level and maturing status. We expect assets to reach EUR 3.0 trillion by the end of 2020 (CAGR 4.6%).

Overall, we expect assets under management in the British retirement market to almost double their EUR 3.1 trillion level in 2007 to EUR 6.0 trillion by 2020, growing at an annual rate of 5.2% a year. The share of pension/insurance products within total financial assets is expected to rise from 55.6% in 2007 to roughly 59% in 2020.

1 Pension investment assets include the assets of autonomous pension funds and other (non-insurance type) occupational pension funds, while the assets of life insurance companies are referred to as pension insurance assets.

Current pension reforms in the UK are moving in a different direction than reforms in most other European countries owing to the country's unique starting position. While reforms in Continental Europe often try to encourage funded pensions in general, reforms in the UK strive to provide adequate pensions for lower-income earners, as its funded pension sector as a whole is already very mature. Attention is paid to lower-income earners as these are most affected by the low replacement rate of the public pillar. The first step towards improving this group's pension situation was achieved by introducing stakeholder plans and forcing employers to facilitate access to them. The planned auto enrolment into personal accounts is a second step. If implemented, these reforms will likely be the driving force of an otherwise mature pension market.

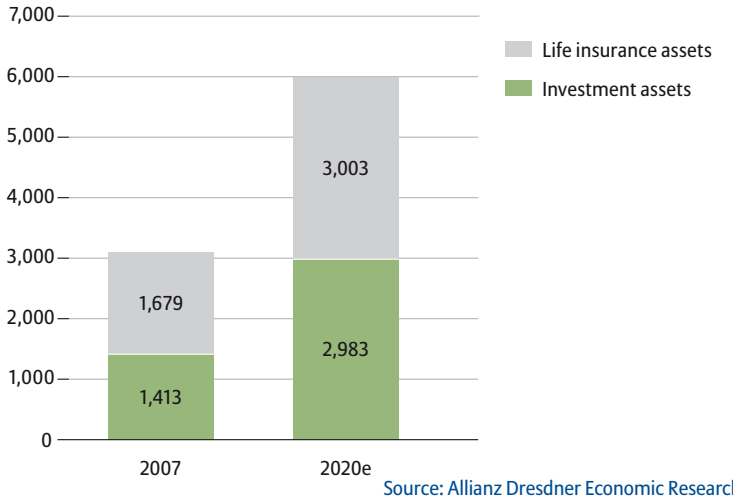
UK: Financial household assets [EUR bn*]



** Calculated on the basis of end-of-the-year exchange rates*

Source: National Statistics, Allianz Dresdner Economic Research

UK: Pension market development [EUR bn]



Source: Allianz Dresdner Economic Research

Appendix

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Pension assets under management projections [EUR bn]

	Investment Assets 2007	Insurance Assets 2007	Total 2007	Investment Assets 2020e CAGR	Insurance Assets 2020e CAGR	Total 2020e CAGR	Net increase
Austria	14.8	60.5	75.3	40.0 **7.9%**	126.0 **5.8%**	166.0 **6.3%**	90.7
Belgium	15.6	172.6	188.2	35.0 **6.4%**	374.0 **6.1%**	409.0 **6.2%**	220.8
Denmark	68.3	151.7	220.0	152.0 **6.3%**	285.0 **5.0%**	437.0 **5.4%**	217.0
Finland	19.0	110.0	129.0	42.0 **6.3%**	239.0 **6.2%**	281.0 **6.2%**	152.0
France	21.0	1,208.0	1,229.0	71.0 **9.8%**	2,570.0 **6.0%**	2,641.0 **6.1%**	1,412.0
Germany	358.3	716.0	1,074.3	684.0 **5.1%**	1,235.0 **4.3%**	1,919.0 **4.6%**	844.7
Greece	1.4	6.4	7.8	8.3 **14.8%**	34.0 **13.7%**	42.3 **13.9%**	34.5
Ireland	86.6	77.7	164.3	197.0 **6.5%**	136.0 **4.4%**	333.0 **5.6%**	168.7
Italy	57.7	377.4	435.1	172.0 **8.8%**	742.0 **5.3%**	914.0 **5.9%**	478.9
Netherlands	759.3	163.6	922.9	1,383.0 **4.7%**	253.0 **3.4%**	1,636.0 **4.5%**	713.1
Norway	19.5	85.0	104.5	42.0 **6.1%**	188.0 **6.3%**	230.0 **6.3%**	125.5
Portugal	21.5	41.3	72.8	46.0 **6.0%**	104.0 **7.4%**	150.0 **6.9%**	87.2
Spain	82.0	134.0	216.0	229.0 **8.2%**	336.0 **7.3%**	565.0 **7.7%**	349.0
Sweden	27.0	176.5	203.5	78.0 **8.5%**	403.0 **6.6%**	481.0 **6.8%**	277.5
Switzerland	361.0	121.0	482.0	542.0 **3.2%**	147.0 **1.5%**	689.0 **2.8%**	207.0
UK	1,413.0	1,679.0	3,092.0	2,983.0 **5.9%**	3,003.0 **4.6%**	5,986.0 **5.2%**	2,894.0
Total	**3,326.0**	**5,280.7**	**8,606.7**	**6,704.3** **5.5%**	**10,175.0** **5.2%**	**16,879.3** **5.3%**	**8,272.6**

Comparable data for Luxembourg are not available

Source: OECD, Central Banks, national statistics, CEA, Forecasts: Allianz Dresdner Economic Research

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