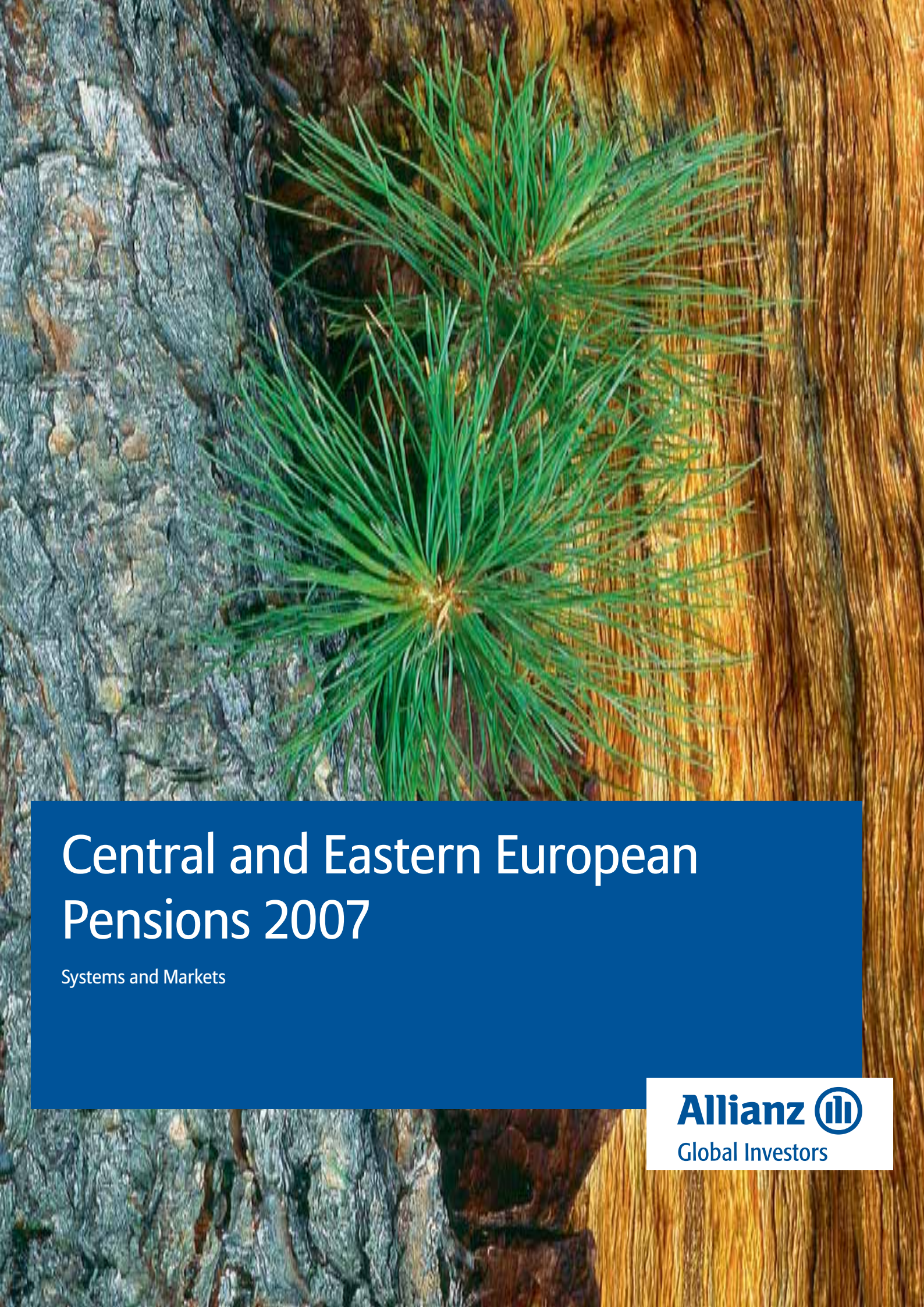


Central and Eastern European Pensions 2007

Systems and Markets

Allianz Global Investors

Content

The provision of retirement income is currently a hot topic all over the world, particularly in countries where the population is quickly getting older.

Ageing populations are a major challenge for countries that rely mainly on state-run, pay-as-you-go pension systems. This is because contributions either rise to unacceptable levels, or benefits decrease to the point that retirees are no longer guaranteed a decent standard of living.

The present study is Allianz Global Investors' second on pension market development in Central and Eastern Europe. After the fall of the Iron Curtain, governments across the region faced economic upheaval and unfavourable demographic development, both of which had a crippling effect on state-run pension systems. Some CEE countries have felt the impact of demographic trends even more than their Western European counterparts, and populations in the region will continue to age rapidly in the coming decades. As a result, pension system reform has made its way to the top of the political agenda, with structural reforms being introduced in most countries. In many cases, reforms in CEE have been more radical and courageous than in Western Europe, with Eastern European countries introducing mandatory funded pension pillars of the defined contribution type. In addition, some countries have drastically reduced public pension provision.

In light of longer life expectancy, diversifying sources of retirement income has become vital to reduce the risk of old-age poverty. With its reliance on funded pillars, CEE countries have set an inspiring example for their Western neighbours. Indeed, CEE has become a promising market for the asset management and insurance industry, as asset management solutions are vital for accumulating pension assets.

This study aims to analyse CEE pension systems and their market potential. In the first part of the study, we analyse macroeconomic and demographic developments in CEE. This is followed by an overview of the main pension, regulatory and market trends in the region. We discuss all CEE states that are members of the European Union, including new members Bulgaria and Romania, as well as accession candidate Croatia. To conclude the first part of the study, we contribute to the discussion on asset management solutions for defined contribution plans by analysing lifecycle models.

The second part of the study contains individual country profiles that provide detailed information on each country's pension market. We investigate the design of pension systems in CEE by analysing each pillar, discussing pension fund regulations, exploring the pension markets and projecting future potential for each country.

We hope that that this study will contribute to a better understanding of the new pension systems' mechanisms and of market development in CEE, and we look forward to a fruitful debate.

Brigitte Miksa,
Head of International Pensions
Allianz Global Investors AG

Preface

Introduction

Demographic and Macroeconomic Developments in CEE Countries

The fundamental things apply – as time goes by. One of these fundamental things is the ageing of populations. In many parts of the world, people are living longer lifes as fertility rates drop. Central and Eastern Europe (CEE) is no exception. The population structures of the 10 new EU member states from CEE in particular will face a major transformation in the coming years. In some cases, changes will be even more pronounced than in the EU-15 and the rest of the world. Fertility rates have declined sharply since the collapse of communism, while longevity has reached levels almost comparable to Western Europe.

Together, these two trends will result in a substantial increase in the old-age dependency ratio, the ratio of the population aged 65 and over to that aged 15 to 64. This figure tells us how many pensioners (over 65) there are for every 100 people of working age (15-64). At the moment, the ratio in CEE is around 20, which means that there are 20 retirees for every 100 people of working age. That number is expected to grow to 33 in 20 years time and to 50 in 2050. This means that two rather than five people of working age will have to support one retired person.

Demographic change is only one of many reasons why CEE countries have redesigned their pension systems over the past 15 years. Above all, the necessity to adapt the social security system to the new economic environment was far more pressing than demographic considerations. To ensure that the market economy could thrive, the socialist-style social system had to be reformed. For example, many CEE countries once had pension systems that allowed retirement at age 55 and offered generous benefits. Today the CEE countries, their economies and pension systems look very different compared to 15 years ago. The prospects for this region and its pension markets are the subject of this study. After some introductory remarks, we will look at CEE countries' economies in detail. More particularly, we will address the close interaction between demographic and economic development and the new EU members' prospects with regard to membership in the European Monetary Union (EMU), which will be of great importance for investors.

The economy and the pension system

Pension systems are always closely related to the economy. With pay-as-you-go (PAYG) systems, the link is clear. In the most common case, employees pay contributions directly out of their salaries. Returns depend on the number of employees, the wage level and the contribution rate. Whenever the number of contributors decreases, be it for demographic reasons or because of an economic downturn and rising unemployment, the pension system suffers the consequences. Short-term remedies include contribution rate hikes or tax subsidies to the pension system. In the long term, however, pension benefits usually end up being trimmed. Tax-financed pension schemes operate along the same lines. Ultimately, the development of the national tax base, which is closely related to economic performance, determines the generosity of the pension system.

Funded systems operate differently. In principle, the pension is determined by the funds invested and the return earned on these investments, as is the case with defined contribution systems in the countries under consideration. Whereas a PAYG system operates domestically, funded pensions can be invested abroad, thus decoupling returns from domestic

economic performance. Nevertheless, contribu tions or inflows still have to be earned at home. In this respect, the different pension systems are similar. Domestic economic performance and income development determine the amount that can be set aside for old age, either for the individual's future in a funded system or the current pensioners in a PAYG system.

It should be noted that pension funds are frequently subject to constraints when it comes to investment decisions. If they are limited to domestic investments, the difference between funded and pay-as-you-go systems gets smaller, and ceases to exist entirely if pension funds are required to invest their money into national government debt. Under such circumstances, implicit government debt is changed into explicit government debt that still has to be serviced by taxes. Domestic investment, for instance financing infrastructure to improve long-term growth prospects, makes sense when decent returns can be earned at home. This is particularly true for the new EU member states attempting to catch up with the rest of the Union. In any case, the proper risk/return structure, given the liabilities of a pension fund, should be left to fund management. In CEE countries, return potential is high thanks to sound economic prospects. New EU members and neighbours such as Croatia have gained good economic growth opportunities. EU membership – or in the case of Croatia EU neighbourship – fosters economic growth through trade and members benefit from generous subsidies.

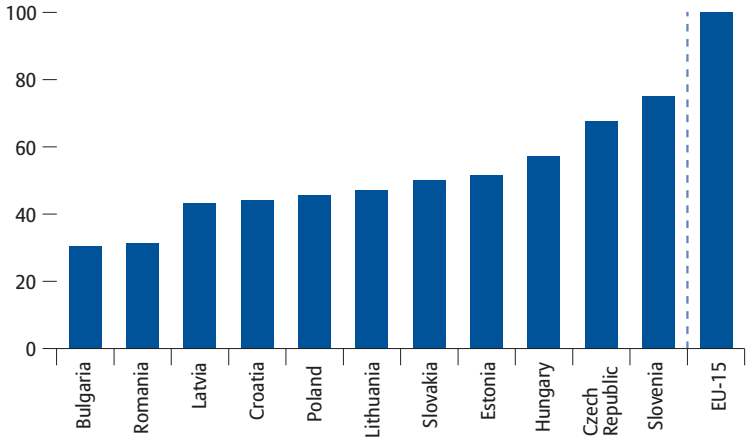
Catching up

On January 1, 2007, Romania and Bulgaria joined the European Union, boosting the number of member states from CEE to 10. Poland, the Czech Republic, Slovakia, Slovenia, Hungary and the three Baltic states have already been members of the EU for three years, joining on May 1, 2004. For the EU as a whole, the impact of the 2004 enlargement (Malta and Cyprus were also in this round) on key macroeconomic aggregates was relatively modest due to the relatively small economic weight of the new members. The countries added around 5% to the Union's GDP, measured at current prices. However, the population of the EU increased by about 20%. The accession of Romania and Bulgaria has had similar effects, but on a much smaller scale.

In order to compare income levels across countries in a meaningful manner, varying price levels have to be considered, which can be done by measuring GDP in purchasing power parities. This approach adjusts the exchange rate of currencies to equalize the price of a given basket of goods in different countries. The comparison of standards of living is usually closer to the truth than a comparison using market exchange rates. However, purchasing power parities are not flawless and in order to assess a country's economic weight, market exchange rates are more suitable. A glance at GDP per capita figures shows that the new CEE members are still very poor compared to the EU-15. Only the per capita GDPs of Slovenia and the Czech Republic show purchasing power standards above that of Portugal, the poorest of the EU-15 countries.

Poor regions qualify for various EU funds, and as the EU's financial outlook for the budget period spanning from 2007 to 2013 shows, net transfers into the countries range between 1.5% and 3.5% of their respective GDP, depending on the economic situation of the country in question. For Croatia the situation is different, since it has still to become a EU member. For the others,

GDP per capita 2005 purchasing power parities [% of EU-15 average], EU-15 = 100



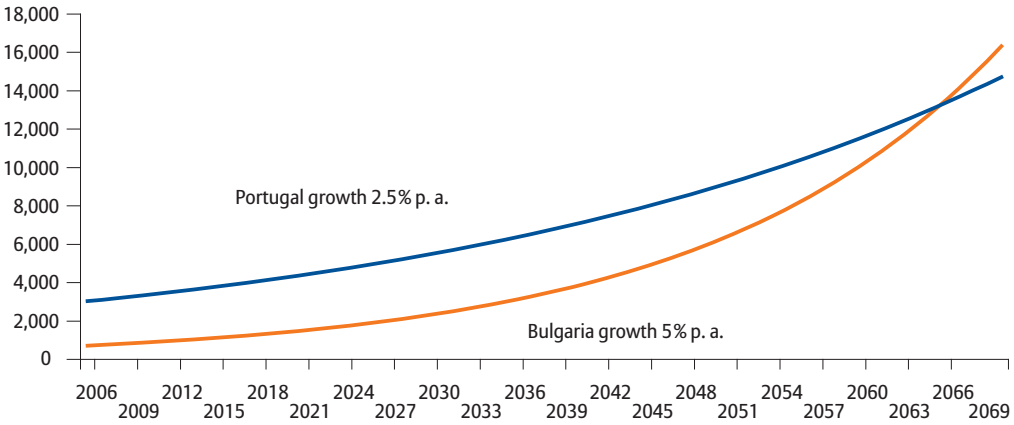
Source: Eurostat

substantial subsidies are granted in the form of structural and other funds from Brussels, coupled with free access to the EU market. These funds will help accelerate the catching-up process that is well on its way in CEE. However, the discrepancies within the EU are enormous, and it will certainly take time for the CEE member states to close the gap to the EU-15. The graph above shows the development of per capita GDP in Bulgaria (the poorest of the accession countries) and Portugal (the poorest of the EU-15 countries) based on the hypothetical, but realistic assumption that Bulgaria's real per capita growth rate will be 5% and twice as high as Portugal's. In this scenario, it would take 60 years for Bulgaria to reach the same level as Portugal.

Since the EU average is higher still, it will take decades for the accession countries to reach the average level. Even Poland, the biggest economy of the CEE countries considered here, will need more than four decades to reach 75% of the EU-15 average, provided that its real GDP grows constantly at 4.5%, compared to 2.25% for the EU-15.

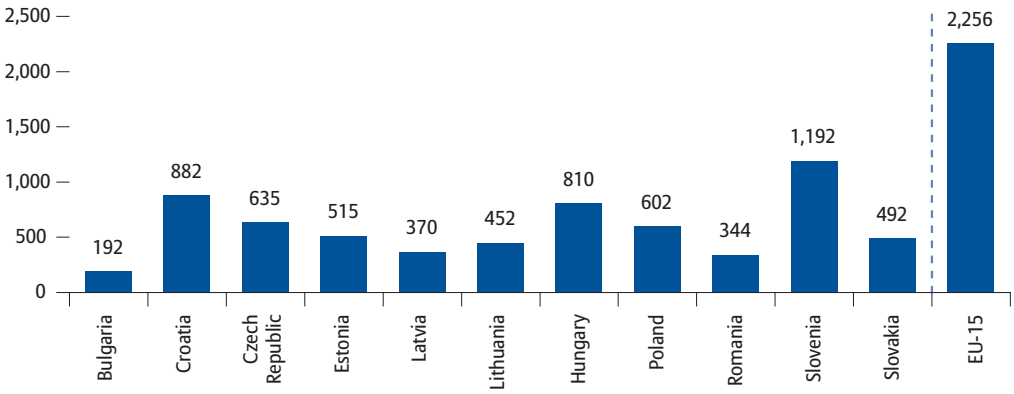
These simple projections show that the EU member states from CEE will remain relatively poor compared to the EU-15 for quite some time. However, this goes hand in hand with a lower cost of living and lower wages, which have attracted investment: many manufacturing companies have moved production to CEE to take advantage of a cheap, highly educated workforce. This, in turn, has helped to boost growth. The following table shows average gross monthly earnings in CEE countries compared to the EU-15 average. While the differences are striking, wages in these countries are rising fast, particularly for skilled labour. This means that the cost advantages that CEE countries offer will dwindle over time, as the gap between old and new member states narrows.

Hypothetical development of per capita GDP in Portugal and Bulgaria



Source: Allianz Dresdner Economic Research

Average monthly gross income 2005 [EUR]



Source: Eurostat, Allianz Dresdner Economic Research

GDP growth rates [%]

Country	1997–2005	2006	2007*	2008*	2009–2013*
Bulgaria	4.6	5.7	6	5.7	5.7
Croatia	3.3	4.6	4.3	4.1	4
Czech Republic	2.3	5.9	5	4.5	3.5
Estonia	6.8	11.4	8.7	7.3	4
Latvia	7.1	11.9	8.6	6.8	4
Lithuania	6.1	7.5	6.8	5.8	4
Hungary	4.3	4.9	2.2	2.3	4
Poland	3.9	5.7	5	4.7	4
Romania	2.8	7.2	6.3	6.1	7.2
Slovakia	4.1	8.3	7.9	6.2	8.2
Slovenia	3.9	5	4.3	4.1	3.5
EU-15	2.3	2.8	2.3	2.3	2

* Forecast

Sources: European Commission, Allianz Dresdner Economic Research

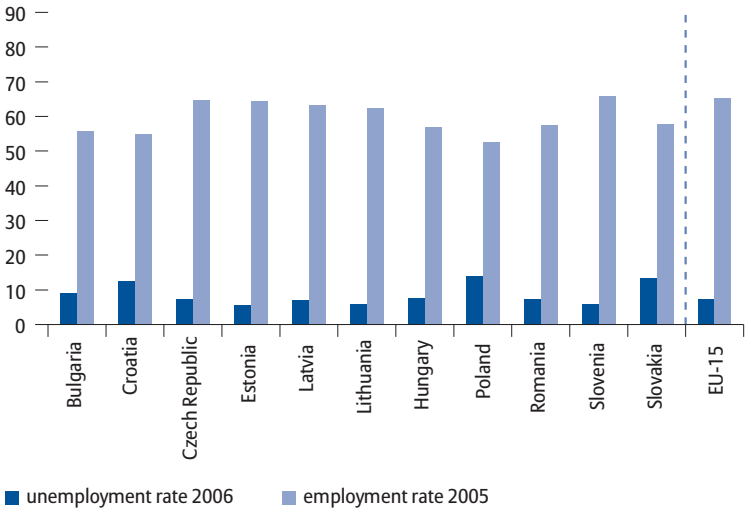
Member states with lower initial per capita income have grown faster, especially the Baltic countries and Hungary. At the same time real wages increased by around 3.5% in the new member states compared to 1% per year in the EU-15. Potential growth rates have averaged 3.5% since the late 1990s, demonstrating the CEE countries' highly favourable supply-side performance. This is also reflected in the growth forecasts depicted in the table above.

Labour markets

Structural unemployment is one of the major problems that CEE countries face. From 2001 to 2005, the labour market participation rate was around 65%, compared with an average of 73% in the EU-15. Poor employment performance has a disproportionate effect on specific age cohorts and groups. The employment rates of young, older and female workers in particular are relatively low. The following graph shows the unemployment rate in 2006 and the employment rate for 2005. The latter shows how many people aged 15 to 64 were employed compared to the total number of people in this age group. Only Slovenia showed a higher employment rate in 2005 than the EU-15 average, whereas unemployment was lower than the EU-15 average in several CEE countries.

Clearly, CEE countries have low labour force participation overall, but there are significant differences between them.

Employment and unemployment rates [%]



Source: Eurostat; 2006, 2005

While the Baltic states, the Czech Republic and Slovenia have employment rates similar to the EU-15 average, labour market participation rates in the other countries are considerably lower, most notably in Poland, Hungary and Romania. Higher participation rates could offset a small part of the demographically induced labour force decline.

The road to EMU

EU membership eventually means membership in the EMU. However, only Slovenia has been admitted so far. As recently as 2005, it seemed as though most of the countries that had joined the EU in 2004 would become EMU members by 2008 or 2010 at the latest. But things have changed dramatically since then. In the CEE countries considered in this publication, EMU membership is no longer as high on the agenda as it used to be. The reasons are manifold, among them national politics and the perceived consequences of EMU membership.

EMU membership is an issue for pension systems, too. While it has no direct effect on the pay-as-you-go part of the pension system, it does have implications for the funded part, which is becoming increasingly important in the CEE countries. Under EMU membership, exchange rate risk, which is manageable but costly to hedge, would disappear for investments in other EMU countries. Pension funds could find a broader set of assets to invest in without having to consider currency movements. Furthermore, EMU could make CEE capital markets even more attractive for foreign investors, increasing liquidity and – hopefully – supporting asset prices, a welcome effect for local pension investment managers.

For current EMU members, the common monetary policy is largely considered beneficial. However, the economic discrepancies between current members and CEE countries are considerable. At this stage, it is not entirely clear whether relinquishing control over monetary policy would be beneficial. Even though exchange rate movements against the Euro are already very limited, interest rate policy is still the task of national central banks. During the rapid catch-up process, the European monetary policy – which caters to EMU as a whole – may be too loose to keep local inflation under control. The extra degree of economic policy freedom that is retained by not being part of EMU could be very helpful for some time. Once the economic structures and cycles of the CEE countries are more closely aligned to those of current EMU members, the case for joining will be stronger.

Apart from the above-mentioned reasons for not joining, there are other obstacles that should be considered. With the signing of the Maastricht treaty in 1992, the foundations of European monetary policy were laid, and strict membership criteria established. These are:

- Exchange rate stability, meaning 2 years within the exchange rate mechanism without realignment;
- Inflation of no more than 1.5 percentage points above the average of the 3 EU countries with the lowest inflation;
- Long-term interest rates no higher than 2 percentage points above the average of the 3 countries with the lowest inflation;
- Sound public finances, meaning that government debt should not exceed 60% of GDP, and the budget deficit should be lower than 3% of GDP.

Exchange rate stability would not be a major obstacle to the countries under review. A notable exception, however, is Hungary. The Euro – Forint exchange rate was rather volatile in 2006, with a fair bit of speculation in the market. Currencies participating in the European Exchange Rate Mechanism II (ERM II) stayed within their corridors. The next table shows the exchange rate systems of the CEE countries.

Inflation is another area that could cause problems if the countries joined immediately. At the moment, most CEE EU countries would fail the Maastricht test. If the three EU countries with the lowest inflation in 2006 (namely Finland, Poland and Sweden) are considered together, the average inflation rate amounted to 1.4%. This means that the

Exchange rate systems in CEE countries

Country	Exchange rate system
Bulgaria	Currency board (Euro)
Czech Republic	Float
Hungary	Exchange rate band +/- 15%
Estonia	Currency board (Euro), ERM II
Latria	Currency board (Euro), ERM II
Lithuania	Currency board (Euro), ERM II
Poland	Float
Romania	Float
Slovakia	Float, ERM II

Source: Allianz Dresdner Economic Research

inflation criterion for new member states stands at 2.9%, and only Poland and the Czech Republic would pass the test. Inflation could be a problem for some time to come, as strong economic growth tends to keep inflationary pressure high.

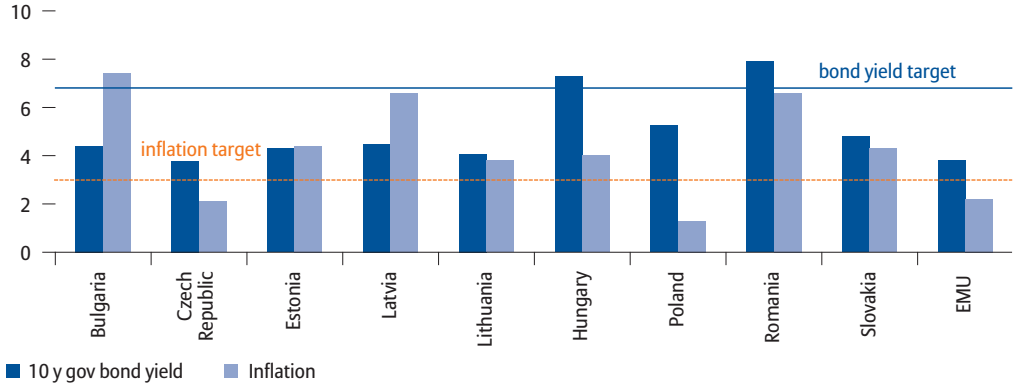
In most countries, interest rates are relatively close to the EMU benchmark. The average spreads on 10-year government bonds in 2006 were below 100 basis points for most countries. Only Poland, Romania and Hungary are outside this corridor. Obviously, capital markets are not convinced that these countries will join EMU in the near future. The latter two countries would even fail to meet the interest rate criterion. In 2006, the 10-year government bond benchmark yield for the EU was 3.8% – with 7.3% and 7.9%, Hungary and Romania were substantially above it.

The public finance criterion has not been a major hurdle yet. In practice, general government debt is not an issue in CEE countries. Apart from Hungary, all of them have very low levels of debt. Budget deficits, however, could become a problem for some countries. Here, too, Hungary stands out, with a budget deficit of 10.1% in 2006 according to EU estimates, though tough fiscal measures will likely help reduce this year's deficit down to 7% of GDP. The country aims to get its budget in line with the Maastricht criteria by 2010, but this will require resolute reform implementation.

Hungary is not the only country with a budget deficit exceeding 3%. Poland, the biggest CEE economy, also has its share of problems. While last year's budget deficit turned out to be substantially lower than expected, there is still cause for concern. The European Commission argues that corrections to budget deficits are insufficient; in fact, last year's positive outcome could largely be attributed to high revenues that resulted from striding economic growth. According to EU rules, Poland has to fully incorporate the costs of pension reform into its budget, which it has not yet done. For this reason, this year's deficit will probably stand at 3.5% of GDP. That is roughly the same figure we expect for the Czech Republic in 2007.

Except for Slovenia, none of the CEE countries qualified for EMU membership in 2006. However, as discussed above, early EMU membership should not be an aim in itself. A country must be ready for membership, both economically and politically. The larger CEE countries such as the Czech Republic, Hungary, and Poland are certainly not there yet, nor are new members Romania and

Inflation and bond yields 2006 [%]



Source: Eurostat

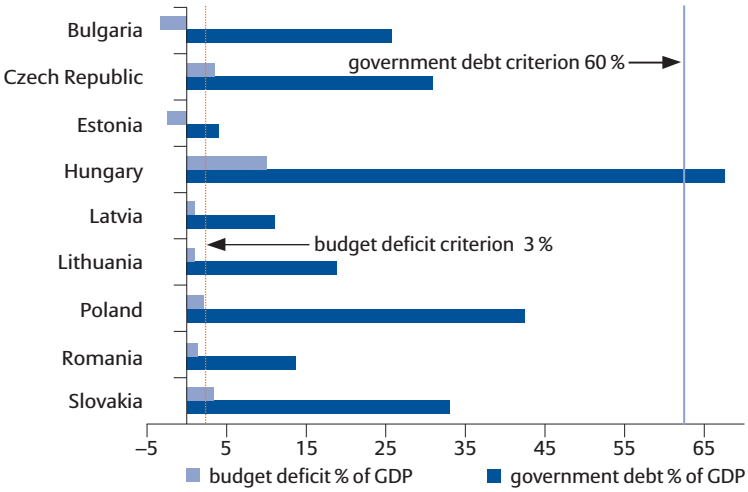
Bulgaria. It is in all of these countries' best interest to postpone EMU membership. Allianz Dresdner Economic Research forecasts that Slovakia will be the next country to join the EMU in 2009. The following table provides the forecasts for EMU accession as of spring 2007.

Expected EMU membership

Year	Country
2009	Slovakia
2010	Estonia, Lithuania
2011	Latvia, Bulgaria
2013	Czech Republic, Poland, Romania
2014	Hungary

Source: Allianz Dresdner Economic Research

Public finances



Source: EU Commission Forecast

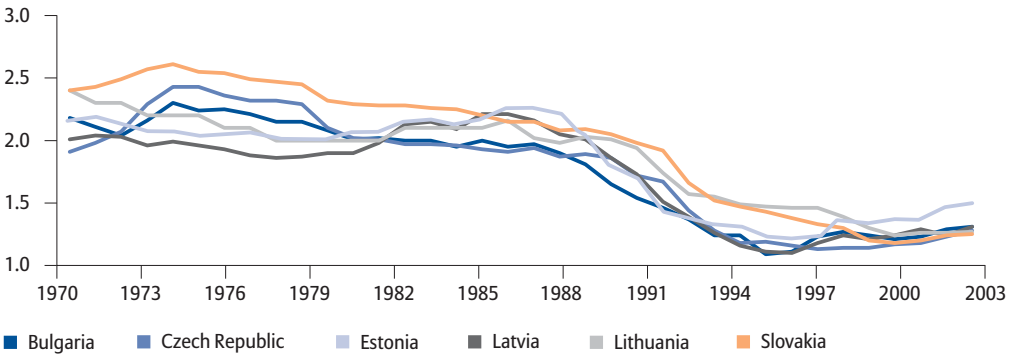
Demographic development

The demographic situation in the CEE countries is marked by a steep decline in fertility, which began in the 1970s and accelerated in the early 1990s after the collapse of the Soviet Union. This is not surprising, given that times of increased economic insecurity frequently lead to sudden changes in birth rates. Between 1990 and 1995, fertility in the 11 CEE countries considered in this publication declined much more sharply than in the rest of Europe. Currently, the fertility rate in these countries lies between 1.24 and 1.42 children per woman; to keep the population constant, a fertility rate of roughly 2.1 children per woman would be necessary. The drop was particularly dramatic in Latvia, Estonia and the Czech Republic. Croatia, Slovenia and Hungary were less affected, as these countries were less economically dependent on the former Soviet Union.

Much like in the rest of the world, the decline in fertility coincided with increasing longevity. Men in the Czech Republic and Slovenia benefited more than their counterparts in other CEE countries as their life expectancy at birth increased by 5.3 and 4.6 years between 1990 and 2005 in each country, respectively. In the major EU-15 countries – Germany, France, Italy and Spain –, the increase was between 4 and 4.2 years in that period.

The situation for women is similar. Here, too, Slovenia and the Czech Republic showed the highest increases for CEE countries between 1990 and 2005 with 3.9 and 3.7 years, respectively. Figures for the EU-15 countries range between 2.9 and 3.6 years. Longevity development in the other CEE countries, however, was not nearly as positive, and was generally well below four years. To see the big picture, it is helpful to look not only at changes in longevity but also at overall life expectancy, and here it is clear that CEE countries are well below the EU average.

Fertility [children per woman]



Source: Eurostat

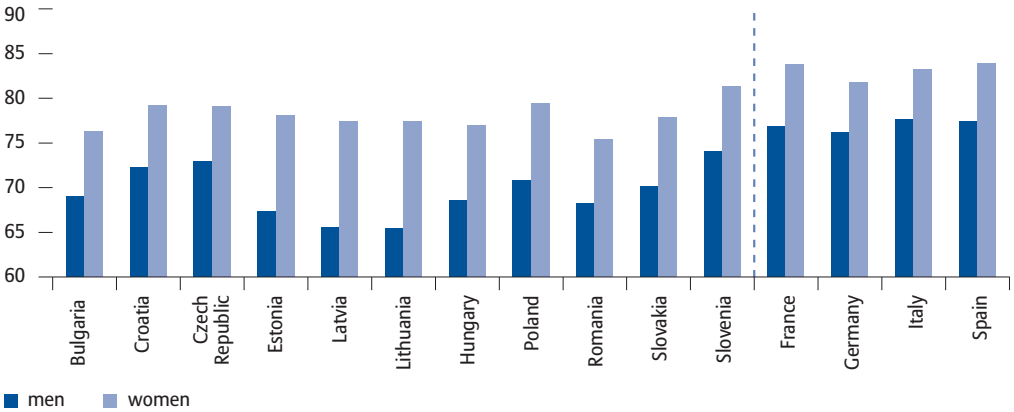
In the absence of any sizeable immigration, fertility decline is leading to shrinking populations, while increasing life expectancy is boosting the average age. The age group comprising people over 65 is the only one expected to grow in the future. Overall, the population of these 11 countries is forecast to shrink by about 15%, or roughly 16 million people, by 2050. In absolute terms, Poland and Romania are among the worst hit, as they will each lose about 4.5 million inhabitants by 2050, representing 10% and 20 % of their respective populations. The situation is even worse in Bulgaria. According to Eurostat, the country will lose roughly a third of its current population within the next 40 to 45 years.

The old-age dependency ratio provides a good indication of a country's demographic situation and the resulting pressures on the pension system. Currently the old-age dependency ratios in the CEE countries under consideration range between 16 and 26. With a ratio of about 16, Slovakia has the lowest old-age dependency, while Croatia has the highest with a ratio of 26. In 2050, these ratios will be much higher still. In Bulgaria, there will be 60 pensioners for every 100 people of working age. The figure will be lowest in Croatia and the Baltics, with about 42 to 45 pensioners, while the EU-15 average will be around 53. The following chart illustrates these developments. It must be taken into account that the EU-15 average is pushed higher by Italy and Spain, which have the two fastest-ageing populations. The more populous CEE countries are also ageing fast, making their demographic situation even worse than the EU-15 average.

Given the rapid increase in old-age dependency ratios, CEE countries will find it almost impossible to run sustainable pay-as-you-go pension systems. All of the countries have reacted to the demographic threat in various ways and many introduced funded pension elements to their systems. In this report, we have put the spotlight on 11 different pension systems that rely on funded pensions to varying degrees.

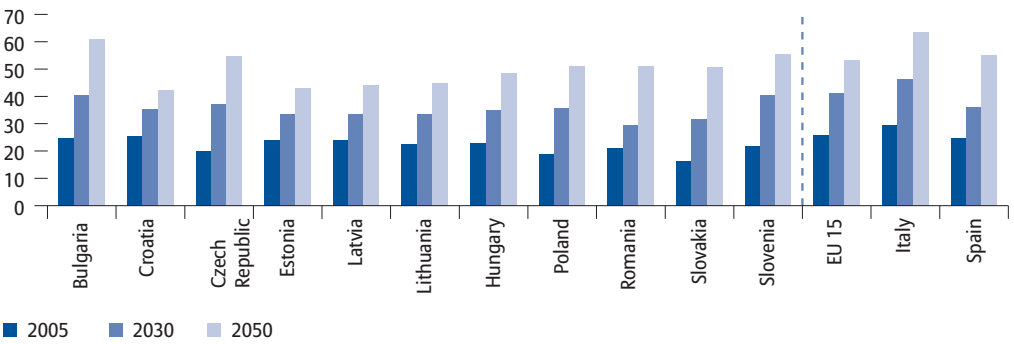
Dr. Jürgen Stanowsky,
Allianz Dresdner Economic Research

Life expectancy [years]



Source: Eurostat

Old-age dependency ratios*



* Ratio of over 65-year-olds to 15–64-year-olds; source: Eurostat

Pensions in Central and Eastern Europe: Reforms, Regulation and Markets

Reforming Central and Eastern European pensions

After the fall of the Iron Curtain, Eastern European states faced the daunting task of reforming their outdated pension systems. At the time, the systems in place were not compatible with demographic developments or the new economic environment. Under the old regime, pensions were the exclusive responsibility of the state. Retirement benefits depended on years of service, not on contributions paid, so that a link between contributions and benefits was more or less non-existent. Retirement age was low, and certain occupational groups enjoyed privileges. Early retirement was widespread and was extensively used as a means of reducing the workforce during the transition period.

Faced with this situation, all CEE countries initiated similar reform strategies in the 1990s that applied to the first pillar of their pension systems. Parametric reform of the pay-as-you-go (PAYG) system was essential to cope with enormous financial pressure and secure the solvency of public pensions. Sooner or later, every country increased the retirement age, reduced incentives for early retirement, changed the benefit formula to establish a stronger link between contributions and benefits, scaled back privileges for certain occupational groups and increased the required contribution periods. First-pillar reforms in Poland and Latvia were the most far-reaching. These two countries introduced a notional defined contribution (NDC) system in the first pillar. NDC systems impose the logic of funded systems on public pension schemes by giving participants a hypothetical account containing all contributions made throughout their working lives, credited at a certain rate of return. At the time of retirement, pension benefits are calculated by dividing the sum accumulated in the notional account by cohort life expectancy. In this way, NDC systems establish a strict equivalence between contribution and benefits.

In eight of the eleven CEE countries included in this study, reforms went further than that and introduced mandatory second pillar schemes with fully funded individual accounts of the defined contribution (DC) type. Hungary was the first country to introduce a second pillar along these lines, followed by Poland. Most recently, Slovakia introduced a second pillar and Romania is in the process of doing so. This is a radical reform step and has been inspired by the World Bank model of pension reform, in hopes that a fully funded second pillar will help diversify retirement income and allow more people to participate in capital markets. This, in turn, will likely push domestic capital market development.

The only countries that have not introduced funded second pillar systems are the Czech Republic, Slovenia and Lithuania. However, Lithuania has implemented a funded second pillar, which works in the same way

Overview of the pension systems after the reforms.

	NDC system	Reformed PAYG system
Mandatory second pillar	Poland Latvia	Bulgaria Croatia Estonia Hungary Slovakia Romania
Voluntary second or voluntary third pillar only		Lithuania Czech Republic Slovenia

as the second pillar in the other countries, except that participation is voluntary. The Czech Republic relies on first pillar public pensions and voluntary savings in the third pillar, while Slovenia runs voluntary occupational schemes in the second pillar, similarly to Western European countries. Except for the latter two countries, the third pillar of voluntary pension savings remains fairly underdeveloped in Eastern Europe.

After the reforms, most CEE countries now have a three-pillar system with a reformed first pillar, a mandatory second pillar made up of funded individual accounts and a third pillar comprising voluntary pension savings. The pillar terminology applied in CEE is different from the common OECD classification, which defines the first pillar as the state pension system, the second as occupational pensions based on employment contracts and the third as personal pension plans. While this classification is suitable for Western European and other industrialised countries, it is hard to apply it to CEE pension systems.

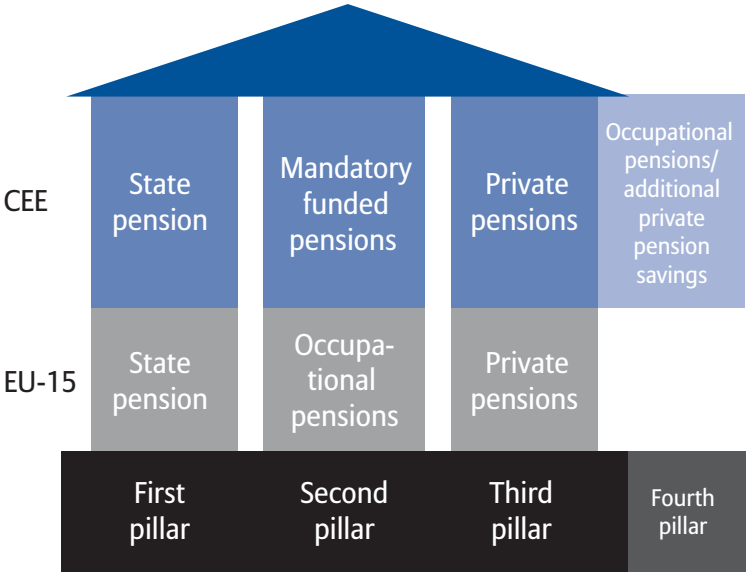
As already mentioned, the CEE countries based their pension reform strategies on the World Bank model, which is why we have chosen to follow the World Bank classification in this study. The main difference lies in the second pillar, which comprises individual DC accounts in CEE, but (mainly) voluntary occupational pensions in Western Europe. In CEE, voluntary employer contributions to employee pension arrangements are part of the third pillar, but contributions are made to individual accounts, not pension funds established by a firm or industry. Some CEE countries recently established a fourth pillar that aims to generate more employer involvement in pension provision, or simply allow people to set more money aside for retirement. The topic will be discussed in greater detail later on in this study. The adjoining graph illustrates the differences between CEE pension systems and those prevalent in Western Europe.

The funded second pillar systems in Eastern Europe were introduced by way of the carve-out method, meaning that social security contributions stayed at the same level as before, but a certain share was redirected to the funded second pillar. An exception to this rule is Estonia, where contributions were increased to achieve higher contributions to second pillar schemes. Some countries, such as Latvia and Lithuania, have allowed the proportion of the second pillar share to gradually increase; also Romania will do so in the future.

In most cases, participation in the second pillar was made mandatory for new labour market entrants, while existing employees up to a certain age could choose whether to join or not. Employees near retirement usually could not join, since the capital they could still accumulate was not sufficient to cover appropriate retirement benefits. Redirecting contributions to the second pillar implies financing problems for the first pillar, which previously received the full share of contributions. The losses in revenue for the first pillar mainly depend on the number of contributors to the second pillar and the share of contribution redirected. World Bank estimates for 2004 suggest that revenue losses in the public pillar ranged between 0.3% and 1.3% of GDP in CEE. In order to offset these losses, countries such as Bulgaria, Poland and Slovakia established a demographic reserve fund to be filled with privatisation revenues.

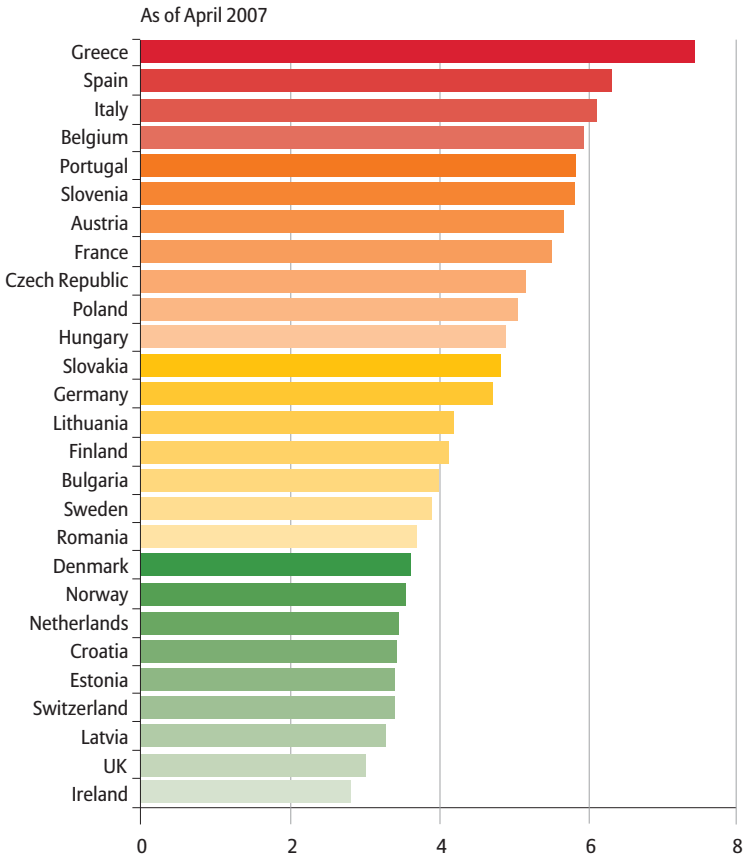
Overall, social security contributions are sizeable in Central and Eastern Europe, and

Pension pillar classification in CEE and Western Europe



employers often pay the bulk of these. Contribution rates to the second pillar vary significantly, ranging from 4% in Latvia to 9 % in Slovakia. Total net replacement rates in CEE are relatively high. Net replacement rates are the ratio of pension entitlements – net of taxes – to earnings, net of taxes and contributions. Net replacement rates are nearly always higher than gross replacement rates, mainly because retirees have lower personal income taxes than before and typically pay low social security contributions, if any at all. In the present context, net replacement rates refer to an employee with average earnings. The net replacement rates were calculated by the European Commission and refer to the retirement income in the first year of retirement, divided by income during the last year of employment. Since the pay-out phase of the funded second pillar has not yet started, the rates refer to the first pillar. Over time, the replacement rate of the first pillar will decline and the funded pillar will account for a sizeable amount of retirement income.[1]

Reform Pressure Gauge*



* Scale from 1–10: 1 low reform pressure, 10 high reform pressure

Pension contribution rates, second pillar share, and replacement rates 2006

	Employer contribution [%]	Employee contribution [%]	Second pillar contribution [%]	Net replacement rate 2005 [%]
Bulgaria	14.95	8.05	5	n. a.
Croatia	0	20	5	n. a.
Czech Rep.	21.5	6.5		79
Estonia	20	2	6	41
Hungary	18	8.5	8	102
Latvia	14.5	5.5	4*	78
Lithuania**	21.2	2.5	5.5	55
Poland	9.75	9.75	7.3	78
Romania	20.5	9.5	2***	n. a.
Slovakia	14	4	9	63
Slovenia	8.85	15.5		82

* gradually increasing ** voluntary second pillar *** once established, gradually increasing

[1] Replacement rates can be measured in different ways. The World Bank uses retirement income from the mandatory pillars – including the funded second pillar – as a share of individual average lifetime earnings. It calculates future pension entitlement based on current systems' rules, thus considering the future contribution of the funded pillar. By applying this methodology, it shows that average earners in Bulgaria (will) have a net replacement rate of 75 % while Croatian earners get 62 %. The average net replacement ratio of the mandatory pillars in CEE (excluding Slovenia and Romania) will amount to 73.3 %, which is higher than the 67.9 % average for OECD countries. This is partly a result of a more favourable tax treatment of pensions in CEE. Furthermore, since mandatory systems and thus the second pillar in CEE countries are included, this methodology tends to underestimate the replacement rates in Western countries, where pensions other than first pillar pensions are normally voluntary and thus not included.

Allianz Pension Reform Pressure Gauge

The ability of state pension systems across Europe to cope with demographic change varies considerably. The Allianz Reform Pressure Gauge attempts to illustrate the differences and takes developments determining the future stability of pension systems into account. These developments include demographic change and expected changes in the old-age dependency ratio. The generosity of the current PAYG pension system and reforms of first pillar pensions that have already been passed are also included, as are supplementary systems. Finally, the state budget is taken into account to assess the feasibility of financing deficits in the pension system.

The result of this exercise is shown in the chart. As most CEE countries have introduced a mandatory funded part to their pension systems, they are on the right track. But much still needs to be done to remove the legacy of former pension systems. For instance, the retirement age is still low, even if it is rising in many countries, early retirement is still widespread, and some countries' supplementary pension elements continue to be voluntary, possibly leaving a substantial part of the low income workforce uncovered. If nothing is done to change this situation, people with low incomes will be forced to rely on modest state pensions in the future. Of the Eastern European countries, Latvia and Estonia are well-placed to cope with demographic change, on a par with Ireland and Great Britain.

Certainly, the reforms initiated in CEE lessened financial pressure on the countries' pension systems and made them more sustainable. The Allianz Reform Pressure Gauge, which calculates the sustainability of pension systems and the resulting reform pressure, shows that most CEE countries are ranked in the mid-range in terms of necessity for pension reform.

Regulating pension funds

Pension funds, especially those in the mandatory pillar, are heavily regulated in CEE. Fees, disclosure, number of funds offered and investment are the main regulated areas. Investment regulation is the area with the biggest impact on pension funds and asset managers, as it has a direct impact on asset allocation and, consequently, on the performance of pension fund assets.

Generally, there are two main principles of investment regulation, the prudent person principle and quantitative restrictions. The prudent person principle is applied in Anglo-Saxon countries and increasingly in Western Europe; it is the most liberal form of investment regulation. It is based on the premise that pension funds or asset managers are obliged to invest in the same way as a prudent investor would for himself, particularly with regard to diversifying assets. In contrast, in continental Europe, quantitative restrictions are still prevalent. These specify the financial instruments that pension funds can invest in as well as the maximum limits of certain asset classes in the portfolio.

Central and Eastern Europe has opted for quantitative restrictions as a means of regulating pension funds. In many CEE countries, there are limits for equity holdings and other financial instruments, as well as for the share of foreign assets in the portfolio. From the viewpoint of capital market theory, these limits are not without problems. It is argued that restrictive maximum limits for certain financial instruments, especially equity, render pension funds inflexible by constraining asset allocation and thus the upside potential of pension funds. If equity limits are overly restrictive, they may result in suboptimal asset performance, because pension funds cannot sufficiently take advantage of the higher-yielding equity markets. Over the last 100 years, equities performed four percentage points better than bonds on average.

Caps on international investment can hinder effective asset allocation by impeding an appropriate diversification across countries. In the case of restrictive

regulations, asset performance is very dependent on domestic markets and economic cycles, making investment risk higher than it needs to be.

However, policy-makers have been faced with a trade-off between the objective of local capital market development and optimal asset allocation of pension funds. It was hoped that the funded pension system would lead to quantitative and qualitative capital market development. Qualitative improvements refer to the generation of „institutional capital", which includes better legal and regulatory frameworks and more professional investment management, more transparency and better governance structures. To achieve these goals, pension assets should, at least to a certain degree, flow into national financial markets. However, substantial inflows of pension assets may result in imbalances between supply and demand, particularly when local capital markets lack liquidity, which could lead to distortions in asset pricing. Hence, the trade-off between the desire to develop local capital markets and efficient pension fund investing is a delicate matter and policy-makers need to strike a balance.

Minimum return guarantees are another regulatory instrument that is often applied in Eastern Europe and elsewhere. Minimum return guarantees can take the form of absolute guarantees. This has been the case in the Czech Republic, where pension funds have to generate positive returns every year. Or, like in Poland, they can take the shape of relative performance goals, where a benchmark must be met that is based on the performance of all pension funds. For pension fund members, minimum return guarantees have the advantage that retirement savings are predictable in the case of absolute return guarantees. And in the case of relative return guarantees, the risk of choosing a poorly performing fund is minimised.

Main investment limits and return guarantees in the second pillar

	Max. foreign investments [% of assets]	Max. equity share [% of assets]	Absolute return guarantee	Relative return guarantee
Bulgaria	15	20		yes
Croatia	15	30		yes
Czech Rep.*	None for OECD countries	None	yes	
Estonia	None for EFTA and OECD countries	Up to 50, depending on type of fund chosen	–	–
Hungary	30	None	–	–
Latvia	None for EU/EFTA countries	Up to 30, depending on type of fund chosen	–	–
Lithuania**	None	Up to 100, depending on type of fund chosen	–	–
Poland	5	40		yes
Romania***	n.a.	50		yes
Slovakia	70	Up to 80, depending on type of fund chosen		yes
Slovenia	None for OECD countries	30		yes

* third pillar ** voluntary second pillar *** expected to start in 2008

In some regards, therefore, retirement planning is becoming easier. Nevertheless, there is a trade-off. Capital market theory argues that the necessity to secure short-term profitability may lead to homogeneous investment strategies in the pension fund market. This „herding" effect may result in similar performances of pension funds, thereby reducing the number of real choices for potential and existing pension fund members. A second related problem is that effective longer-term investment strategies cannot be pursued if the guarantee applies to annual minimum returns. In this case, pension funds must sacrifice long-term returns for short-term profitability. In brief, quantitative restrictions and annual minimum guarantees are somewhat problematic, as both limit the holdings of volatile assets, including equities, which have higher long-term returns, but can have negative returns in individual years.

In recent years, some countries have relaxed their investment regulations, especially with regard to equity investments. This has been the case in Hungary, for instance, which had a 50% limit on equities until 2004, and in the Czech Republic's third pillar, where a 25% equity limit was in place until the same year. While it is too early to speak of a trend, these two examples indicate that the increasing maturity of pension systems and capital markets might lead to a loosening of regulatory restrictions.

Financial assets and their allocation in CEE countries

Not only is there a considerable gap between per capita GDP among old and new EU member states, there are also major discrepancies in terms of financial assets.[2] While the financial assets of households in the EU-15 amount to 215% of GDP on average, in Eastern Europe they range between 52% of GDP in Latvia and 100% of GDP in Estonia. This means in per capita terms that each citizen of an EU-15 country has average financial assets of EUR 57,200. In contrast, Latvians have assets worth EUR 2,965 at their disposal, while Slovenians, the richest country in per capita terms, have EUR 13,140. The modest wealth and income levels explain why voluntary private pension savings in the third pillar are underdeveloped in CEE. Indeed, possibilities for additional pension savings in general are limited. However, this may change if the catch-up process proceeds and incomes continue to increase.

In CEE, investments in financial assets compete strongly with housing investments and consumption. The economic turbulences of the transition period in the 1990s resulted in plummeting income levels, which in turn led to pent-up demand. Rising income and a more favourable economic environment have now made it possible to realize this demand. As a result, saving rates in CEE tend to be lower than in Western Europe. While saving rates amount to 11.7% of disposable income in France, 10.5% in Germany and 8.9% in Italy, Slovakia has a saving rate of 2.4%, the Czech Republic 0.2% and Lithuania –2.7%. The negative saving rates can be attributed to the fact that people prefer to spend their savings on buying houses rather than investing in financial products.

In CEE, the bulk of household financial assets is often held in bank deposits. In Slovakia, for example, bank deposits account for two-thirds of all financial assets, the highest value of all CEE countries. Countries such as Slovenia, the Czech Republic, Poland, Lithuania and Latvia have a share of bank deposits of around 50%. In Hungary, they account for roughly 40% of assets. In many countries, however, there are sizeable holdings of shares and mutual funds – 22% of total household assets in the Czech Republic, 29% in Poland, 36% in Hungary and 55% in Estonia. In general, this is often a consequence of the privatisation process of the 1990s.

The importance of life insurance and pension assets in household portfolios varies considerably in the different countries. In countries like Poland, Slovakia, the Czech Republic, Hungary and Slovenia, they account for 10% of financial assets, but

[2] Comparable data for financial assets were not available for Bulgaria, Croatia and Romania.

are of minor importance in the Baltic states. This indicates that there is considerable untapped potential for the life insurance business in CEE countries. In Western Europe, life penetration, defined as the ratio of life premiums to GDP, stands at 5.6% on average. In contrast, it amounts to 1.1% in the CEE countries. The CEE country with the highest life penetration is Slovenia with 1.7%, followed by the Czech Republic (1.5%), Hungary (1.4%), Slovakia (1.4%) and Poland (1.3%). Still, the values for these countries are considerably higher than in Greece, the EU-15 country with the lowest penetration (1.0%).

The predominant position of bank deposits in household financial assets is a pattern quite typical for countries at the beginning of an accumulation process. The preference for consumption and the limited experience and availability of more sophisticated financial products result in holdings of liquid assets. However, over time and as higher-yielding financial instruments are introduced, this is likely to change.

Regulatory trends in CEE

Moving toward four pillar systems and the IORP directive

Very recently, several CEE countries began to establish a fourth pillar of pension provision to complement the existing system. Fourth pillars of various shapes have been introduced in Bulgaria, Hungary, Lithuania and Poland. They are based on very different objectives. In Bulgaria, the fourth pillar is intended to enable voluntary occupational schemes similar to those in operation in Western Europe. The Hungarian fourth pillar has been established primarily to push the development of the domestic equity market. Lithuania established the legal framework for occupational pension schemes, whereas in Poland its introduction was driven by the unpopularity of such schemes in the third pillar.

While most of these schemes have just been established or are still in the process of being introduced, it is remarkable that Eastern European pension systems are broadening in scope, and occupational pensions may gain a foothold in some countries. Romania has also just established occupational pensions as the third pillar, making it the fourth country to add such a dimension to its pension system. While employers in most CEE countries can voluntarily contribute to their employees' private pension schemes, occupational schemes would give them an additional employee retention tool, particularly if unemployment rates continue to decrease. They are also interesting for multinational companies active in the region.

The introduction of occupational schemes has partly been driven by the EU's Institutions for Occupational Retirement Provision (IORP) directive. This directive has generally been problematic for CEE countries, as it mirrors Western European practices and is hardly compatible with the systems in place. Following years of discussion, the directive was approved in 2003. Its aim is to enable a pan-European market for occupational pensions by creating the conditions for IORPs to operate across borders. The problem for the CEE states is that the directive takes Western European pension systems with their well-established employer-sponsored occupational schemes (mostly of the defined benefit type) as a starting point, which do not exist in Eastern Europe.

The IORP directive

EU member states were obliged to implement European Union directive 2003/41/EC on the activities and supervision of IORPs by September 23, 2005. The main goal of the directive is to enable cross-border occupational pension schemes. IORPs are defined as fully funded, separate legal entities that provide retirement benefits. They must be authorised and registered only by home country supervisors; host country social and labour laws apply. While the prudent person principle applies, host states may prescribe additional investment regulations.

In this sense, the directive is not tailored to Eastern European systems, which generally

have individual DC accounts without employer involvement in the second pillar. In Bulgaria, the establishment of the fourth pillar was directly related to the directive. Romania has also adapted to the demands of the directive with its newly established third pillar of occupational pensions. Other countries, however, are lagging behind. In mid-2006, Slovenia was referred to the European Court of Justice for not having written the IORP directive into its national law. In October 2006, the European Commission announced that it would start proceedings against the Czech Republic, Hungary and Poland due to incomplete implementation and sent reasoned opinions to these countries. In March 2007 it again sent reasoned opinions to the Czech Republic and Hungary. At the moment, the topic of how cross-border pension funds will work in Eastern Europe remains a sensitive and currently unfinished matter.

Increasing choice in pension funds

Retirement savings in defined contribution plans have some characteristics that set them apart from other types of savings, as they face the risk that the time of retirement coincides with bear markets. To prevent this from happening, the concept of lifecycle investing has been developed. One variant of lifecycle investing advocates automatically adjusting asset allocation to the age of the future retiree. This set-up reduces the proportion of high-risk assets as the beneficiary ages, making it less likely that financial market fluctuations will have a negative effect on pension benefits. This approach therefore presents a argument against a „one-size-fits-all" approach in pension savings.

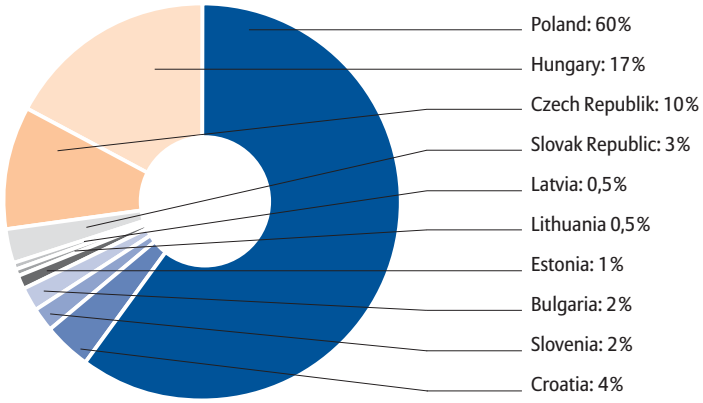
Some Eastern European countries have taken first steps in this direction and now require providers to offer funds with different types of asset allocation, also known as lifestyle or balanced funds. Lifestyle funds have different combinations of equities, bonds and money market instruments and usually come in three forms: conservative (only bonds and money market instruments), balanced (modest equity share) and progressive (high equity share). In Estonia, Latvia, Lithuania, Poland and Slovakia, pension funds can or must offer funds with different risk profiles. In Hungary, this requirement will be mandatory from 2009 onwards. In the other CEE countries, pension funds are only allowed to offer a single fund. Slovakia, for instance, follows the lifecycle concept quite closely. Pension fund members are free to choose which of the three funds on offer they would like to join. When they are less than 15 years away from retirement, they can no longer be enrolled in the fund with the highest equity share. Seven years before retirement, they are obliged to switch to the conservative fund with no equity exposure. The trend towards pension funds with different risk/return profiles and automatic assignment to less risky funds as people get older increases the security of pension savings in CEE by minimising the investment risk of funded pensions.

The future development of pension assets

Since most CEE countries introduced mandatory funded elements (second pillar) into their pension systems and began sponsoring voluntary systems, a substantial build-up of capital has started, which makes CEE an attractive market for asset managers and insurance companies. Although it is still in the early stages of development, the market has shown annual growth of 37 % in the last few years, up from a volume of EUR 13.5 billion in 2002 to EUR 47.4 billion in 2006 (excluding Bulgaria, Romania and Croatia). And there is still considerable growth potential.

This study includes the newest EU members, Bulgaria and Romania, as well as Croatia. In this broader group of countries, pension assets amounted to EUR 50.8 billion at the end of 2006. With EUR 30.1 billion, Poland holds the biggest piece of the pie, followed by Hungary and the Czech Republic. Not surprisingly, the countries with smaller populations show much lower levels of pension assets. Croatia is the exception to this rule: with assets amounting to EUR 2 billion, the country has surpassed the larger Slovakia, which has accumulated EUR 1.3 billion. And the most recent additions to the EU are still in the process of reforming their pension systems. With its 7.7 million people,

Pension assets in CEE countries in 2006 (EUR 50.8bn in assets under management in the 2nd und 3rd pillars)



Sources: National Statistics, Allianz Dresdner Economic Research

Bulgaria ranks fifth in terms of population among the CEE countries included in this study, but only holds 1.5% of pension assets (rank 7). Romania, which has 21.7 million inhabitants, is set to initiate its funded system in 2008.

Differences in pension asset development can be attributed to varying dates of reform implementation, different designs (age group participation, contribution rates) and whether the system is mandatory or voluntary. In some countries, the funded system has been accepted more quickly than in others, which explains why the number of (mostly) older employees who could join the new pension system voluntarily is higher (i.e. Poland, Slovakia).

To estimate the market potential of CEE countries, we followed the regulations for second and third pillar pension schemes. Within mandatory systems, young people were obliged to participate upon entering the labour market, while older employees could opt in. In most countries, portions of the contributions to the state system have been redirected into the new funded systems. In these countries, acceptance and growth rates have been very high (Estonia, Lithuania, Slovakia). The attractiveness of voluntary systems also depends largely on tax breaks for contributions and employer participation. Since the funded systems have been in place in all countries except Romania for two years or more, statistics on membership development, assets and contributions are now available. This has made estimates easier in this updated study of CEE markets than they were in the original study of 2004. Our initial projection generated a pension potential of EUR 54 billion for 2006. For two reasons, this projection turned out to be higher than the actual volume of EUR 47.4 billion. First, contribution rates in Latvia have not been increased as much as they were initially meant to be. Second, the Slovakian system was introduced a year later than originally planned.

The forecasted volumes of pension assets will be urgently required to supplement the state pensions that have been reduced and partly transferred to the new systems. As described above, funded pensions are a fixed part of the old-age provisioning system to generate appropriate pension levels. For this reason, they are extremely important in securing retirees' futures, and assets are set to grow considerably. Driving forces are income growth, which we expect to develop more or less in parallel with the high GDP growth in most CEE countries (except Poland), widening participation and the built-in process of increasing contribution rates in some countries.

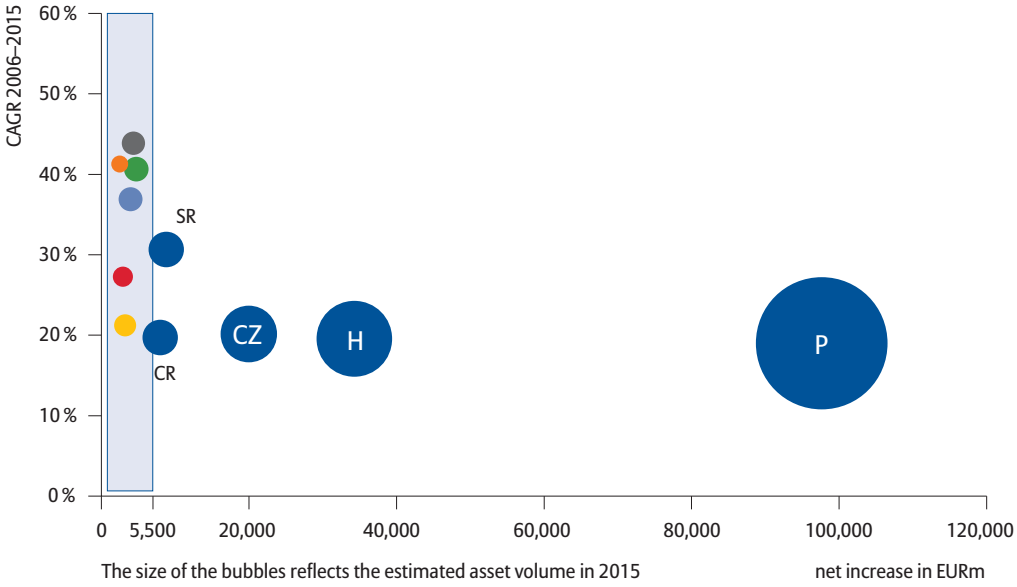
Given the history of the asset build-up process in many countries, we expect assets to grow by 19% p.a. until 2015, amounting to EU 245 billion. The lion's share will emanate from Poland, Hungary and the Czech Republic. The three countries together will make up 80% of the expected market volume, even though they account for only 55% of the population. They will be followed by Slovakia

and Croatia. While the Baltic states, together with the new EU members, are showing the highest growth rates, their small size makes them unlikely to accumulate large pension asset volumes. The Baltic states will hold 5.8% of total assets by 2015. Bulgaria and Romania will still have small pension markets by 2015, but they remain very attractive due to the size of their populations.

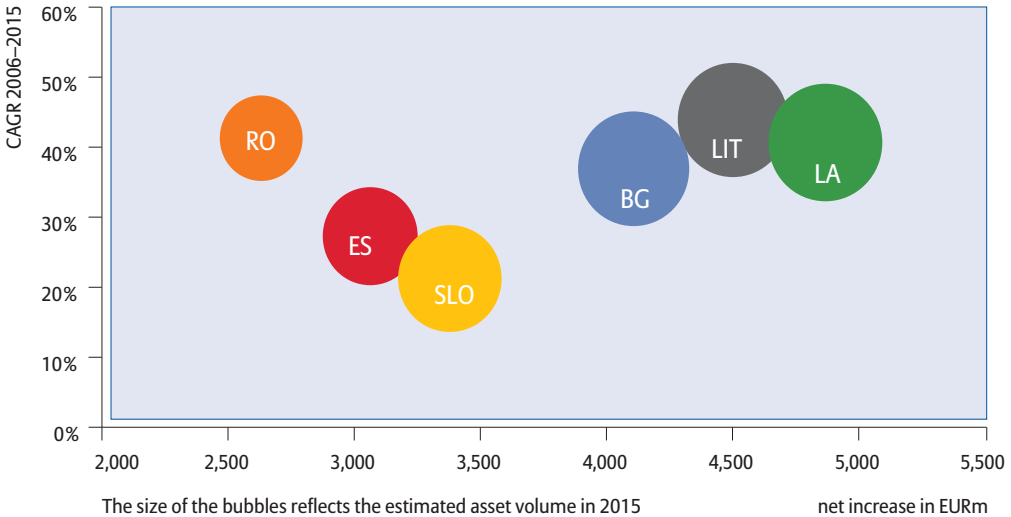
The projected volume is the sum of the different country scenarios and a conservative assumption based on an asset performance of 5% per year. In this view, the prospect of joining EMU drives yields on CEE capital markets to converge at the euro level. The restrictive investment regulations and conservative investment policies in most CEE countries impede major equity exposure. In most countries, the calculated minimum scenario is the most likely. In addition, people in CEE countries still tend to set little more than the mandatory contribution aside. The preference for consumption is still strong. This may change, however, as the catch-up process continues, which would imply a very positive long-term outlook for asset accumulation. Since the markets are still more or less in their infancy, the increase in assets is mostly based on net inflows of money from mandatory contributions.

Dr. Alexander Börsch,
Allianz Global Investors AG

Development of pension assets under management



Development of pension assets under management – smaller markets



Source: Allianz Global Investors, Allianz Dresdner Economic Research

Estimation procedure

To make projections, information is needed about the number of employees, average income and participation rates per age group. These data are generally not available and, in most cases, must be estimated. Using benchmark figures for the total population and cohorts provided by Eurostat, for the workforce/activity ratio (Eurostat, national statistical offices), for unemployment (national statistical offices) and for average gross income (national statistical offices; Allianz Dresdner Economic Research: Investing in Central and Eastern Europe, Special Report, 10/2006), we based our estimates on the assumption that the unemployment rate for the 25- to 44-year olds is the lowest, whereas they have the highest income.

We also assumed that the workforce and its structure will undergo adjustments in line with demographic change as projected by the EPC. Second (third) pillar penetration varies according to national membership rules. In most countries, total membership figures were provided by national supervisory institutions. The age structure was set according to national pension system regulations (e.g. high participation for younger age groups, lower participation rates for older groups). For 2006, the starting data sets for all countries were calculated based on our assumptions so that the total amounts of pension assets as recorded by national supervisory institutions were met. We used these amounts as the starting point for our projection. We then factored in an increase in participation in most countries, resulting from the shift of already participating younger employees into the next age group.

Estimates for the third pillar were made along the same lines, except for the participation rates. We assumed much lower rates and only participation of middle-aged groups, mainly men, as they likely have higher incomes and a more continuous working life than women. This allows them to engage in regular savings plans. In line with variations in the outlook for economic growth, we also expect differing increases in wages, varying between Poland (2%) and Latvia (8%) up to 2010, and half of these increases thereafter.

Life Cycle Asset Allocation – A Suitable Approach for Defined Contribution Pension Plans

Challenges for defined contribution plans

While Eastern Europe is a prominent example of the importance of defined contribution (DC) plans in pension provision, it certainly isn't the only one. Many emerging economies have introduced DC plans – often as a mandatory pillar with individual accounts – as part of pension system reform. Chile was the first country to do so in 1981. In the industrialised countries, the shift from DB to DC in occupational pensions is particularly pronounced in Anglo-Saxon countries. Given that most investors are not financial market experts, DC pension providers should offer products with appropriate asset allocations to prevent plan members from making suboptimal decisions.

Life cycle models, which are related to life cycle funds but are far from being the same, aim to do just that. The concept has its roots in modern finance theory, and its goal is to achieve optimal asset allocation as a function of investor characteristics. In this way, asset allocation can be tailored to individual needs. To do this, human capital of investors and the (future) income streams derived from it are of fundamental importance.

Based on a life cycle model developed by risklab germany, we will take human capital into account and derive optimal asset allocations as a function of different human capital levels. First, we will present the basic concept of life cycle models and the risklab model that incorporates human capital. We will then show how the optimal asset allocation differs depending on different human capital levels. Lastly, we will analyse these findings by carrying out sensitivity analyses and show how the results change if further investor characteristics such as risk preference, time preference, and bequest motives are taken into account.

How to invest retirement savings

According to modern finance theory, a diversified investment portfolio is key to an efficient risk-return trade-off in the long run. The long-term portfolio returns strongly depend on strategic asset allocation, i.e. on the risk exposure of the investment portfolio. This is especially true for retirement savings. Due to their long investment horizon, small differences in the average annual return will result in significant changes of the average financial wealth available at retirement. If one considers that a higher annual return is usually accompanied by increasing risk, two questions must be asked: What level of risk can or should the investor accept, and how should age or the current life situation influence the optimal investment strategy?

Investors are generally told that they should shift their portfolio allocation over the life cycle from risky assets like stocks to less risky assets such as bonds. As a rule of thumb, the percentage of wealth invested in bonds should not be greater than the investor's age. Decreasing equity exposure with age is supposedly the „optimal" strategy, regardless of the investor's risk preferences or particular life situation. Two popular arguments support this advice: Time diversification and targeting for large liquidity needs in midlife. Time diversification means that equity risk is

decreased by long holding periods. Over longer periods of time, short-term stock market fluctuations are assumed to be less important. According to this argument, one can "diversify away" the riskiness of stocks simply by extending the holding period. Targeting for liquidity needs is based on the idea that when individuals save towards a specific goal, such as buying a house or paying college tuition fees, having higher equity exposure at the beginning of the savings period will lead to higher average returns. As the target date approaches, investors should decrease risk exposure to minimise the likelihood of missing their target.

While these arguments may seem like common sense, they are not valid according to the restrictive assumptions of Merton's classical asset allocation theory.[1] Merton argued that investing a constant proportion of wealth into stocks was the optimal strategy, irrespective of time horizon. In this model, the capital market and the investor are modelled in a very simplified way. In recent years, academics have focused their efforts on analysing the consequences of more realistic models that are based on more accurate definitions of the capital market and the investor. A realistic modelling of investors is the main goal of life cycle models, which aim to develop „optimal" asset allocation policies.

An advanced life cycle approach

To derive an optimal asset allocation the economic model should take individual life situations into account. In economic theory, more recent life cycle models do this by including human capital and investor-specific characteristics.

Some of the findings of an enlarged life cycle model developed by risklab germany are presented below. The model builds on current economic research and considers the following parameters:

- The investor's human capital (the status of his career) and financial wealth
- The investor's preferences (risk preference, time preference of consumption and his bequest motive)

The impact of human capital and financial wealth on asset allocation

Merton's classical asset allocation theory relies on the rather restrictive assumption that the investor's consumption is determined by financial wealth, but not by human capital, meaning future income. The theory argues that under certain assumptions about the capital market a specific allocation to equities is optimal in the long-term (i.e. the equity ratio α within an investor's overall wealth should be constant over time). It equals the ratio of the equity risk premium and the constant relative risk aversion multiplied by the variance of stock returns. The equity risk premium is defined as the average return of stocks minus the return on the risk free asset; the investor is assumed to have constant relative risk aversion.

$$\alpha^{\text{Overall}} = \frac{\text{Equity Risk Premium}}{\text{Risk Aversion} \cdot \text{Variance of Stock Returns}}$$

The optimal overall equity ratio is 16% if we assume an equity risk premium of 4%, a relative risk aversion of 10 and a standard deviation of equity returns of 15.8%. Despite the theoretical rigour of the result, in real life most people finance consumption with earned income, and not with financial wealth alone. Hence, a more realistic model should incorporate current and future labour income.

Future labour income can be considered an implicit asset. It can be equated with a person's „human capital", which delivers stochastic cash flows over the lifetime. These stochastic cash flows cannot usually be traded in financial markets. Especially for young investors with little financial capital, „human capital" and the income streams derived from it represent the main

[1] Merton, R.C. (1969), Lifetime Portfolio Selection Under Uncertainty: The Continuous-Time Case, Review of Economics and Statistics, Vol. 51, 247-257.

part of their total wealth, which is the sum of financial wealth and human capital.

To clarify the impact of non-tradable labour income, consider a stylised example with deterministic and thus risk-free salary streams. In this way, Merton's outlined solution can be transformed rather simply. The share of total wealth invested in stocks should be constant over time, but not the share of financial wealth. This fraction depends on the evolution of financial wealth and total wealth, i.e. the sum of financial wealth and human capital, as stated in the following equation:

$$\alpha^{\text{Overall}} = \frac{\text{Investment in Stocks}}{\text{Total Wealth}} = \frac{\alpha^{\text{Financial Wealth}} \cdot \text{Financial Wealth}}{\text{Financial Wealth} + \text{Human Capital}}$$

Whenever the ratio of financial wealth to total wealth increases, the fraction of financial wealth invested in stocks decreases to obtain a constant overall equity ratio. If we assume that the investor's overall optimal equity ratio is 16%, he is fully invested in equity as long as the value of his human capital is more than five times his financial wealth. In general, financial wealth increases throughout the investor's working lifetime, whereas human capital decreases as people age. Under this assumption, decreasing the equity ratio of financial wealth over time is optimal, as it allows to keep a constant overall equity ratio.

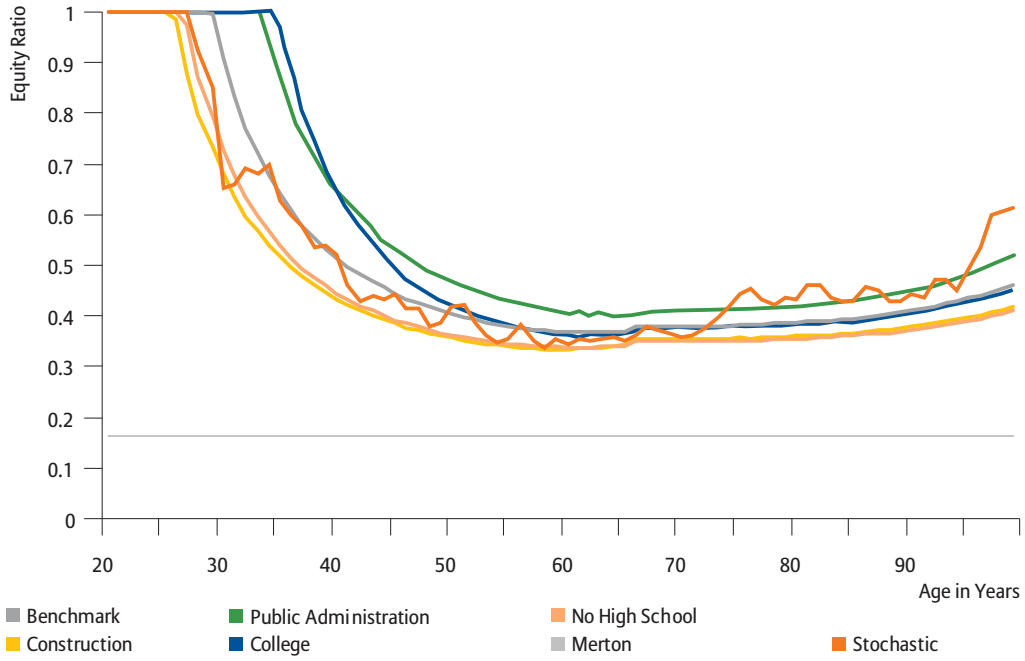
Deterministic labour income is obviously a substitute for risk-free bond holdings, as deterministic human capital is equivalent to a non-tradable bond. But is this still true if income is modelled in a more realistic, stochastic manner? risklab germany's lifecycle model defines labour income as a stochastic process with permanent and transitory shocks as well as a deterministic growth term. The process parameters are estimated for different groups of employees, as level of education and sector of employment imply different risk and growth characteristics for labour income. While, for example, the construction sector is characterised by volatile income streams with low deterministic growth rates, salaries in public administration are less risky. Investors with a college education on the other hand can anticipate higher growth rates of labour income and a relatively low risk of unemployment.

The results presented herein focus on investors who work in the construction and public administration sectors. We will also show the results for a sub-sample of investors with a college education. Overall estimates for all sub-groups are indicated by „Benchmark".

The results are based on the assumption that the investor receives deterministic pension income equivalent to 68% of the last labour income. The risk aversion coefficient and the equity risk premium have been chosen in such a way that the optimal equity ratio without human capital equals 16%. We assume a medium time preference and no bequest motive. The sensitivity of the results in light of these assumptions is analysed in the next section. Figure 1 shows that the resulting equity ratios are well above this level throughout the entire lifetime and for all sub-samples. Investors would even prefer to borrow money in their twenties to buy more stocks, because the present value of their labour income outweighs their financial wealth by far. Over time, the present value of human capital decreases and financial wealth increases since the investors start to save for retirement, meaning that equity ratios of financial wealth decrease.

At retirement age (65), the equity ratio invested in financial wealth should still be roughly 40% for all sub-groups, which may seem surprising at first glance. Again, the reason lies in the implicit asset human capital, which now comes in the form of pension annuity payments. Once this has been taken into account, the overall equity ratio is 16%, as implied by the assumed risk aversion and equity risk premium. After retirement, the equity ratio should even slightly increase because of the relative evolution of financial wealth and human capital. Due to the increasing risk of mortality, the investor increases his utility by consuming more of his financial wealth.

Figure 1: The impact of human capital and financial wealth on asset allocation



Optimal equity ratios throughout the lifecycle for different labour income groups. The graphs show the median of the optimal equity ratios for 10,000 simulation paths. A single stochastic path is also shown to illustrate the volatility of the solution.

As a consequence of this reduction of financial wealth, the investor has to increase his relative equity exposure of his financial wealth in order to keep up a stable overall equity ratio.

In addition to these general results, we found that investors with riskier labour income streams (e.g. the construction sub-group) should invest less of their financial wealth in equity. This is due to higher buffer stock savings to compensate for reductions in labour income. Investors with stable labour income (e.g. the public administration sub-group) have a smaller need to save financial wealth for this purpose, and should therefore have a lower ratio of financial wealth to total wealth, resulting in higher equity ratios. Investors with college degrees also have a higher amount of implicit human capital, and thus a higher equity ratio within their financial wealth.

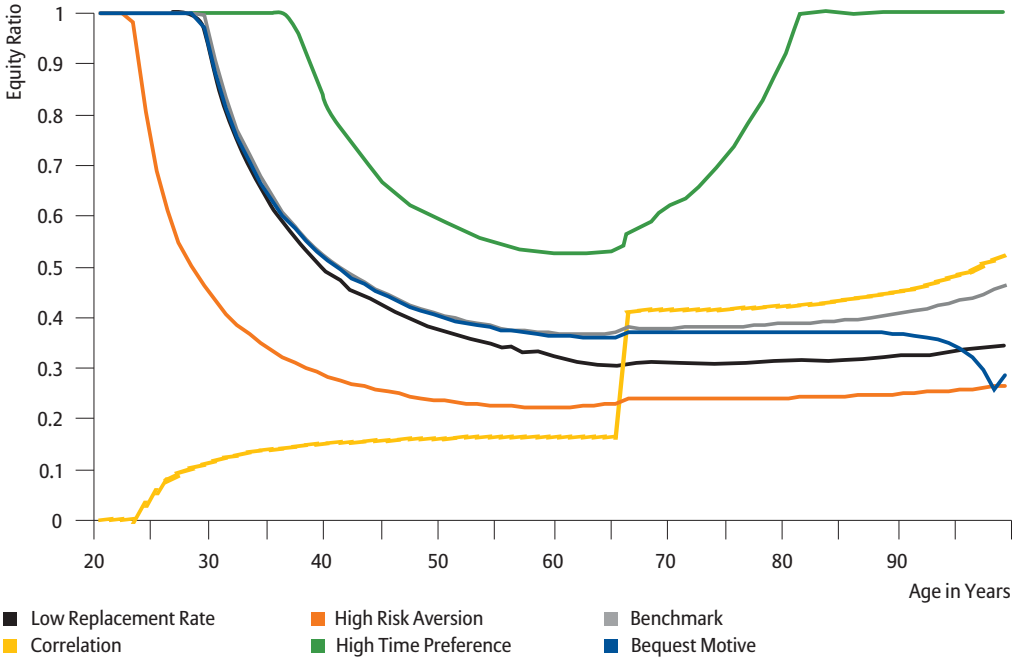
In conclusion, this shows that realistically calibrated labour income processes still mimic the risk-free asset. For this reason, it is indeed reasonable for investors to decrease equity exposure as they approach retirement. During retirement, however, the optimal equity ratio is slightly increasing, depending on the specific modelling.

The impact of further investor-specific characteristics

Besides the different labour income characteristics, various other factors influence optimal lifecycle asset allocation. The results shown here are based on the following assumptions: the retirement income replacement ratio is approximately 68%, the correlation between labour income and equity returns is zero, the investor has an optimal overall equity ratio of 16 percent, a medium time preference for consumption and no bequest motive. The sensitivities of the results in light of these assumptions are shown in figure 2.

Lower retirement income replacement rates result in higher retirement savings. In addition, the present value of future labour income decreases. Both effects imply lower equity ratios. If the retirement income is stochastic and not deterministic, the investor accumulates higher savings and has lower equity ratios (not depicted).

Figure 2: The impact of further investor-specific characteristics



Optimal lifetime equity ratios for different investor-specific characteristics. The results are the median over 10,000 simulation paths.

A correlation between labour income shocks and equity returns can result in much lower equity ratios, as the investor tries to hedge his labour income risk with reduced equity holdings. This can even result in equity ratios below the Merton solution as shown in Figure 2, where we assume a correlation coefficient of 0.3. As soon as the investor enters the retirement phase, the (correlated) labour income risk is no longer relevant and the investor strongly increases his equity ratio.

A higher risk aversion has two effects. First, it reduces the optimal overall equity ratio. Second, the investor accumulates more financial wealth due to buffer stock savings. Both effects result in lower equity ratios.

An increased time preference for consumption results in decreased savings and higher equity ratios. If the investor wants to pass his wealth on to his heirs, he is less likely to be hasty in consuming his retirement savings, which results in a constant equity ratio throughout retirement. The equity ratio begins to decrease when the investor fears that he has to consume the savings he would otherwise pass on.

Conclusion

With the advent of DC plans in many parts of the world, including Central and Eastern Europe, individual choice in retirement savings has become much more important than it used to be. A new line of research, namely behavioural economics and finance, directly addresses the issue of how people can handle their new-found freedom of choice when it comes to retirement saving instruments. Contrary to traditional economics, which sees people as fully rational agents who use their complete information to maximise self-interest, behavioural finance and economics focuses on how „real" people make decisions, incorporating insights from psychology into economics. While behavioural approaches also acknowledge that people try to maximise their self-interest, they consider rationality to have its limits, leaving people in a quandary when they are faced with solving complex problems and processing information. Put differently, people are only boundedly rational and often achieve suboptimal outcomes.

Behavioural finance and economics has come up with findings that are vital in the realm of asset allocation for retirement plans. People usually tend to stick to the choices they have made and very rarely make active changes to their contribution rates or asset allocation. To a high degree, the initial choice is to a very high degree influenced by what is given as the default choice. Moreover, people tend to rely on past performance much too strongly and fail to properly consider expected risks and returns. They also have a tendency to be overconfident in their own skills and excessively optimistic.

The lifecycle investment approach is able to protect retirement investors from many of the common problems that can have a negative impact on their retirement income. Since asset allocation changes dynamically and automatically depending on age or on other characteristics that are part of the presented model, investors can ensure that their asset allocation suits their needs. The danger of investing in assets that are too risky or conservative is therefore limited, as is the likelihood of making ill-informed decisions.

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Country Reports

Bulgaria

CEE-Style reform and a new occupational pension pillar

Shape of the pension system

Over the last 12 years, the Bulgarian pension system has been gradually reformed. The first step was taken in 1995, when voluntary private pensions were introduced. From 2000 onwards, parametric reforms in the first pillar were implemented; the same year, a mandatory second pillar system for workers in hazardous occupations was implemented. It was followed in 2002 by a mandatory second pillar for all employees. In 2006, Bulgaria decided to establish a reserve fund to support the financial stability of the first pillar system, which has not yet started operating and will be financed by proceeds from privatisation and 50% of any general budget surplus. On January 1, 2007, a fourth pension pillar started operating that comprises voluntary occupational pensions and is similar to those in Western countries. In brief, the system now in place is a four-pillar system with a public pillar, with mandatory and voluntary private pensions as well as voluntary occupational pensions.

In coming years, demographic change stands to become a major challenge for Bulgaria. Between now and 2050, the country's population will drop from 7.7 to 5.1 million, and it is ageing rapidly. While the current dependency ratio stands at 24.9%, by 2050 it will have skyrocketed to 60.9%, higher than the 52% average that has been forecasted for the EU-25. Still, according to the convergence programme Bulgaria submitted to the European Union, public pension expenditure is expected to decrease from 9.1% of GDP today to 7.9% in 2050. In contrast, the EU-25 average will increase from 10.6% of GDP to 12.8% over the same period.

Demographics and macroeconomics	
Population [m]	2006: 7.7 2050: 5.1
Population over 65 [%]	16.8
Dependency ratio*	2006: 24.9 2050: 60.9
GDP [EUR]	25.1bn
GDP per capita [EUR]	3,270 (13% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	5.1
GDP growth 2007–2012 [av. in % p.a., est.]	4.4
Unemployment rate [%]	9.0

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15–64-year-olds

Pension assets in 2006 amounted to EUR 523 million in the second pillar and EUR 253 million in the third pillar. Until 2015, we expect an annual growth rate of around 24% for second pillar and 20% for third pillar pension assets.

The first pillar – public pensions

The pre-reform system in Bulgaria was a pure PAYG system, the design of which suffered from various problems. The retirement age of 55 for women and 60 for men was quite low. Employees in various occupations could retire even earlier, and early retirement was used as a means of cutting the workforce during the transition period. Evading social security contributions was a widespread practise, and the dramatic rise in unemployment led to a fall in the number of contributors. The link between contributions and benefits

was weak, as pension benefits were based on the three best earning years.

To remedy the situation, the government developed a reform strategy that was implemented in 2000. Key measures included lowering the overall contribution rate and gradually increasing employee contributions. The government also decided to gradually raise retirement age – to 60 for women within a 10-year period, and to 63 for men within a 6-year period. In addition, early retirement provisions for special groups are set to be phased out by 2010, and the benefit formula has been changed to establish a stronger link between contributions and benefits.

The current contribution rate is 8.05% of gross income for employees, and employers contribute 14.95%. Benefits are adjusted annually at a rate between the previous year's inflation and average real wage growth. To qualify for a state pension, the sum of the person's age and the number of years of participation in the pension scheme must be at least 100 for men and 91 for women (increasing to 94 by 2010). If length-of-service requirements are not met, the retirement age is 65 for both men and women with 15 years of contributory service.

In Bulgaria, there is a social and a minimum pension. The social pension is available to people aged 70 and over whose annual income per family member was less than the national guaranteed minimum income for the 12 months preceding retirement. The minimum pension is 115% of the social pension; the minimum pension is paid to individuals with low income and/or an incomplete work history. The maximum benefit from the earnings-related pillar is four times the amount of the social pension.

The second pillar – mandatory individual accounts

There are two types of pension schemes in Bulgaria's second pillar: occupational and universal pension funds.

Occupational pension funds (OPFs) are targeted to employees working in hazardous environments and are meant to make early retirement possible. They are fully-funded, defined contribution schemes with individual accounts. Contributions to occupational pension funds are made exclusively by employers and depend on the employee's job category. Additional voluntary contributions are not allowed. Contributions and investment income are exempt from taxes levied under the Personal Income Tax Act and the Corporate Income Tax Act.

There are different classes of hazardous occupations with different early retirement rules. Workers receive the occupational pension until they are entitled to retirement benefits under the public and universal pension schemes. Due to the narrow target group, occupational pension funds are not nearly as widespread as universal pension funds.

Institutional framework

Universal pension funds (UPFs) cover employees (regardless of their job category) and the self-employed. Participation is compulsory for all workers born after December 31, 1959; older workers are excluded from the system. Universal pension funds are fully-funded defined contribution schemes with individual accounts. 5% of participants' social security contributions are redirected to the funded pillar, members choose their provider.

UPFs are independent legal entities created and managed by a licensed joint stock company, otherwise known as a pension insurance company. The same applies to occupational and voluntary pension funds in the third pillar. Each company is allowed to manage one universal, one occupational and one voluntary pension fund only. Pension insurance companies are subject to

First pillar design	
Contribution rate [% of gross salary]	Employers: 14.95 Employees: 8.05
Net replacement rate	n.a.
Legal retirement age	63 men/59 women
Public pension expenditure [% of GDP]	2005: 9.1 2050: 7.9

Data from 2006 or latest available year

a minimum capital requirement of EUR 2.5 million. Since 2005, pension insurance companies must have a board of trustees comprising an equal number of employer and trade union representatives plus one member of the pension insurance company. Proposals and decisions made by the trustees have an advisory function for the pension insurance company.

Contributions to UPFs amount to 5% of salary; the upper earnings limit for contribution purposes is BGL 1,400 (EUR 719). The self-employed must pay the entire 5% contribution themselves. Additional voluntary contributions are not permitted.

Investment regulations

Bulgaria regulates mandatory pension funds with investment limits and a minimum return guarantee. Investment regulations for mandatory funds are currently under review, and the main limits currently in place are as follows:

- Up to 20% can be directly invested in equities
- A maximum of 15% can be invested in collective investment schemes
- No more than 5% can be invested in property or securities issued by a single company

The requirement that at least 50% of fund assets must be invested in securities issued or guaranteed by the government was lifted in 2006. There is also a limit for international investments. Pension funds can invest a maximum of 15% of assets abroad.

Pension insurance companies are obliged to achieve a minimum rate of return when managing fund assets, which is determined by the Financial Supervision Commission at the end of each quarter. The minimum rate of return is stated separately for universal and occupational pension funds, and is based on the return achieved for all funds of the same type in the previous two years. The minimum rate of return for each type of pension fund is 60% of the average rate of return achieved, or three percentage points lower than the average, depending on which of the two figures is lower.

If a mandatory fund achieves a rate of return that is lower than the minimum, the pension insurance company managing the fund is obliged to cover the difference within ten days using reserves that have been established specifically for this purpose. Where the rate of return achieved by a universal or occupational pension fund exceeds the average rate of return by more than 40% or exceeds the average by three percentage points – whichever of the two figures is higher – the fund must transfer the additional resources to its reserves.

Second pillar statistics 2006 (universal pension funds)	
Members	2.4m
Assets under management [EUR]	523m
Number of pension fund providers	8

Disclosure and fee regulation

Members must be provided with an annual account statement and can request additional information on details such as fees. The maximum management fee for mandatory pension funds is 1% of assets. Moreover, a maximum of 5% of contributions can be charged as a front-end fee, and switching fees amount to BGN 20 (EUR 10.3).

Benefits and withdrawal

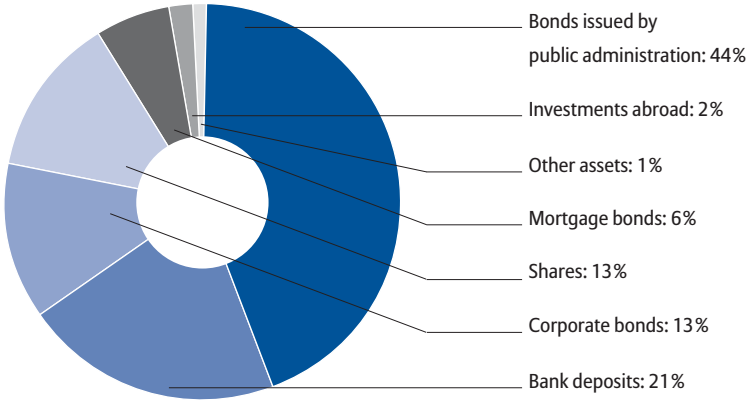
Benefits are paid as a life-long pension and are based on the capital accumulated in the individual account and on life expectancy. Annuities are paid by the pension fund.

Asset management and allocation

In 2006, there were eight universal pension funds available on the market, and another fund entered the market in 2007. These companies also offer funds in the occupational and voluntary pillars. The universal pension funds have 2.4 million members, or almost 82% of employed people. The market is concentrated, with the two biggest funds holding 64% of all assets. Total assets in the UPF system stood at EUR 523 million at the end of 2006.

Asset allocation is fairly conservative. Government bonds and bank deposits make up 65% of pension fund assets. Shares and corporate bonds account for 13% of assets each. International investments have a share of only 2%. The asset allocation of mandatory occupational funds is almost identical.

Universal pension fund asset allocation 2006



Source: OECD, Allianz Global Investors

Taxation

Essentially, Bulgaria runs an EEE system in which contributions to UPFs (and to occupational funds), investment income and benefits are exempt from taxes.

The third and the fourth pillar – voluntary pension savings

Voluntary pension funds – the third pillar

Voluntary private pension funds (VPFs) were introduced in the mid-1990s. They marked the first step of a comprehensive pension reform program that aimed to increase private pension savings. Voluntary personal schemes are fully-funded defined contribution schemes with individual accounts. Participation currently stands at 557,000 and assets under management amount to EUR 253 million. There are now nine pension funds on the market and the largest two companies have a combined market share of 75%.

The pension fund managing company and the fund it manages are separate legal entities. Participation is open to all citizens over 16. Contribution levels are freely determined in a contract between the pension fund managing company and the contributor (an individual or an employer). The average monthly contribution is BGN 47 (EUR 24), and participants do not have a choice of portfolios. Information on the value of personal pension accounts is published every day. The pension fund pays out benefits either in the form of a lump sum, phased withdrawals or periodic payments.

Member contributions of up to 10% of pensionable income are exempt from personal income tax. The same applies to employer contributions and investment income. Benefits used to be taxed, but from January 2007 onwards they are also exempt within certain limits. Clearly, Bulgaria runs an EEE system in the voluntary pillar as well.

While investment regulations for voluntary pension funds resemble those of their mandatory counterparts, they are slightly more generous. The maximum limit for investment property is 10% rather than 5% and the limit on international investments is 20% rather than 15%. The minimum limit for government securities of 30% was lifted in 2006. Actual asset allocation is as follows: Government securities make up 39% of asset allocation, bank deposits account for 23%, shares and corporate bonds for 13% and mortgage bonds for 8%.

Members can switch their funds once a year for a fee of BGN 20 (EUR 10.3). There are several caps on fees. The annual management fee must not be higher than 1%,

the entrance fee may not be higher than BGN 10 (EUR 5.1), performance fees may not surpass 10% of the investment return and the front load may not exceed 7% of contributions.

Voluntary occupational schemes – the fourth pillar

The latest development in the Bulgarian pension system is the introduction of voluntary occupational schemes, which are set to start operating in 2007. They are very similar to occupational schemes in Western Europe, and coverage is determined by collective bargaining agreements or collective employment contracts. Voluntary schemes provide benefits in the form of fixed-term pensions, lump-sum payments or phased withdrawals to participants when they reach the age of 60, in accordance with the rules stipulated in collective bargaining agreements or collective employment contracts. Voluntary occupational schemes are managed by pension fund managing companies. Benefits are taxed in the same way as under voluntary personal pensions; the same is true for investment and all other regulations. However, at the time of publication, there were still no voluntary occupational schemes in operation.

IORP

The IORP directive became a part of national legislation in 2006 and came into force on January 1, 2007. The main law enabling the activity of IORPs is the Social Insurance Code. Additional legislation on technical provisions and capital adequacy has also been passed. The obligation to make the IORP directive part of national law was the main reason that Bulgaria introduced voluntary occupational pension schemes.

Outlook

Future pension assets

UPFs show impressive growth rates. Introduced in 2002, they covered almost 82% of the workforce, or 2.4 million participants, by the end of 2006. Assets in 2006 stood at EUR 523 million, and the contribution rate was raised to 5% of gross salary in January 2007.

Third pillar statistics 2006 (voluntary pension funds)	
Members	566,000
Assets under Management [EUR]	253m
Number of pension fund providers	8

Fast asset development stems mainly from contributions rather than performance, as the market is still in its infancy. Given the already high participation rate, further growth will mainly come from wage increases. Membership will develop at a slower pace and will largely depend on new labour market entrants.

Participation in OPFs is low because of their narrow focus on people in hazardous occupations. In 2006, there were 192,800 members in occupational pension funds, and assets under management amounted to EUR 161 million. Growth prospects are limited due to the small group of targeted workers.

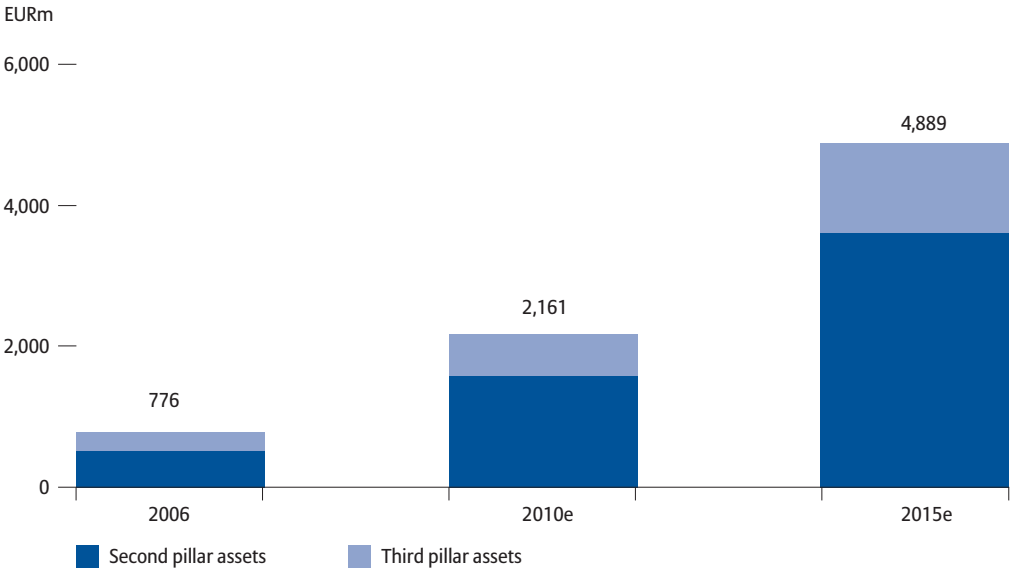
Given that wages are expected to increase substantially and participation is developing slowly, the future of these two mandatory systems looks promising. With a conservative assumption of 5% average performance, assets under management are expected to reach EUR 3.6 billion by 2015. This scenario implies an average annual volume growth of 24%. Since there is no indication that contribution rates will change and significantly higher participation rates are not realistic, it would not make sense to calculate a second scenario.

Third-pillar VPFs had 566,000 members in 2006 and EUR 253 million in assets under management. As income levels increase, it is likely that more people will join, though we assume that new participants will mainly be in the prime of their working lives. Increasing participation rates and higher wage hikes will support growth in the third pillar pension market. In our projection, assets under management will reach EUR 1.27 billion by 2015 (+20% p.a). Given the existence of the mandatory system, chances for even faster market growth are very limited. This is why we opted not to calculate a more optimistic scenario.

Pension reform in Bulgaria has been a gradual, step-by-step process that has resulted in a four-pillar system with a reformed first pillar, a highly accepted mandatory second pillar, an underdeveloped voluntary third pillar and a brand new fourth pillar. The introduction of the fourth pillar with voluntary occupational pensions is a very interesting experiment, as it could become a valuable instrument for employee retention, not least for multinational companies with operations in Bulgaria.

Discussions are ongoing in Bulgaria with regard to further funded pillar reforms. Topics include relaxing investment restrictions, introducing individual investment choice in mandatory and voluntary pensions and the financing of the reserve fund. Bulgaria is likely to remain a fast-growing market for asset managers; it will become even more attractive as income levels increase.

Bulgaria: Pension assets under management



Source: Financial Supervision Commission of Bulgaria, own calculations

Croatia

Introducing reforms in exceptional circumstances

Shape of the pension system

In the 1990s, the Croatian pension system underwent similar types of reforms to those of most other CEE states. The country reformed its first pillar and introduced mandatory and voluntary pillars. In the case of Croatia, these reforms took place in the midst of even more dramatic social and economic changes than elsewhere in the region.

Croatia and its pension system not only had to cope with the deep structural transformation that came with the transition from communism to capitalism in the early and mid-1990s, but also with the disastrous consequences of the war in the former Yugoslavia. Apart from human and material losses, the war also led to a dramatic increase in the number of pensioners and a drop in the size of the active workforce.

The PAYG system in place until 1998 was not able to deal with these shocks due to low retirement age, a weak link between contributions and benefits, and generous benefits. This is why major pension reforms were initiated in a gradual, step-by-step manner. The Croatian government implemented parametric reforms of the PAYG system in 1999 and introduced mandatory and voluntary pension funds in 2002.

Demographic development in Croatia is comparable to that in the rest of the region. The old-age dependency ratio is projected to rise from 25.6% today to 49.6% in 2050. This means that Croatia will be doing only slightly better than the forecasted EU-25 average of 52%. According to a study from the Institute of Economics in Zagreb, public pension expenditure will fall (in the baseline scenario) from currently 13.1% of GDP to 6.3% in 2050. The EU-25 average will increase from 10.6% of GDP to 12.8% over the same period.

Demographics and macroeconomics	
Population [m]	2006: 4.4
	2050: 3.7
Population over 65 [%]	17.2
Dependency ratio*	2006: 25.6
	2050: 49.6
GDP [EUR]	31.1bn
GDP per capita [EUR]	6,989 (28% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	4.6
GDP growth 2007-2012 [av. in % p.a., est.]	3.8
Unemployment rate [%]	12.6

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15-64-year-olds

Pension assets in Croatia currently add up to EUR 2.2 billion in the second and EUR 54 million in the third pillar. Until 2015, we expect to see annual growth of 19% for second pillar and 24% for third pillar pension assets.

The first pillar – public pensions

The pre-1998 system was purely PAYG. It was organised in three different funds for workers, the self-employed and farmers; benefits differed for each group. What's more, certain groups, among them World War II veterans,

former political prisoners, academics, police and military personnel, enjoyed a privileged status; their benefits were determined by a special law. In the late 1990s, almost 200,000 people belonged to these privileged groups. Retirement age was low at 60 for men and 55 for women. Early retirement was fairly easy and there were various supplements for years without contribution.

The war, economic transformation, recession and privatisation put the system under pressure. Between 1990 and 2003, the number of contributors to the system fell by roughly 525,000, whereas the number of pensioners grew by 360,000. The war added to these difficulties because of the loss of population that it caused and the large number of people with disabilities and survivor pension beneficiaries that resulted from it. To make matters even worse, economic restructuring resulted in increased rates of early retirement.

The 1999 reform was the first step towards introducing a three-pillar system. That year, Croatia reformed the public pillar and aimed at financial sustainability and cost containment. By 2009, retirement age will have gradually been increased, reaching 65 for men and 60 for women. The minimum early retirement age has also been raised, as have benefit deductions for early retirement.

Other changes included considering full working life as a basis for pension benefits rather than the 10 best consecutive years (a reform being introduced gradually until 2008); eliminating the possibility to retire regardless of age after 40 years of service for men and 35 years for women; and replacing the old pension formula with generous accrual rates by a point system. The point system establishes a stronger link between contributions and benefits by crediting points for contributions, which determine the benefit level.

A version of "Swiss indexation" is applied in Croatia in which benefits are adjusted every six months according to a joint index based on changes to the cost of living and the national average gross salary. Furthermore, the formerly separated funds have been merged to form the Croatian Pensions Insurance Institute.

The current contribution rate is 20% of gross salary, paid by employees alone. Minimum earnings for contributions are HRK 2,270 (EUR 309), maximum HRK 37,194 (5,066). For people who joined the mandatory pillar, 5% of contributions are directed into their individual accounts. For those who had to or chose to stay in the old system, the full contribution is used for first pillar pensions. Initially, 10% of contributions were to be re-directed into the mandatory pillar, but the amount was reduced to 5% due to fiscal problems.

"Pensioners' debt" represents a special burden that arises from the first pillar. In 1998, the Constitutional Court ruled that the state was liable for unpaid pension indexation entitlements for the period of 1993 to 1998. During that time, pensions were legally indexed to nominal wages, but governments capped indexation payments at lower levels. The Court decided that pensioners are entitled to nominal wage indexation through mid-1998. The state is liable for up to HRK 13.8 billion (EUR 1.9 billion or 5.75% of 2006 GDP). In 2005, a decision was made on how to repay this debt. Each entitled pensioner will be offered a choice between payments of half the amount in 2006-2007, or full repayment from 2008 to 2013. The debt is to be paid from privatisation receipts. The IMF estimates that approximately 70-75% of eligible pensioners would choose the first option. If this assumption proves to be accurate, repayment could amount to HRK 2-2.5 billion (EUR 273-342 million, or about one percentage point of GDP) in 2006 and 2007.

First pillar design	
Contribution rate [% of gross salary]	Employers: 0 Employees: 20
Net replacement rate	n.a.
Legal retirement age	63.5 men/59 women
Public pension expenditure [% of GDP]	2005: 13.1 2050: 6.3

Data from 2006 or latest available year

The second pillar – mandatory individual accounts

Institutional framework

The mandatory second pillar system with individual accounts started operating in 2002 with defined contribution schemes. All people under 40 at the time of the reform had to participate. People between the ages of 40 and 50 could choose between staying in the old PAYG system and joining the new second tier, while people over 50 had to remain in the old system.

Savings in this pillar are created and administered by mandatory pension fund management companies that must be licensed joint stock or limited liability companies. Managing the pension fund is their exclusive business, and each pension fund management company may only set up one fund, the assets of which must be kept by a custodian. The fund itself is not an independent legal entity, but a vehicle to invest members' assets.

Pension fund management companies may be established by Croatian or foreign natural and legal persons and must be licensed by the Agency for Supervision of Pension Funds and Insurance (HANFA). Pension funds must have a management and supervisory board, whose members have to have a certain level of education and experience. Within two years of being founded, compulsory pension funds must have at least 80,000 members.

Investment regulations

Just like in most other CEE countries, Croatia applies investment limits and a minimum rate of return to the mandatory pension funds. A special characteristic of Croatian regulation is that a minimum of 50% of assets has to be invested in Croatian government bonds. Maximum investment limits include the following:

- 30% for Croatian shares; for shares of domestic open investment funds; for Croatian municipal bonds, for Croatian corporate bonds traded on organised exchanges in Croatia

Second pillar statistics 2006	
Members	1.3m
Assets under management [EUR]	2.2bn
Number of pension fund providers	4

- 15% for foreign securities issued in OECD countries and for bonds issued by OECD countries
- 10% for corporate bonds and shares issued in OECD countries
- 5% for shares of open domestic investment funds or foreign investment funds that are primarily invested in bonds issued by governments of OECD countries, and for cash and bank deposits

Investing in real estate and derivatives, self-investment (investing in the pension fund management company) and investing in related companies of the pension fund management company is prohibited. Croatia has a limit for international investments: 15% of pension fund assets can be invested abroad.

Pension fund management companies must credit a minimum rate of return to the individual accounts. The reference rate of return is defined as a weighted arithmetic mean of all mandatory pension fund average rates of return in the previous three years, reduced by two percentage points. Each mandatory pension fund member is guaranteed the rate of return that equals one third of the reference rate of return, if the reference rate is positive. If the reference rate of return is negative, each pension fund member is guaranteed a rate of return that equals a triple reference rate of return for the last three years. To offset losses if the pension fund falls below the minimum rate of return, it must have a guarantee fund, which is funded with part of the „success" fee.

If the fund's actual rate of return falls below the minimum rate, the shortfall must be covered with assets from the guarantee fund. If these assets are insufficient, up to 20 % of the pension fund management company's own capital must be used. If both sources are insufficient to compensate for

the low rate of return, the state guarantees the remainder.

Disclosure and fee regulation

Regos, the public institution that collects contributions and keeps records, must provide members with annual information on the capital accumulated in their individual accounts. The pension fund management company itself must publish an information prospectus annually containing information on the investment strategy, members of the management and supervisory board and the amount of capital that the company holds. The information must be provided to members upon request. Moreover, pension funds have numerous reporting requirements with regard to the regulatory authority (HANFA); these include daily portfolio reports as well as quarterly and annual performance reports.

Pension fund fees are regulated in Croatia. There are five types of fees: an entry fee, a management fee, an exit fee, a success fee and a custody fee. The entry fee can amount to a maximum 0.8% of contributions. The maximum limit for the management fee was reduced from 1.2% to 0.95% in early 2007. Exit fees can only be charged during the first three years of membership; the success fee can at most amount to 25% of the fund's real return. The custody fee that pension funds are charged can be no higher than 0.1% of the managed assets. Transaction fees and costs are charged based on fund assets.

Members are free to change pension funds, but fees discourage switching. Switchers have to pay a fee of 5% of their individual pension account's value during the first year of membership. The fee is then reduced annually to 2.5%, 1.25%, 0.61% and to finally 0.31% in the fifth year of membership.

Benefits and withdrawal

At retirement, the accumulated capital in a member's individual account must be used to buy a life annuity from an authorised pension insurance company of the member's choice. If married at the time of retirement, retirees must opt for joint survivor annuities (unless spouses have accumulated their own rights under a mandatory private pension scheme). Annuities must be indexed to prices.

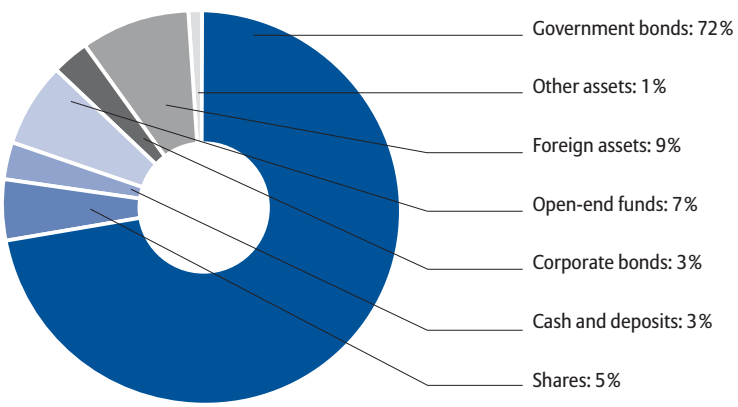
Asset management and allocation

The initial take-up rate of the mandatory scheme was very high. Between November 2001 and the end of 2002, nearly one million people joined the mandatory system. By the end of 2006, the system had 1.3 million participants and assets worth EUR 2.2 billion. The mandatory pillar now covers 83 % of persons in employment.

Four mandatory pension funds are operating on the Croatian market, and all of them are linked to international financial institutions. In terms of members, the two biggest funds share 71% of all members between them.

Assets are allocated in a fairly conservative way, even considering the restrictive investment limits. 91% of assets are invested domestically. Of these, over 70% are invested in domestic government bonds, 7% in open-end investment funds, 5% in domestic

Mandatory pension fund asset allocation 2005



Sources: OECD, Allianz Global Investors

shares and 3% in corporate bonds. Foreign shares amount only to 1.4% of assets. Croatian pension funds do not exploit the 15 % limit on foreign assets; only 9% are invested outside Croatia.

Taxation

Taxation of the mandatory pension scheme is of the EET type. Contributions and investment income are tax-exempt, whereas benefits are taxed. The tax allowance for pensioners is 1.7 times higher than for employees, meaning that pensions are only modestly taxed.

The third pillar – voluntary pension savings

Voluntary pension funds

Voluntary pension funds were also introduced in 2002 and complete the three-pillar system. These schemes are DC plans based on voluntary pension savings. Voluntary pension schemes are either offered by voluntary pension funds, or can be set up by trade unions and employers, making open and closed funds possible. Voluntary pension funds need to have at least 2,000 members two years after being established.

Participants in voluntary schemes benefit greatly from tax incentives. The state provides an annual subsidy of up to HRK 1,250 (EUR 171) and allows a tax deduction of up to HRK 1,050 (EUR 151) per month. Employer contributions are not subject to tax breaks; they are treated like salary payments. Benefits are paid as annuities or as periodic payments. Contrary to the mandatory pillar, voluntary pension fund companies can offer more than one fund.

There are currently six open pension funds on the market, provided by four pension companies. Voluntary pension companies overlap strongly with the mandatory pillar; three of the four pension companies offering mandatory funds also provide voluntary funds. 65,300 members participate in voluntary pension funds, which have assets of EUR 54 million under management. The two biggest voluntary funds have a market share of 80%; the biggest fund alone has a share of 53%. Investment regulation of voluntary pension funds is very similar to that of mandatory funds, but slightly more liberal. For example, the limit for international investments is 20% rather than 15%.

Third pillar statistics 2006 (open pension funds)	
Members	65,300
Assets under Management [EUR]	54m
Number of pension fund providers	4

In geographical terms, voluntary pension fund asset allocation is slightly more conservative than that of mandatory funds: 94.5% of assets are invested domestically. Investments in domestic bonds are lower (51 % of assets) than in the mandatory pillar, corporate bonds and open-end funds account for 12%, deposits for 6%. Foreign assets (5.5%) are almost exclusively invested in open-end funds.

Closed voluntary funds are offered by three companies, which are also active in the mandatory and/or open voluntary pension fund market. There are currently 10 closed pension funds with 10,700 members and HRK 60.3 million (EUR 8.2 million) in net assets.

Outlook

Future pension assets

At the end of 2006, 1.3 million people had joined the mandatory pension funds, representing almost 83% of Croatia's workforce, and assets stood at EUR 2.2 billion. Given the high participation rate, further growth will mainly come from wage growth; membership will increase at a slow pace and depend on new labour market entrants.

In our projection period, assets under management in the second pillar are expected to reach EUR 10.2 billion based on the conservative assumption of 5% average performance (the rate of return was 5.3% in 2005). In this scenario, volumes will increase by 19% p.a. until 2015. An

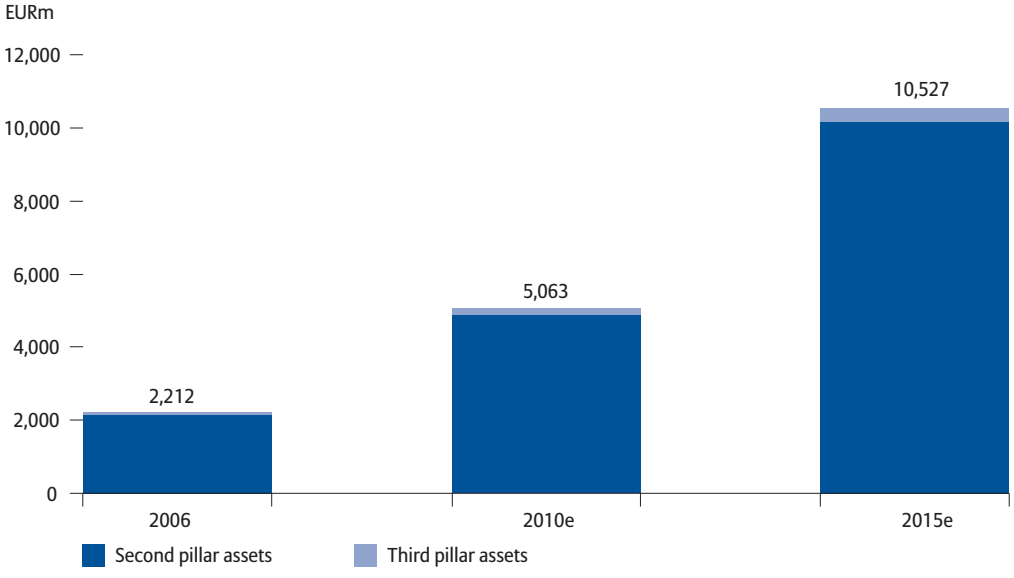
alternative scenario would not be useful, as there is no indication that contribution rates will be changed or that participation will increase significantly.

The voluntary pension pillar, excluding closed funds, had 65,300 members in 2006 and EUR 54 million in assets under management. While participation is very low, this could change as income levels increase. Our projection assumes that only a small group of people, mainly those aged 25 to 54 in the prime of their working lives, will save an extra portion of their income and buy third pillar products. The voluntary system will therefore be slow to develop. In our projection, assets under management will reach EUR 363 million by 2015, which implies a CAGR of 24%. Calculating a second optimistic scenario would not make sense, as it is unlikely that markets will grow any faster given that large parts of the population rely on the other pillars.

With its three-pillar pension system, Croatia has followed the CEE pension reform trend. Repaying pensioners' debt is an ongoing burden that will continue in years to come. Participation in the second pillar – some population groups were given the choice of joining – is remarkably high. The numbers for the third pillar are less impressive, but this might change with growing wealth. Regarding investment regulations, the requirement that at least half of the assets must be invested in Croatian government bonds could lead to suboptimal geographical diversification and a concentration of risks according to capital market theory.

In terms of market attractiveness, Croatia has the biggest pension market among the smaller CEE markets, and the fourth largest pension market in the region. It will therefore remain an attractive market with considerable growth potential.

Croatia: Pension assets under management



Source: Croatian Financial Services Supervisory Agency, own calculations

Czech Republic

Doing without a funded pillar

Shape of the pension system

Along with Slovenia, the Czech Republic is the only country in Eastern Europe that has not established a funded second pillar. It runs a two-pillar system with a public PAYG pension system in the first pillar and a voluntary supplementary pensions pillar, which is comparable to the third pillar in other CEE and Western European countries.

The Czech Republic very quickly reformed its pension system after the fall of the Iron Curtain. A few months after the collapse of the communist regime, it started to reform its PAYG system. The foundation of the current system was laid in 1989. This was followed by major reforms in 1996 that marked the beginning of an ongoing process of parametric reforms in the first pillar. Voluntary supplementary pensions were introduced in 1994 and now cover 45 % of the workforce.

The Czech Republic faces one of the most severe demographic challenges among OECD and EU countries; its dependency ratio will rise from 19.8 % today to almost 55 % by 2050. At the same time, contribution rates to the public pension system are among the highest in the OECD. The Czech Republic's public pension expenditure is 8.5 % of GDP, which is lower than the EU-25 average of 10.6 %. However, it is expected to increase substantially and reach 14.0 % by 2050, compared with 12.8 % for the EU-25. To cope with these challenges, the main political parties developed proposals for further pension reform in 2005. These proposals differed substantially from one another and covered the whole range of reform patterns found in OECD countries, from parametric reforms to introducing notional accounts. However, due to political deadlock, substantial changes are not to be expected anytime soon.

Demographics and macroeconomics	
Population [m]	2006: 10.2
	2050: 8.9
Population over 65 [%]	14.1
Dependency ratio*	2005: 19.8
	2050: 54.8
GDP [EUR]	117bn
GDP per capita [EUR]	11,450 (47 % of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	4.3
GDP growth 2007–2012 [av. in % p.a., est.]	4.3
Unemployment rate [%]	7.1

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

Pension assets in the Czech Republic's third pillar currently total EUR 5.3 billion, and we expect annual growth between 14 % and 19 % until 2015.

The first pillar – public pensions

The first pillar, which comprises basic pension insurance, is a defined benefit PAYG system that covers employees and the self-employed. The scheme is administered by the Czech Social Security Administration (CSSZ). In its current form, the system was introduced by the Pension Insurance Act, which entered into force on January 1, 1996. Since then, a number of changes has been initiated, among them the gradual extension of the periods used to determine pensionable earnings – from five years in 1996 to 30 years by 2016.

First Pillar

Further reforms ensued in the years that followed. In 1997, the government cut eligible periods for non-contributory pensions and incentives for early retirement, which were further decreased in a 2001 reform. A 2003 reform implemented a gradual increase in retirement age to 63 for men and women without children; the increases will be reached in 2016 and 2019, respectively. At the moment, retirement age is 61 years and 8 months for men, and it ranges between 56 years and 4 months and 60 years and 4 months for women, depending on the number of children raised.

The contribution rate for the public pension system is 28% of gross income, up from 26% in 2004; this increase was offset by a decrease in contributions to funds dedicated to active labour market policy. Employers contribute the equivalent of 21.5% of gross salaries, and employees pay 6.5% of their income. The self-employed contribute 28% of their income themselves. There is no ceiling, and contributions are calculated based on the full wage.

The public scheme has two components: A flat-rate basic pension and an earnings-related part. The flat-rate part is a basic pension for all entitled citizens and currently amounts to CZK 1,470 (EUR 52). The earnings-related component has a redistributive character. The first CZK 9,100 (EUR 321) per month are fully replaced, the income portion between CZK 9,100 and 21,800 (EUR 770) is replaced at 30%, and the replacement rate is 10% for any amount beyond that. Since 1996, pensions have been indexed annually in line with inflation (consumer price index), plus one-third of the real wage increase from the previous year.

Pensions are only taxed from a sum that is four times higher than the normal tax-free allowance for workers. In 2005, the minimum old age pension was CZK 2,240 (EUR 75) a month, which was made up of CZK 1,470 from the basic component and CZK 770 from the minimum earnings-related component. Over 99% of Czech pensioners receive more than the minimum pension.

This strongly redistributive system has managed to keep old-age poverty at a very low level. The relative poverty risk for people aged 65 or more is only 22% of the EU-25 average. This is because the system focuses on providing adequate old-age income. The net replacement rate of the first pillar is 79% for average earners.

In response to future fiscal pressure resulting from demographic change, all major political parties have developed pension reform proposals. Their main suggestions include introducing a system of notional accounts, introducing a mandatory second pillar similar to those in other CEE countries, further parametric reform of the existing system, flat rate pensions and an „add-on" DC system. All parties suggested raising the retirement age, but at very different rates. The proposals have been on the table since 2005, but political deadlock after the general elections in mid-2006 made forming a new government a rather cumbersome endeavour. Given that it took more than seven months to build a coalition, fundamental pension reforms are not to be expected in the short-term. At present, the new government is proposing another retirement age increase, while other sensitive issues have been put on the backburner.

The third pillar – voluntary pension savings

Institutional framework

Introduced in 1994, the Czech Republic's third pillar got off to a slow start. In order to push voluntary pension savings, the government enhanced tax incentives and

Third Pillar

First pillar design	
Contribution rate [% of gross salary]	Employers: 21.5 Employees: 6.5
Net replacement rate [% of last income]	79
Legal retirement age	61.8 men/56.4–60.4 women
Public pension expenditure [% of GDP]	2005: 8.5 2050: 14.0

Data from 2006 or latest available year

state subsidies in 1999. The voluntary supplementary pension scheme is run by pension companies that offer DC plans exclusively. The pension companies are joint stock companies, incorporated in the Czech Republic under the provisions of the Commercial Code. The purpose of pension companies is limited to providing supplementary pension insurance. Pension companies must be licensed by the Ministry of Finance (in agreement with the Ministry of Labour and Social Affairs and the Securities Commission).

Pension companies are not authorised to offer more than one pension plan. In the Czech Republic, there is a single legal entity combining members' contributions and pension companies' assets. This is unlike most other countries that have defined contribution schemes with individual accounts, which require an asset management company to be separated from a fund that holds member contributions. Current regulation does not separate pension company shareholders' assets from pension holder contributions, neither from a financial nor a legal perspective.

Investment regulations

Investment regulations in the Czech Republic have two main components: portfolio allocation is regulated, and positive returns must be generated every year. Maximum investment limits determine that a maximum of 10 % can be invested in real estate, in bank deposits and in securities issued by a single issuer. Investing in loans is not permitted. There is no limit on investment in bonds, and the 25 % limit on equity investments was completely lifted in 2004. Other regulations include a maximum limit of 10 % for investment in a single property or movable asset.

When it comes to international investments, Czech regulations do not foresee any legal restrictions. However, foreign investment is permitted only for securities traded in OECD markets. There is no limit placed on investment in euro-denominated products, as long as the fund complies with the general restrictions set out in the law. Nevertheless, at least 70 % of total assets must be invested in assets denominated in the currency in which liabilities for participants are stated. Compliance to this rule can be achieved by hedging. A maximum of 70 % of assets can be invested in bonds from a single OECD state, from a single OECD central bank or from international financial organisations of which the Czech Republic is a member.

Third pillar statistics 2006	
Members	3.3m
Assets under Management [EUR]	5.3bn
Number of pension fund providers	10

Besides quantitative restrictions, Czech regulations stipulate that pension funds must generate a positive return every year. If they miss this target, the losses must be covered by the reserve fund – formed with 5 % of the pension company's profit – and further funds must be created from the fund's profits. This means that members are sheltered from losses as long as the pension fund does not become insolvent. The downside of this regulation is that asset allocation is necessarily very conservative with low returns. For example, between 2001 and 2005, the average investment return of pension funds was 3.7 %. Long-term strategies, which accept short-term losses in the interest of better long-term performance, are not possible under this regulation.

Disclosure and fee regulation

The minimum monthly contribution to a pension fund is CZK 100 (EUR 3.5). If participants have joined the system, they can switch pension funds without charge by giving two months' notice. The fund has to publish information on its financial performance, asset allocation, contributions and balance twice a year. Fees are not regulated.

Benefits and withdrawal

The minimum age at which payments can be received from a pension fund is 60, under the condition of a minimum number of contributory years determined by each fund. Money can be withdrawn as a lump sum or in the form of annuities. Most

benefits are paid as lump sums; when annuities are paid out, the pension fund does so itself. If members wish to withdraw money from the account before the set minimum age, state grants have to be repaid and payments are subject to additional taxation.

Asset management and allocation

While 44 pension fund companies were initially registered in the Czech Republic, the market for pension funds has been consolidating over the past decade, just as it has in other CEE countries. Today, there are 10 pension companies operating in the country that hold EUR 5.3 billion in assets. 3.3 million participants are enrolled in these plans. The majority of the pension funds is run by international financial services providers.

In light of the requirement to generate positive investment performance every year, Czech pension funds allocate assets in a very conservative manner. 82 % of assets are invested in bonds, 7.9 % in cash and deposits and 7.6 % in shares.

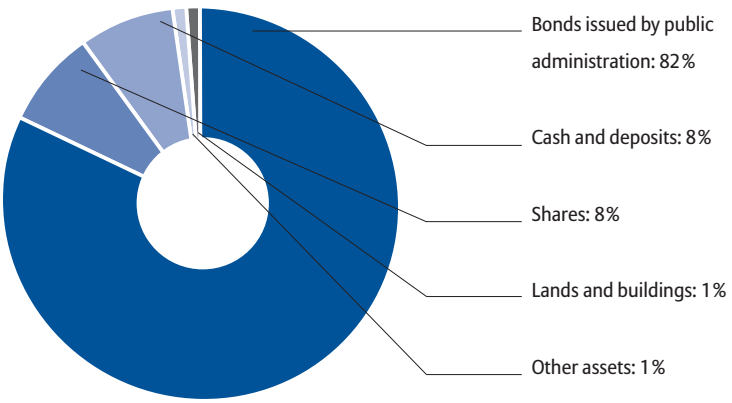
Although membership in the Czech Republic's voluntary pension funds is fairly high, the contribution level is low. On average, employees pay contributions of CZK 5,700 (EUR 201) per year, roughly 2 % of the average salary. This figure has remained the same since 1999 and is insufficient to pay out reasonable amounts of life annuities; this is a major challenge for Czech pension policy.

A sizeable number of employers make contributions on behalf of their employees. Around 27 % of all employers make contributions, on average CZK 4,800 (EUR 170) per year and employee. Foreign multinational companies operating in the Czech Republic are more inclined to pay voluntary contributions: around 50 % of them do so.

Contrary to other CEE countries, where older people cannot take part in the mandatory system, the average age of participants in the Czech voluntary pension is high. Participants aged 60 and over account for 20 % of all members, and 28 % are aged between 50 and 59. In general, the age group between 40 and 59 represents 52 % of the Czech Republic's population.

Czech pension funds compete with life insurance companies, as there are also tax incentives for life insurance products on the condition that policies are taken out for at least 5 years and are paid out after the age of 60. Employers can deduct their premiums up to CZK 8,000 (EUR 292). These are not subject to social security contributions; employee contributions are tax-deductible up to CZK 12,000 (EUR 424).

Voluntary pension fund asset allocation 2005



Sources: OECD, Allianz Global Investors

Taxation

Tax breaks were introduced in 2000 as a means of encouraging retirement savings. Employers can deduct their contributions up to 3% of an employee's assessment base. Employer contributions of up to 5% of wages are exempt from income tax for the employee. This contribution is not considered part of the member's income, both for income tax purposes and for calculating social security contributions.

The state matches employees' contributions depending on their level. For annual member contributions between CZK 1,200 to 2,400, the state adds CZK 600 plus 40% of the member contribution above CZK 1,200. If the pension plan member contributes between CZK 2,400 and 3,600, the allowance is CZK 1,080 plus 30% of the sum above CZK 2,400. The allowance increases gradually, with the highest allowance set at CZK 1,800 for member contributions above CZK 6,000. If a participant contributes more than CZK 6,000 a year, he can deduct the contributions paid in excess of CZK 6,000 from his tax base up to a limit of CZK 12,000 a year.

Participants' contributions are paid from net wages. Investment income is taxed at 15%, as are lump sum payments and annuities. Early withdrawals are subject to a 25% tax.

IORP

The IORP directive has only been partially implemented. For this reason, the European Commission started legal proceedings against the Czech Republic in October 2006, sending a letter of formal notice to the Czech government.

Outlook

Current household asset allocation

In 2004, financial assets totalled EUR 72 billion, or 79% of GDP. Per capita financial wealth has reached roughly EUR 7,600, the third highest figure in the CEE countries and about 13.5% of the EU-15 average. Prospects for further growth are moderate, as average wage growth lags behind GDP growth and investments in housing are widespread.

Czech households keep the bulk of their financial assets in deposits. The contribution of bonds and shares to asset formation is low. This could be the result of problems associated with the privatisation process in the 1990s, which may have discouraged people from making equity investments. The importance of equity in household assets has fallen in recent years despite an increase in share prices. In contrast, the share of insurance and pension products is growing, amounting to 12% in 2004. Although life premiums only grew by 1.5% in 2005, the market has considerable potential. Life premiums in the Czech Republic currently account for 1.5% of GDP. While this is the second highest figure in CEE, it is 4.1 percentage points below the EU-15 average.

Future pension assets

Membership in the voluntary system has exceeded all original expectations. Almost 3.3 million Czechs – 45% of the workforce and a third of the country's population – currently have a private pension plan. In 2006, assets under management amounted to EUR 5.3 billion.

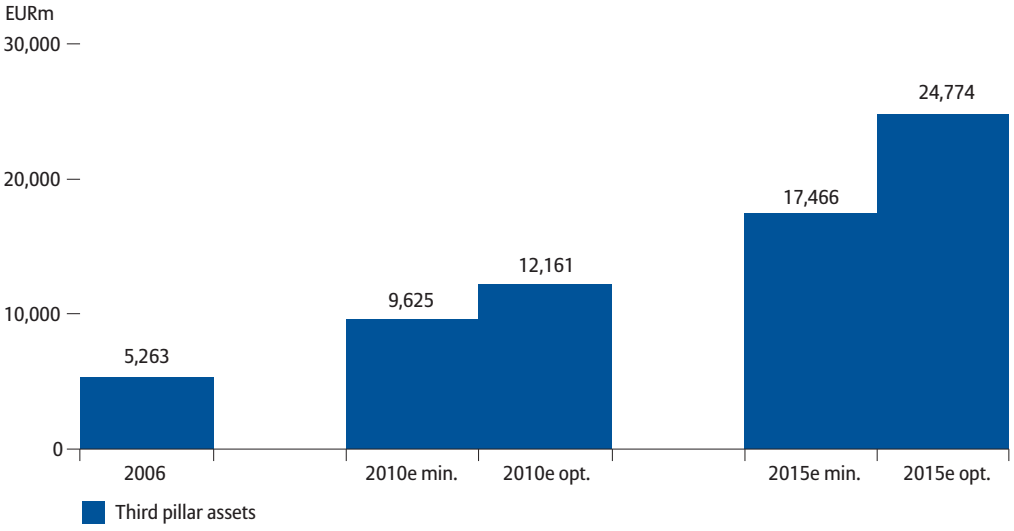
In the coming years, further growth will mainly result from wage increases and possibly from higher contributions and/or membership rates. In the conservative scenario, assets under management are expected to reach EUR 17.5 billion based on the assumption of 5% average performance. In this scenario, volumes will increase by roughly 14% p.a. in the projection period ending in 2015. The optimistic scenario could boost the volume to EUR 24.8 billion (+19%). Assuming that the current discussion about pension reform leads to a growing awareness among Czech citizens that higher private pension savings are necessary, we expect the optimistic scenario to be more realistic.

The Czech Republic's two-pillar pension system is an exception among Eastern European countries. Whereas other countries without a mandatory second pillar – Lithuania and Slovenia – run a voluntary second or an occupational pillar, the Czech Republic

relies exclusively on voluntary third pillar savings as a supplement to the state pension system. Given the massive demographic challenges that the Czech Republic will face in the next decades, it is doubtful that the current form of pension provision will suffice. Several proposals for pension reform are on the table, and the fact that every party came up with a proposal is a step forward that could mark the beginning of significant reforms in the medium-term.

Despite uncertainties surrounding pension reform, the Czech Republic's status as one of the largest and wealthiest countries in CEE makes it an attractive market for asset managers. This will still be true if asset growth rates do not keep up with other CEE countries due to the lacking mandatory funded system. Even if major pension reforms take some time, small-scale reform is likely to continue. The reforms being discussed include removing the guarantee of annual positive returns in the third pillar, introducing ways of encouraging employers and employees to save more and achieving higher employer involvement.

Czech Republic: Pension assets under management



Source: Association of Pension Funds of The Czech Republic, own calculations

Estonia

A small market with liberal regulations

Shape of the pension system

Estonia's economic performance has been impressive in recent years. In 2005 and 2006, GDP grew by more than 10%. In the EU-27, only Latvia has had a comparable economic growth rate. Until the country's independence in 1990, the Estonian pension system was part of the Soviet system. The most important pension reforms were initiated in the late 1990s and have since then proceeded gradually. In 1998, voluntary supplementary pensions were introduced; the first pillar was modernised in 1999/2000 and the mandatory pension pillar was launched in 2002.

Demographic developments are less dramatic in Estonia than in other CEE countries and the EU as a whole. Although the dependency ratio will worsen from 24.1 % to 43.1 % in 2050, the figure is nine percentage points lower than the EU average forecast for the same year. Public pension expenditure is expected to decrease from 6.7 % of GDP to 4.2 % in 2050. The current EU-25 average is 10.6 % and will increase to 12.8 %.

In 2006, Estonian pension assets in the second pillar amounted to EUR 475 million. According to our estimates, they will grow by at least 25 % p.a. until 2015. Third pillar assets stand at EUR 49 million, and are expected to grow by 13 % per year until 2015.

Demographics and macroeconomics	
Population [m]	2006: 1.3 2050: 1.1
Population over 65 [%]	16.5
Dependency ratio*	2006: 24.1 2050: 43.1
GDP [EUR]	13.1bn
GDP per capita [EUR]	9,745 (40 % of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	8.0
GDP growth 2007–2012 [av. in % p.a., est.]	5.8
Unemployment rate [%]	5.9

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

The first pillar – public pensions

The first pillar is a PAYG defined-benefit scheme with universal coverage. It is composed of two different schemes: a flat rate national pension, which is meant to guarantee a minimum pension, and an earnings-related full pension scheme. The flat rate national pension amounted to EED 1,269 (EUR 81) per month in 2005. Adjusted annually by Parliament, the flat rate is payable to everyone regardless of the number of contribution years. In contrast, the full pension is linked to the employee's length of service before 1999 and contributions paid after 1999. To qualify for a full pension, an employee must have worked in Estonia for a minimum of 15 years. The full pension is indexed annually, based on consumer price increases and social contribution revenues.

Estonian pensions are financed by social contributions of 22 % of gross salaries; employers pay 20 %, employees 2 %. In addition to this, employers must pay 13 % contributions for health insurance. The retirement age is 63 for men and 59.5 for women, though it will be raised to 63 for both by 2016. Early retirement is possible three years prior to legal retirement age, but

First Pillar

is discouraged by a 0.4% pension reduction for every month taken. Deferred retirement, on the other hand, is encouraged with a 0.9% increase for every month worked beyond the legal retirement age.

The second pillar – mandatory individual accounts

Institutional framework

The pension plans in the second pillar are DC schemes. Participation is mandatory for employees born in 1983 or later; workers born between 1942 and 1982 can choose whether to remain in the state-run social security system or to join the mandatory pillar. Once the decision to join has been made, it is irreversible. Workers older than 60 cannot join the system.

Individual accounts are managed by specialised pension fund managing companies. These companies are private institutions with the exclusive aim of administering their members' accounts, managing pension funds as well as granting and administering benefits. The pension funds themselves have no legal personality; their assets must be held independently from the resources of the managing company.

When Estonia implemented its second pillar mandatory accounts in 2002, it took a different approach than other CEE countries. Most other CEE used a carve-out method through which contributions were split between the first and second pillars. Estonia also used this method, but introduced employee contributions on top, making it the only country with higher contribution rates after pension reform. Participants in the second pillar now contribute 2% of their gross salary, whereas employers contribute 4% (out of their 20% pension contributions).

Investment regulations

Pension fund managing companies can offer more than one fund, provided that investment policies differ significantly and that one of these funds is invested in fixed-income products only. Three types of funds with different risk/return characteristics are on offer and admissible:

First pillar design	
Contribution rate [% of gross salary]	Employers: 20 Employees: 2
Net replacement rate	41
Legal retirement age	63 men/59.5 women
Public pension expenditure [% of GDP]	2004: 6.7 2050: 4.2

Data from 2006 or latest available year

- Conservative funds with no equity exposure and a 100% share of bond and money market instruments
- Balanced funds with up to 25% of equities and at least 50% bonds and money market instruments
- Progressive funds with an equities limit of up to 50% and no limit on bond and money market instruments

Members are free to choose the pension fund that suits them best regardless of their age, but can only be members of one fund at a time.

Besides investment regulations for the respective funds, there are investment limits on certain instruments. The main maximum investment limits are as follows:

- 40% in real estate or real estate funds
- 35% for securities issued and guaranteed by the Estonian government, a European Union member country or states with a similar risk profile
- 30% for investment funds of companies belonging to the same group as the pension management company
- 10% for investments in fixed assets
- 5% for securities issued by the same group; for securities issued by a single investment fund; for the pension management company's investment funds and for deposits at credit institutions of the same group

Second pillar statistics 2006	
Members	517,000
Assets under management [EUR]	475m
Number of pension fund providers	5

Regulations concerning international investments are distinctly liberal. There are no limits on investments in the European Economic Area, OECD countries and certain other countries.

Disclosure and fee regulation

Should members request them, pension management companies must provide annual and bi-annual reports on the pension fund in which they invest. Members can also request account statements at least once a year. The fee levels that pension funds are allowed to charge are regulated. There are two types of fees:

- The unit redemption fee, which is calculated as a percentage of the net asset value of redeemed units, can amount to a maximum of 1%
- The management fee, determined as a proportion of the market value of pension fund assets, has a maximum limit of 2%

A third type, the unit issue fee, was abolished in 2007.

Switching between the funds of a pension fund managing company and changing to another company is possible, but limited to once a year. There are no switching fees as such, but a unit redemption fee must be paid.

Benefits and withdrawal

The first benefit payments will commence in 2009. Benefits are paid out as life annuities, or – if the accrued rights amount to less than a quarter of the national flat rate pension – as programmed payments.

Asset management and allocation

There are five pension fund management companies in Estonia that offer 15 funds in the mandatory pillar (six conservative, three balanced, six progressive). The two largest companies count 80% of members and 70% of the assets. By the end of 2006, 517,000 employees were enrolled in the second pillar, which corresponds to roughly 80% of the workforce. Given that it was just implemented in 2002, the new system's growth and acceptance are impressive. Assets under management amounted to EUR 475 million in 2006.

Pension plan members tend to prefer the higher-risk variant to balanced and conservative pension funds. Over 75% have chosen the progressive fund, while only 15% have opted for the balanced fund and 10% have selected the conservative fund. This preference can be considered an outcome of favourable stock market development as well as of the participants' age structure – almost 70% are under 40. Similarly, the majority of progressive fund members are younger: 80% are under 40, 16% are between 40 and 50 and only 4% are over 50.

Overall asset allocation for mandatory funds shows the impact of the preference for riskier funds. In 2006, 37% of assets were invested in equities or equity funds, 42% were allocated to bonds and 12% were placed in units of non-equity investment funds.

Taxation

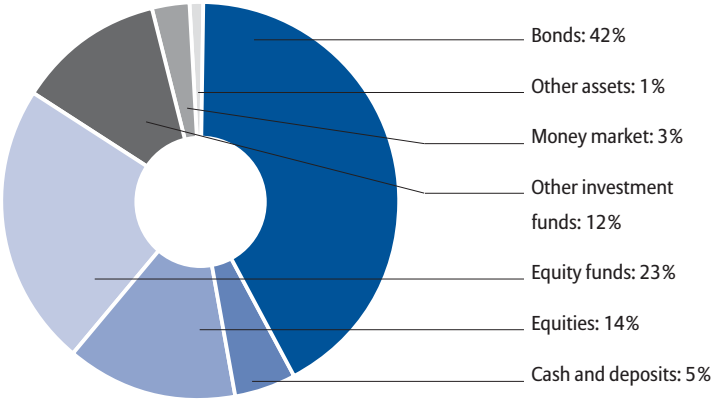
Estonia has an EET system in place. Contributions and investment returns are tax-exempt. Benefits from the first and second pillars are tax-exempt up to EEK 5,500 (EUR 320). Beyond this threshold, benefits are taxed at the normal income tax rate.

The third pillar – voluntary pension savings

Voluntary pension funds

Voluntary pension funds were introduced in 1998 and can take two forms: pension insurance policies provided by life insurance companies or voluntary pension funds managed by asset managers. Public policy

Mandatory pension fund asset allocation 2006



Sources: OECD, Allianz Global Investors

does not promote occupational pension provision. Employers can make contributions for their employees in the third pillar, but unfavourable tax treatment is an obstacle.

Employees, on the other hand, are given tax incentives to participate. Contributions can be deducted from taxable income up to 15% of the annual income. What's more, pension benefits are taxed at the reduced rate of 10%. Benefits can be paid out in a variety of forms, ranging from lump sums to life annuities. Life annuities are exempt from income tax, provided that they are paid periodically in equal or increasing amounts. Investment income is not taxed.

Investment restrictions for voluntary pension funds are not as strict as those for mandatory funds. For example, there are no maximum limits for equity investments and there are no limits for securities issued by low rating issuers. Limits for securities by a single issuer and real estate investments are also less strict. Fees for voluntary pension funds are not regulated, but there are certain information requirements.

At present, four pension fund management companies offering 15 voluntary pension funds are operating in Estonia. Employees can also choose from 11 pension insurance products. Participation in the voluntary pension funds remains low. They counted 24,000 members at the end of 2006, representing 4% of employees. In 2006, 75,000 people purchased life insurance. Voluntary pension fund assets under management currently stand at EUR 49 million. 38% of assets are invested in equity funds, 26% in equities, 15% in bonds and 12% in non-equity investment funds.

Assets can only be withdrawn after the age of 55. If members withdraw their assets before retirement, income tax advantages are lost.

IORP

Estonia has implemented the IORP directive. Since there are no occupational pension schemes operating in Estonia, the directive's main impact will be that foreign IORPs can operate in the country.

Third pillar statistics 2006	
Members	24,000
Assets under Management [EUR]	49m
Number of pension fund providers	4

Outlook

Current household asset allocation

In 2005, financial assets in Estonia totalled EUR 11 billion. This amounts to 100% of GDP, which is the highest value in CEE, but is well below the EU-15 average of 215%. Prospects for financial asset growth are good because of strong income growth at almost all levels. However, the current saving rate in Estonia stands at -1.1%. This negative rate can partially be explained by the fact that investments in financial assets are competing strongly with real estate investments.

Estonian households keep the bulk of their financial assets in stocks and investment funds – a result of the privatisation process. Insurance and pension products are not yet significant saving instruments. In 2004, they accounted for just 4% of total financial assets. But their share should grow fast as the volume of pension assets increases. From 2004 to 2005, life premium growth rates in Estonia reached 60%, which can partially be attributed to a very low starting level. Given strong economic development, however, this indicates the start of a catching up process. Currently, the market penetration of life premiums in Estonia represents only 0.77% of GDP. In contrast, penetration in Western European countries is around 5%.

Future pension assets

In 2005, 517,000 subscribers had registered to second pillar pension funds. This covers more than a third of the population and roughly 80% of employed people. Pension assets in the mandatory second pillar amounted to EUR 475 million by the end of 2006. The high participation rate marks the end of the fast growth period during which the quickly increasing number of members and high wage growth fuelled the pension market. Market growth was 76% in 2005, mainly a result of double-digit wage growth at almost all income levels and declining unemployment among younger workers.

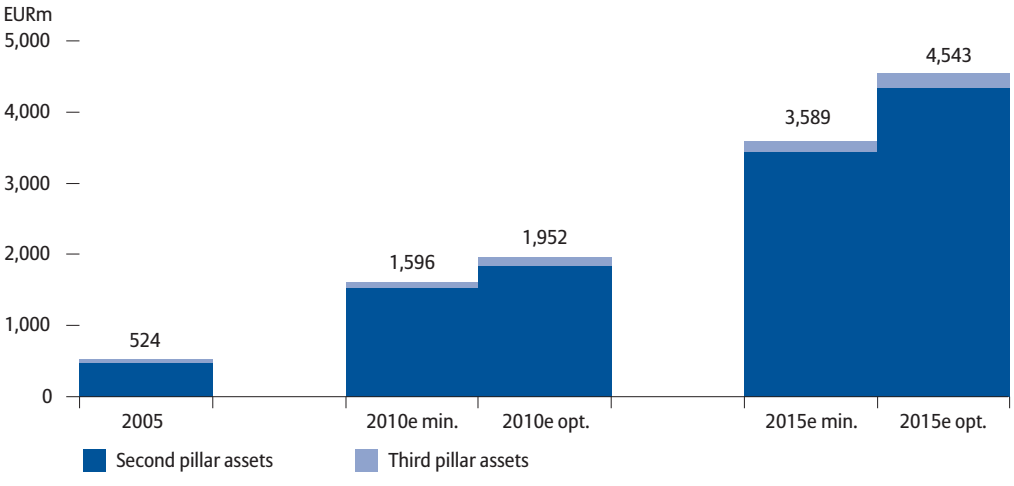
This growth process will inevitably slow down in coming years. Further development will be based mainly on wage increases, which are expected to remain high for the next five years as the economic outlook remains positive. In the minimum scenario, assets under management are expected to reach EUR 3.44 billion based on the conservative assumption of 5% average performance. Even in this scenario, volumes will increase by roughly 25% p.a. in the projection period until 2015. The optimistic scenario could boost the volume to EUR 4.3 billion, which would imply a CAGR of 28%. Given the preference for real estate investments at the expense of financial savings, the minimum scenario seems more realistic.

As mentioned, participation is low in the third pillar, reaching roughly 4% of the workforce. Assets under management stood at EUR 49 million at the end of 2006. With increasing income, more people may join the voluntary pension scheme. For our projection, we assumed that people would continue to contribute only a small portion of their income, and that mainly people with high income levels in the prime of their working lives will set more money aside for retirement. In brief, growing participation rates and high wage increases are likely to develop the third pillar pension market in the future, but at low volumes. In the minimum scenario, assets under management will reach EUR 146 million by 2015 (+13% p.a). The optimistic scenario foresees EUR 198 million (+17% p.a.).

Pension reform in Estonia is widely considered to be a success. The extraordinarily high participation rate in second pillar pension funds is evidence of this, as most people could choose whether or not to join. In terms of public finance, the system is also well-balanced and will remain sustainable in the decades to come. Transition costs are moderate, and according to the EU, additional subsidies are only required until 2012. Future challenges for the first pillar include preventing old-age poverty, as replacement rates are fairly low and the national pension and other benefits do not necessarily keep retirees above the poverty line.

The huge success of the second pillar has led to a rapid build-up and impressive growth rates. As the system matures, however, growth is likely to slow down. The biggest challenge for the second pillar is designing the benefit phase currently under discussion and starting in 2009. As seen, pension fund regulation in Estonia differs from other CEE countries. There are no minimum guarantees and almost no restrictions on international investment; funds with different risk/return profiles can be provided. Estonia is not a big market for asset managers due to the size of the country, but it is certainly a market with innovative regulatory approaches.

Estonia: Pension assets under management



Source: Financial Supervisory Authority of Estonia, own calculations

Hungary

Pension reform pioneer

Shape of the pension system

Hungary is Eastern Europe's pension reform trailblazer. In 1998, it was the first country to introduce a mandatory second pillar with individual accounts. It also restructured its first pillar PAYG system substantially and introduced voluntary individual schemes in 1994. In so doing, it followed the World Bank model of pension reform very closely and set a standard for other CEE countries. More recently, in 2006, it introduced a fourth pillar that consists of voluntary individual retirement accounts and aims at broadening investment opportunities and encouraging more retirement savings.

Hungary faces demographic change quite similar to that in other CEE countries. Between now and 2050, its population will drop from 10.1 to 8.9 million people. At the same time, its dependency ratio will increase from 22.7% to 48.3%. The EU average will be 52% at that time. Public pension expenditure will increase sharply from today's 10.4% of GDP to 17.1% in 2050. This means that while Hungary is currently in line with the EU-25 average of 10.6% of GDP, its pension expenditure in 2050 will be much higher than the projected EU-25 average of 12.8% of GDP.

Since mandatory pension schemes were introduced early and were widely accepted from the outset, Hungary is now the second biggest pension market in the region, with EUR 5.9 billion assets under management in the mandatory pillar and EUR 2.7 billion in the voluntary pillar. Mandatory pension assets will grow by 20% p.a. until 2015, and voluntary pension assets are expected to grow between 15% and 18%.

Demographics and macroeconomics	
Population [m]	2006: 10.1 2050: 8.9
Population over 65 [%]	15.7
Dependency ratio*	2006: 22.7 2050: 48.3
GDP [EUR]	93.6bn
GDP per capita [EUR]	9,290 (38% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	3.8
GDP growth 2007–2012 [av. in % p.a., est.]	3.1
Unemployment rate [%]	7.5

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

The first pillar – public pensions

The public pension system is a PAYG, defined-benefit scheme that covers all employees and the self-employed. Reforming the public pillar in the mid-1990s was urgent not only because of demographic development, but also due to financial pressure on the pre-reform, pure PAYG system. The financial pressure stemmed from generous benefits and lax eligibility rules. High unemployment, early retirement policies and evasion resulting from one of the world's highest contribution rates also played an important role.

Before the reforms of the 1990s, Hungarian pensions were calculated as a percentage of a reference wage, which benefited low-wage earners and had a strong redistributive impact. Reforms in 1995 increased the

First Pillar

retirement age from 60 for men and 55 for women to 62 for both sexes (for men by 2002, for women by 2009). In order to be eligible to receive a pension, a contribution history of at least 20 years is also required. From 2013 onwards, the link between contributions and benefits will be made stronger by introducing linear accrual rates in the pension formula. This measure aims to enhance transparency and provide the workforce with incentives to work longer.

When the mandatory second pillar was introduced in 1998, it was made compulsory for new labour market entrants under the age of 42. Existing employees were given the option of voluntarily joining the mandatory tier, and about 50% of the labour force opted in. Those who chose not to participate remain enrolled in the first pillar only. The current overall contribution rate to the pension system stands at 26.5%. Employers pay 18% into the Pension Insurance Fund for the first pillar, while employees contribute 8.5%. For employees participating in the mandatory second pillar, the contribution is split; 8% go to the individual retirement accounts and 0.5% is allocated to the public pension system.

Benefits from the first pillar equal 33% of average income for the first 10 years of coverage, plus 2% for each additional year between 11 and 25 years, plus 1% for each additional year between 26 and 36 years, and 1.5% for each additional year exceeding 36 years of coverage. The minimum monthly pension for those who have completed the 20-year service period is HUF 25,800 (EUR 98). The maximum old-age pension is equal to average earnings. Old-age pension benefits are indexed annually by 50% of the predicted increase in the CPI for the running year and 50% of the predicted increase in net average monthly earnings. The indexation is adjusted at the end of each year in line with the actual annual changes to the CPI and the net average monthly earnings.

The reforms gradually decreased total contribution rates from 31% of gross wages to 26.5%. Employer contributions dropped from 24% to 18% and employee contributions rose from 6% to 8.5%. Although a contribution history of 20 years is required to qualify for a minimum pension from the first pillar, a partial pension is paid after 15 contributory years. In 2004, the minimum pension amounted to 40% of the average old-age pension.

First pillar design	
Contribution rate [% of gross salary]	Employers: 18 Employees: 8.5
Net replacement rate	102
Legal retirement age	62 men/61 women
Public pension expenditure [% of GDP]	2004: 10.4 2050: 17.1

Data from 2006 or latest available year

The second pillar – mandatory individual accounts

Institutional framework

The mandatory second pillar is a DC system with individual retirement accounts. All covered people – those who have opted to join the system and new labour market entrants below the age of 42 – must become members of a mandatory private pension scheme by joining a mandatory pension fund of their choice.

Mandatory pension funds, also known as private pension funds (PPFs), are independent legal entities owned by their members. They take the legal form of mutual foundations and may be founded by employers, financial institutions, chambers of trade, professional associations, employee interest organisations or regional self-governments. Membership may be open or closed. In order to remain in operation, a PPF must be licensed and have a minimum number of members. Pension funds may manage the investment of fund assets internally or outsource it partially or entirely.

Second pillar statistics 2006	
Members	2.6m
Assets under management [EUR]	5.9bn
Number of pension fund providers	18

The main decision-making body of Hungarian pension funds is the general assembly of members, where all members enjoy equal voting rights regardless of the money accumulated in their accounts. The general assembly elects a board of directors responsible for managing the fund for five years. The board of directors is obliged to appoint an investment adviser, an actuary, an auditor, a lawyer and a custodian. Other duties include reporting to the Financial Services Authority, disclosing information to members and setting up internal asset management regulations and asset valuation. The general assembly of members also appoints a supervisory committee, on which the members' representatives must form the majority. This committee controls the accounting, financing and operations of the pension fund.

Investment regulations

Until 2002, Hungarian mandatory pension funds were subject to a relative minimum return guarantee. The minimum return was a percentage of the official return index of long-term government bonds. Now pension funds need to disclose a target rate of return, but missing it has no consequences. Portfolio regulations set the following maximum limits for asset classes:

- 50% for investment funds
- 30% for bonds (except government bonds)
- 25% for mortgage bonds
- 10% for real estate investment funds, for unquoted equities, and for securities issued by the same issuer (except government bonds)
- 5% for hedge funds, private equity funds and direct investment in property

Pension funds are not allowed to hold loans in their portfolio. There are no portfolio limits for quoted equities, government bonds and bank deposits.

Foreign investment is allowed for up to 30% of assets, but investment in non-OECD countries may not exceed 20%. Regulations concerning equities have been relaxed. The 50% limit on equities was abolished in 2005, and options to invest in hedge funds and private equity were introduced in 2005 and 2006, respectively. Pension funds are not permitted to invest in businesses in which the fund founders, the fund members' employers, or the fund's service providers own more than 10% of the shares.

Disclosure and fee regulation

Pension funds must disclose annual information such as number of members, revenues, operational costs and investment performance. The balance sheet and the profit and loss statement must be published in a national daily newspaper; pension fund members must be notified annually and at their request about their accumulated capital and fees.

Annual fees payable for asset management services, excluding trading expenses, have just been reformed and may not exceed 0.9% in 2007 and 0.8% in 2008. Maximum front-end operational fees will be reduced from 6% in 2007 to 4.5% in 2008. As a result of these new regulations, specific entry or switching fee regulations have been abolished. Members are allowed to switch funds provided that they have been with their current fund for at least three months.

Hungary runs a guarantee fund to protect the accumulated individual capital of pension fund members from insolvency. If a pension fund is liquidated, the guarantee covers beneficiaries' total benefit amount and contributing members' accumulated capital. To this end, all pension funds must currently contribute 0.35% of the contribution paid by members.

Benefits and withdrawal

Benefits are paid out as a life annuity when the beneficiary reaches the legal retirement age. Withdrawing funds before retirement is not possible. Pension fund members who have contributed for less than 15 years have their assets paid out as a lump sum. If the contribution period is longer than 15 years, members must buy a life annuity. Individual and joint life annuities are available and permissible.

Annuities can either be bought from an insurance company or are provided by the pension fund. Whether or not a pension fund provides annuities has an impact on how it is regulated. If it pays annuities itself, a pension fund must have at least 25,000

members. Annuities are indexed in the same way as in the public system (50% consumer price index, 50% change in average earnings).

Asset management and allocation

By the end of 2006, second pillar funds counted 2.6 million members – 25% of the population and two-thirds of the workforce. Assets under management amounted to EUR 5.9 billion in 2006. Members can choose among 18 different pension funds and two additional pension funds are scheduled to start operating in 2007. The market has been consolidating since the late 1990s. In 1998, there were 38 pension funds available on the market. Today, there are only 18, 10 of which are owned by banks or insurance companies.

Assets in Hungarian pension funds tend to be allocated conservatively. 74% of assets are invested in government bonds. Equities account for 8%, corporate bonds also for 8%, cash and deposits for 1%, and other assets have a 9% share. The strong reliance on bonds will change in the years to come, since Hungary decided to introduce new regulations for mandatory pension fund asset allocation in 2006. From 2009 onwards, pension funds will have to offer three different portfolios (growth, balanced, conservative) with varying risk profiles. Previously, each pension fund ran one fund for all of its members without any additional choices. The fund will assign members to one of the portfolios depending on the time left until retirement. From 2007 onwards, pension funds can offer these three portfolios on a voluntary basis. Members will be allocated in line with the following rules:

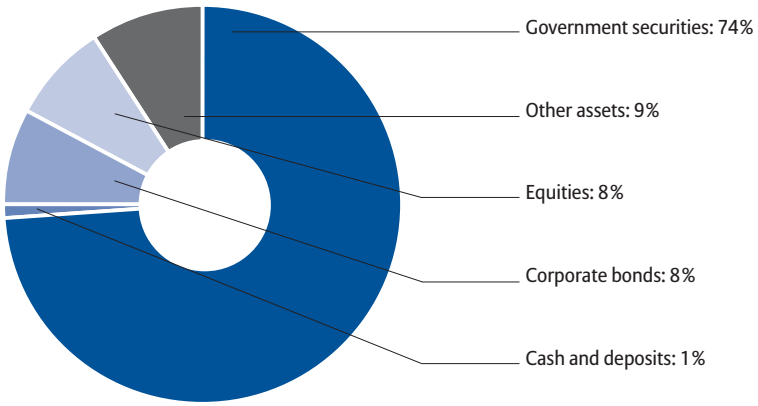
- Members with five years until retirement will be allocated to the conservative portfolio with a maximum equity share of 10%
- Members who have between 5 and 15 years until retirement are assigned to a balanced portfolio with an equity share between 10% and 40%
- Members who will retire in more than 15 years time are assigned to the dynamic portfolio, which has an equity share of at least 40%, with the possibility of putting 5% in derivatives and a maximum of 20% in real estate

Fund members may switch from the category to which they are assigned, depending on the time remaining until retirement age. The growth portfolio is the only exception, as it is not available during the last five years before retirement age. For the time being, offering these portfolio possibilities is optional.

Taxation

Taxation of second pillar pensions follows the TEE concept. 25% of employee contributions are tax deductible; investment income is not taxed and benefits are tax-exempt.

Mandatory pension fund asset allocation 2005



Sources: OECD, Allianz Global Investors

The third and the fourth pillar – Voluntary pension savings

Hungarians have several options to save for retirement aside from the mandatory system. They – or their employers – can voluntarily make additional contributions of up to 2% to the mandatory pension funds. They can also contribute to voluntary pension funds (VPF) or join the so-called fourth pillar, which was launched in 2006.

Third pillar statistics 2006	
Members	1.3m
Assets under Management [EUR]	2.7bn
Number of pension fund providers	70

Voluntary pension funds

Voluntary pension funds were introduced in 1994. After a slow start, they counted 1.3 million members by 2006, roughly half as many as in the mandatory system. VPFs provide individual DC accounts and have the same institutional framework as PPFs. Employer-owned pension funds must appoint a trustee to manage their assets. Both employees and employers can contribute. Members can choose to receive benefits either as a lump sum at any age after 10 years of membership or as an annuity.

Savings in VPFs are tax-favoured. There is a tax credit of 30% on contributions up to a limit of HUF 100,000 (EUR 380) per year. Employer contributions are entirely tax-exempt up to the minimum wage of HUF 62,500 (EUR 238). Investment income is also tax-exempt, whereas benefits are only tax-exempt under certain conditions. Investment regulations for VPFs are identical to those of the mandatory funds, with two exceptions: First, there is a maximum limit of 20% of bank deposits, while mandatory funds have no such limit. Second, 5% of VPF assets can be invested into loans; mandatory funds are not allowed to do so.

The voluntary pension fund industry in Hungary has undergone major consolidation over the last decade. Today, there are 70 licensed VPFs operating on the market, down from 250 in the mid-1990s. The market is concentrated, with the 15 largest companies accounting for around 80 % of members and 85% of assets. Assets under management amounted to EUR 2.7 billion in 2006. These assets are invested in a fairly conservative way, much like those of mandatory pension funds. In 2005, assets consisted of 75% bonds, 8% stocks, 7% investment notes and 10% cash and other assets.

Portfolio choice is not a very widespread principle, even though VPFs can have more than one investment strategy. There are no regulatory limits on the options that can be offered. Despite this, only 6 of the 70 VPFs on the market offer individual portfolio choices.

Members of VPFs can switch funds at will every three months without any constraints. Generally, providers can charge fees for people wishing to join, leave or switch pension funds. Since the beginning of 2007, there has been a maximum limit of 6% for operational fees (4.5% from 2008). Fees are also charged for asset management; the charge depends on the asset management contract.

The fourth pillar

In early 2006, Hungary introduced the so-called fourth pillar, an additional voluntary instrument for retirement savings. These voluntary individual retirement accounts (NYESZ) can be operated by banks or stockbrokers. They were set up for two main reasons: to broaden investment opportunities and encourage people to save more for retirement, and to boost activity on the Budapest stock exchange, which seeks to attract more interest from private investors. The law does not lay down investment rules.

Subscribers to the fourth pillar receive a tax benefit of 30% on money paid into the account. The maximum tax benefit is HUF 100,000 (EUR 380). Capital gains on investments in stocks will also be tax-exempt from 2007 onwards. Fees are capped. There is an annual limit of HUF 2,000 (EUR 8) for charges, a limit of 90 bps

(80 bps in 2008) for asset management fees, while operational charges are now limited to 6%. When the fourth pillar was first introduced, 70,000 workers were expected to open an account. However, the number of subscribers was estimated to be only 10,000 at the end of 2006. Money is invested mainly in investment units (about 40%), shares (about 30%), government securities (20%), deposits and other (10%).

IORP

There are no IORPs in Hungary. The IORP directive 2003/41/EC has not been implemented fully in Hungarian law. For this reason, the European Commission started legal proceedings against Hungary in October 2006. In a first step the Commission has sent a letter of formal notice to the Hungarian government.

Outlook

Current household asset allocation

The financial assets of Hungarian households amounted to EUR 76.4 billion in 2005, or 88% of GDP. Assets per capita are roughly EUR 7,600 – 12% of the EU-15 average. In 2005, the value of financial assets grew by 10%. Securities and shares represent a third of household assets, partly a result of the privatisation of formerly state-owned firms in the 1990s. Deposits make up 40% of total assets, which is much lower than in the early 1990s, when they were by far the dominant saving instrument. Insurance and pension fund assets show the highest growth rate on the Hungarian market. Hungarian households keep more than 10% in insurance and pension products. Life premiums grew 24% from 2004 to 2005, a lower growth rate than the other CEE states. Life premiums as a share of GDP amount to 1.4%, which is the third highest value in the countries under investigation; the EU-15 have a life penetration of 5.6% on average.

Future pension assets

There are currently 2.6 million subscribers to second pillar pension funds – 25% of the population and two thirds of the workforce. Assets under management amount to EUR 5.9 billion, making Hungary the second largest pension market in Eastern Europe behind Poland. In recent years, participation has increased slowly, growing only 4% in 2005. The ratio of active earners between 20 and 29 to the total number of members has decreased, probably because of the ageing workforce. For this reason, we expect participation to build up slowly in coming years.

The inflow of current contributions will support the growth of private pension funds in the years to come. However, benefit payments will also start to rise, suppressing asset growth potential. Future growth can therefore only be generated by price hikes in financial markets and wage growth. The latter is expected to be moderate compared with other CEE countries. In our projection period, assets under management are expected to reach EUR 30.5 billion based on the conservative assumption of 5% average performance. In this scenario, volumes will increase by roughly 20% p.a. until 2015. Given the aforementioned conditions, calculating a more optimistic scenario would not make sense.

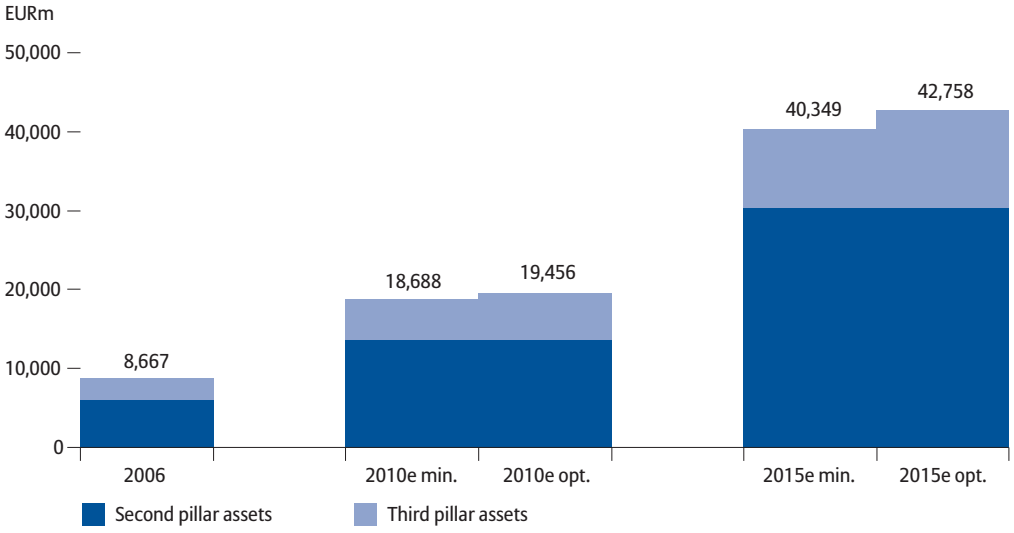
The growth of voluntary pension funds in the third pillar – with 1.3 million current members and EUR 2.7 billion in assets under management – depends strongly on income development in Hungary, which is likely to continue growing. Increasing income will lead to growing participation rates, and both will support the growth of the third pillar pension market. In the minimum scenario, assets under management will reach EUR 9.9 billion by 2015 (+15% p.a) and EUR 12.3 billion in the optimistic scenario (+18% p.a.).

Hungary is one of the key pension markets in Eastern Europe. Its early moves towards structural pension reform have resulted in relatively mature pension markets, the growth of which has been fuelled by the mandatory nature of the second pillar and widespread acceptance of voluntary pension savings in the third pillar. It is too early to make an accurate forecast for the fourth pillar; however, the initial take-up was lower than expected.

Asset managers and pension fund members can benefit from recent moves to relax

investment regulations. By lifting caps on equities and making it possible to invest in private equity and hedge funds, investors now have access to a broader range of financial instruments and can see their performance improved and investment risk diversified. The obligation to introduce funds with different risk profiles in the second pillar follows the recommendations of modern finance theory and combines retirement saving security with the upside potential of financial markets.

Hungary: Pension assets under management



Source: Hungarian financial supervisory authority, own calculations

Latvia

Implementing fundamental pension reforms

Shape of the pension system

In recent years, Latvia's economic performance has been impressive. Its growth rate is among the highest in Europe and the country and its neighbours are often referred to as the Baltic Tigers.

Soon after its independence in 1991, Latvia started to reform its pension system. It was the first CEE country to fundamentally restructure its first pillar. Today, Latvia runs a three-pillar pension system. The first pillar is a PAYG, notional defined contribution (NDC) system, the second is a funded mandatory pillar and the third pillar consists of private voluntary occupational and individual pension arrangements. By introducing an NDC system combined with a mandatory pillar, Latvia arguably made the most radical and far-reaching pension system reforms in the region, alongside Poland.

The demographic situation in Latvia is mixed. While the population will shrink from 2.3 million to 1.7 million between now and 2050 – one of the fastest population decreases in the EU – the population is not ageing as quickly as elsewhere. The Latvian dependency ratio will indeed worsen from 23.2% today to 44.1% in 2050, but this is a considerably better outlook than the projected EU average of 52%. Nevertheless, Latvia will feel the blow of an ageing population, albeit to a smaller extent. Public pension expenditure in Latvia is projected to decrease. While it currently stands at 6.8% of GDP, it will be 5.6% in 2050. The current EU-25 average is 10.6% of GDP and will increase to 12.8%.

Latvia's second pillar pension assets currently amount to EUR 183 million, and to EUR 74 million in the third pillar. The former is expected to grow by at least 46%, the growth rate of the latter will be at least 20%.

Demographics and macroeconomics	
Population [m]	2006: 2.3 2050: 1.7
Population over 65 [%]	16.9
Dependency ratio*	2006: 23.2 2050: 44.1
GDP [EUR]	16.2bn
GDP per capita [EUR]	7,051 (29% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	7.7
GDP growth 2007–2012 [av. in % p.a., est.]	5.5
Unemployment rate [%]	6.8

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

The first pillar – public pensions

Reform of the first pillar took place in 1996 and was needed because low retirement ages, widespread early retirement, social security contribution evasion and demographic change made the old system unsustainable. The new NDC system established a strong link between contributions and benefits. NDC systems transfer the logic of funded pensions to public pensions by giving participants a hypothetical or virtual account, which contains all contributions made throughout working life. These notional individual accounts are accumulated at a given rate of return. At the time of retirement, benefits are calculated by dividing the amount accumulated in the notional account by cohort life expectancy.

First Pillar

Latvia's first pillar covers pensioners from both the old and new systems. Participation in the NDC arrangements is mandatory for all employed and self-employed people over the age of 15; it is voluntary for those who do not work. To receive pension benefits, participants must have contributed to the system for at least 10 years upon reaching the statutory minimum retirement.

The statutory minimum retirement age is gradually being increased and will reach 62 for both men and women in 2008. Currently, it stands at 62 for men and 61 for women (61.5 from July 2007 onwards). Retirees are allowed to continue working while they are receiving a full pension. Early retirement (up to two years prior to the established retirement age) is possible under specific conditions. However, early retirement possibilities will be eliminated from 2008 onwards. Since 2002, pensions have been indexed to changes in the consumer price index and to increases in average wages. Indexation differs depending on pension levels, which favours low pensions.

Total contributions to the social security system amount to 33%. Employers pay 24% of employees' gross salaries, while employees contribute 9%. The share of pensions in social security contributions is 20%. This means that employees pay 5.5% of their salary for pensions, employers 14.5%. In 2007, 16% are allocated to the PAYG system and 4% to the funded mandatory system. Since 1997, benefits paid under the state pension scheme have been subject to income tax. However, old-age pensions that were already being paid out before January 1996 are not subject to taxation.

In order to prevent poverty among pensioners, there is a minimum guaranteed pension. Since 2006, the minimum pension has been the equivalent of social security benefits and multiplied by 1.1 for people with a social insurance record spanning less than 20 years. For people who have contributed for 20 to 30 years, basic benefits are multiplied by 1.3, and by 1.5 if people have contributed for more than 30 years.

First pillar design	
Contribution rate [% of gross salary]	Employers: 14.5 Employees: 5.5
Net replacement rate	78
Legal retirement age	62 men/61 women
Public pension expenditure [% of GDP]	2004: 6.8 2050: 5.6

Data from 2006 or latest available year

The second pillar – mandatory individual accounts

Institutional framework

The mandatory second pillar started operating in 2001. The scheme operates on a defined contribution basis. Participation in the scheme is mandatory for new labour entrants and employees aged under 30 at the time of introduction. Joining was optional for those aged between 30 and 40; these people could choose between staying in the NDC PAYG system only and switching a portion of their contributions to the funded part. People older than 50 were not allowed to join. In late 2006, the number of people who decided to join the second pillar reached 900,000.

In 2007, the contribution rate for the mandatory scheme has risen to 4% (at the same time, contributions to the public pillar have fallen); it will increase to 8% in 2008, to 9% in 2009 and finally to 10% by 2010. At this point, the first two pillars will receive an equal share of contributions.

During the first 18 months of operation, only the State Treasury was allowed to manage second pillar assets. Rules have changed since then, and private asset managers can now also do so. The state has increasingly withdrawn from managing pension assets, as the State Treasury will cease managing mandatory pension plans and distribute the assets under management to private

Second Pillar

Second pillar statistics 2006	
Members	900,000
Assets under management [EUR]	183m
Number of pension fund providers	8

managers. This transfer is expected to be completed by November 1, 2007.

Investment regulations

In Latvia, investment regulations differ, depending on whether pension plans are managed by the State Treasury or by private companies. The State Treasury is only allowed to invest in Latvian government securities, bank deposits, mortgage bonds and deposit certificates. Moreover, it can only invest in financial instruments denominated in the national currency. In contrast, private managers are allowed to invest in a much broader range of financial instruments. The main investment limits include the following:

- 35% for securities guaranteed by a state or an international financial institution
- 5% for securities issued or guaranteed by a local government
- 10% for securities of a single issuer, except government securities; for deposits at one credit institution (investments in debt and capital securities of the same credit institution and derivative financial instruments may not exceed 15%); and for securities issued by one commercial company (or group of commercial companies)
- 20% for investments in non-listed securities
- 5% for investments in a single fund (10% of the net assets of the investment fund)

There is no maximum limit for international investments, as long as pension funds invest in securities listed on stock exchanges in the Baltics, other EU member countries or the European Free Trade Area. However, the law stipulates a 70% currency matching rule. There is also a 10% limit for each non-matching currency (since 2005, the euro has been exempted from investment restrictions on foreign currencies). Investments in real estate, loans, and self-investment are not permitted.

Private asset management companies can offer three funds with different risk/return profiles:

- Conservative funds with no equity exposure and a 100% share of bonds and money market instruments
- Balanced funds with an equity share of up to 15% and a bond and money market instrument share of at least 50%
- Active funds with an equity share of up to 30% and no limits on investments in bond and money market instruments

Contrary to many other CEE countries running mandatory pension systems, there is no requirement for pension funds to guarantee a certain minimum return. On the contrary, doing so is explicitly forbidden.

Disclosure and fee regulation

There are no entry or exit fees in Latvia. Until recently, administration fees were capped at 2.5% of total annual contributions. However, the maximum cap has been abolished. Other fees, such as asset management fees, are not regulated, but each management company must publish fee levels in its prospectus. Plan members can participate in only one plan at a time. They can switch between different investment plans twice a year, but only if both investment plans are managed by the same asset management company. If members want to switch management companies, they can do so once a year. There are no switching fees.

Benefits and withdrawal

The second pillar is considered to be a part of the state pension system in Latvia. For this reason, lump-sum payments are not allowed. When reaching retirement age, participants have to choose between using their accumulated capital to purchase an annuity from an insurance company or use the „refunding“ option. This means that investors move their capital to the NDC pension scheme and receive a payout based on a slightly modified NDC pension formula. If the participant decides to take out a contract with an insurance company, the State Social Insurance Agency (SSIA) signs the contract and transfers the accrued capital. Detailed provisions on the payout phase have not yet been defined, as pension benefits will start to be paid out only in 2014.

Asset management and allocation

Eight investment management companies are operating in the Latvian market. These companies and the State Treasury currently offer a total of 24 investment plans. The

system currently counts 900,000 participants, 77% of the working population, and EUR 183 million in assets. The assets managed by the State Treasury have declined to 18% and will drop to nothing in November 2007, when the state stops managing pension assets and distributes existing assets to the private pension funds.

The market is concentrated, with the three largest funds managing almost 80% of assets. Most companies are linked to Latvian banks to take advantage of the parent company's branding. The key to success in the Latvian market appears to be the distribution network.

Overall asset allocation in Latvia is fairly conservative despite the possibility of choosing a plan according to risk preference. In late 2006, 55% of assets were invested in debt securities, 26% in time deposits, 14% in investment funds and 5% in equities. Active pension funds do often not exploit the 30% equity limits foreseen by Latvian investment regulations. Out of the 10 active funds on the market, only one really has a 30% equity share, while four have an equity exposure between 20% and 30%, three hold equities between 10% and 20%, and two have less than 10% equity in their portfolio.

Taxation

Contributions are income tax deductible and investment income is tax-exempt. Pension benefits are taxed at the ordinary income tax rate beyond the limit of LVL 1,200 (EUR 1,730) per year.

The third pillar – voluntary pension savings

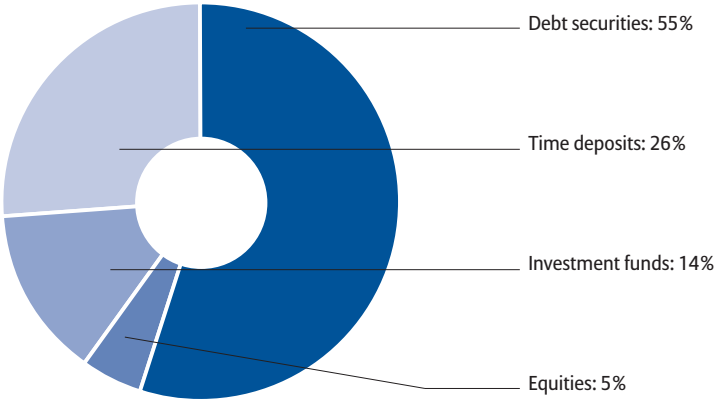
Voluntary pension funds

The voluntary private pillar in Latvia has been operating since 1998. Pension plans in the third pillar can by be concluded directly between participants and providers, or with the involvement of the employer. However, occupational plans are far from being popular among Latvian employers. Only 5% of Latvian companies, mainly large ones, offer their employees voluntary occupational arrangements. Voluntary pension schemes are operated by private pension funds, which are non-profit joint stock companies. Under Latvian law, they are obliged to appoint management companies and custodians for their pensions plans. Pension plan assets can be managed by credit institutions, life insurance companies, investment firms and asset management companies. Both DC and DB plans can be offered.

At present, six private pension funds are operating on the market. Five of these are open and one is closed, and a total of 15 different pension plans are offered. Members can join a pension scheme directly or via their employer, who can set up a closed pension fund, possibly in cooperation with other employers, or conclude a collective membership contract with an open or closed fund.

Voluntary pensions offer tax advantages for both employers and employees. Contributions from employers and

Mandatory pension fund asset allocation 2006



Sources: OECD, Allianz Global Investors

employees of up to 10% of the employees' annual income are tax-deductible. Investment income is taxed, while benefits are tax-exempt up to a certain limit.

Private voluntary pensions have not gained a strong foothold in Latvia. There are only about 90,000 members enrolled in voluntary plans, and assets under management amounted to EUR 74 million in 2006. The low participation rate is the result of relatively low income levels and insufficient marketing efforts. At the moment, it seems that the voluntary pension pillar is mainly used by middle-to-high income households. Benefits can be paid as a lump-sum, phased withdrawals or life annuities.

Investment rules for private pension funds are similar to those for mandatory funds, but are more flexible. For example, investment in real estate is permitted (with a limit of 15%), the currency matching rule is only 30% and limits for some asset classes are higher.

As is the case of mandatory pension funds, their private counterparts are not allowed to guarantee a rate of return. Fee levels are not regulated.

IORP

Latvia has transposed the IORP directive into national law.

Outlook

Current household asset allocation

Financial assets in 2005 amounted to EUR 6.8 billion, or 52% of GDP. This is the lowest ratio in the EU-25; the EU-15 average is more than 4 times higher than the Latvian level. The same is true for per capita values; Latvian households possess only 5% of the financial assets of the EU-15 average.

Even though Latvian households are just beginning to accumulate financial assets, they hold a surprisingly high share of riskier assets such as stocks and mutual funds. Bank deposits are the most popular form of saving, but shares and mutual funds come a close second. The prominent role of the equity market is the result of voucher privatisation in the 1990s. By comparison, life insurance products have a very low share in the household portfolio. Latvia saw 60% growth in life premiums in 2004 to 2005, but this largely reflects a very low starting level. Nevertheless, it could mark the beginning of a catching up process. Penetration of life premiums as a share of GDP stands at only 0.12% in Latvia, compared with 5.6% in Western Europe.

Future pension assets

Over the past five years, the second pillar market has recorded very high growth rates due to a rapid take-up process. In 2005, the market grew by roughly 70% and pension assets amounted to EUR 183 million in 2006.

The number of participants reached 900,000 at the end of 2006, meaning that about 40% of the population and 77% of the labour force are covered by second pillar pensions. In the coming years, this process will slow down, with further participation increases mainly resulting from new labour market entrants. The market will also be boosted by substantial wage growth and contribution rate increases from 4% today to 10% by 2010.

In the minimum scenario, assets under management are expected to reach EUR 5.4 billion based on the conservative assumption of 5% average performance. Even in this scenario, volumes will increase by about 46% p.a. in the projection period until 2015. The optimistic scenario could boost the volume up to EUR 5.6 billion. However, we consider the minimum scenario to be more realistic.

The development of third pillar voluntary pensions plans has occurred on a much smaller level. Although they were up and running three years before second pillar pension plans, participation has only reached about 8% of the working population. Assets under management stood at EUR 74 million at the end of 2006.

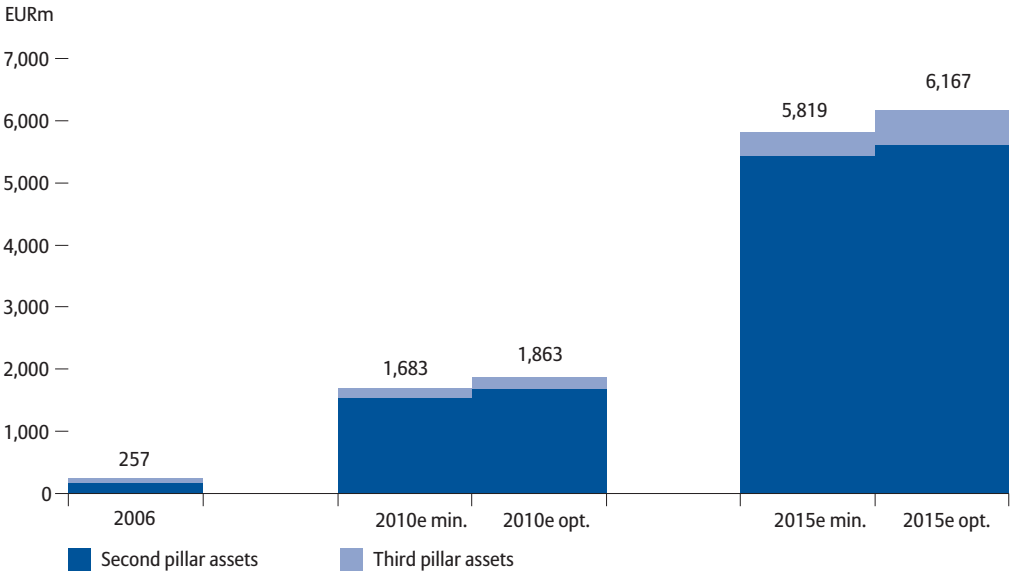
Third pillar statistics 2006 (open pension funds)	
Members	90,000
Assets under Management [EUR]	74m
Number of pension fund providers	6

With income levels increasing, more people may join the voluntary system. In the past three years, there have been signs of this happening, as the number of members in private pension plans has more than tripled. Despite this, it is realistic to assume that members will continue to contribute only a small portion of their income. In the minimum scenario, assets under management will reach EUR 385 million by 2015 (+20% p.a). The optimistic scenario foresees EUR 546 million (+25% p.a.).

Latvia has managed to build a sustainable pension system over the last decade with impressive growth in second pillar funds. Acceptance of voluntary pension savings in the third pillar is still underdeveloped, but this may change as income levels rise. There are also indications that public policy will promote the third pillar by improving tax policy, enhancing the monitoring and supervision of voluntary pensions, setting up financial education programmes and supporting information campaigns about all parts of the retirement system.

Further issues under consideration include relaxing investment regulations in the mandatory system, establishing a reserve fund, making changes to pension indexation and introducing minimum guarantees for interest rates in the mandatory pillar.

Latvia: Pension assets under management



Source: Latvian Financial and Capital Market Commission, own calculations

Lithuania

CEE-style reform without a mandatory pillar

Shape of the pension system

Lithuania's first steps towards pension reform were taken in 1995, following a major economic crisis in the early 1990s. The first reform focused on making parametric changes to the first pillar and increasing the system's sustainability. Another two pillars were added to the system in 2004, comprising funded schemes and supplementary pension provision.

Contrary to most other CEE countries, Lithuania's second pillar is not mandatory. It is made up of individual DC accounts, but employees are free to choose whether to join or not. Acceptance of second pillar pensions has been strong and participation has increased rapidly. The third pillar is fairly underdeveloped and consists of voluntary pension funds or life insurance products. Recently, Lithuania introduced the preconditions for occupational voluntary pensions, but occupational plans have yet to be created.

In demographic terms, Lithuania will suffer from a declining and ageing population. The absolute number of Lithuanians will drop from 3.4 million today to 2.9 million in 2050. In addition to low fertility rates, negative net migration will have a serious impact. In 2004, Lithuania saw the highest rate of emigration among the EU member states that joined the same year. The dependency ratio will climb from 22.5% today to 44.9% in 2050, which is seven percentage points lower than the EU-25 average. Public pension expenditure in Lithuania will increase from 6.7% of GDP today to 8.6% in 2050. These values are roughly four percentage points lower than the corresponding values for the EU-25 average.

Demographics and macroeconomics	
Population [m]	2006: 3.4 2050: 2.9
Population over 65 [%]	15.5
Dependency ratio*	2006: 22.5 2050: 44.9
GDP [EUR]	23.7 bn
GDP per capita [EUR]	6,957 (28% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	7.4
GDP growth 2007–2012 [av. in % p.a., est.]	5.5
Unemployment rate [%]	5.6

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

Assets in Lithuania's second pillar pension market total EUR 306 million and are likely to grow by at least 33% p.a. until 2015. In the third pillar, assets amount to EUR 15 million and are expected to increase by at least 25% per year.

The first pillar – public pensions

Just like the other Baltic states, Lithuania inherited a Soviet-style pension system that was characterised by generous early retirement provisions, privileges for certain occupational groups and a weak link between contributions and benefits. When the reform process began in 1995, retirement age was gradually increased to 62.5 years for men and 60 years for women

(reached in 2006). The number of contributory years required for pension benefits was also raised. Early retirement provisions were abolished, and a strong link between contributions and benefits created.

The reform implemented a two-tier system in the first pillar. Today, there is a basic flatrate pension that depends on years of service. Benefits were increased in early 2007 and currently amount to LTU 266 (EUR 77) per month. The second part of the public system is supplemental and earnings-related. It is based on a formula comprising years of service, individual wages and average income. Adjustments for the earnings-related component are made in line with average economy-wide earnings, while the basic pension is determined by the government in an ad-hoc manner.

In principle, all employees are covered by the system, but the actual coverage rate is 83 % of the workforce. Some categories of the self-employed are free to join. In order to receive a full pension, 30 contributory years are required and the minimum qualifying period is 15 years. Those who do not reach the minimum qualifying period are entitled to a social assistance pension, which amounts to 90% of the basic pension.

Social contributions in Lithuania are high, amounting to 30.7% of gross wages. 23.7% of these contributions are allocated to pensions. Employers pay 21.2% of gross wages for pensions, and employees contribute 2.5%. Possibilities for early retirement were re-introduced in 2004 after having been abolished in 1995, but they only apply to people who have been unemployed for a long time. If people retire early, their pension benefits are reduced. Staying in the workforce longer than the minimum retirement age is rewarded with 8% benefit increases per extra year.

First pillar design	
Contribution rate [% of gross salary]	Employers: 21.2 Employees: 2.5
Net replacement rate	55
Legal retirement age	62.5 men/60 women
Public pension expenditure [% of GDP]	2004: 6.7 2050: 8.6

Data from 2006 or latest available year

The second pillar – voluntary individual accounts

Institutional framework

Second pillar pension funds were introduced in 2004. Discussions on whether the second pillar should be mandatory began in the mid-1990s, but no political consensus could be reached. In 2002, the decision was made to make the second pillar voluntary. Public response was extremely positive. By late 2003, 38.3% of eligible persons had decided to join, and that figure rose to 610,000 members in late 2005, more than 50% of the labour force. Once the decision to join the voluntary system has been made, it is irreversible.

The only conditions for joining are that members are insured by the state social insurance scheme and are below the retirement age. Pension funds are established as companies. They have a supervisory board, a management board and a shareholder assembly.

Similar to mandatory second pillar systems in other Eastern European states, contributions to the second pillar are diverted from social security contributions to pension funds. In 2004, 2.5% of gross wages were redirected into the funded pillar, and this share has been gradually increased to 5.5% in 2007. Total contributions have not changed. The reduced contribution to the public system does not affect basic pension entitlement, but only the earnings-related, supplementary part of first pillar pensions.

Investment regulations

Pension plan assets must be invested in a diversified investment portfolio. This means

Second pillar statistics 2006	
Members	610,000
Assets under management [EUR]	306m
Number of pension fund providers	6

that the assets of every pension scheme must be invested in a portfolio comprising securities, real estate, commercial bank deposits and deposit certificates issued by banks. This portfolio is subject to the following maximum limits:

- 30% for assets of the same issuer, provided they are issued or guaranteed by the central or local government
- 30% for debt securities of a single issuer, with the exception of government securities
- 20% for real estate
- 25% for investments in securities issued by persons related to the pension fund

Other regulations deal mainly with limits for securities of a single issuer. With regard to international investments, Lithuania has taken a very liberal stance. There are no restrictions for foreign investments of pension funds, nor are there minimum rates of return.

Pension funds are not allowed to invest in the following financial instruments:

- Securities issued by pension funds
- Securities issued by a management enterprise with which the pension fund has concluded an asset management agreement
- Securities issued by enterprises or other organisations related to the management enterprise
- Derivative financial instruments, with the exception of instruments recognised by the Securities Commission and used for risk management

Disclosure and fee regulation

Disclosure requirements include publishing an annual report in a daily newspaper, informing members about the status of their accounts once a year and announcing the value of pension fund account units every day. At the member's request, pension funds must provide information about assets in his accounts, investment options and other information related to any of the company's activities that affect the participant.

Between 2004 and 2006, the system's first two years in operation, switching pension providers was not possible, but switching between plans at one company was. From 2007 onwards, members can choose to go to another provider once a year for a fee that cannot exceed 0.2% of the assets in the account. If changes are made more than once within a year, a fee of up to 4% applies. Transferring to another fund once within the same pension management company is free of charge, while subsequent changes may incur a fee of up to 0.2% of the value of the account. A pension management company is not allowed to charge more than 10% of pension fund contributions and 1% of pension accounts per year.

Benefits and withdrawal

When they reach retirement, pension fund members must use their accumulated assets to buy a life annuity from a pension company. Lump sum payments or a withdrawal plan are only possible if the amount remaining in the participant's account is sufficient to buy an annuity equal to the state social insurance basic pension.

Asset management and allocation

In 2006, the second pillar system counted 610,000 members. Participants can choose from 21 pension funds that are provided by six companies. The market is extremely concentrated. The largest company has a market share of 56%, and the two biggest companies have a combined market share of slightly over 90%.

Pension companies must provide one conservative fund with investments in government bonds. They are otherwise free to offer other funds with riskier portfolios. Of the 21 funds, seven are conservative funds, three have a small equity portion (up to 30%), eight have a medium equity portion (30-70%) and three offer 70-100% equity investments. Funds with medium equity exposure are the most popular, accounting for 58% of members, followed by funds with low equity exposure (27%), conservative funds (13%) and those with high equity exposure (2%).

Direct investment in shares is relatively modest in all types of pension funds; indirect investments via mutual funds are the preferred route. Pension funds with little equity exposure hold 3% in shares and 45% in mutual funds; pension funds with medium

equity exposure invest 8.5% in shares and 45% in mutual funds, whereas funds with the highest equity exposure invest 39% in shares and 43% in mutual funds. Across all pension funds, assets are allocated in the following way: 43% government bonds, 39% mutual funds, 7% shares and corporate bonds and 3.6% cash and deposits.

Taxation

Employee contributions are tax deductible. If employers pay employee contributions, they are tax deductible up to a limit; employer contributions are considered as tax-free income for the employee. Investment income is tax-free, whereas pension benefits are subject to ordinary income tax.

The third and the fourth pillar – Voluntary pension savings

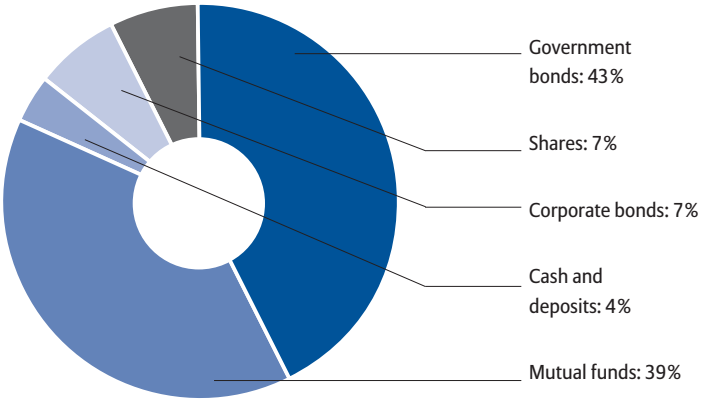
Third pillar pensions are fairly underdeveloped in Lithuania. Private individual pensions were introduced in 2004. Individuals and their employers can contribute to voluntary pension funds. Contributions are tax-free up to 25% of annual income, and any amount above that level is taxed at a reduced rate of 15% (rather than the regular rate of 27%). At the end of 2006, 20,100 participants had joined supplementary voluntary pension funds; assets under management amounted to EUR 15 million. As is the case for second pillar funds, the market is greatly concentrated. The two leading pension providers account for 94% of total third-pillar assets. The bulk of assets is invested in mutual funds (50%), followed by government bonds (15%), equity (13%) and corporate bonds and deposits (8% each).

In 2006, the Lithuanian parliament passed a law that enables the creation of occupational pension schemes and group life contracts. This could become something of a fourth pillar in the future, but a scheme has yet to be created.

IORP

Though doubts have been expressed about the correct implementation of the IORP directive in Lithuania, the European Commission has not referred the country to the Court of Justice.

Second pillar pension fund asset allocation 2006



Sources: OECD, Allianz Global Investors

Outlook

Current household asset allocation

The financial assets of Lithuanian households amounted to EUR 10.8 billion in 2005, or 53% of GDP. This is only slightly higher than the Latvian level, which is the lowest of the EU-25. However, Lithuania saw increases in its financial assets of 24% in 2004 and 17% in 2005. Prospects for further growth are good thanks to an unparalleled low unemployment rate, strong income growth and solid consumer confidence.

Lithuanian households keep almost half of their financial assets in bank deposits, regardless of low interest rates and new financial instruments. Stocks and investment funds have gained a considerable share of household assets in the past few years, but insurance and pension products are not yet widespread investments. In 2004, their share of total financial assets amounted to only 4%. However, these products should grow fast as the volume of pension assets increases. In 2005, assets of second and third pillar pension funds grew more than threefold.

Third pillar statistics 2006	
Members	20,100
Assets under Management [EUR]	15m
Number of pension fund providers	4

Life premiums grew by 23% from 2004 to 2005, but still represent just 0.43% of GDP. Growth and penetration in this area has been much lower than in most other CEE countries.

Future pension assets

Contrary to initial expectations, the take-up of second pillar pensions has been fast. At the end of the first year, about 44% of employed people participated in the system. In 2006, there were 610,000 members. Assets currently stand at EUR 306 million. And since wages are expected to continue increasing, future growth prospects are bright.

In the minimum scenario, assets under management are expected to reach EUR 4.05 billion based on the conservative assumption of 5% average performance. Even in this scenario, volumes will increase by 33% p.a. in the projection period until 2015. In the optimistic scenario, the volume could reach EUR 4.6 billion (35% growth per year). Considering that the system is widely accepted, the latter is likely to be the more realistic scenario.

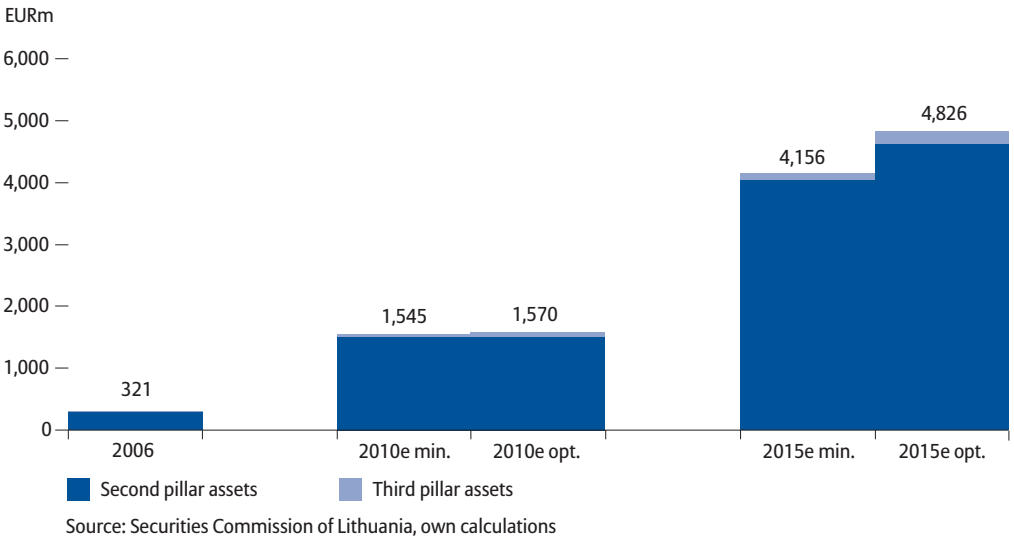
The development of third pillar voluntary pensions plans took place on a much lower level. At the end of 2005, assets under management stood at EUR 15 million, with only 20,100 members contributing. With increasing income, more people may join the third pillar. For our projection, we assumed that mainly high-income earners in the prime of their working lives will save additional money for retirement, contributing 5% of their income until 2010 and 8% thereafter. Increasing participation rates and high wage increases will push the third pillar pension market in the future, but at low volumes. In the minimum scenario, assets under management will reach EUR 110 million by 2015 (+25 % p.a.). The optimistic scenario foresees EUR 203 million (+34% p.a.).

It took Lithuania almost ten years to put the basic parameters of its three-pillar pension system in place. Due to the recent introduction of voluntary occupational pensions, Lithuania could have a four-pillar system in the future. Contrary to all other CEE states with a funded second pillar, Lithuania chose not to make its second pillar mandatory. The fast take-up of second pillar pensions, which was supported by a massive advertising campaign, shows that voluntary solutions can also work.

To achieve a balanced structure, the third pillar needs to be developed further. Its development might be a question of time and rising income, but tax incentives are currently too weak to get it off the ground. Nevertheless, pension reforms in Lithuania have resulted in a much more sustainable system with a widely accepted funded element.

Outlook

Lithuania: Pension assets under management



Source: Securities Commission of Lithuania, own calculations

Poland

The biggest pension market in CEE

Shape of the pension system

Poland was one of the first countries in CEE to reform its pension system. The country's reforms went very far. Not only was a mandatory second pillar introduced, the first pillar was also reformed in line with the principles of a notional defined contribution (NDC) system. This established a strict equivalence between contributions and benefits. In 1999, these reforms replaced the old PAYG system, which was under substantial financial pressure due to the rising number of pensioners.

The first and second pillars are complemented by voluntary occupational pension savings, which were also introduced in 1999, and personal voluntary schemes. The latter started operating in 2004 and are sometimes referred to as the fourth pillar. In 2002, Poland established a demographic reserve fund to cover future deficits.

Polish demographics are similar to the other CEE states. Over the next four decades, the population will shrink from 38.1 million to 33.7 million; the dependency ratio will worsen from 18.7% to 51%, which is slightly below the EU-25 average of 52%. Nevertheless, Poland's public pension expenditure will decrease over the next decades. In 2004, it stood at 13.9% of GDP. By 2050, it will have dropped to 8.0%. The current EU-25 average is 10.6% of GDP and will increase to 12.8% by 2050.

Poland's size and its early move towards funded pensions have made it the biggest market in the region, representing 60% of CEE pension markets. Polish second pillar assets amount to EUR 30 billion and third pillar assets to EUR 571 million. The former are expected to grow by 17% p.a. until 2015, while the latter will show annual growth rates between 17% and 23% during the same period.

Demographics and macroeconomics	
Population [m]	2006: 38.1 2050: 33.7
Population over 65 [%]	13.2
Dependency ratio*	2006: 18.7 2050: 51.0
GDP [EUR]	274.3bn
GDP per capita [EUR]	7,204 (29% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	3.4
GDP growth 2007–2012 [av. in % p.a., est.]	4.4
Unemployment rate [%]	13.8

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

The first pillar – public pensions

The first pillar has replaced the previous defined benefit PAYG system. It is a mandatory PAYG scheme based on NDC accounts and run by the state-owned Social Insurance Institution (ZUS). The old system ran into difficulties due to an early retirement wave that resulted from economic restructuring. From 1989 to 1995, pension spending increased from 6.5% to 15.6% of GDP.

NDC accounts mimic the principles of funded pensions in the public system, as benefits depend strictly on contributions. In a NDC system, participants have virtual accounts that contain contributions made

throughout their working lives. The value of these virtual accounts increases with wage growth. Benefits are calculated taking average life expectancy at the time of retirement into account. This reduces the incentives for early retirement and ensures an actuarially neutral basis for pension calculation. The government pays contributions for extraordinary life situations, including military service, periods of unemployment and maternity leave.

The reforms left the retirement age the same at 65 for men (with 25 years of employment) and 60 for women (with 20 years of employment). Retirement age itself is not as relevant in an NDC system as in pure PAYG schemes, as benefit payments depend on accumulated contributions. Hence, early retirement does not imply a financial burden for the state. Nevertheless, early retirement has been an issue for people who have remained in the old system, but this system will be eliminated in 2008. At present, real retirement age is 59.4 years for men and 56.1 years for women.

When the NDC system was implemented, joining was made compulsory for all employees younger than 50. Those over 50 were obliged to stay in the old system. Past accrued rights were transferred to the NDC system by crediting „initial capital" based on actuarial valuation of social insurance contributions as of the transition date. The self-employed are obliged to participate in the new system.

The total contribution rate is 19.5% of the employee's taxable income, split equally between employers and employees. Of the total contribution rate, 12.2% go into the public, notional DC scheme. The remaining 7.3% are credited to the second pillar accounts operated by pension funds. Contributions are paid up to the limit of 2.5 times the average Polish salary. For members who contributed for the minimum amount of time but whose total pension from the first and second pillars is below the guaranteed minimum pension, the state covers the difference with public funds.

Due to transition costs, the first pillar will likely generate a deficit until the mid-2030s.

First pillar design	
Contribution rate [% of gross salary]	Employers: 9.75 Employees: 9.75
Net replacement rate	78
Legal retirement age	65 men/60 women
Public pension expenditure [% of GDP]	2004: 13.9 2050: 8.0

Data from 2006 or latest available year

The Demographic Reserve Fund is intended to cover these deficits. It is financed by a portion of old-age contributions (0.2% of wages in 2005, increasing to 0.4% by 2009).

Apart from its public system, Poland runs several schemes for certain occupational groups, including farmers and certain civil servants, judges, policemen, military personnel and prosecutors. More than 90% of the farmers' pension is subsidised by the state. These payments account for 1.8% of GDP. Both contributions and benefits are flat-rate and amount to roughly half the average of public pension benefits.

The second pillar – mandatory individual accounts

Institutional framework

Mandatory individual accounts in Poland take the form of open pension funds (OPF) and are of the DC type. The Social Insurance Institution passes on the 7.3% mandatory system rate to OPFs. When the new second pillar system was introduced in 1999, those born between 1949 and 1968 could choose between opting into it or remaining in the reformed first pillar only. Once a decision was made, it was irreversible. Membership was made mandatory for those entering the labour market and born in or after 1969. The accounts are managed by specialised pension fund companies. Open pension funds are independent legal entities created and managed by a joint stock company, a so-called general pension fund society.

Until 2004, each pension fund society could create and manage one open fund only. Since 2004, each pension fund society has been allowed to run two open funds, one of

Second Pillar

which must be invested conservatively, while the other can have a higher share of equity investments. The creation of a pension fund society requires permission from the Insurance and Pension Funds Supervisory Commission (KNF). The pension fund society must have a management board (which is also the managing body of the OPF), a supervisory board and a general meeting. OPFs created by the pension fund society must be independent legal entities.

Investment regulations

Like most other CEE countries, Polish pension funds are subject to quantitative investment restrictions and minimum return guarantees.

Open pension funds are subject to the following maximum investment limits:

- 40% for equities from the regulated stock exchange market
- 40% each for mortgage bonds, municipal and corporate bonds
- 20% for bank deposits and bank securities
- 15% for units of open-ended investment funds
- 10% for equities in the regulated non-exchange market
- 10% for certificates of closed-end investment funds
- 2% (5%) for investment certificates of a single closed-end (open-end) investment fund

There are no limits on investments in state-issued bonds. Foreign investment is restricted to 5%. Investment limits for mortgage, municipal, and corporate bonds have been relaxed in recent years, while other restrictions have remained stable. Further restrictions apply to investments in financial instruments from a single issuer, such as securities, investment certificates or mortgages. Open pension funds may not invest in shares or other securities of the pension fund managing society.

In Poland, minimum return guarantees are relative. The minimum rate of return is defined as the lower of the following two values:

Second pillar statistics 2006	
Members	12.4m
Assets under management [EUR]	30bn
Number of pension fund providers	15

- The average real annualised rate of return for all pension funds over the last 36 months, minus four percentage points, or
- The average real annualised rate of return for all pension funds over the last 36 months, minus 50% of this average rate

The pension fund society must establish a reserve account for the open fund from its own resources. This account is used to offset deficits arising from investment returns below the mandatory minimum return. If the reserve account is not sufficient to offset the deficit, the pension fund society must cover it using its own resources. If it is unable to do so, its management board is obliged to file for bankruptcy. In this case, the national guarantee fund (the resources of which may not exceed 0.1% of the cumulative net asset value of all open pension funds) stands in for the pension fund. Deficits that cannot be covered by the guarantee fund are offset by the Polish Treasury.

Disclosure and fee regulation

OPFs have to publish the fund's articles of association, information on the fund's investment performance and the fund's approved annual report in a national daily newspaper at least once a year. They also have to send a report at least annually to each member containing account balance information, contribution receipt dates and information on the fund's investment performance. The annual report must be approved by the regulatory authority. OPFs are obliged to disclose further information to the authorities, including daily performance and financial status updates as well as monthly portfolio allocation reports.

There are three types of fees that OPFs can charge: distribution, management and transfer fees. The distribution fee must not exceed 7% of the value of contributions; this limit will be reduced to 3.5% in 2014. The

management fee is meant to cover expenses related to fund management and has two components, which are capped. The fixed component must be lower than 0.045% of net assets, while the variable component depends on investment returns generated and must not exceed 0.005% of net assets per month. A transfer fee for switching between open pension funds is charged if membership has been shorter than two years and ranges from PLN 80 to PLN 160 (EUR 21 to EUR 42), depending on the length of membership. Members are free to switch funds at any time.

Benefits and withdrawal

While members have to buy a life annuity at retirement, regulations concerning which types they can choose have not been defined yet. Draft regulations propose several types of annuities, including:

- Life annuities for the member only
- Life annuities with guaranteed benefits for survivors for a period of at least 10 years
- Life annuities paid until the spouse's death, with the survivor's pension equalling at least 75% of the original benefits

Annuities must be indexed in line with inflation. The first benefits of the new system will be payable from 2009. The set-up of the pay-out phase is still being discussed, the main issue being whether the state-owned Social Insurance Institution should be responsible for it, or whether OPFs should pay out benefits themselves.

Asset management and allocation

There are 15 pension companies operating in the Polish mandatory pension market, down from 21 in 1999. Membership currently stands at 12.4 million, or 85% of the working population. Assets under management amounted to EUR 30 billion in 2006. Compared to many other CEE countries, the degree of market concentration is modest; the three biggest OPFs account for 56%, the five biggest OPFs for 70% of all members.

The overall asset allocation of OPFs is quite conservative: Bonds and treasury bills account for 62% of assets, domestic equities for 35% and bank deposits for 2%. The international investments of OPFs are extremely low, amounting to 0.4% of assets; OPFs do not even exploit the low 5% cap on international investments.

Taxation

Poland runs an EET system in the mandatory pillar, in which contributions are tax-deductible, investment income is tax-exempt and benefits are taxed.

The third and the fourth pillar – voluntary pension savings

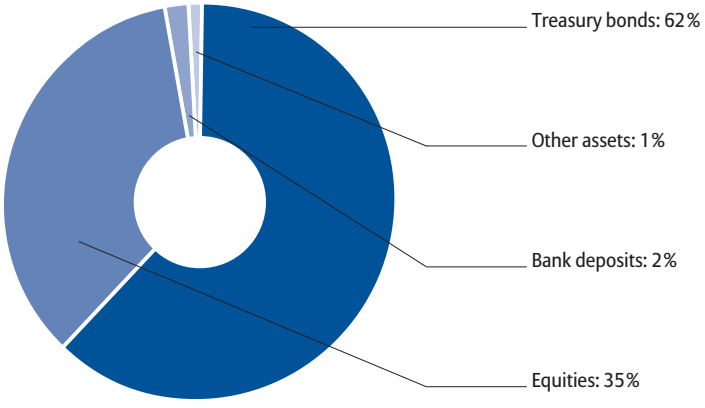
Third pillar pensions had a slow start in Poland. In 1999, voluntary occupational pension plans (PPE) were introduced in the country. In 2004, personal voluntary schemes (IKE) were established.

Voluntary occupational pension plans

The idea behind the introduction of PPEs, which are DC plans, was to create an additional layer of pension provision. 260,000 employees currently participate in the system and assets under management amounted to EUR 571 million in 2006.

Participation is low for two reasons. First, tax incentives are quite limited. PPE contributions are mandatory for employers and on an after-tax basis for employees, making the scheme unpopular. There is only a capital gain tax exemption for plan members and an exemption from social security contributions up to 7% of employees' salaries. Second, due to Poland's

Mandatory pension fund asset allocation 2006



Sources: OECD, Allianz Global Investors

high unemployment rate, the highest in the EU, employers have not seen the necessity to establish incentives for staff retention. In 2004, PPEs were reformed. Registration and operations were simplified, the self-employed were allowed to participate, and greater individual choice was implemented. Suspending contributions for a specific period was also made possible, which is important for employers in financial distress.

If an employer establishes a PPE, it is obliged to pay contributions for its employees. The contribution is tax-exempt up to 7% of the employee's salary. Employees may make additional contributions to supplement those of the employer. These are fully taxed and cannot exceed 450% of the average monthly salary, which is now around EUR 630. There are no rules on how pension benefits must be paid out, but they cannot be withdrawn before the member reaches retirement age. Employers are restricted in plan design, with minimum requirements including a legally defined „basic employer contribution". The fund must be offered to more than 50% of a company's employees. Plan conditions must be negotiated with the unions or employee representatives.

There are 27 companies managing a total of 906 schemes. All the managed schemes must be based in Poland. Investment funds, life insurance companies, specially established company pension funds or foreign management companies manage voluntary occupational pension schemes. There are no regulations regarding fee caps.

PPEs enjoy more investment freedom than OPFs. Portfolio regulations do not foresee any limits on equities, certificates of open- and closed-ended investment funds or bank deposits. There is a 10% limit on mortgages, municipal and corporate bonds. Investments in real estate are prohibited. A major regulation is that there is a 5% cap on investments in OECD securities markets, just as there is for OPFs.

Personal voluntary schemes

The unpopularity of PPEs led the government to introduce an additional scheme for private pension savings in 2004, the personal voluntary schemes (IKE). The IKEs are individual accounts and are managed by investments funds, broker companies, life insurance companies or banks. They can take the form of investment funds, bank accounts or life insurance schemes.

Employer contributions are tax-deductible for the employer and taxable for the employee. Similar to the PPE scheme, IKEs are on an after-tax basis for the employee. To qualify for tax exemption, contributions may not exceed 150% of the average monthly wage. Pre-retirement withdrawals are allowed, but there are tax penalties, just like there are with PPEs. IKEs can offer portfolio choice and several pension product options. They are exempt from capital gains tax, provided that the account is maintained until retirement age. Contrary to the mandatory pension's EET system, Poland applies a TEE system in the voluntary pillars. The government estimated that up to 3.5 million people would open IKE accounts, but only 677,000 had done so by mid-2006. Of these, 70% chose life insurance, 18% investment funds, 8% bank products and 4% broker company offers. It should be noted that switching from PPE schemes to IKE accounts is possible. A number of participants in the IKE scheme are therefore switchers who do not save additionally, but only in a different scheme than before.

IORP

The IORP directive has been transposed fully into Polish law.

Outlook

Current household asset allocation

In 2005, Polish financial assets totalled EUR 145 billion. At 57% of GDP, this is rather low; per capita values barely reached 7% of the EU-15 average. However, growth is quite

Outlook

Third pillar statistics 2006 (voluntary occupational plans – PPE)	
Members	260,000
Assets under Management [EUR]	571m
Number of pension fund providers	27

strong, albeit on a low level. The value of financial assets grew by 30% in 2005, and growth prospects are good thanks to lower unemployment.

Polish households keep more than 50% of their financial assets in bank deposits. The second largest portion in households' portfolios comprises shares and mutual funds, the result of voucher privatisation in the 1990s. Insurance and pension products make up about 10% of the portfolio. Life premiums in Poland grew by 22% from 2004 to 2005, a much larger increase than in previous years, which was mainly the result of „bancassurance" offers' popularity. Even though growth is not as strong as in other CEE states, Poland is already further ahead in the process of catching up. Life premiums as a share of GDP stand at 1.3%, 23% of the EU-15 average, but higher than the CEE average.

Future pension assets

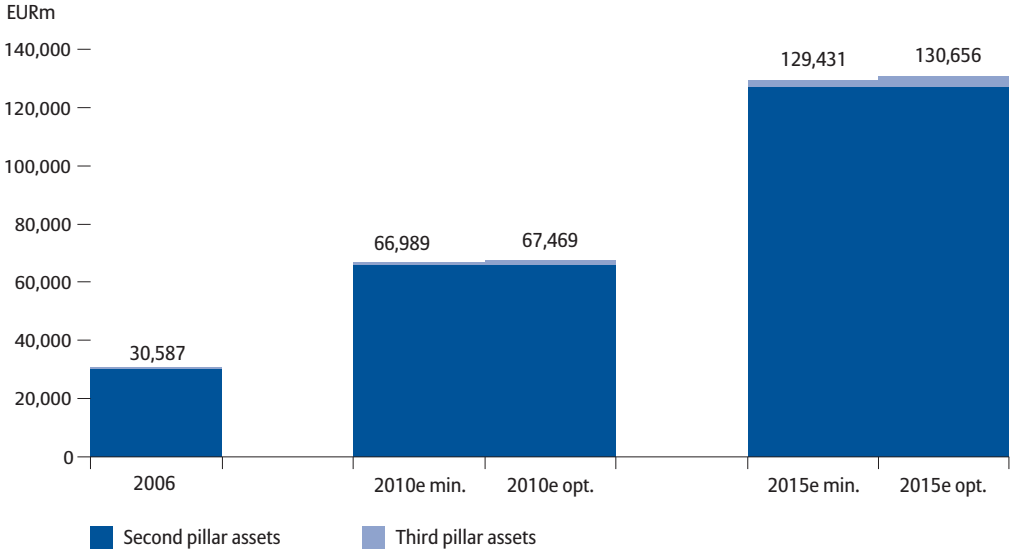
In 2006, 12.4 million employees subscribed to second pillar pension funds, covering 85 % of employed people. In recent years, participation has decreased as inactive accounts have been cleaned up.

The inflow of contributions and the minor benefit payments in the years to come (first payments are due in 2009) support the growth of open pension funds' assets for at least the next decade. In 2005, OPFs benefited from high equity exposure; assets grew by 44% thanks to a bull market. In the future, however, growth can only be generated by price hikes in financial markets and wage growth. The latter is expected to be moderate in the coming years compared to wage increases in other CEE countries. Second pillar pension assets amounted to EUR 30 billion at the end of 2006, making Poland the largest pension market in Eastern Europe by far.

The comparatively moderate wage increases and stagnating participation will slow down the growth process. In our projection period, assets under management are expected to reach EUR 127 billion based on the conservative assumption of 5% average performance. In this scenario, volumes will increase by roughly 17% p.a. until 2015. Since contribution rates are fixed and will not likely change, calculating a second scenario would not make sense.

Third pillar voluntary pension plans have developed to a much smaller extent. Only 260,000 people are currently participating in PPE schemes. At the end of 2006, assets under management amounted to only EUR 571 million. As wages increase, more people may join the voluntary scheme. For our projection, we assumed that people will continue to contribute only a small portion of their income, and that mainly high-income groups will set more aside for retirement. Increasing participation rates and modest wage increases will give the third pillar pension market a boost in the

Poland: Pension assets under management



Source: Insurance and Pension Funds Supervisory Commission of Poland, own calculations

future, but volumes will continue to be low. In the minimum scenario, assets under management will reach EUR 2.4 billion by 2015 (+17% p.a). The optimistic scenario foresees EUR 3.6 billion (+23% p.a.). Both scenarios exclude IKEs due to the dominance of life insurance schemes.

The Polish pension system has been transformed. Structural reforms resulted in fewer long-term financial burdens for the state and contribution-oriented pillars. In the first pillar, transition costs remain an issue, as does the separate and costly system for farmers. The transformation entails high costs, which will have to be covered by the state or the demographic fund.

In the mandatory and voluntary pension pillars, regulation impedes more efficient long-term investment strategies. The low cap on international investments in particular hampers an appropriate international diversification of assets, which means that participants either have to accept higher risks or lower returns. The relative minimum guarantee of mandatory pension funds results in conservative asset allocation, which meets the guarantee in the short-term, but misses long-term opportunities and higher returns in the capital market.

The outlook for the voluntary pension pillars is mixed. Participation has been far below expectations so far, partially due to insufficient tax incentives. However, voluntary occupational schemes may well become more popular in Poland if unemployment continues to decrease and staff retention initiatives gain in importance.

Romania

A pension system in transition

Shape of the pension system

The road to pension reform in Romania has been a bumpy one. Throughout the 1990s, there were several attempts to reform the pension system, but a law was first approved in 2000, focusing on reforms in the public system. Four years later, laws were passed that paved the way for the introduction of a voluntary pension pillar and a mandatory second pillar. Implementation was delayed, however, and the voluntary pillar became operational in 2007, while the mandatory pillar is expected to be up and running in 2008. In Romania, the voluntary pillar differs from those of other CEE countries, as it does not feature private pensions. Instead, it comprises Western European-style occupational pensions.

Romania will not be spared from the effects of demographic change. Between now and 2050, the country's population will shrink from 21.7 million to 16.8 million. The old-age dependency ratio will rise from 21.7 % to 49.6 %, which is slightly lower than the projected EU-25 average of 52 %. According to the convergence programme Romania submitted to the European Union, public pension expenditure is expected to increase only marginally, from 6.7 % of GDP in 2004 to 7.0 % in 2050. The EU-25 average will increase from 10.6 % of GDP to 12.8 % over the same period.

Once the second pillar has started operating, assets will grow quickly. By 2015, second-pillar assets will amount to a minimum of EUR 2 billion, or to EUR 3 billion in the optimistic scenario. Third-pillar assets will reach EUR 869 million.

Demographics and macroeconomics	
Population [m]	2006: 21.7 2050: 16.8
Population over 65 [%]	14.8
Dependency ratio*	2006: 21.7 2050: 49.6
GDP [EUR]	101.6 bn
GDP per capita [EUR]	4,686 (19 % of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	5.6
GDP growth 2007–2012 [av. in % p.a., est.]	4.8
Unemployment rate [%]	7.4

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

The first pillar – public pensions

Romania's first pillar suffered from the typical problems of an Eastern European transition country. Unemployment rose and the number of contributors to the public system fell. In addition, retirement age was low and early retirement easy and widespread, as it was used as a means of avoiding a further increase in unemployment. Transparency was low, especially regarding the link between contributions and benefits. Furthermore, there were different pension systems in place for different occupational groups. Emigration was high, which made the contribution problem even worse. Between 1990 and 2004, the number of pensioners grew from 3.5 to 6.1 million, while the number of contributors fell from 8 to 4.5 million.

The pension reform that was passed in 2000 addressed these problems and created an integrated system. The new approach included the self-employed, the unemployed, policemen and farmers (on a voluntary basis), none of whom were included in the previous system. Previously, several systems for various occupational groups existed alongside the public system. These continue to exist for lawyers, military staff and the clergy.

As of May 2007, retirement age was 63 years and 1 month for men and 58 years and 1 month for women. It is gradually increasing and will reach 65 for men and 60 for women in 2015. Early retirement has been made more difficult, and the required contribution period has been increased from 25 to 30 years for women and from 30 to 35 years for men. Romania has also introduced a point system that calculates benefits based on contributions made throughout the entire working life rather than taking only the last few years into account. Pension points are calculated as the ratio of the individual's monthly gross wages and other compensation to the national average for that year. The employee's pension is determined by multiplying the pension points with the pension point value, which is determined each year in the social security budget law. The reform also created the National House of Pensions and Other Social Security Rights, an institution that aims to coordinate and manage the public pension system. These parametric reforms were implemented as a means of coping with short-term financial pressure.

Employers' pension contributions amount to 20.5% of gross earnings (higher for workers in dangerous occupations); employees contribute 9.5% and the self-employed carry the full contribution rate themselves. Contributions have to be paid for income up to five times the national monthly average, which was RON 1,077 (EUR 307) in 2006. Early retirement is possible from five years prior to normal retirement, provided that the employee's contribution record exceeds the required time period by 10 years or more. Pension benefits are indexed to inflation and adjusted quarterly if prices have increased by at least 5% on an annual basis.

First pillar design	
Contribution rate [% of gross salary]	Employers: 20.5% Employees: 9.5%
Net replacement rate	n.a.
Legal retirement age	63.1 men/58.1 women
Public pension expenditure [% of GDP]	2005: 6.7 2050: 7.0

Data from 2006 or latest available year

These parametric reforms in the first pillar managed to ease financial pressure on the system and incorporate almost all segments of the Romanian population. However, since the reforms led to frequent changes to the law, the confidence in the system has been reduced. Between 2000 and 2004, the law reforming the public system was changed 23 times.

The second pillar – mandatory individual accounts

Institutional framework

Following the decision to introduce a funded and mandatory second pillar in 2004, another law was added in 2007 that focused on the licensing procedure, investment limits and classes, the guarantee fund and the role of the supervisory authority. The second pillar is set to start operating on January 1, 2008. From then on, a portion of social security contributions will be directed to funded individual accounts, which are defined contribution schemes.

During the first year of operation, contributions to the funded part of the system will amount to 2% of wages. They will then increase by 0.5% each year until they reach 6% after 8 years. Contributions to the first pillar will diminish at the same rate. Participation in the mandatory pillar will be obligatory for all people under 35 and voluntary for the 36 to 45 age cohort. Assuming that 50% of those who can join voluntarily do so, 2.6 million participants could be enrolled in the scheme from the very beginning.

Second Pillar

Mandatory pension funds are not yet in operation in Romania. Once they get going, these funds will be civil companies, defined by Romanian law as non-commercial companies without legal liability. Such companies can be established by a minimum of 100 founding members and must be approved by the Pension Fund Supervision Commission. A pension fund must have a minimum of 50,000 participants one year after it has been founded. Individuals can only join one private pension fund at a time.

Since pension funds have no legal liability, separate administrative companies are needed to manage them. The exclusive objective of administrators is the administration of pension funds, this includes calculating and paying out benefits. An administrator may manage only one mandatory pension fund.

Investment regulations

Once mandatory pension funds start operating, the main investment limits will be as follows:

- Up to 20% of assets can be invested in money market instruments
- Up to 70% can be put into state bonds issued by Romania, EU countries or states from the European Economic Area (EEA)
- Up to 30% can be invested in bonds issued by local public administrations in Romania, the EU or the EEA. The maximum for bonds from other states is 15%
- A maximum of 50% can be invested in equities listed on Romanian, EU or EEA markets

Administrators must achieve a minimum rate of return, which is set by the Pension Fund Supervision Commission. The Commission also has the power to appoint a Special Surveillance Board, which is created when the fund's profitability rate has been lower than the minimum rate of all pension funds for four consecutive quarters. Private pension funds must establish a reserve fund, which aims to ensure the minimum profitability level. The details of this reserve fund have not yet been finalised.

Disclosure and fee regulation

Disclosure regulations stipulate that pension fund administrators must inform members of their account status at least once a year. Fee regulations encompass three areas: first, front-end fees may not exceed 2.5% of contributions paid. Second, annual management fees may not be higher than 0.6%. Third, no more than 10% of the annual investment income can be charged as a performance fee.

In order to secure mandatory pensions, Romania plans to create a national guarantee fund that will be responsible for both mandatory and voluntary pensions. The national guarantee fund will be established within 90 days of the date from which at least three voluntary pension administrators have been authorised. The Pension Fund Supervision Commission will establish its legal framework and functioning. The guarantee fund will be financed by administrators' contributions and will step in if pension funds are not able to pay out benefits.

Benefits and withdrawal

Benefits will be paid out as annuities. Those who do not have sufficient assets to qualify for a pension will receive a lump sum or periodic payments for up to five years. Benefits are adjusted based on the consumer price index.

Asset management and allocation

As of early 2007, no mandatory pension fund had been established. However, banks, financial institutions and pension funds active in other CEE are expected to enter the market. One financial services provider has confirmed that it will apply for a license, and nine others have expressed interest. Romanian financial markets remain underdeveloped, which could prove to be a challenge for the success of a mandatory pension pillar.

Taxation

Romania will run an EET system for the taxation of future mandatory accounts. Employee contributions will be tax-deductible and investment income tax-exempt. Pension benefits will be subject to ordinary taxation.

The third pillar – voluntary occupational pensions

Voluntary pension funds

In terms of its institutional structure, Romania's third pillar bears a strong resemblance to the occupational schemes prevalent in Western Europe. After the basic decision was made to introduce voluntary occupational schemes in 2004, a new law replaced the previous legislation in 2006. The new law regulates occupational pension schemes and determines tax and investment regulations. The law was adopted to align legislation with EU regulations.

Employers and trade unions can establish voluntary occupational schemes, which are DC plans, at the industry, group or plant level through collective bargaining. In the absence of a collective agreement, employers can either establish pension schemes individually or at the industry level. Employers can choose whether or not to set up a scheme, as long as they have made the appropriate tax or other contributions to the state. Participation in occupational pension funds is voluntary for employees.

Contribution levels are established in line with scheme regulations. They are collected and paid by employers or the participants themselves. Contributions are deposited into the employee's individual account and can amount to 15% of gross salary. They can also be shared between employers and employees, depending on scheme regulations or collective agreements.

Voluntary occupational plans are run by an administrator, which is either a pension company, an investment manager or an insurance company. Administrators can manage as many occupational schemes as they wish. The pension funds are subject to the same investment and reserve regulations as mandatory funds. There will be also minimum return guarantees for occupational pensions, the details of which have not yet been defined. The funds will be obliged to establish reserve funds to cover possible shortfalls. Benefits will be paid out in the form of annuities, provided that participants have contributed for more than 60 months. Otherwise, contributions can be paid out either as a lump sum or in instalments for up to five years. Further regulations for the pay-out phase will be developed within the next three years.

The fund administrator is obliged to publish an annual report containing information on its assets, fees and participants. It also has to provide its members with annual information on the status of their accounts. The maximum management fee the administrator can charge amounts to 2.4%. The limit for front-end and performance fees stands at 5%. Switching fees, the maximum limits of which have yet to be determined, are payable if the member transfers to another fund within the first two years. Occupational pensions are subject to EET taxation. Employer and employee contributions are tax-deductible up to EUR 200 a year, investment income is tax-exempt and benefits are subject to standard taxation.

Once the voluntary pension system is operating, it is estimated that 500,000 people will participate during the first year of implementation. However, no voluntary pension funds were operating in early 2007. One financial institution has applied for a license to manage voluntary funds, and two others have indicated that they are close to finalising their application.

IORP

The IORP directive has been transposed entirely into Romanian law.

Outlook

Current household asset allocation

In 2003, the most recent year for which information is available, the financial assets of Romanian households totalled EUR 21.6 billion. This amounts to 39% of GDP, far below Latvia's 52%, the country with the lowest level in the EU-25. At present, investments in financial assets compete strongly with consumption. Pent-up demand for consumer products is

enormous, especially for durable goods. Romanian households have high debts, which continue to rise in anticipation of further income growth.

Eventually, financial products will become increasingly popular thanks to a positive economic environment, low unemployment and considerable income growth. The delayed introduction of the second pillar pension system is impeding the build-up of long-term savings. The share of life insurance products is negligible within the already small financial portfolio of Romanian households. Life penetration amounts to a mere 0.3% of GDP, compared with 5.6% in the EU-15 and 1.1% for the CEE countries.

Future pension assets

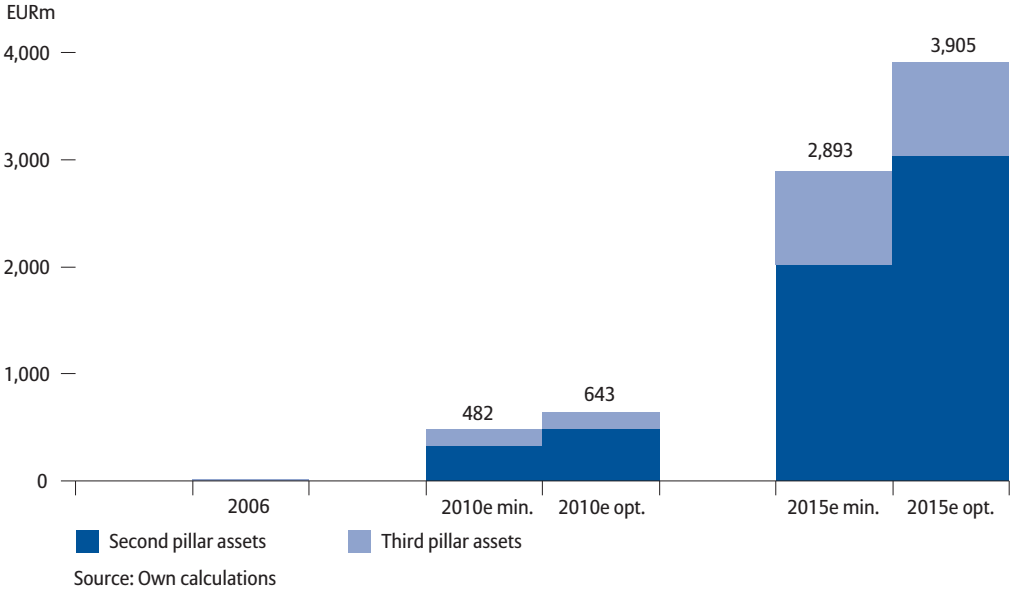
While the start of the mandatory second pillar is still uncertain, we assumed that it will be up and running in 2008. In the minimum scenario, only part of the workforce will be able to join the system, mainly urban employees (50% of the workforce). Urban employees are more likely to have regular work contracts and a higher income than rural workers. This group currently comprises roughly 4.5 million people. We predicted a shift from rural to urban employment of 10% within the projection period, so that the urban workforce will count roughly five million people in the next decade.

The participation rate of younger workers will be high, but not 100% from the start, as a certain time period will be required to introduce the system. We assumed full coverage from 2011 onwards for younger workers and 20% for older ones. In the minimum scenario, assets under management are expected to reach EUR 2 billion by 2015 based on the conservative assumption of 5% average performance. In this scenario, volumes will increase by 60% p.a. due to the increasing level of capital inflow (EUR 71 million to EUR 390 million).

In the optimistic scenario, we assumed a 50 % higher participation rate in the second pillar, which can either be the result of older employees participating more in the labour market or a consequence of accelerated industrialisation. According to this estimate, assets under management will reach EUR 3.0 billion by 2015. Inflows will start at EUR 107 million and rise to EUR 590 million by the end of the projection period.

The third-pillar voluntary pension system is in the process of being introduced. Capital accumulation may be hindered by uncertainties surrounding the establishment of the second pillar and the related financial cost for employees. Moreover, the tax break is limited to EUR 200 per year, which is not attractive for higher income households, the most likely voluntary savers. The prospects for the new

Romania: Pension assets under management



Source: Own calculations

system are therefore not particularly rosy, also considering Romania's low income levels and limited wealth. We assumed low coverage (5 to 10% for the age group of 25 to 45) at the beginning, extending to 5 to 20% for groups up to 55 years old. These cohorts are assumed to use up the maximum tax-deductible amount of EUR 200 a year. Based on these assumptions, assets under management will reach EUR 869 million by the end of 2015. The current savings behaviour, consumption priorities and uncertainties about further pension reform will impede private old-age provisioning. For this reason, we consider a more optimistic scenario to be unrealistic.

When it comes to pension reform, Romania is a late bloomer compared with other Eastern European countries. First-pillar restructuring took place in 2000, the introduction of the second pillar has been delayed until 2008 and that of the third pillar is still ongoing. It remains to be seen whether reforms to the first pillar are sufficient to make the system sustainable in the long-term. Interestingly, Romania chose to introduce voluntary occupational pensions and not voluntary private pensions. Occupational pension market development will depend on employers' willingness to provide occupational schemes, and on whether employees and unions will push for this type of pension. Potentially, occupational schemes could become an interesting tool for employee retention.

Implementing the third pillar before the second pillar is unfortunate for pension funds, employers and employees, because uncertainties surrounding the second pillar hamper the acceptance and take-up of voluntary pensions. However, once the system is in place and operating, Romania will become an attractive market for asset managers. It has the second biggest population in Eastern Europe after Poland and has enormous catch-up potential. If Romania manages to sustain its current growth rates, it may well become one of the key growth markets in Eastern Europe.

Slovakia

Establishing a strong mandatory pillar

Shape of the pension system

Pension reforms in Slovakia were implemented quite recently, with a major reform in 2005 that established a stronger link between contributions and pensions. It also increased the retirement age and created a mandatory second pillar system. Slovakia is the latest of the CEE countries to have created a mandatory pillar, which receives high social security contributions. Reforms were initiated mainly to remedy the deficits of the public PAYG system. The new Slovakian system is a three-pillar system comprising a reformed PAYG pillar, mandatory individual accounts and a voluntary supplementary pension saving scheme.

Demographic development in Slovakia is much like it is in other Eastern European countries – its dependency ratio will worsen from 16.3% today to 50.6% in 2050 – slightly below the 52% ratio of the EU-25 in 2050 and those of several CEE countries. Public pension expenditure is projected to increase from 7.2% of GDP in 2004 to 9.0% in 2050, compared with an increase from 10.6% to 12.8% for the EU-25 average.

While Slovakia's second pillar is still very new, pension assets had already grown to EUR 710 million in 2006. Assets under management in third pillar plans total EUR 635 million. Annual growth rates for second pillar assets will reach more than 30%, and will range between 16% and 22% for third pillar assets.

Demographics and macroeconomics	
Population [m]	2006: 5.4 2050: 4.7
Population over 65 [%]	12.0
Dependency ratio*	2006: 16.3 2050: 50.6
GDP [EUR]	47.5bn
GDP per capita [EUR]	8,848 (36% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	4.0
GDP growth 2007–2012 [av. in % p.a., est.]	4.8
Unemployment rate [%]	13.4

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

The first pillar – public pensions

The system in place before the 2005 reform suffered from serious financial difficulties. These resulted from a high unemployment rate and low motivation among employees to contribute to the system. The link between contributions and benefits was weak, the retirement age was low and the labour force was emigrating more and more. The first pillar had been in a deficit situation since 1997, causing a steady decline in real pensions. Between 1991 and 2003, the average pension fell from around 54% of the average wage to 45%. As a result, pensioners were increasingly dissatisfied with their standard of living.

The main aims of pension reform were to restore the long-term sustainability of public pensions, strengthen the link between contributions and benefits, and promote private pension savings. The reform gradually increased retirement age, which currently stands at 62 for men and 55 years and 3 months for women. By 2015, it

will be 62 for both sexes. Incentives for early retirement were reversed: for each month of early retirement, pension benefits will decrease by 0.5%. Employees who delay their retirement now receive a bonus of the same percentage. Contributions and pension benefits are now directly linked, as benefits are calculated based on length of service and wage level. Pension benefit levels are based on a point system; the point value is indexed to average earnings, with a contribution ceiling of triple the average salary. Pensions already being paid out are indexed to the arithmetic average of income growth and price inflation.

New labour market entrants and the self-employed were automatically enrolled in the new second-pillar system. Employees younger than 52 could choose whether to join the new pillar or remain in the old system, but the decision had to be made by the end of June 2006. Those who decided to join the new system cannot return to the old one, but they keep the benefits acquired in the old system.

Participants in the mandatory pillar redirect a sizeable part of their payroll taxes to their individual accounts. In Slovakia, this amounts to 9% of gross wages. The overall contribution rate is 18% of gross wages, with employers paying 14% and employees contributing 4%. The contribution rate is divided equally between the public pension program and the new mandatory pillar; both receive 9%. The former also includes disability insurance and a reserve fund to cover transition costs and possible deficits in the first and second pillars.

While the relatively radical transformation of the system will help ease financial pressure in the long-term, transaction costs will increase considerably in the short-term. The first pillar system has to cope with dwindling contributions, making additional transfers from the state budget and/or the reserve fund seem likely. The Slovak government intends to use additional revenues from privatisation to cover the impending deficit. According to European Commission estimates, total transition costs will range from SKK 50 to 70 billion (EUR 1.3 to 1.9 billion). The exact figure will depend on the number of people joining the mandatory pillar.

First pillar design	
Contribution rate [% of gross salary]	Employers: 14 Employees: 4
Net replacement rate	63
Legal retirement age	62 men/55.3 women
Public pension expenditure [% of GDP]	2005: 7.2 2050: 9.0

Data from 2006 or latest available year

The second pillar – mandatory individual accounts

Institutional framework

The mandatory system is of the DC type, with 9% of gross wages directed into individual members' accounts. The funds are managed by single-purpose pension asset management companies (PAMCs). The PAMCs are private sector, joint stock companies with minimum capital requirements of about SKK 300 million (EUR 7.1 million). Their exclusive business is to create and administer pension funds. They must have at least 50,000 members within 18 months of the pension fund's creation. They are governed by a two-tier board structure consisting of a board of directors and a supervisory board.

Slovak pension funds must offer three different funds with different risk/return profiles:

- A conservative fund with no equity exposure and 100% allocation into bonds and money market instruments
- A balanced fund with an equity share of up to 50% and a bond/money market instrument share of at least 50%
- A growth fund with an equity share of up to 80%

Each fund has to be managed by a different fund manager; portfolio management cannot be outsourced to external asset managers. Individuals can only be members of one fund at a time. Members may choose which fund to join and can switch between

funds as often as they wish, unless they will retire in 15 years or less. If this is the case, they can no longer be enrolled in the growth fund. Seven years before retirement, they have to completely shift balances to the conservative fund.

Second pillar statistics 2006 (or latest year available)	
Members	1.1m
Assets under Management [EUR]	710m
Number of pension fund providers	6

Investment regulations

PAMCs are subject to a variety of regulations. The Pension Funds Act defines the range of permissible investment instruments and sets maximum limits for portfolio allocation. Investment procedures and valuation are also regulated. Since Slovak pension funds have to offer three types of portfolios, there are no overall maximum holdings like those in other CEE countries.

A very important regulation is that pension funds have to invest at least 30% of their assets into instruments issued by Slovak issuers. Initially, a 50% limit was approved, but it was reduced in 2004. This regulation aims to prevent capital outflow and support the Slovak capital market. However, it also hinders diversification and might result in suboptimal returns and an artificial rise in domestic assets. This investment limit takes effect 12 months after the creation of the pension fund.

Equally important is that PAMCs have to achieve a minimum return for each of the three funds. The regulation does not require absolute performance goals, but a relative performance guarantee. At any moment 24 months after the pension management company has begun operating the pension fund, the fund's minimum return must be equal to the lower of the two values:

- Conservative: 90% of the average yield during the past 24 months, or the average yield minus one percentage point
- Balanced: 70% of the average yield during the past 24 months, or the average yield minus three percentage points
- Growth: 50% of the average yield during the past 24 months, or the average yield minus five percentage points

If a pension fund does not meet these minimum targets, the PAMC is obliged to transfer assets from its own property to the respective fund to ensure the minimum return within five days. If the PAMC does not take these recovery measures, or if it is unable to do so because of insufficient assets, or if the violation occurs for the third time, the supervising authority orders receivership over all of the relevant PAMC's pension funds and withdraws its operating license.

Disclosure and fee regulation

Upon joining the fund, members must be given an information prospectus describing the investment strategy, the risk profile and the fund's investment allocation. At least once a year, they must also be provided with account balance statements, which must be accessible on the Internet. Fund assets must be published in the press weekly, while fees must be disclosed monthly.

The monthly management fee for Slovakian pension funds must not exceed 0.07% of net assets. Charges for maintaining personal pension accounts are limited to a maximum of 1% of contributions for each fund. A PAMC may not charge any other fees (e.g. for switching funds or PAMCs). In addition, the Social Insurance Agency charges 0.5% of the contributions it transfers to the individual account fund manager. Members are free to change to a different PAMC every two years. If they do so, they must pay a fee of SKK 500 (EUR 15) to the Social Insurance Agency.

Benefits and withdrawal

Benefits are paid as annuities on the condition that the member has reached retirement age and contributed to the scheme for at least ten years.

Asset management and allocation

The mandatory pension market is fairly concentrated. Until 2006, there were eight pension companies on the market, all of them linked to international financial services firms. However, due to intense competition, the number has dropped to six. Consolidation has largely been the result of the regulation stipulating that pension

funds have to achieve membership of at least 50,000. If they fail to do so, their license is revoked and their members are transferred to other providers. The PAMC with the largest market share has 30% of all members, and the three largest PAMCs have a combined membership of 70%.

Before the start of the mandatory pillar, around 50% of employees were expected to join the new system. By the end of 2005, 1.1 million workers, 47% of eligible people, had indeed joined. Since 35% of Slovakia's population is under 25, participation and coverage will continue to grow. Assets under management currently amount to EUR 710 million.

With its high equity share, the growth fund is the most popular product. 69% of the enrolled members have chosen it; almost 30% have opted for the balanced fund and only 1% have chosen the conservative funds. The popularity of funds with the highest return potential and risk can be explained by the strong growth of the Slovak stock exchange and the age structure of participants. 45% of members are younger than 30 and 83% are under 40.

Despite the dominance of the growth fund, pension funds do not even come close to exploiting asset allocation limits. In late 2005, the growth funds had allocated 77% of their assets in deposits or treasury bills, 16% in bonds and only 7% in equities. The balanced funds held 80% in deposits or treasury bills, 15% in bonds and 5% in equities. 85% of the conservative funds' assets were invested in deposits and treasury bills and 15% were put into bonds. PAMCs obviously prefer to invest in lower risk assets, which may be because of the novelty of the system.

Taxation

Mandatory pensions in the Slovak Republic are not taxed. The system in place is EEE. Contributions are tax-exempt, as are investment income and pension benefits.

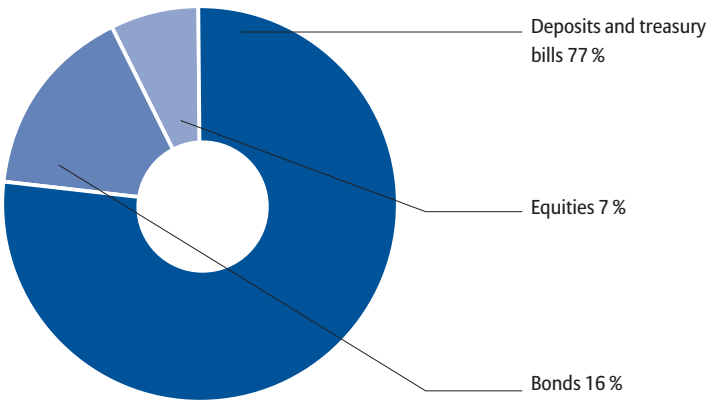
The third pillar – voluntary pension savings

Voluntary pension funds

Slovakia's voluntary third pillar pension scheme started operating in 1997 and was substantially reformed in 2004. Previously, participation was linked to employment, but the third pillar is now open to every citizen over 18. The modified voluntary pension tier has been in operation since 2006. Assets under management currently amount to EUR 635 million.

Voluntary pension savings are managed by supplementary pension management companies (SPMCs) that offer DC plans. They are obliged to manage at least two supplementary pension funds. From January 1, 2005, other financial institutions such as banks, life insurance companies, pension fund management companies and security traders (providing special purpose saving programs) have been allowed to join the market.

Mandatory pension fund asset allocation (growth fund) 2005



Sources: OECD, Allianz Global Investors

The SPMCs are profit-making, single-purpose companies established by shareholders. They must have a board of directors and a supervisory board. Employers can contribute to the voluntary savings plans; their contribution rate is determined in a contract with the SPMC.

Employee contributions to the voluntary pension pillar are tax-free up to a limit of SKK 12,000 (EUR 323) per year, while employer contributions can be deducted from the income tax base up to 6% of the employee's salary. Investment income is taxed at 19%. Benefits are tax-free. To be eligible for pension benefits, members must have contributed for at least 10 years, otherwise benefits are paid as a lump sum. There are no legal requirements to purchase an annuity, but annuitisation is possible.

Plan members must be provided with information on their accumulated capital at least once a year. Moreover, SPMCs must disclose information on assets under management, their balance sheets and other fund-related information on their website. SPMC fees are subject to several maximum limits. The management fee may not exceed 3% of asset value, and the fees for switching SPMCs may not be higher than 5% of the member's account balance within the first three years of membership. After this period, the switching fee is 1%. Fees for termination settlements must not exceed 20 % of the member's account balance.

Three companies operate in the voluntary pension market; membership stands at 690,000. Asset allocation of third pillar funds is quite conservative. In 2006, 56% of assets were invested in bonds, 37% in bank deposits and 6% in equity.

IORP

The IORP directive was fully implemented on August 1, 2006 with an amendment to the act governing third pillar institutions. Ring fencing or other limitations allowed by the IORP directive are not applied in the Slovak legislation.

Third pillar statistics 2006 (or latest year available)	
Members	690,000
Assets under management [EUR]	635m
Number of pension fund providers	3

Outlook

Outlook

Current household asset allocation

In 2005, financial assets totalled EUR 20.7 billion. This amounts to 53% of GDP, only 1% above Latvia, the country with the lowest ratio in the EU-25. Per capita values barely reach 7% of the EU-15 average. However, the financial situation has improved in recent years, and financial assets rose by 15% in 2004 and 2005. Further growth may be spurred by declining unemployment, income growth and increased consumer confidence. The introduction of the second pillar pension system has also contributed to substantial savings growth: pension savings have quadrupled. Nevertheless, the saving rate remains low because Slovakian households show a strong tendency to consume.

Slovakian households keep two-thirds of their financial assets in cash and deposits. This is the highest portion in CEE. But thanks to increasing investment opportunities through various investment products with higher returns, things appear to be changing. Stocks and investment funds have become very popular products; their share of total financial assets rose from 2% in 2002 to roughly 10% in 2005. Insurance and pension products make up about 12% of total assets, and their growth prospects are healthy as pension asset volumes increase. Life premium growth in Slovakia was 13.4% in 2005, the highest growth in three years due to the introduction of a tax allowance. Penetration, meaning life premiums as a share of GDP, is already quite high (1.47 %) compared to other CEE countries.

Future pension assets

Given that 50% of employees joined the mandatory pillar within the first year, its prospects for further growth are fairly promising. The high fixed contribution level

and wage growth are important factors. In 2005, assets stood at EUR 239 million. By the end of 2006, they had already grown to EUR 710 million. This rapid growth was the result of the brief timeframe people were given to join the system and the fact that the market is still in its infancy. In the coming years, growth rates are set to remain high because of market development and high contribution rates. However, growth could be impeded if the government decides to cut contribution rates in the face of financing problems in the first pillar, from which contributions are taken and shifted to the second pillar.

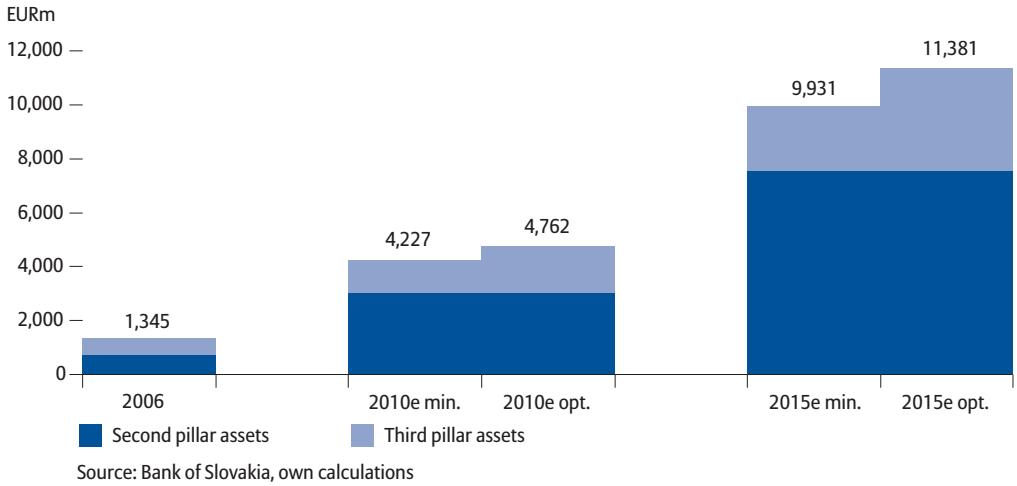
In the minimum scenario, assets under management are expected to reach EUR 7.6 billion based on the conservative assumption of 5% average performance. Even in this scenario, volumes will increase by 30% p.a. in the projection period until 2015. We did not calculate an optimistic scenario, as contribution rates are already high and participation has been limited to new entrants since the transition period ended in July 2006.

The development of third-pillar voluntary pensions plans started about 10 years ago. By 2006, assets under management stood at EUR 635 million, with around 690,000 members contributing. Since the third pillar was the only system of pension savings until recently, it covered much of the population. However, this might change with the introduction of the second pillar. Competition in the voluntary pension market became more intense after the Slovakian government harmonised tax treatment for products from banks, investment and insurance companies. For this reason, our minimum scenario may be the most likely. In this scenario, we assumed that people contribute 3% of their income. At the end of the projection period, assets under management will have reached EUR 2.4 billion (+16 % p.a.), while the optimistic scenario foresees EUR 3.8 billion (+22% p.a.) based on a contribution rate of 6%.

Slovakia's recent reforms have made it an attractive asset management market. The reforms have contributed to the long-term sustainability of the pension system. However, the short-term burden of transition costs remains a public policy issue. These costs mainly stem from redirecting a portion of contributions to the second pillar, which reduces first pillar revenues without reducing current liabilities.

Once Slovakia joins the European Monetary Union, which may happen in 2009, investing pension assets could become easier for Slovak pension funds, because the (regulatory) necessity of hedging against currency risk for foreign securities would disappear. From a finance and economics perspective, the basic design of the Slovak mandatory pillar is very advanced. The regulation that pension funds may offer three portfolios with different risk/return profiles is a step towards the lifecycle concept of pension investing. It minimises investment risk for plan members while simultaneously exploiting capital market opportunities.

Slovakia: Pension assets under management



Source: Bank of Slovakia, own calculations

Slovenia

Running a Western European-style system

Shape of the pension system

In per capita terms, Slovenia is the richest CEE country. In 2007, its highly successful economic transformation made Slovenia the first CEE country to adopt the Euro. The Slovenian pension system is very similar to its Western European counterparts, which is an exception in CEE. Slovenia runs a three-pillar pension system with a first-pillar mandatory PAYG scheme. The second pillar consists of occupational pensions that are mandatory for certain sectors and voluntary for others. Voluntary personal savings constitute the third pillar.

The pension system was reformed considerably in 2000. The public pension system was modified with parametric reforms that were to be phased in over time. Before the reforms, Slovenia had originally planned a mandatory second pillar, but chose voluntary supplementary schemes instead, an option the social partners were in favour of. Pension issues rank high on the political agenda, as the Democratic Party of Pensioners (DeSUS) is part of the four-party government coalition.

Slovenia will be severely hit by demographic development. Its dependency ratio will worsen from 21.7% today to 55.6% in 2050. Pension expenses will increase considerably. While Slovenia's current pension expenses amount to 11.0% of GDP, they are projected to increase to 18.3% by 2050. The EU-25 average is currently at 10.6% and is expected to increase to 12.8% by 2050.

Assets in the voluntary occupational pillar stood at EUR 813 million in 2006, while those in the voluntary private pillar amounted to EUR 45 million. We expect that annual growth rates until 2015 will be between 19% and 25% for the former and between 22% and 27% for the latter.

Demographics and macroeconomics	
Population [m]	2006: 2.0 2050: 1.9
Population over 65 [%]	15.6
Dependency ratio*	2006: 21.7 2050: 55.6
GDP [EUR]	29.7bn
GDP per capita [EUR]	14,843 (60% of EU-Ø)
GDP growth 2001–2006 [av. in % p.a.]	3.6
GDP growth 2007–2012 [av. in % p.a., est.]	3.6
Unemployment rate [%]	6.0

Data from 2006 or latest available year

* Ratio of over 65-year-olds to 15– 64-year-olds

The first pillar – public pensions

The mandatory earnings-related PAYG scheme covers employees and the self-employed. The public pension scheme was reformed considerably in 2000. The reform introduced the principle that each full year in the public scheme accounts for a pension accrual of 1.5% per year.

Before the reform, it accounted for 2% and differed for women, who were granted higher accrual rights. Age limits were also gradually increased. They currently stand at 62 years for men and 55 years and 8 months for women. The target retirement age will be 63 for men by 2009 and 61 for women by 2023. The age limits increase by four months each year for women and by six months for men. The pensionable age can be lowered due to parenthood or a working life of 40 years for men and 38 years for women. A full

First Pillar

pension is payable after 20 years of covered employment. The minimum length of service is 15 years. Moreover, the pension base was extended from the average of the best 10 consecutive years' earnings to the average of the best 18 consecutive years. The maximum pension was also reduced and capped at four times the minimum pension.

Pensions were (re-)indexed to nominal wage growth in 2006; the 2000 reform had established that pensions lag behind wage growth. The contribution rate for the public pension system is 24.35% of gross wages. Employees pay 15.5%, employers contribute 8.85% and the self-employed must cover the total amount. There are additional state allowances to the system. In 2002, 31.6% of total pension expenditure was taken over by the state in order to meet deficits and finance benefits for certain groups.

First pillar design	
Contribution rate [% of gross salary]	Employers: 8.85 Employees: 15.5
Net replacement rate	82
Legal retirement age	62 men/55.8 women
Public pension expenditure [% of GDP]	2004: 11.0 2050: 18.3

Data from 2006 or latest available year

The second pillar – voluntary/ mandatory occupational schemes

Institutional framework

Supplementary occupational pensions were introduced in 1992 and tax relief was expanded in 2000. Employers and employees may contribute to the schemes. Setting up occupational plans is mandatory in the public service and banking sectors as well as for particularly hazardous occupations. In all other sectors, employers can set up occupational schemes on a voluntary basis if at least two-thirds of employees agree to join. Pension plans, which are DC schemes, can be offered by insurance companies, mutual pension funds that are owned by their members, or joint stock pension companies. For large firms, pension companies are the preferred way to provide pension benefits. Funds may either be closed (sponsored by one employer with at least 1,000 employees) or open. At present, there is only one closed fund for public sector workers.

Investment regulations

Investment regulations are detailed in the Insurance Act and define maximum limits for asset allocation. The key limits are as follows:

- 30% in equity investments or mutual funds; the same limit applies to bank deposits
- 10% in real estate
- 5% in unregistered securities
- 3% in cash

Foreign investment in OECD countries is unrestricted in principle. However, due to the regulation stipulating that 80% of assets must be denominated in the same currency as liabilities, there is an effective limit to non-Euro investments of 20%.

Pension funds are subject to a minimum rate of return, which stipulates that the performance of pension funds may not be less than 40% of the average annual interest rate on government bonds with maturity dates of more than one year. If they do not meet this target, the difference must be offset.

Disclosure and fee regulation

The enrolment fee is a maximum of 6% of contributions made. The withdrawal fee amounts to a maximum of 1% of the purchase value of units deposited into the personal account. The annual commission for pension fund management amounts to a maximum of 1.5% of the average net annual asset value. There are no limitations on switching providers, which is subject to fees. Pension plan members must be provided

Second pillar statistics 2006 (or latest year available)	
Members	427,000
Assets under Management [EUR]	813m
Number of pension fund providers	11

with annual information on the status of their individual accounts. Recent legislative changes stipulate that pension funds must provide members with a statement of their investment principles and the anticipated level of retirement benefits.

Benefits and withdrawal

Benefits are paid out as life annuities. Early withdrawals entail tax penalties.

Asset management and allocation

Assets under management in the voluntary occupational pension pillar total EUR 813 million and membership stands at 427,000. Employees who are not covered are usually from small and/or non-unionised companies. In early 2007, there were five mutual pension funds, four pension companies and two insurance companies on the market. The mandatory pensions for certain industries are managed by a mutual fund run by a state-owned financial institution. All employer-sponsored members are enrolled in open pension funds; closed company pension funds do not exist. In contrast to pension companies, mutual pension funds are not allowed to provide annuities. According to survey research, employers contribute approximately 3% of wages.

In terms of market share, based on the number of members and also including the private pillar, mutual pension funds have a share of 49%, pension companies have 42% and insurance companies 9%. Asset allocation is quite conservative. According to the latest available data from 2005, 44% of assets were invested in government securities, 34% in other debt securities, 14% in bank deposits, 4% in equities and 3% in mutual funds.

Taxation

Voluntary occupational plans are taxed according to the EET principle: Employers and employees have joint tax relief up to a maximum of EUR 2,390. Up to this limit, contributions are tax-exempt, as are investment earnings. Pensions in payment are subject to ordinary income tax rules.

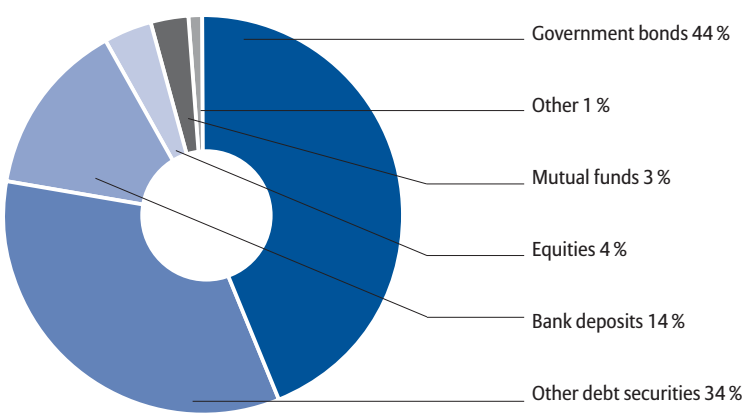
IORP

Most of the provisions of the IORP directive were implemented in mid-2006 by amending the Pension and Invalidity Insurance Act. However, the European Commission deemed transposition incomplete and referred Slovenia to the European Court of Justice.

The third pillar – voluntary personal plans

Schemes for voluntary pension savings can also be offered by mutual pension funds, pension companies or insurance companies. Voluntary private pensions are largely subject to the same rules as occupational plans. They are also DC schemes, and are treated in the same way in terms of taxation. The main difference to occupational pensions is that they are established on an individual basis. Roughly

Second pillar pension fund asset allocation 2005



Sources: OECD, Allianz Global Investors

24,000 people participated in the voluntary personal schemes in 2006. At present, five pension funds, four pension companies and two insurance companies offer voluntary personal plans. These plans compete with life insurance policies for individual pension savings. Assets under management currently amount to EUR 45 million.

Third pillar statistics 2006 (or latest year available)	
Members	24,000
Assets under management [EUR]	45m
Number of pension fund providers	11

Outlook

Current household asset allocation

Financial assets in 2005 totalled EUR 26.3 billion, or 95% of GDP. This is the second highest ratio among the CEE countries and not far behind Finland. Financial assets per capita stand at EUR 13,200 – 28% of the EU-15 average, by far the highest value among CEE countries.

Slovenian households keep almost half of their financial assets in bank deposits. Like in other countries, this share is getting progressively smaller as wealth increases. Another popular saving instrument are investment funds. Together with stocks, they make up the second largest portion of household portfolios, a result of the privatisation process in the 1990s. Insurance and pension products make up roughly 8.5% of the portfolio, a relatively small portion that reflects the limited importance of second pillar pension products.

Slovenia saw life premiums grow by 26% from 2004 to 2005, which is weak compared to growth in other CEE countries. Nevertheless, Slovenia is further ahead in terms of life insurance penetration. Life premiums amount to 1.7% of GDP, the highest ratio in CEE and 30% of the EU-15 average.

Future pension assets

427,000 participants, or almost 50% of employed people, are enrolled in the voluntary occupational system. The growth in membership was 6% in 2005, which was lower than the previous year when public sector employees entered the system. Assets in the voluntary occupational system amounted to EUR 813 million in 2006.

In the coming years, further development will result mainly from wage increases. In the minimum scenario, assets under management are expected to reach EUR 4.0 billion until 2015 based on the conservative assumption of 5% average performance. In this scenario, volumes will increase by 19% p.a. until 2015. In the optimistic scenario, the volume would grow to EUR 6.0 billion (+25%). This scenario is realistic if households consume less and the government encourages people to save more for old age provision to compensate for falling pension benefit levels.

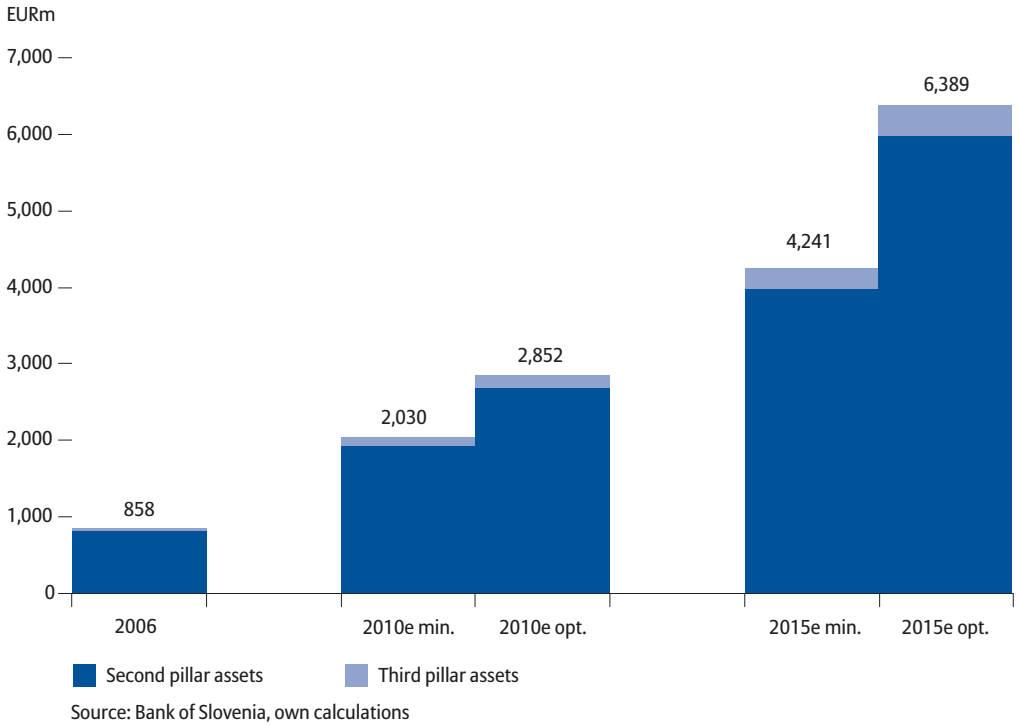
With 24,000 members, participation in the voluntary private pillar is modest. As there is barely any information about the asset volumes of these plans, we calculated a rough starting value by using the per capita assets of second pillar pensions. This resulted in an estimate of EUR 45 million in assets under management within the third pillar by the end of 2005. As income levels increase, more people may start saving money voluntarily, but this will be a slow process.

For our projection, we assumed that people still contribute only a small portion of their income and that mainly high income people in the prime of their working lives will set additional funds aside for their retirement. Increasing participation rates and wage increases will help the third pillar pension market grow in the future, albeit at very low volumes. In the minimum scenario, assets under management will reach EUR 264 million by 2015 (+22% p.a), while the optimistic scenario foresees EUR 404 million (+27% p.a.).

The lack of a mandatory second pillar makes Slovenia an exception among other countries in the region. The Slovenian government limited itself to parametric reforms that focused on securing state provision of old-age income. Slovenia's system resembles Continental European pension systems with a generous and redistributive first pillar that is financed by social contributions. However, reforms can be expected to continue as Slovenia experiences one of the biggest demographic shifts in Europe.

Despite some foreseeable challenges, Slovenia's second occupational pillar has achieved high coverage and life insurance penetration is the highest in the region. In this sense there are significant funded elements in Slovenia's pension system that contribute to diversifying retirement income. Even if the country's market is small, Slovenia is the wealthiest CEE state and therefore attractive for asset managers.

Slovenia: Pension assets under management



Source: Bank of Slovenia, own calculations

Appendix

Pension assets under management projections [EUR million]

	2006			2015*				
	2nd pillar	3rd pillar	Total	2nd pillar	3rd pillar	Total	net increase	CAGR p.a. 2006–2015
Bulgaria	523	253	776	3,615	1,274	4,889	4,113	36.8 %
Croatia	2,158	54	2,212	10,164	363	10,527	8,315	18.9 %
Czech Republic	0	5,263	5,263	–	24,774	24,774	19,511	18.9 %
Estonia	475	49	524	3,443	146	3,589	3,065	27.1 %
Hungary	5,934	2,733	8,667	30,485	12,273	42,758	34,091	19.1 %
Latvia	183	74	257	5,434	385	5,819	5,562	42.3 %
Lithuania	305	15	320	4,623	203	4,826	4,506	43.7 %
Poland	30,016	571	30,587	127,021	3,635	130,656	100,069	19.1 %
Romania**	0	0	0	2,024	869	2,893	2,764	41.2 %
Slovakia	710	635	1,345	7,568	2,363	9,931	8,586	28.9 %
Slovenia	813	45	858	3,977	264	4,241	3,383	21.1 %
Total	**41,117**	**9,692**	**50,809**	**198,354**	**46,549**	**244,903**	**194,094*** **	**19.1 %**

* Most likely scenario

** We assumed an asset volume of EUR 129m in 2008 for our projection and the growth rate

*** Due to the calculation method for Romania and to roundings, the sum of the net increases of all countries is lower than the difference between total assets 2015 and 2006.

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