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The Impact of Ageing Populations on the Economy, a European Perspective: From Baby Boom to Baby Bust?

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Europe is ageing and this will have an impact on retirement systems (pay-as-you-go as well as funded), government expenditure and general economic growth.

Theoretically, ageing populations could lower *per capita* GDP growth in Europe by around 0.4 per cent annually. However, this should be seen as a worst-case scenario; it is quite likely that some of the underlying assumptions will not fully materialize. Around two-thirds of the potential negative impact for Europe originates from a sharply declining work force relative to the non-working (dependent) population.

Our overall conclusion is that if Europe continues its reforms, particularly to pension and labour markets, ageing populations should not have any impact on the economy. The biggest political challenge is to convince people that we cannot continue to live longer and work shorter without paying a price, in the form of lower living standards for workers and/or pensioners. The right combination of labour market and budgetary reform could deliver even stronger economic growth rates than we have experienced in Europe in the past.

Our first message is that the real problem is not the impact on the pay-as-you-go retirement systems, but on the overall economy itself. If you take away the negative impact of ageing populations on the overall economy, it is quite likely that you solve most of the other problems too.

The second message is that we believe that, in flexible labour markets, ageing populations should lead to lower unemployment and higher labour force participation, without too much government intervention. A combination of lower unemployment and higher labour force participation can almost fully compensate for the negative effect of ageing on the economy.

At the European Council meeting held in Lisbon in March 2000, European leaders agreed a new strategic goal for the E.U. in order to strengthen employment, economic reform and social cohesion as part of a knowledge-based economy. As part of the employment strategy, the European Council agreed to aim for a rise in the participation rate from 61 per cent today to as close as possible to 70 per cent by 2010. Although this shows that Europe has accepted the challenge, it is still up to the individual Member States to set national targets and implement strategies to achieve these targets.

The other one-third of the potential negative impact of ageing populations on the economy is generated through budgetary effects. Europe has already implemented strict budgetary controls, and total debt relative to GDP for the 15 E.U. Member States has dropped from around 72 per cent of GDP in 1995 to around 63 per cent of GDP in 2001. If Europe is to continue to adhere to the Stability and Growth Pact, it is important that pension reform

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continue, with a small reduction in the generosity of the public retirement systems included in the reforms. The most important reform, however, would be an increase in the average retirement age in Europe by a couple of years. Without this increase, it will be difficult to keep pension budgets and overall budgets under control and it will not be possible to raise labour force participation rates sufficiently.

The economic models show that by combining labour market reforms and budgetary reforms it should be possible to increase living standards even beyond levels we have experienced over the past decade.

Our more positive tone as regards the impact of ageing populations on the economy does not take away from the fact that some countries in Europe will have more to do than others. Labour market reform is the key. We believe that those countries that are able to implement widespread labour market reforms, resulting in lower structural unemployment and higher labour force participation rates, should not see any impact from an ageing population.

It is often argued that it is the baby-boom generation now moving through its prime earning years that is causing the economic as well as the stock market boom. By the same argument, one should expect lower economic growth and a more difficult stock market environment if and when the baby-boom generation retires. We have looked extensively at some of the arguments behind this theory and have come to two conclusions. First, there is not too much evidence that it is the impact of the baby-boomer alone that is causing this economic and stock market boom. There is even less evidence of this in Europe than in the U.S. Second, there is a lot of evidence in countries such as the U.S. and the Netherlands, which have reformed their labour markets, that the labour market has reacted naturally to demographic changes. Looking forward, we therefore expect labour markets in those countries that have implemented labour market reform to also react naturally to the ageing of the population. This means lower unemployment and higher labour force participation rates.

Theoretically, baby-boomers are now in their prime saving years. They have reached the top of their career and earnings paths, the children are independent (at least financially), the mortgage has been reduced and they should be saving. This savings boom is stimulating today's economy and asset markets. When the baby-boomer retires he will consume his savings (negative savings), economic growth will slow down and asset markets will collapse. This is the theory. The good news is that, in reality, savings rates have come down over the past ten years and we are not sure how savings rates will develop in the future.

1. Introduction

> "There is no crisis of ageing. Although many countries now exhibit dramatic demographic transitions, talk of a 'crisis of ageing' is overblown. There are in place various feedback mechanisms that generate offsetting effects." Richard Disney (1996), *Can We Afford To Grow Older?*

A lot of publicity has been given to the supposition that ageing populations will have an impact on the public retirement systems in many countries around the world. Most public retirement systems are financed on a pay-as-you-go basis, which means that the workers of today are paying for the pensions of today's pensioners. As the number of retirees drawing a pension from these systems is expected to grow much faster than the number of people that are financing the system, pension contributions will need to be raised substantially or pension payments will need to be lowered. Alternatively if no action is taken, the gap between income and expenses will need to be carried by the state, leading to sharply increasing budget deficits.

Merrill Lynch have written extensively on ageing populations and the pension problem in their publications: "European Pension Reforms", September 1999; "Pension Reform in France", April 2000; and "German Pension Reform", June 2000. In January 2001 Merrill Lynch published "Progress Report: European Pension Reforms" which discussed, as the title suggests, the progress that has been made by the E.U. Member States in attacking the negative influence of ageing populations on their public retirement systems. It was clear from that report that most E.U. Member States have made quite a lot of progress in attacking the problem. After including some other, indirectly related factors, such as bringing down the overall debt and tax levels, the progress was even more pronounced.

1.1. The same ageing populations will also have a major impact on funded pension systems

We are surprised to see how much research has been done and published on how ageing populations will undermine the pay-as-you-go pension systems while assuming that the alternative system (the funded system) will remain insensitive to these same demographic changes. In the Merrill Lynch publication, "Demographics and the Funded Pension Systems", published in October 2000, we discuss this issue extensively and show that the same ageing populations will also have a major impact on funded pension systems. We identified three major demographic effects on the funded pension systems.

(i) Increasing life expectancies will raise the cost of the funded systems. As pensions need to be paid out over a longer period, larger amounts need to be accumulated and therefore contributions will need to rise over time, as is the case with the public pay-as-you-go systems.
(ii) Beyond 2005, the number of people who enter retirement and draw a pension from the funded systems will increase dramatically in many countries and net cash flow into the systems will start to come down. It is even possible that around 2030 the net cash flow into the pension funds will become negative and pension funds will have to start selling assets.
(iii) The third effect is on asset allocation. It is likely that pension funds in the future will hold less in equity and more fixed income and cash instruments in their portfolios. As the number of pensioners relative to the number of active members is expected to increase, the overall pension fund industry becomes mature and requires a more conservative investment policy.

We should not automatically draw the conclusion that less support from pension funds for the capital markets will lead to lower returns and lower asset prices, as the supply of assets could also be affected by ageing populations. This is an obvious point for further investigation.

1.2. The impact on the economy

In this article we want to widen the scope a little further and discuss the possible effects of ageing populations on the overall economy. We first investigate the influence of the baby-boomers, which is the huge generation of people born between 1945 and 1960, on today's economy. It is often argued that it is this generation, now in its prime earning years, that is responsible for the strong economic developments in the Western world and the rise in global stock markets. So the big question is then: if the baby-boomers are one of the prime reasons for the economic and stock-market boom, what will happen when they retire?

Ageing populations affect public finances, the labour market, technological change and productivity growth, savings and investment behaviour and financial markets as well as pension funds. We look at some of these items separately and then look at two economic studies that have tried to piece these aspects together in one model. Although looking at all these aspects on a piecemeal basis could be quite depressing, we believe that the overall situation is not quite so bad. In fact, most of the individual aspects are interdependent and here, we think, is the good news. Pensions, funded or unfunded, demographics and the labour markets, the financial markets and public finance are all part of the same economic and social system. And as the problems are interlinked, the solutions are also interlinked.

Theoretically, ageing populations, combined with declining populations, have a negative effect on economic growth, on wealth accumulation, on asset returns and also on the pension systems, funded as well as pay-as-you-go. However, much can be done to combat these negative effects. And here is some good news.

The core of the problem is the decline of the working population relative to the size of the retired population. If we are able to implement reforms that lead to a reversal of this trend, then we will have taken away the largest negative impact of ageing populations on not only the economy, but also the pay-as-you-go retirement and the funded pension systems. Research by the OECD and the European Commission shows that by implementing the right combination of reforms, including budgetary and labour market reforms, it is possible to compensate for the potential negative effect of ageing populations on the economy.

2. Demographics and the "baby-boom economy"

> "Low inflation, high employment, a stock market that has reached unprecedented heights. The economy doesn't get any better than this. Clearly, for the 76 million baby-boomers hitting their prime earning years, the good old days are right now and there's no end in sight. The baby boom is the single most significant social economic phenomenon of the twentieth century – but its full impact will be felt only in the decades ahead." William Sterling and Stephen Waite, *Boomernomics*.

2.1. The good times have rolled for 20 years

Economically, the last 20 years or so have been pretty good for Western populations. Economic growth has been robust, and inflation and interest rates have been low. Stock markets in the Western world have boomed, and the crash of 1987 now just looks like a blip on the charts. Booming stock markets and rising house prices have spread a general feeling of wealth across Western Europe and the U.S.

In the U.S., this phenomenon is sometimes described as the baby-boom economy. Indeed, the rosy picture described above by Sterling and Waite, two ex-Merrill Lynch strategists, very much describes what has happened in the U.S., and although elements of this can be found in other countries, some factors are not universally applicable. Looking at demographics, Europe has had the same baby boom as the U.S., and the baby boom in Japan is even more pronounced, so if the baby boom is responsible for all of this, why does Europe still have high unemployment and why has the Japanese economy not recovered yet? For the purposes of this article it is relevant to form a clear opinion on what factors are responsible for this strong economy. If the baby-boomers are responsible, than a reversal of this strong economy should be expected when the baby-boomers enter retirement. If, however, other factors are responsible, then there is at least hope that this strong trend can continue.

In this section, we will look at the reasons over why the U.S. economy is booming, investigate what factors are responsible for this baby-boom economy and whether the same factors are valid in Europe.

2.2. Boom factors

We believe that some developments can be traced back to demographics, but demographics are not the only factor to have caused this boom economy. Sterling and Waite, in their publication *Boomernomics*, mention the forces of technology and globalization as the two other major factors that have helped to create this wonder of high economic growth, high productivity improvements, low inflation, low interest rates and buoyant financial markets. It is interesting to note that today, two years after the publication of *Boomernomics*, the term "New Economy" is used to describe what we think is exactly the same phenomenon of high growth and low inflation that was earlier attributed, at least partly, to the baby-boomers.

In the Merrill Lynch publication of August 2000, "Benchmarking the New Economy", we discuss some of the characteristics of this new economy, look at the progress made in Europe and compare it to the U.S. as a benchmark. Changes in labour markets, capital markets and, most importantly, technology, are driving the new economy. Demographics are not generally mentioned any more as an explanatory factor, but might well be behind some of the other factors.

Sterling and Waite saw the positive influence of demographics as the most important factor and split the effect in three ways.

(i) Ageing baby-boomers are likely to remain relatively conservative politically, suggesting steady and perhaps boring economic policies. Financial markets tend to like boring economic policies.
(ii) The authors point to the fact that the boomers have entered a stage of life where they tend to be settled in their careers and are, on average, more productive.
(iii) Boomers are at a stage of life when they get serious about saving for retirement. This savings boom will drive interest rates down and stock markets up.

To be fair to our ex-colleagues, there was no evidence (then) in the U.S. economy in 1998 that the heavy investment in new technology would lead to a substantial jump in productivity. In fact, they did forecast that this would happen. If *Boomernomics* had been written today, it is quite likely that technological change would move up to first place and demographics would be relegated to the number-two spot as an explanation for today's economic boom. If *Boomernomics* had been called *Neweconomics* then it is quite likely that demographics might not have been mentioned at all.

2.3. The baby-boomers leave their mark

Because of their huge number, baby-boomers have left clear footprints on the economy. In most countries in Europe and in the U.S., we can identify periods when certain economic events occurred or demand for certain products or services was growing faster than usual. In the 1950s and 1960s, when the baby-boomers were born, nursery-related products were much in demand. This was followed by a period in which schools were much in demand, leading to a shortage of teachers and overcrowded classrooms. In the 1980s, the number of children entering schools started to decline again, leading to unemployment among teachers.

2.4. Unemployment and labour supply

Unemployment became a problem in the U.S. from 1970 onwards, as increasing numbers of school leavers started entering the labour market. The 20–29 age group (representing the new entrants in the labour force) reached a low of 11.6 per cent of the U.S. population in 1965 and increased to 17.9 per cent of the population in 1987. The impact of the baby-boomers on unemployment in the U.S. can be clearly felt as unemployment increased from 3.5 per cent of the labour force in 1969 to 9.7 per cent in 1982. After 1982, unemployment started to come down as the number of new entrants into the labour market also started to come down.

Even though the demographic patterns in France, Germany and the U.S. are somewhat similar, a drop in unemployment in France and Germany has not followed the decline in new entrants in the labour force after 1978, at least not yet. On purely demographic arguments, one would expect that a fall in unemployment in France and Germany is still to come.

The comparison between the U.S., France and Germany shows that there might be other factors at work besides demographics that could explain the difference in the development in unemployment in the three countries. The recent Merrill Lynch publication, "A Strategy for Full Employment in Europe", gives explanations as to why some European countries, such as the Netherlands and the U.K., have benefited from this demographic change while others, such as France and Germany, have hardly seen any drop in unemployment.

One of the key conclusions of that study was that those countries that were most successful in implementing labour market reforms were also the most successful in bringing down unemployment.

There seems to be clear evidence that the baby-boomers have left their mark on the 1970s and 1980s in the form of higher unemployment. There seems to be less evidence that unemployment automatically comes down when the generation after the baby-boomers enters the labour force.

2.5. Real-wage growth

Sterling and Waite also make the point in *Boomernomics* that the large number of baby-boomers that entered the labour market in the 1970s depressed wages for several decades. As labour supply was plentiful and cheap, industry in the U.S. reduced capital spending, leading to what they call "anaemic" growth of 2.2 per cent per year in the 1970s compared to 4 per cent per year in the 1960s. Indeed, the large number of baby-boomers entering the labour market in the 1970s caused wages in the U.S. to decline relative to inflation from 1970 until the beginning of the 1980s, when they started to accelerate again under the influence of sharply lower unemployment.

However, Europe again shows a different picture from the U.S. We guess that inflexible labour laws and trade-union power in many countries in Europe have stopped one of the most basic economic laws from doing its job. When supply exceeds demand, the price of the supply will need to come down, which in itself will create more demand. Although unemployment in Germany rose from 0.6 per cent of the labour force in 1970 to 9.8 per cent of the labour force in 1997, this did not stop wages increasing well above inflation. Also wages in France continued to rise well above inflation, even though the increasing supply of labour from the baby-boomers did lead to higher unemployment.

The examples of the U.S. on the one side and Germany and France on the other show that an economy can react naturally to changes in demographics. However, this will only take

place in an environment of economic freedom and flexibility, especially labour market flexibility.

2.6. Ageing, technological change and productivity growth

In addition to a declining work force, an ageing population also leads to an ageing workforce, which could have an effect on productivity. As we discussed earlier, today's jump in productivity growth in the U.S. is explained by the substantial investments made over recent years in technology, and this improvement is taking place against a background of an already ageing workforce.

There are conflicting economic theories that describe the effect of ageing on productivity. First, one could imagine that an older workforce is potentially more experienced and therefore more productive. The experience of older workers, however, needs to compensate for a lack of education, as the younger workers of today are, on average, better educated and in some cases even over-educated. Second, and in contrast to the first theory, one could also imagine that an older workforce is less conducive to innovation and technological change, less entrepreneurial and ambitious and therefore less productive.

On balance, we have noticed that over the last 20 years older workers especially have been laid off. This can be partly explained by the strong government incentives to lay off older workers to create places for younger workers during periods of high unemployment. The other explanation is that older workers are more expensive than younger ones. As companies have been willing to lay off older workers in the past it seems that any advantage in terms of the experience of older workers was negated by the combined effect of higher wages and government incentives.

Last, there is an economic theory that suggests that a shortage of labour will actually stimulate innovation or technological change leading to productivity improvements to compensate for this shortage of labour. We do not see any conclusive evidence of any substantial impact on technological change and productivity growth that can be largely or exclusively attributed to the baby-boom generation.

2.7. Is the baby-boomer saving?

Today, most baby-boomers are at work. They are aged between 40 and 55 and are supposed to be close to the height of their productivity cycle and their career earnings potential. Their children have left home and have become financially independent, the second car has been paid for and they have had 20 to 30 years to pay off the mortgage on the house. They are supposed to be saving. At least, that is what the lifecycle savings theory tells us. And this is also one explanation given for the extraordinarily long bull-run of the U.S. stock markets, which is supposedly supported by savings from the baby-boomers.

Savings are important as they generate funds for investments, which generate productivity growth. Total savings in the economy, called National Savings, consist of public and private savings. Although we look at them separately, they are quite often dependent on each other. For example, take a government that wants to encourage pension savings by giving fiscal incentives. Fiscal incentives come at a cost and therefore reduce government savings, so it is therefore possible that the sum of private savings and public savings would stay unchanged and would therefore have no effect on the overall economy. There is evidence that fiscal incentives do benefit higher taxpayers more than lower taxpayers. At the same time, it is possible that tax incentives to save more, in pension funds for example, will encourage higher

taxpayers to move savings from a less tax-efficient savings scheme to a more tax-efficient savings scheme and the private savings rate will stay unchanged. As the tax incentive comes at a cost, the public savings rate comes down and so does the overall national savings rate. The objective to increase savings in this case has not been achieved. When we look at measures to combat the negative effect of ageing on the economy we will have to take this into account. Recent trends in public saving have been positive for most OECD countries.

Three economic theories try to explain personal savings behaviour. Although the theories are different as regards the prime purpose of savings and the time horizon concerned, they do not have to be mutually exclusive.

The most commonly accepted is the *lifecycle* theory, which is based on the assumption that the primary motive for saving or dis-saving is smoothing consumption over one's lifetime. The money saved during working life is used during retired life.

The second theory is the *bequest model* which assumes that individuals have a time horizon that exceeds more than one generation. An individual does not only maximize his or her own utility but also that of his or her parents and children. Leaving money for one's children, or bequest, is part of the motive for saving. A bequest motive appears to be more important for people with a lot of money and for special assets such as housing.

The third saving theory concerns *precautionary motives*. People save because of uncertainties such as the risk of death, health expenditure or income disruption such as unemployment.

The relevance of the three theories to the influence of ageing on the economy is that they give different savings and wealth accumulation patterns when the population gets older. The lifecycle theory assumes that one saves during working life, with a maximum wealth accumulation around the retirement date and a gradual decline until one's death. The bequest model assumes the same savings pattern during working life, but takes into account inherited wealth, which means a lower savings rate if there is inherited wealth and a higher savings rate if one wants to leave a bequest. Looking at savings patterns around the world, it seems that not one single savings theory explains current savings behaviour. One explanation could be that savings theories look at cash flow while individuals also take into account asset returns and asset accumulation. The one problem with the savings theories is that U.S. private households are not saving. Household savings rates in the U.S. have declined over the past 20 years and are now close to zero. Also, in Europe, there is not much evidence that savings rates are positively influenced by the baby-boomers reaching their earning peak.

Sterling and Waite suggest in *Boomernomics* that the baby-boomer surge in savings will still have to come in the U.S. They give three reasons why the age wave will eventually drive up the savings rate. First, they suggest that as the Medicare and Social Security benefits in the U.S. become less generous in the future, the savings rate needs to go up. Over time, the baby-boomers will realize that they increasingly have to look after themselves. Second, they suggest that, unlike their parents, baby-boomers cannot count on their homes as being a good investment, and third, boomers have no assurance that the stock markets will continue to provide the high rates of return they have seen in the past. Implicitly, Sterling and Waite suggest here that one explanation for the low savings rates in the U.S. is that there was no need to save as the high stock-market returns provided an increase in wealth.

2.8. The effect of the baby-boomers on public savings

Fiscal positions in most OECD countries have improved in recent years and some countries are now even showing surpluses for the first time in ages. The extraordinarily long

period of strong economic growth in the Western world will have helped this trend, and it is likely that an economic downturn could quickly reverse at least part of the progress made. However, next to a cyclical economic element, fiscal balances have undoubtedly also benefited from a favourable demographic trend. Low birth rates have limited the growth in health care and educational spending while, at the same time, the baby-boomers are supposed to be in their prime earning years today, which has a favourable impact on tax receipts. On the other hand, early retirement, together with increased life expectancy, has put pressure on public spending. Fiscal balances in Europe have benefited from the increased fiscal discipline necessary to qualify for the euro area.

In the future, fiscal discipline could become more difficult. A large part of the impact of negative ageing populations on economic growth comes from lower public savings as public expenditure on pensions and health is expected to increase. Expenditure on education could come down somewhat as the number of children is expected to come down as a percentage of the total population. However, as a percentage of the working age group, i.e. those that potentially have to pay taxes, educational spending will stay relatively constant.

2.9. Summary of the "baby-boom economy"

It is clear that there are certain movements in the economy that can be explained, or partly explained, by the baby-boom generation moving through its lifecycle. For example, there is some clear evidence that the large number of baby-boomers that entered the labour force in the 1970s and 1980s was at least partly responsible for the sharp increase in unemployment in the Western world. There is also some evidence that, in countries with more flexible labour policies, the drop in new entrants into the labour market has also caused unemployment to drop again. Theoretically, the baby-boomers are now in their prime saving years. Also theoretically, higher savings should benefit economic growth through higher investments. Growth over recent years, especially in the U.S., has been robust. However, there is no evidence at all that higher savings have helped to achieve this, as personal savings in the U.S. have declined.

We have to draw the conclusion that it is not at all certain that the baby-boom generation alone is responsible for the overall strength of the economy and stock markets. There seem to be better relationships between the baby boom and, for example, unemployment and real wages, in the U.S. than in Europe. This should be good news for the U.S., if these relationships persist if and when the baby-boomers enter retirement. It is likely that, in the U.S., a shrinking work force should lead to lower unemployment, higher real-wage growth and higher labour force participation. For Europe, the message is that labour reform needs to accelerate. As labour markets in Germany and France, for example, did not react naturally to changes in the supply of labour in the past, we can assume that, if no major labour market reforms are implemented, these relationships in the future will also be vague or non-existent. The economic developments in the Netherlands could be an interesting example for Europe. Labour market reforms have made the Dutch labour market more flexible and competitive and the market reacts more naturally to demographic changes. Between 1960 and 1975, the Dutch baby-boomers entered the workforce and the increasing numbers (from 13.7 per cent of the population to 17.1 per cent of the population) pushed unemployment up from below 2 per cent to over 10 per cent in the years 1983 and 1984. Since the mid-1980s, the new supply of labour to the labour market has started to come down, from 17.1 per cent of the population to 13 per cent of the population in 2000. Unemployment dropped from over 10 per cent to just 2.5 per cent in 2000. The interesting element is that, over almost the same period, labour force

participation increased from 56 per cent in 1985 to 66.5 per cent in 2000. The example of the Netherlands shows that, in a flexible labour market, a decline in the working age group will help lower unemployment, and low unemployment rates will put upwards pressure on labour force participation rates.

The lesson from this should be that labour market reform in Europe should continue. In a flexible labour market, the decline in the working age population will result in a more favourable labour market with lower unemployment, and lower unemployment will start to push up labour force participation rates.

3. Economic impact of ageing populations

We now want to look at the future impact of ageing populations on the economy and discuss the outcome of two economic studies, published by the OECD and the European Commission, on the macroeconomic implications of ageing. Although both reports stress the highly speculative nature of some of the conclusions, the reports give a clear indication of the most relevant ways in which ageing impacts the economy. The good news is that the reports do not contradict each other regarding the relative importance of those factors. Although we do not want to criticize or discuss the accuracy or effectiveness of the economic models, we do need to scrutinize the input to the models very carefully. Whatever the accuracy of the models, "garbage in means garbage out", and only if we fully agree with the assumptions and data input can we draw some conclusions from the output. Both reports also include calculations of the effects of reform scenarios.

The main channels through which the macroeconomic effects of ageing populations operate are:

- Changes in the labour force;
- The effect of increased public health and public pension expenditure on public finance;
- Influences on private savings behaviour;
- Possible effects on productivity.

The most direct impact of demographic changes is via effects on the labour force. Two different effects of demographics can be distinguished. First, a slowdown in the growth of, or a possible decline in, the total population will, through a slowdown or a possible decline in the labour force, result in a slowdown in output growth. That is, if demographic structures, labour force participation and unemployment stay unchanged. Second, a rise in the dependency ratio will reduce living standards as the output produced by that labour force would have to be shared among a larger population. Both economic studies start off with a base case or reference scenario which assumes "business-as-usual" policies. The models assume that no specific policies are set in motion if and when the population is ageing rapidly. As the size of the labour force in the future is so important for the impact of ageing populations on the economy, it is important to investigate what underlying assumptions are used in the models regarding labour force participation and unemployment.

The second effect of ageing populations on the economy is on public finances, through increases in healthcare and public pension expenditures. As the economic models assume unchanged policies in the base-case scenario this could mean that outstanding debt will balloon to unsustainable levels. In order to limit this effect, the models put in place some restrictions on the extent to which public debt will rise.

The third effect of ageing populations is on the savings ratio. If savings behaviour were to conform to the traditional lifecycle hypothesis, then ageing populations would lead to a

substantial drop in the savings rate. However, there is not much evidence to support this hypothesis and the models only assume a limited, but still negative, impact. The fourth impact is on productivity. There is conflicting empirical evidence regarding the impact of ageing populations on productivity growth and therefore most economic models assume no impact.

3.1. Economic models, base-case scenarios

In order to get some idea about the effect of ageing populations on the economy and the relevant importance of the four factors mentioned above, we compare two major economic studies. The first study is called "The Macro-Economic Implications of Ageing in a Global Context", published in 1998 by the OECD. The second study is called "The Economic Consequences of Ageing Populations, A Comparison of the E.U., the U.S. and Japan", published in November 1999 by the European Commission. We do not want to go into too much detail as regards the economic models that have been used and the scenarios that have been run, but concentrate instead on the outcome and some of the underlying assumptions. First, we look at the outcome.

3.2. The OECD report

The OECD report forecasts that GNP *per capita* will be 0.6 per cent *per annum* lower for the U.S. and 0.4 per cent *per annum* lower for Japan and the European Union over the period 2000 to 2050, compared with the period 1990 to 2000. As the growth rate of the overall population in the U.S., the E.U. and Japan is expected to decline and in Japan and the E.U. even becomes negative, the decline in output (not *per capita* adjusted) is even larger. The study splits the negative impact of ageing on potential output between the employment impact, the impact of changes in capital stock and changes in productivity. For the U.S. and Japan, the employment impact explains more or less 100 per cent of the total impact, with changes in capital stock and productivity having only a minor effect. For the E.U., the employment impact generates two-thirds of the total impact and changes in capital stock the other third. The report also looks at the impact on savings, investments and interest rates. The conflicting

Table 1:
OECD report

GDP per capita %	**Average growth 1999–2000**	**Ref. (ageing) scenario 2000–2050**	**Average scenario and 1990–2000 differential**	**Difference emerging from changes in:**		
				Employment	**Capital stock**	**Productivity**
United States	1.7	1.1	−0.6	−1.2	0.2	−0.1
Japan	1.5	1.1	−0.4	−1.4	0	−0.1
European Union	1.7	1.3	−0.4	−1.2	−0.6	−0.1

Source: OECD

influences on interest rates are the economic slowdown, which should result in lower interest rates, and declining private and public savings, which should result in higher interest rates. The report suggests that the second impact is slightly higher than the first, resulting in a rise in world interest rates by up to 0.5 of a percentage point by 2050. Real interest rates in the European Union in the reference-case scenario are estimated at 4.9 per cent by 2050.

3.3. The European Commission report

The report from the European Commission forecasts an almost similar ageing impact over the period 2000 to 2050 for the E.U. and Japan, but a much smaller impact for the U.S. There is also a very large similarity with the OECD report if we look at the breakdown of the impact. For the U.S., the E.C. report forecasts a negative ageing impact on GDP growth of 0.21 per cent, of which 85 per cent is generated through changes in employment. For the E.U., the report forecasts a negative ageing impact of 0.43 per cent, 70 per cent generated through changes in employment. For Japan the negative ageing impact on GDP is 0.49 per cent, 73 per cent generated through changes in employment. For all three regions, the remaining impact is generated through changes in capital stock, with changes in productivity being almost zero. Interestingly, the model suggests that economic growth in the U.S. will first accelerate up to 2012 before it starts to decelerate, while growth in Europe and Japan will decelerate from now onwards.

Table 2:
European Commission report

GDP per capita %	Baseline scenario	Central ageing scenario	Central ageing and baseline scenario differential	Difference emerging from changes in:		
				Employment	Capital stock	Productivity
United States	1.92	1.71	−0.21	−0.18	−0.05	0.02
Japan	2.16	1.67	−0.49	−0.36	−0.12	−0.01
European Union	2.27	1.84	−0.43	−1.3	−0.12	0

Source: European Commission

3.4. Reform scenarios

More difficult to compare in the two reports are the suggested reform scenarios to reduce the negative impact of ageing populations on the economy. However, we will look at the policy responses described in the two reports in some more detail as they not only give an indication of what can be done, but also confirm how ageing is impacting the economy.

3.5. Policy responses in the OECD report

The first policy scenario assumes that governments in the main OECD regions control budget deficits more strictly. In this scenario, public-debt ratios remain stable at their estimated levels at the beginning of the projection period (i.e. 23 per cent of GDP for Japan, 43 per cent of GDP in the U.S. and 57 per cent of GDP for the E.U.), rather than rising as in the central ageing scenario. The debt stabilization scenario leads to an increase in expected GDP growth of 0.1 per cent *per annum* for all three regions.

The second scenario is debt stabilization combined with an increase in the age of retirement. In the later retirement scenario, the statutory retirement age increases gradually by up to five years, to a maximum of 70 years for the three regions. An estimate of the effects on labour force participation rates is incorporated. The debt rules are the same as in the debt stabilization scenario. This scenario increases growth by 0.3 per cent in Japan and Europe and by 0.2 per cent for the U.S.

The third scenario is one with higher labour force participation rates. For Japan it is assumed that the low participation rates for females aged between 30 and 45 years gradually rises to those for in the 20–30 and 45–50 age groups. For the U.S. and the E.U. it is assumed that the participation rates of older workers gradually increase to reach the rates observed for the same age categories in Japan. The effect on GDP growth is largest for the E.U., as in Europe participation rates are well below those in Japan, especially for the older age groups. The higher labour force participation scenario increases GNP growth by 0.1 per cent for the U.S. and by 0.4 per cent for the E.U. The effect for Japan is almost nil.

The fourth scenario is one wherein policy reforms lead to improvements in factor productivity. The report suggests however that most of the measures that would lead to any positive effect in productivity are implemented in most OECD countries and only modest further gains can be expected. Growth in Japan could improve by 0.2 per cent and growth in the E.U. could improve by 0.1 per cent. The effects in the U.S. are even more modest.

As none of the policy responses taken in isolation can fully compensate for the negative effect of ageing on the economy, a combination of some of the policy measures might do the job. In addition, the impact of the different policy responses varies significantly across the regions. In the E.U., and to a lesser degree in the U.S., there is considerable scope for increasing the labour force and employment, notably among older workers. In Japan and the E.U., the potential macroeconomic gains in terms of labour efficiencies are potentially large. In all three regions, strict control of public expenditures and debt will have a positive effect on output and incomes.

The fifth scenario combines the earlier measures into one package, taking into account the sensitivities for the different regions. Regarding debt, the measures stabilize net public debt in Japan at the estimated level for 2000 and reduce net public debt in the U.S. and the E.U. to 23 per cent and 37 per cent of GDP by 2020, followed by stabilization thereafter. The retirement age is gradually raised by five years from 2005. A reduction in structural unemployment in Europe to 5.5 per cent of GDP is targeted. Regulatory reforms are introduced which increase the level of labour efficiency by 10 per cent for Japan by 2020 and approximately 8.5 per cent and 2 per cent for the E.U. and the U.S. by 2030. The overall effect of these measures is an increase in GNP growth *per annum* by 0.43 per cent for the U.S., by 0.5 per cent for Japan and by 0.6 per cent for Europe. The calculations show that, combining several measures specifically targeted at the region, the negative effect from ageing on the economy can be compensated for. In the case of Europe, the right reform scenario can even lead to higher growth rates than the region has experienced in the past.

Table 3:
OECD reform scenarios

GDP per capita %	Debt stabilisation (1)	Later retirement with debt stabilisation (2)	Higher labour force participation (3)	Higher productivity scenario (4)	Combined reforms scenario (incl 2, 3 & 4)
United States	0.1	0.2	0.1	0	0.3
Japan	0.1	0.3	0	0.2	0.5
European Union	0.1	0.3	0.4	0.1	0.6

Source: OECD

The different reform scenarios influence real interest rate developments, with the debt stabilization scenario having the largest impact. In the combined reform scenario, the model calculates that real interest rates in the E.U. are 1.4 percentage points lower than the 4.9 per cent in the reference-case scenario.

3.6. Policy responses in report of the European Commission

The European Commission's report only looks at policy scenarios to ease the economic burden of ageing for Europe and does not include any policy scenarios for the U.S. and Japan.

The first policy response is related to budgetary measures. In this scenario it is assumed that budgetary adjustments will be made on the expenditure side rather than on the revenue side (higher taxes) as in the central ageing scenario. This means that wide-ranging reforms will have to take place, especially in the areas of pensions and health. The model calculates that these types of reforms would raise annual GDP growth by 0.17 per cent.

The second policy response consists of wide-ranging labour market reforms resulting in longer working-life times (later retirement) and higher participation rates. These reforms, introduced effectively, could completely eliminate the negative effect from ageing on the economy as they could potentially raise annual GDP growth by 0.4 per cent, a result similar to that found in the OECD report. If a comprehensive reform package were to be implemented in Europe, combining budgetary measures with labour market reforms, annual GDP growth could be enhanced by 0.5 per cent, overcompensating the potential negative effect of ageing which was calculated to be 0.43 per cent *per annum*.

Table 4:
European Commission reform scenarios

GDP per capita %	Budgetary reform scenario	Labour market reform scenario	Comprehensive reform scenario
European Union	0.17	0.4	0.5

Source: European Commission

4. Reform options

In looking at how much reform is necessary and what needs to be done, we think there is plenty of good news.

4.1. Five reasons to be cheerful

First, we have seen in section two that, although some of the boom factors could be related to demographic changes, there were and, we believe, still are other factors at work, such as technological change and globalization, that have stimulated the global economy.

Second, we have some doubts as regards the potential impact of ageing populations on the economy. Both economic studies assumed that governments would not intervene as and when tensions resulting from ageing start to build. It is unlikely that this would happen, and it is fair to assume that both scenarios represent a worst-case scenario rather than a realistic scenario.

Third, we believe that, even when no governmental action is taken, some economic mechanisms will start to work. The two economic studies we looked at both agreed that around two-thirds of the impact of ageing populations is generated through changes in the labour markets. However, in the base-case scenarios, it was assumed that unemployment as well as labour force participation rates would remain unchanged, which we think is unrealistic. Ageing will make labour more scarce and we believe that this will lead to lower unemployment and, through the mechanism of higher wages, it should also lead to higher participation rates in general. More specifically, it will lead to higher participation rates for women, and also some older people may be enticed back into the labour force, attracted by good wages and stimulated by slightly lower pensions. An important message from section 3 is that labour markets need to be as flexible as possible. Theoretically, a decline in the working age group will make labour more scarce, which should lead to lower unemployment and higher labour force participation rates. We therefore believe that the assumption of unchanged unemployment and labour force participation rates, for many if not all countries, is too pessimistic.

Fourth, most European governments have already started a process of economic reform including pension reform, which should help bring down budget deficits and overall debt. Gross debt for all 15 E.U. Member States, taken together, has dropped from 72.2 per cent in 1995 to an estimated 62.7 per cent in 2001 and is likely to fall further as most countries are now running primary surpluses and small overall deficits. The big question of course is whether governments can continue to adhere to the Stability and Growth Pact when the ageing of the population starts to put pressure on governments' finances.

Our final point is related to some of the earlier points. Many of the economic variables are related to each other and one action can trigger more than one reaction. As an example, we have already noted that labour market reform is important, as it should lead to lower unemployment and higher labour force participation. We have also noted that budgetary reform is important, as ageing will put substantial pressure on the public retirement systems. This will undoubtedly lead to further cuts in the generosity of pension systems, leading to lower replacement rates, which will encourage (or force) people to retire later and work longer. So budgetary reform will help labour market reform and vice versa. Lower replacement rates will also encourage people to save more during working life to replace lost income. Higher savings rates should lead to higher economic growth, which again will compensate for the negative effect of ageing. In order to make pension systems fairer, it is

important that over-generous early retirement options be reduced. A reduction in early retirement benefits will not only reduce costs, but should also lead to an increase in the average retirement age and therefore in labour participation by the older population. This shows that labour market and budgetary reforms are interdependent and should be combined.

The conclusion in all this is that we might overestimate the amount of intervention that is necessary. Most importantly, necessary reforms must be introduced. However, if targeted at the right areas, intervention will draw out many feedback mechanisms that actually reduce the amount of reform that is required.

4.2. Combined reform scenario

We believe that it is possible for Europe to compensate for the negative effect of ageing on the economy. Even better, economic models have shown that it may be possible to achieve higher growth rates than Europe has experienced in the past by combining several reform options, including labour market and budgetary reforms. There is no optimal package for Europe, as the different countries in the region have different starting positions. Demographics, employment, public budgets and debt as well as pension systems differ across the region, and reform packages need to take this into account. Also, some European countries have already made more progress than others, as indicated by Merrill Lynch in its "Progress Report: European Pension Reform", published in January 2001. We only discuss the common factors and ignore the country-specific details. The ideal reform package includes elements of labour market reform, budgetary reform and measures that stimulate productivity growth and private savings.

4.3. Labour market reform

The most effective reform is labour market reform. The right amount of labour market reform alone alone can almost entirely cancel out all the negative effects of ageing on the economy for Europe. What is, however, the right amount? The E.C. report assumes, in the base case scenario, unchanged unemployment and participation rates at their 2000 levels. In order to get to the 0.4 per cent improvement in annual growth in the labour market reform scenario, the model assumed an increase in E.U. labour force participation rates of ten percentage points. Over the period 1970 to 1995 the U.S. labour force participation rate did increase by 11.5 per cent while the E.U. rate stayed at the same level. A ten-percentage-point improvement would bring the E.U. rate only back up to the U.S. level. We believe that this is well possible to achieve in Europe.

At the European Council meeting that was held in Lisbon in March 2000, European leaders agreed a new strategic goal for the E.U. in order to strengthen employment, economic reform and social cohesion as part of a knowledge-based economy. As part of the employment strategy, the European Council agreed to aim for a rise in the participation rate from 61 per cent today to as close as possible to 70 per cent by 2010. The report states that: "Enlarging the labour force will reinforce the sustainability of social protection systems." In order to achieve these higher labour force participation rates, different proposals need to be developed for the Member States. The two target areas are the low labour force participation by women and by the older 55–60 and 60–65 age groups. Pension and social security reform will be instrumental, including the removal of generous early-retirement options.

4.4. Budgetary reform

The second most effective reform measure for Europe is budgetary reform. We have shown already that Europe is making progress in reducing public deficits, and public debt as a percentage of GDP for all 15 E.U. Member States has come down from 72.2 per cent in 1995 to an estimated 62.7 per cent in 2001. However, this average figure disguises the fact that some countries are still substantially above 60 per cent. Greece has gross debt of around 100 per cent of GDP, Italy 106 per cent and Belgium 105 per cent. The base-case scenario in the E.C. report assumes broad respect for the Stability and Growth Pact and the model imposes a debt rule of 60 per cent.

In the Merrill Lynch publication, "Progress Report: European Pension Reform", we have shown that many countries in Europe have made good progress in reforming their public pension systems, but more can and should be done. The ideal pension reform package includes such measures as a small reduction in the generosity of the system in those countries that have very generous systems, measures that reduce over-generous early-retirement options and the introduction of privately funded pension schemes. In earlier publications we have made the point that the introduction of funded pension schemes in itself does not solve the pension problem but, combined with other measures, can help to alleviate it. The introduction of mandatory private pensions might also have a positive effect on the savings rate. Pension reform in Europe is not finished yet and we see many countries are still attacking the problem. In addition to pension reform, it is important to keep health expenditure under control. Although many believe that ageing populations will put pressure on health budgets, there are two arguments why this effect could be limited. First, a large part of the historic increase in health expenditures has not been related to the increase in the number of older people. This means that there are other factors at work such as the improvement in the quality of the health service. Second, not only will life expectancy increase; healthy life expectancy will also increase, which means that high health expenditure for older people will start to kick in at more advanced ages in the future.

4.5. Higher productivity growth

In the Merrill Lynch publication, "Benchmarking the New Economy", published in August 2000, Plum Shipton, the Merrill Lynch European strategist, made the point that Europe is already making structural changes in the labour, product and capital markets. These reforms, together with significant increases in technological investments and technology penetration should move Europe on to a permanently higher non-inflationary growth path in the future. Perhaps less relevant for this article is the fact that in many indicators Europe seems to catch up with the U.S., or at least close the gap. Ageing populations will make labour scarce, which should be detrimental to economic growth. Increased productivity, however, will compensate for this. We do not believe that these changes, as discussed and measured in the above-mentioned report, are in any way connected to the ageing problem. The fact is that these changes are happening and they should result in much higher growth rates for European economies in the future. High economic growth will limit the impact of ageing populations on the economy.

4.6. Increased savings

In addition to increasing public saving (reducing public deficits), it is important to increase private saving, which includes personal saving. This could include the introduction

of privately funded pensions in those countries that do not have them and increase the coverage as well as the amounts saved in those countries that do have them. Private saving and public saving are related and any measures to increase private savings should not be accompanied by an equal decrease in public savings. In order for people to start saving they should be aware of the need to do so. It is important therefore for people to understand fully how their retirement situation looks and how it will be affected by the reforms. Politically this is not easy, as governments do not like to show what they are taking away and prefer to hide this. The introduction of yearly statements of expected retirement benefits for every worker, or citizen of working age, can do much to combat this. At the moment, the baby-boomers are moving through the high-earning stage of their lifecycle and are supposed to move through their high-saving stage of life as well. As we have seen, the baby-boomers are not saving and it is therefore important that governments assist the baby-boomers at this stage and encourage them to save as much as possible. The more that is saved today, the smaller the ageing problem in the future. Many observers suggest that one of the most important reasons why the baby-boomers are not saving is because asset prices have risen and therefore the need for saving to provide for retirement income has been taken away. The reverse of this argument is that the baby-boomer will start to save again for his retirement if and when asset market returns are below expectations. In addition to increased savings, it is important to ensure the efficient use of savings within and across borders, which means strengthening the financial infrastructure and eliminating barriers to international capital flows. As countries age at different rates, saving, investment and economic growth rates can also differ, which can lead to substantial capital flows between countries and regions. A free flow of capital is necessary to ensure an efficient allocation of capital, which should lead to higher economic growth in general as capital flows to those regions where it is most needed. Within borders, efficient capital markets with limited restrictions for pension investments should benefit the investment returns of those funds. Portfolio diversification (within companies as well as within the pension fund investment portfolios) in non-ageing, mostly developing economies can reduce the negative impact on the portfolio return.

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