



GENERALI
INVESTMENTS

Core Matters

The economic and financial impact of demographics

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- Ageing is a global phenomenon of unprecedented magnitude and speed. It will exacerbate the pressure on public welfare systems and can contribute to a higher political uncertainty.
- Economically, ageing as well as the shrinking of the working population will likely lower growth and hence the neutral key rate while dissaving will lead to upside pressure on inflation.
- On balance the demographic changes are expected to reduce real yields in the years to come. Equity sectors related to the ageing process will benefit, including Asset & wealth management.
- The increasing importance of private provision will open up new opportunities for the insurance sector.
- Investment behavior is expected to shift towards less risky, cash flow yielding assets.
- EM will dominate future ageing-related investment opportunities.

Population ageing is one of the most disruptive trends of the twenty-first century: it is affecting nearly all sectors of the society, from labour market and productivity to savings and consumption behavior. It is reshaping the demand for goods and services and of course it impacts insurance and financial markets.

In this paper, after assessing the main demographic trends and their drivers, the economic consequences (in terms of GDP potential growth and saving/consumption patterns) are analyzed, first at the global level, then in the euro area. The pressures that an ageing process is posing on the political arena, both in terms of welfare state and social tensions are then taken into account. After having highlighted the effect on inflation, the focus moves on the financial consequences of the demographic change in terms of ECB rate, real yields and equity market. In the last two chapters we discuss the implications for the insurance market and the Asset & Wealth management industry.

Content box

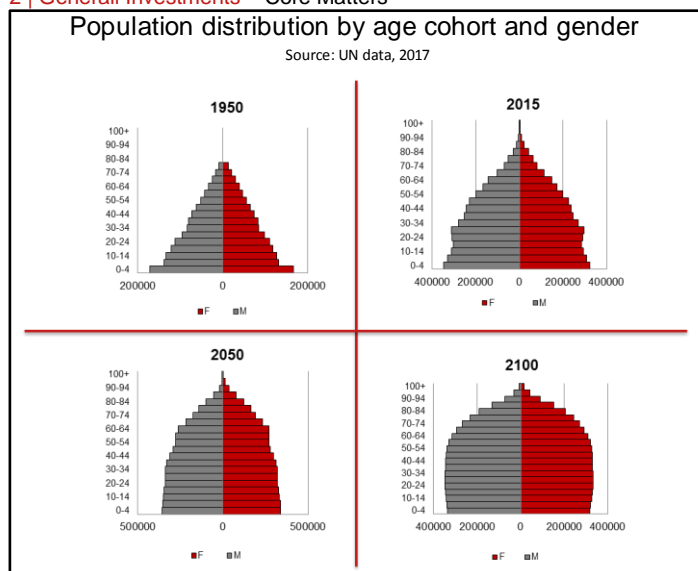
1. Demographic trends
2. Economic and political consequences
 - a. Ageing and growth: A not so clear relationship
 - b. Ageing to alter consumption pattern
 - c. Focus on Euro Area: Lower growth ahead
 - d. Pressure on social welfare to increase
 - e. Ageing to increase tension within EU
 - f. Ageing to push inflation higher
 - g. Lower neutral ECB policy rate
3. Financial impacts of Ageing
 - a. Real yields to decrease on balance
 - b. Age-related equities to outperform
4. Implications for the insurance market
 - a. Opportunity to step in
 - b. Closing the Gender protection gap
5. Growing Asset management market
6. Conclusions

1. Demographic trends

According to UN data, **people aged 60 years or more are expected to more than double by 2050** and to more than triple by 2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. They're growing faster than all younger age groups worldwide: as a consequence, the classical population distribution by gender and age cohort is moving from a pyramid to a bell.

The ageing process is the result of (i) **the contraction of fertility** - the birth rate is rapidly shrinking below the natural replacement rate level¹; (ii) **the expansion of life expectancy** due to well-known medical advancements, particularly with regards to the so-called communicable diseases.

¹ The level at which population remain constant, taking into account the mortality rate and other factors (2,1 children per woman in Developed markets and 2,3 children per woman in Emerging markets)



Life expectancy at birth will reach 78 years in 2040, (at present 72 years). **Only Africa is still experiencing a very robust increase of the population.** This will likely translate into even more massive migration flows towards Europe. However, according to the United Nations projections, **migration in Europe, if continued at current pace, will not be able to solve the expected increase in the dependency ratio** (the share of dependents, 0-19 years-old young and 60+, on 20-64 years-old people) in the next 30 years. Migration will contribute noticeably to the increase in social tensions – unless we see a collective shift to a whole new narrative.

While developed markets (DM) have been ageing for many decades, it is important to note that 6 in 10 of the world's older persons currently live in emerging markets (EM). According to UN data², by 2050 8 in 10 of the world's 60+ population will live in less developed regions.

2. Economic and political consequences

a) Ageing and growth: A not so clear relationship

At first glance a look at economic theory would suggest a **negative impact from ageing on growth**. In the basic growth model overall income growth is driven by the rate of population growth and of technological progress. While the impact from falling population is clear there is also the suspicion that an increase in the ratio of the older workforce over the total workforce is associated with a reduction in the growth rate of labor productivity. Moreover, economies of scale from the population size and the stock of human capital could also be factors negatively impacting productivity growth. Another argumentation is via higher taxes needed to finance the pensions of the ageing population. The resulting rise of the tax wedge would also be detrimental to growth.

However, while most economists argue that a country with a higher share of elderly people is associated with decreasing productivity levels, lower savings and higher government spending, this wisdom has recently been challenged. Bloom et al.³ stress **the role of behavioral change**: a higher retirement age and/or a higher labor force participation could dampen the fall of the working population. Indeed, as ageing leads to labor market shortages, it may draw unemployed people back into the labor market. Also, economies respond to labor shortages

	Old age dependency ratio				
	2015	2050 Central Scenario	2050 Zero net migration	2050-2015 % change Central Scenario	2050-2015 % change Zero net migration
World	13	26	26	103	103
Africa	6	10	9	51	50
Asia	11	28	28	157	156
Europe	26	48	51	83	94
Latam	11	31	30	170	166
N. America	22	38	43	68	91

Source: EC Commission, 2016

by gradually increasing the capital-to-output ratio. Higher life expectancy induces increased savings over the working life, spurring investment activity. Moreover, if as a result of ageing the human capital investment per person would increase, smaller cohorts of more productive workers could partly offset the ageing related loss in human capital. Last, with better health and increased life expectancy one can expect people working longer and placing fewer demands on public resources. The authors stress that applying the assumption of constant behavior to the OECD countries in the 1960-2005 period would result in an underestimation of annual average growth by 0.7 pp (only 2.1% instead of actually 2.8%). Some authors even argue in favor of a growth enhancing effect from ageing. Acemoglu and Restrepo⁴ find that countries with stronger ageing tend to have higher GDP/capita growth in the 1990-2015 or 2000-2015 period as these countries are at the forefront to adopt new technologies like industrial robots.

b) Ageing to alter consumption pattern

According to the life cycle hypothesis, consumers try to maximize their lifetime expected utility subject to an intertemporal budget constraint: The decisions of consumption and savings at a particular point in time of an individual reflect her decision of distributing consumption over the life cycle, subject to the accumulation, present and expected, of her resources (income and debt accumulation). Before starting to work and after retirement, consumption will be higher than income, while savings will be accumulated during the working age. Therefore, **the age structure of the population affects savings behavior**. Arguably, three effects have to be taken into account: (i) As long as the working age population shrinks, compared to the retirees, less savings will be accumulated; (ii) given that the years expected to live after retirement are increasing, workers know that they will need to save more; (iii) the higher unemployment risk supports precautionary saving.

The demographic change will shift consumption towards age-related goods and services: Healthcare and long term-care spending, in nominal amount and as a share of the household budget, is expected to increase in developed countries. We expect that in EM growth is likely to remain for all types of consumer goods and services, as the population continues to move up the income ladder.

c) Focus on Euro Area: Lower growth ahead

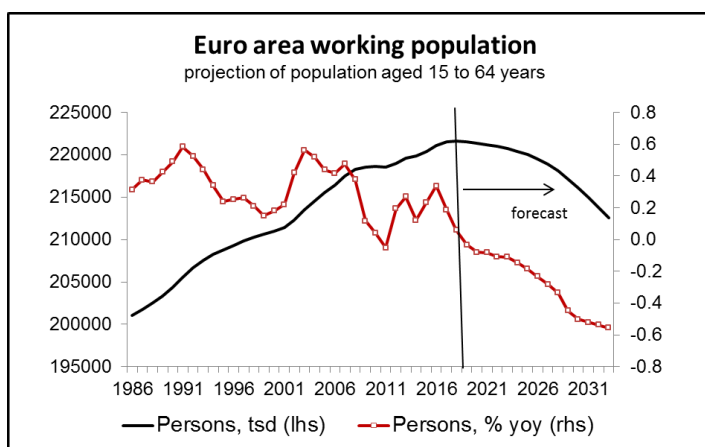
Ageing will start to severely change the economic environment in the euro area (EA) in the years to come. **As the baby boomers retire, the working population that is currently 222 mn is set to decline to 219 mn by 2028.** Migration might ease this development but is unlikely to materially change it. Moreover, **the average working age will rise**. This unprecedented development may (see above) have a negative impact on growth.

² <https://unstats.un.org/unsd/demographic-social>

³ Bloom, Canning, Fink "Implications of population ageing for economic growth". Oxford Review of Economic Policy, Vol. 26, 2010, pp. 583-612.

⁴ Acemoglu & Restrepo "Secular Stagnation? The Effect of Aging on Economic Growth in the Age of Automation". NBER Working Paper 23077, 2017.

In the EA labor productivity growth (based on actual hours worked) averaged close to 1.0% in the 2001 to 2017 period. In this period working age population growth was at 0.3% p.a. while real GDP growth averaged 1.2%. Looking ten years ahead, working age population is expected to decline by 0.2% per annum. Hence, an optimistic view on ageing would imply in case of the EA that this drag on potential growth would be compensated by either taking active policies like an increase of the retirement age or conducting pro-growth policies fostering the adoption of new technologies and investment in human capital. In our view, the political willingness to do so is rather low in the ageing European societies. **While we acknowledge the uncertainties surrounding future productivity growth, our base case remains one of declining productivity due to ageing.** This conclusion is also shared by the ECB⁵ (2018) which simulates ageing in a macro model and finds negative long-term effects on GDP per capita growth and – as a result of relative labor shortage – an increase in the capital to labor ratio. Moreover, according to IMF⁶ estimates the aging of the workforce in the EA has lowered TFP growth by about 0.1% each year over the past two decades and will drill down about 0.2% of TFP growth every year until 2035.



d) Pressure on social welfare to increase

On the pension side, other things equal, **ageing makes PAYG pension schemes⁷ unsustainable**, since the social contributions collected among a shrinking workforce are lesser and lesser able to meet the total amount of public pensions paid. The more generous the pension system, the higher the imbalance. Most EU governments have already started to cope with the issue, increasing retirement age and lowering public pension provisions (moving from DB to DC⁸ systems). **Up to now, raising social contributions has not proven a viable solution, since their level is already very high.**

In fact, according to the European Commission (EC) the public pension expenditure is projected to rise by 0.8pp of GDP up to 2040, and to gradually return to levels below its starting point by 2070 (11% of GDP for the EU). As a major side-effect, the EU’s protection gap (the shortfall in the

⁵ ECB “The economic impact of population ageing and pension reforms”, ECB Economic Bulletin Issue 2 /2018, pp. 85 – 109.

⁶ Aiyar & Ebeke, “The impact of Workforce Aging on European Productivity”, IMF Working Papers, No 16/238, 2016.

⁷ PAYG (pay as you go) means that today’s workers pay for the retirement benefits of today’s pensioners

⁸ DB = Defined Benefit; DC = Defined Contribution

amount of cover necessary to maintain the current living standards), has reached USD⁹ 41 tn and it is on the rise, thus worsening inequalities (and even more gender and generational ones) and feeding populist winds globally.

Country	(%labour cost)	
	Social Security Contributions	Total Tax wedge
Belgium	33.2	54
Germany	33.5	49.4
France	37.3	48.1
Italy	31.4	47.8
Austria	36.3	47.1
Finland	25.8	43.8
Sweden	29.2	42.8
Slovenia	32.9	42.7
Portugal	28.1	41.5
Greece	32.5	40.2
Spain	27.9	39.5
Netherlands	22.3	37.5
Denmark	0.8	36.5
Norway	18.8	36.2
UK	18.1	30.8
Ireland	13.3	27.1

Source: OECD Taxing wages, 2015

On the healthcare side, the ageing process is re-shaping the demand for healthcare services towards the non-communicable diseases¹⁰ universe. With the longer life expectancy there has been a change in the leading causes of death in the last years. If we consider the global decomposition of the changes in the leading 30 causes of death in the 2005-2015 period, we can observe that only five (out of thirty) have not been inflated by population ageing (the ones linked to neonatal pathologies). **Alzheimer’s disease and other dementias are the causes of death that have increased most in the last ten years.** Moreover among the top 6, four are correlated to age.

Top 6 leading causes of death, 2016 vs 2040		
	2016	2040
1	Ischemic heart disease	Ischemic heart disease
2	Stroke	Stroke
3	Lower respiratory infections	Lower respiratory infections
4	Diarrheal diseases	Chronic Obstructive Pulmonary Disease
5	Road injuries	Chronic kidney disease
6	Malaria	Alzheimer disease

Source: Lancet, Global Health metrics, 2018

The effect of ageing on the level of public expenditure for health care will depend on the number of years in good health of the elderly population and on the specific choices in terms of health policies by governments. Experts agree on the fact that **healthcare demand is moving towards long-term care (LTC)** and it will put pressure on the current public health sector. Indeed, the EC projects that public health care and LTC expenditure will increase by 2pp of GDP (baseline scenario), to 10.4% of GDP in 2070. However, technology could play a key role in terms of cost containment.

Focusing on **LTC, it is traditionally a very expensive service**, at present provided massively by informal caregivers who are mainly women aged 50+, with no psychological support. Not only is this social model squeezed by

⁹ Marin R. “Global Pension crisis; unfunded liabilities and how can we fill the gap”, 2013

¹⁰ Global Burden of Diseases, Injuries, and Risk Factors, 2015

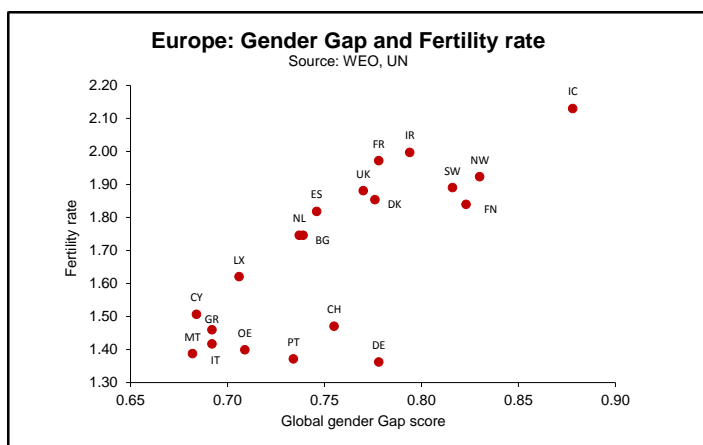
ageing per se but it is even more challenged since the reforms on the pension side will retain people at work for longer, so that it will be even more difficult for the female workforce to provide assistance and informal care services. As a consequence, a boost in the demand for formal care is expected, but public budget constraints could result in a suboptimal public supply.

Long Term Expenditure as % of nominal GDP (current and projections at 2060)			
	2014	Best case	Worst case
EU	1.4	1.4	2.5
Germany	1.1	1.6	3.4
France	1.9	0.9	2.9
Italy	0.6	1	1.3
Spain	0.7	1.6	3.1

Source: Oecd, 2017

e) Ageing to increase tension within EU

The ageing process will cause a lot of stress on the public system: lower public resource will have **distributional effects** and, as a consequence an **increase in inequality** (intergeneration, gender, etc.) is expected¹¹. An ageing population will indeed create problems of **wealth distribution and intergenerational conflicts**, and more so as ageing aggravates inequality via social mobility issues. Moreover in the health sector there is a risk of a rising inequality (care affordability is both inter-generational and intra-generational). **Gender gap in pensions will be exacerbated**: Women have lower pensions because they participate less in the labour market and they earn lower wages compared to men. Among them, mothers are penalized with respect to non-mothers (“motherhood penalty”). Moreover, women are expected to live longer than men and in worse health status¹².



Reducing the gender gap, which is calculated by the World Bank via an index of gender equality (1 means equality), taking into account not only economic aspects, would also support an increase in the fertility rate in DM. Low fertility is indeed linked, ceteris paribus, to gender inequality in DM (the rule applies from a minimum standard level of equality): the fertility rate falls with rising gender inequality. In addition, the results of demographic change will differ across European countries. Regions with high fertility rates, good education levels and plentiful employment opportunities (**Scandinavian countries, UK, Ireland, Netherlands and Austria**) will benefit from a stable workforce

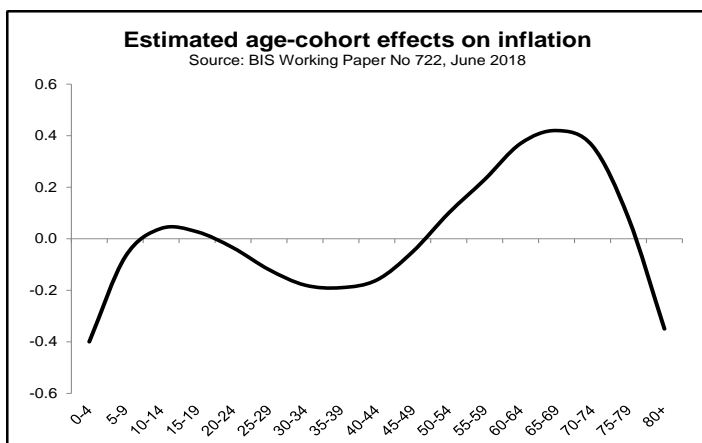
and will be able to attract workers from other parts of the country and from other nations.

Other countries will have mixed results, with **western Germany** getting more workers and investment than the eastern part, and **northern Italy** outperforming the south. The resilient countries or regions generally have solid education systems and are sources of innovation and destinations for investment.

Population aging and the loss of young workers are expected to occur more rapidly in Europe's periphery. In Central and Eastern European countries emigration is already happening. Southern Italy, northern Spain and Greece will also be negatively affected by the demographic change: they will experience low fertility rates and net migration outflows of younger cohorts of workers.

f) Ageing to push inflation higher

In principle, **ageing should drive inflation up**. First of all a shrinking workforce would bid **wages up**. By the same token **higher consumption facing a more constrained productive capacity would lift prices**. A recent paper by the Bank of International Settlements (BIS) explores the age-inflation relationship over the last 150 years for several countries. What it found is a non-linear relationship. A higher share of dependents (people too young or too old to work, with the exception of the extreme age brackets) increases inflation, while a growing working age population is deflationary. Therefore, the net impact of the change in the age composition of population will be inflationary.



Hence, the period of relatively tame inflation seen since the 1980 oil shock has also to do with a favorable shift in the age distribution, which will be reversed over the next few decades. The BIS suggests that ageing could add up to 3 percentage point to inflation over the next 30-40 years. Such a scenario would pose a problem to central banks, as higher inflation coming from the supply side of the economy is nearly impossible to fight with monetary policy without causing severe collateral damage (lower growth and higher unemployment). A closer look at the drivers of low inflation over the past decades also argues in favor of a regime shift in the years to come. In the last 35 years the global economy has experienced a labour supply shock via the abundant offer of labour from emerging economies, whose main consequence has been a depression of wages in the developed world. Going forward there will be a slowdown in the growth of the working age population in China and Eastern Europe, which should allow wages to recover. Moreover, there was furthermore a shift in the attitude of EM companies towards using more and more an idea-intensive approach instead of a labour- or capital-intensive one, the pressure on wages would increase further.

¹¹ See Oecd, Preventing Ageing unequally, 2017 <http://www.oecd.org/health/preventing-ageing-unequally-9789264279087-en.htm>

¹² Research on life expectancy has demonstrated the negative impact of disability on the health of older adults and its differential effects on women as evidenced by their higher disabled life expectancy (DLE).

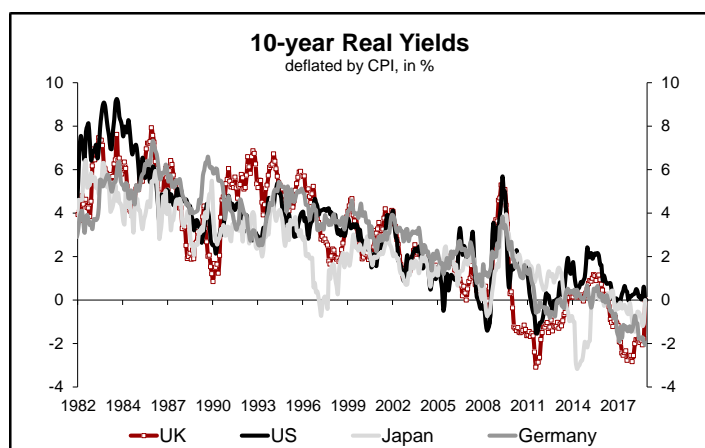
g) Lower neutral ECB policy rate

With growth falling as a result of ageing, **the neutral ECB policy rate will also have to be adjusted down**. Currently, we see this rate in the 2.5% to 3.0% range. However, with potential growth falling by about ½ pp to below 1% according to our assessment, the appropriate policy rate consistent with growth at potential and the inflation rate stable (so called neutral rate) will have to be adjusted accordingly. For monetary policy this would imply that it likely faces challenges, due to lower bound constraints on nominal interest rates, more often so that the unconventional policy tools used over the past crisis decade would have to be used more often¹³. This argument is underlined by findings from the US¹⁴ which show that states with a higher share of older population have a smaller response to interest rate shocks than younger states implying the need for stronger monetary policy responses in elderly societies. Normatively, elderly people may express a higher preference for lower inflation and financial stability, especially when the privately funded pension pillar plays an important role.¹⁵ Therefore, **macro-prudential policy would even rise in importance** and increased inflation aversion implies earlier monetary action in times of an economy operating above potential than in case of younger societies.

3. Financial impacts of Ageing

a) Real yields to decrease on balance

The good thing with demographics is that the current composition of the population gives a good idea of the way the population (i.e. growth, composition) will look like in the future. Is that of any value when trying to forecast real yields? The empirical evidence is mixed. Contrary to the predictions by the demographic bond models, real yields have continued to fall in recent years. Currently, real yields are in negative territory in many countries – a level not consistent with common fundamentally derived equilibrium levels.

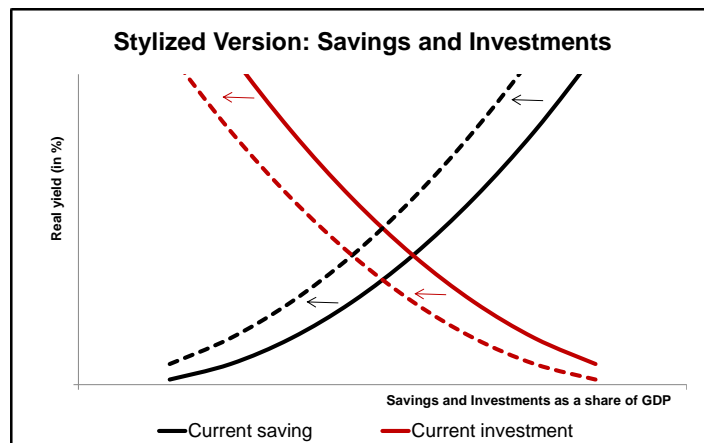


In the following we focus on the expected impact of ageing on real yields. Thereby, we abstract from higher inflation rates in the wake of the demographic change which, ceteris paribus, **will lead to higher nominal yields**.

However, there are opposing effects on international bond markets. To start with, according to the neoclassical

growth theory **the ageing of the population and a decreasing (or even negative) population growth imply a higher per capita capital stock**. Accordingly, all other things equal, the higher capital intensity entails a lower marginal productivity of capital, hence a lower equilibrium real yield.¹⁶ As the ageing process is seen to become more global and more synchronous in the years to come, offsetting effects (like e.g. migration and globalization of production processes) will have less of an impact than in previous years.

Beyond the decreasing effect of lower growth, **the impact on savings and investments is less clear**.



Generally, the working-age is in an asset-accumulation phase as workers invest money to fund their future retirements. In contrast, the younger and the retirees are characterized by a lower savings rate to finance their education or their old age. The increasing share of the latter group comprises an overall decreasing savings rate and – all else being equal – higher real yields. However, the need for private provision entails stable income generation and capital preservation. Accordingly, the demographic change is expected to trigger a changing investment behavior from more risky to fixed income assets. This goes against the increasing real yield tendency. Moreover, a stronger international integration (e.g. by the inclusion of countries not participating in global trade and factor mobility so far), an increased tendency to substitute workers by robots, a more cautious and restrictive fiscal policy to meet future obligations, the tendency for workers to extend their working life (not least to make up for the increase in longevity), and the growing importance of China, which is characterized by an unusually high savings rate (although it is seen to decrease going forward, it will remain above the ones in DM), can weaken the trend towards higher real yields as well. All in, **we still see the supply of savings to decrease in the years to come, but the extent will differ internationally and will depend on the institutional setting and the technological developments**.

The effect of a changing savings rate on real yields will also depend on **the ageing's impact on investments**. On the one hand, a decreasing labor force increases the incentive to invest in labor-saving technologies and automation. All else being equal, this means a higher share of investments. On the other hand, the lower long-term growth rate decreases the profitability of investments. In addition, the slowing labor force growth (or even the decrease) re-

¹³ See ECB (2018), above.

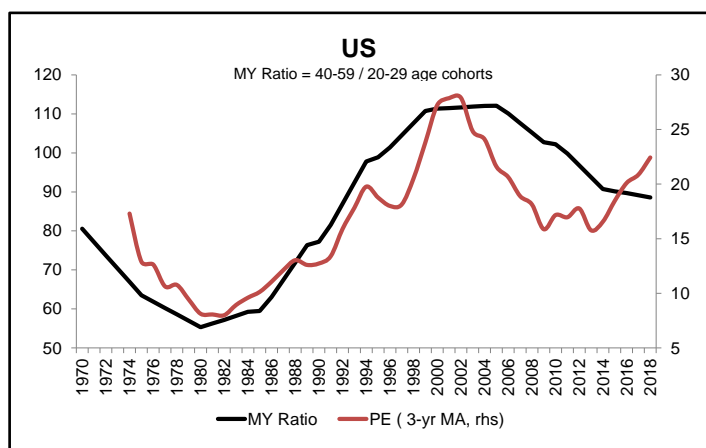
¹⁴ Wong "Population Aging and the Transmission of Monetary Policy to Consumption", 2015. https://economics.yale.edu/sites/default/files/files/Events/jf-2016/Arlene_Wong_JMP_Latest.pdf

¹⁵ See ECB (2018), above.

¹⁶ BoE „Secular drivers of the global real interest rate“. Staff Working Paper No. 571, 2015

sults in the abundance of capital relative to labor and a falling productivity of capital. This tends to depress the return on capital and will, eventually, reduce the level of investments.¹⁷

All in, there are various factors determining the future development of real yields. Even abstracting from business cycle variations, the answer is not clear-cut. **While a change of the savings/investments ratio tends to slightly increase real yields, the lower equilibrium growth rate is expected to exert some downside pressure on real yields.** Ultimately, in line with the findings from several overlapping-generation models¹⁸ and empirical work¹⁹ **we expect the decreasing growth rate to gain the upper hand. Hence, the demographic change is seen to put some moderate downward pressure on real yields in the years to come.**

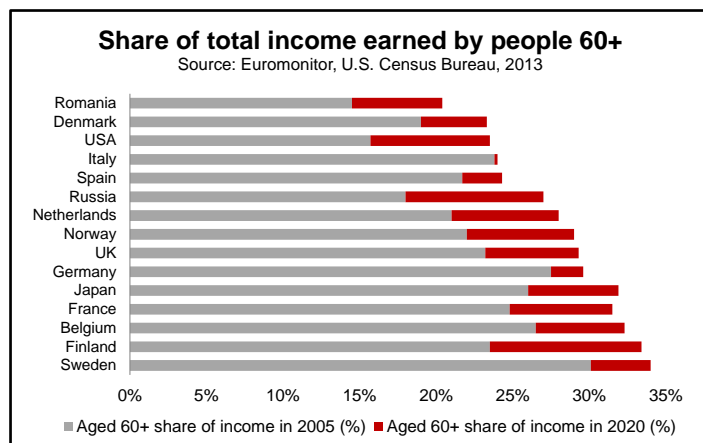


b) Age-related equities to outperform

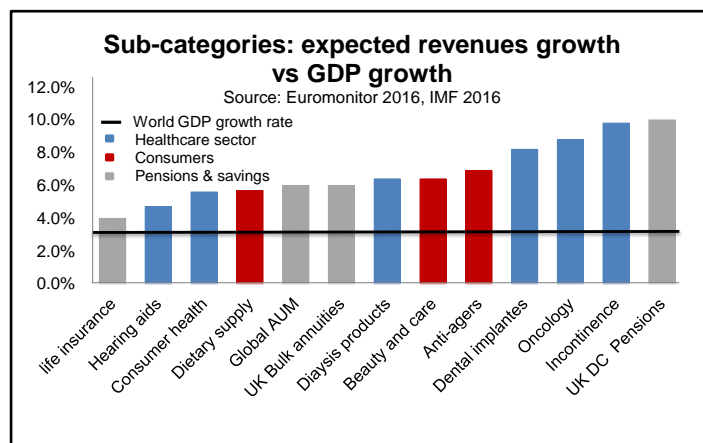
The impact of ageing on stock market valuation has been widely discussed²⁰. First, saving behavior is closely correlated with age distribution, with a working age population having higher net savings. Higher savings then fuel the demand for financial assets and this props up asset prices when the young start accumulating assets, and vice versa when they start dissaving as their retirement age approaches. As predicted by this model, **a strong relationship between age based savings** (measured by the medium-age to young age ratio, MY, namely the ratio of 40-59 to 20-39 age cohorts) **and stock market valuation** (measured by the price earnings ratio) is observed for the US (see the figure below). Results for other G7 countries or East Asian Countries such as China and Korea do not show the same correlation – one reason being the lower share of equity investments held by Continental European or East Asian households. However, given the ongoing increase in households' stock ownership that is observed in Asian EM, we expect the "baby-boom" dissaving effect to matter there as well as soon as the MY ratio of Asia catches up with the US one.

A second important factor to consider is that the demographic shift encourages companies to cater for new needs and provide specific products and services for elderly customers. This is even more true since seniors progressively control a greater share of the total income (particularly across the Old Continent) and **increasingly influ-**

ence the political agenda (increasing share of political representativeness).



Other than **Life & Health Insurance** or **Asset Management companies**, age-related segments of healthcare sectors (**Pharma & Biotech, Healthcare Equipment & Services**) and some specific branches of the consumers one (**Personal Care, Travel & Leisure, Senior Living Automation, Security & Technology**) are expected to outperform global GDP growth until 2060 (see figure below). Since **the distribution on elderly is shifting rapidly towards EM** - the share of EM 60+ over world 60+ population will increase from 63% today to 77% by 2050 - EM will experience the same shift in consumption patterns as the ones projected for DM. Therefore, the same conclusions in terms of sector allocation of DM hold true for EM. Not only will EM follow the consumption dynamics of DM, but they will also move up from labor intensive industries towards more idea-intensive ones: as working age population in EM shrinks, the marginal cost of labour should increase, decreasing the relative appeal of labour intensive industries. This will push up investments and productivity and translate in higher growth potential and higher accumulation of wealth: indeed, **EM will contribute around 80% to the increase in global wealth creation by 2030**²¹. There is however a risk that the speed of ageing in EM is faster than the process of wealth accumulation and distribution, so that such countries will have to cope with getting old before getting "rich".



Last but not least, the increase in the elderly will likely cause **preferences for risk-controlled products to increase**. Moreover, a steady stream of cash flow will become highly appreciated. For these reasons there will be a bias among old investors towards fixed income products. Among equities those which render high and stable dividends could become the preferred ones.

¹⁷ Gagnon, Johannsen, Lopez-Salido "Understanding the New Normal: The Role of Demographics". Federal Reserve Board, Finance and Economics Discussion Series, 080/2016

¹⁸ See e.g. Gagnon, Johannsen, Lopez-Salido (2016), above.

¹⁹ See e.g. BoE (2015), above.

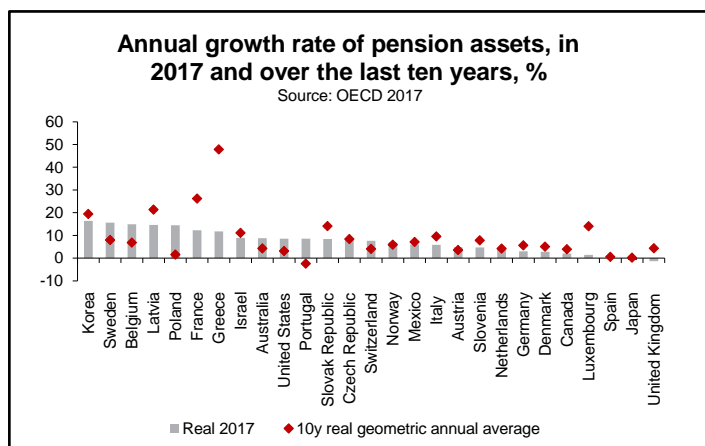
²⁰ Geanakoplos, J., Michael Magill and Martine Quinzii (2004), "Demography and the Long Run Behaviour of the Stock Market", Brookings Papers on Economic Activities, 1: 241-325.

²¹ Bank of America, Transforming World – The Next 5 Years, October 2018

4. Implications for the insurance market

a) Opportunity to step in

The shifts from state to private protection coverage, favored by the change in demographics, open increasing room for insurances to step in, both in DM and EM. **Asia, in particular, represents an attractive accumulation opportunity**, because of their low level of pension and protection coverage and low penetration rate of insurance in general.



We can distinguish the main consequences and opportunities of the ageing process for the insurance market, by the two main pillars: pensions on one the side and healthcare and LTC on the other.

On the **pension side**, private markets are growing globally; still, huge differences among geographies remain and, despite pension plans being generally tax incentivized by governments, in several countries the market has not grown as expected. A number of issues have limited the market development: affordability, myopia²² and hyperbolic discounting are key elements. Behavioral economics has proven that people tend to overweight the value of present over the future and to procrastinate the saving process as retirement is seen as a too distant future.

Misbeliefs on the future amount of public pensions also play a role, especially in those countries where public reforms have been designed to produce the desired changes only decades later.

On the supply side, who bears the financial risk, remains a critical issue. Other drags come from loading costs and product design, which play a role in individuals' choices among different financial alternatives. Indeed, our proprietary research based on a Generalized Linear Model shows how, for example, pension plans are in competition with other life insurance products. The probability to save via pension plans is negatively correlated to the amount of assets put in bank accounts or even in traditional life insurance products: one of the main reasons rely on the higher flexibility in terms, for example, of withdrawals of these "more liquid" instruments. According to our analysis, this evidence, valid across EU countries, is particularly strong for Italy.

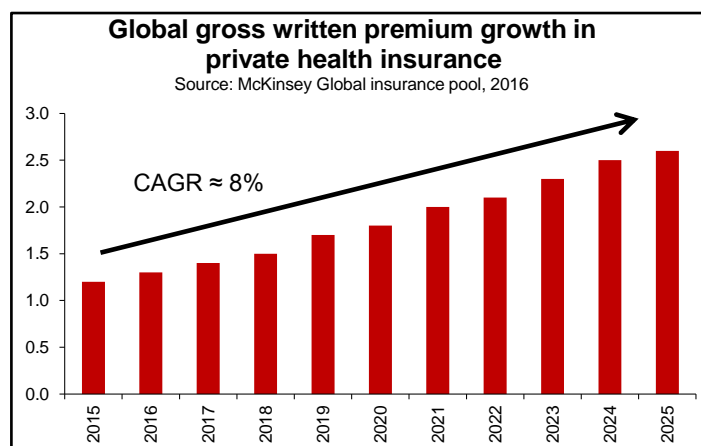
ITALY		
GLM MODEL RESULTS	Sign of Beta Estimate	Statistical significance
Household size	+	*
Household income	+	***
Bank account	-	.
Bonds	+	**
Stocks	+	***
Mutual funds	+	***
Life insurance	-	*

Source: GJR proprietary model

For what concerns the **healthcare sector**, the ageing of the population in the developed world has also created a need for tailored insurance products, even more so where there are fewer public resources to be spent to address these issues. This is an inner incentive for insurance companies to step in, given the expected growth of the sector over the coming years.

The longer life expectation together with increasing non-communicable diseases, like dementia, and lower public resources should increase the need for **LTC insurance**.

But evidence shows low levels of private demand, especially in "aged" countries: in some of them the market has not taken off yet (EU countries). In some others, like the US, the market has collapsed.



Why so? On the supply side, high fees, high costs in general and unattractive reimbursement rules are key drags. On the demand side, people hope the state or the family will provide care services. Intra-family moral hazard may even be a factor (individuals do not buy coverage because they are worried that their children will not take care of them for they are insured). Again, behavioural factors are key: myopia, hyperbolic discounting and denial inhibit the purchasing of LTC. The insurance industry should focus on these matters, conveying more research in order to be able to improve the narrative, overcoming these issues.

b) Closing the Gender protection gap

Within the protection gap topic, **the gender gap appears even deeper** and needs urgent solutions. On the pension side, as a consequence of the well-known gender pay gap, women have lower resources to invest in private pension schemes. Assuming a woman and a man save the same percentage of their salary, the woman will have less money than the man at retirement. On the health side, women live longer, but in a worse health status, are more likely to suffer through a chronic illness from the age of 65, spend more money on healthcare than men (7% more in US) and are much less likely to benefit from a spouse-caretaker.

²²https://scholar.harvard.edu/files/laibson/files/myopia_and_discounting_2017_08_03a.pdf

For all these reasons, more emphasis should be given to the opportunity for women to take advantage of the unisex tariffs for annuities.

5. Growing asset management market

There are significant opportunities for the wealth management industry, which manages assets during the accumulation and the post-retirement decumulation phase: **Global wealth is expected** to grow from US\$ 580 tn to US\$ 1.110 tn by 2030²³, with around 64% held in Europe and North America²⁴. Room for growth is significant²⁵, since the distribution of wealth is shifting towards the elderly (52% of all high net worth individuals belong to the 50+ age segment) but only 26% of retirees globally have ever used a professional financial advisor²⁶. Some of the largest players like UBS, Credit Suisse and others are moving fast to close the gap with tailored-made solutions. EM wealth is projected to rise from €80tn to €300tn by 2030 – i.e., 25% of incremental global wealth creation. This represents a good opportunity for asset managers, capital markets players, insurance firms, private banks operating in EM.

An important side effect of ageing in DM is **a change in investors' attitude toward risky investments**. A typical rule of thumb of how much equity should investors purchase as a function of age is to subtract investors' age from 100 and get the target exposure to equity. If this rule was effectively adopted by investors, one consequence of ageing would be a gradual reduction of investor exposure to risky assets and an increase in the exposure of "risk-free" assets. However empirical evidence (Guiso et al., 2016²⁷) has shown different results. The authors study the life cycle of portfolio allocation following a large and reliable sample taken from the Norwegian Tax Registry for 15 years. They find that the portfolio share in risky assets is high and fairly constant in the earlier and mid phases of the life cycle at a level just below 50%. As retirement comes into sight, households start rebalancing their risky asset share gradually but continuously at a pace of little less than one percentage point per year until they retire (at around the age of 65). In retirement, investors who remain in the stock market keep the share fairly flat at around 30%. Therefore, while ageing implies strong growth of the asset and wealth management market over the coming decades a more gradual shift towards low-risk assets than previously thought could take place.

6. Conclusions

Population ageing is one of the most disruptive trends of the twenty-first century society: it is affecting nearly all sectors of the society at an unprecedented magnitude and speed. Ageing will likely contribute to lower GDP growth and the neutral ECB policy rate will also have to be adjusted down. On balance, we expect that the demographic changes will exert a **moderate downward pressure on global real yields** over the next decades.

Higher dependency ratios go hand in hand with a reshape and increase in consumption, which, together with a shrinking productive capacity, will contribute to **upside pressures on inflation**.

Ageing is putting **DM welfare states under growing pressure**: the role of private savings will become crucial, since public pension reforms aggravate adequacy issues and, on the healthcare side, ageing puts the relevant informal care LTC system to test.

While private pension markets are growing globally, private **health insurance markets are still to take-off**: as a result, the protection gap continues to rise. To overcome the main hurdles that have been limiting the pension and healthcare insurance markets growth so far (myopia, hyperbolic discounting and so on) both behavioural and social experiments can be effective in boosting demand and reshaping supply properly.

As an **asset manager, insurance companies** will need to embrace the ageing theme:

- During the accumulation phase, opportunities will arise from the need to offset structurally low yields through yield enhancing assets (alternative Fixed Income, real estate funds, Private Equity, EM Equity). Those assets will meet growing demand while generating higher commissions.
- During the de-cumulating phase, the substitution of traditional life (and guaranteed) products with unit-linked makes room for asset management products, like annuities and mutual funds: in order to capture this potentially large market, most insurers have grown or purchased strong asset management arms.
- Increasing exposure to the bulk of ageing business, namely the **EM**. Looking at geography, 80% of the world's 60+ population (66% in 2015) will live in EM by 2050: EM will drive future ageing-related investment opportunities. At the moment, most assets are from DM (75% vs 25%), where bonds are a preferred habitat (60%). The opposite holds for EM (60% of equities). As western baby boomers retire (they are already doing so), there will be a gradual sell-off of equities and bonds on DM, thus increasing the relative weight of assets held by EM.
- Regions like **Canada, Australia and Singapore, characterized by positive demographics** will enjoy a relatively strong positions, which should be reflected in both higher growth dynamics and asset performance.
- Lastly, in the equity sector, **sub-sectors like pharmaceuticals, med-tech, anti-agers, pension and savings and insurance**, will benefit from the structural increase in demand, which will be higher than GDP growth. In particular, the insurance sector will become more and more appealing, because of its higher regulatory capital and a higher than average dividend yield.

²³ Our elaborations based on Credit Swiss Global Wealth Report data. HP of 5% growth rate for DM and 15% for EM

²⁴ Source: CS Wealth Institute, Global Wealth Report 2018

²⁵ This is not in contrast with the "dissaving trend" enlightened before, since the dissaving will come after the phase of increase in wealth accumulation

²⁶ Sources: Willis Towers Watson, OECD, HSBC

²⁷ Fagereng, A., C. Gottlieb, and L. Guiso, 2017, "Asset Market Participation and Portfolio Choice over the Life-Cycle," *Journal of Finance* 72, 705–750

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