Long-term savings: the case of life insurance in France

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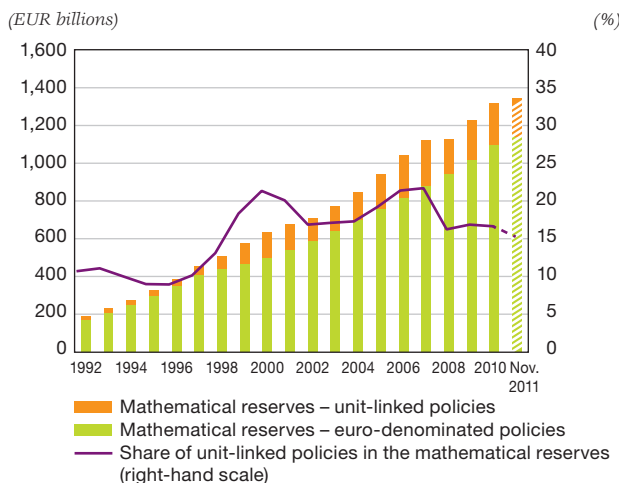*Professor of Economics, and Director*
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The life insurance market in France, which has captured EUR 1.5 trillion in savings, is now facing major challenges. While households that invest in this savings product mostly have very long-term investment horizons, insurance companies mainly invest in short-term, liquid and low-risk assets. This is a disaster for the dynamism and prosperity of our country. In this article, the author shows that this situation results from poorly designed tax and prudential rules in the insurance sector. Despite its drawbacks, Solvency II should solve part of the problem. Yet there remains the issue of the necessary reform of savings taxation in France.

The recent macro-financial crisis was an extreme event which constituted a crucial test worldwide for funded pension systems often managed by provident institutions and insurance companies. Unlike the banking sector, which required massive government intervention to be bailed out, the insurance sector weathered the crisis largely without a hitch.[1] This meaningful result should nonetheless not make us lose sight of the major macroeconomic and financial challenges that the life insurance sector will have to rise up to in the coming years, in particular in France.

In many countries, households are encouraged by the tax system to start building up individual savings for their old age as soon as they enter the labour market. The United States set up such a system, the famous $401k$ plans, in 1980. In this type of system, financial risks are entirely borne by households, which could have to considerably review their plan in the event of a financial crash, i.e. push back their age of retirement or lower their living standards. Indeed, before the crisis a large number of households had invested their lifetime's savings in shares. For example, 28% of US academics of over 55 affiliated to the very renowned TIAA-CREF pension fund had invested their entire savings in shares before the crisis.

The French, for their part, have invested massively in euro-denominated life insurance over the past twenty years, as shown by the developments in outstandings since 1992 (see Chart 1). Unlike unit-linked life insurance (which accounts for only 15% of outstandings), this system has the great advantage of creating a certain degree of solidarity between generations of savers, at least in theory. In the good years, insurers build up surpluses by offering lower returns to savers than those of their portfolio. This enables them to draw on this reserve during the bad years to offer higher returns than those of their portfolio. It is to their credit that insurance companies had taken the risk of conducting their mission efficiently by accumulating reserves amounting to approximately 10% of the value of their assets, i.e. roughly 2.5 times more than the minimum required by prudential regulations. So thanks to the withdrawals from these large reserves, life insurance returns have been higher than those of sovereign bonds in recent years. Indeed, as shown in Chart 2, insurers continue to offer the historical yields of the bonds that they purchased

Chart 1
**Mathematical reserves by type of product**

(EUR billions) *(%)*

- ■ Mathematical reserves – unit-linked policies
- ■ Mathematical reserves – euro-denominated policies
- — Share of unit-linked policies in the mathematical reserves (right-hand scale)

Source: Cour des Comptes (2012).

ten and twenty years ago with the money invested by previous generations of policyholders.

This solidarity between generations of savers is the *raison d'être* of life insurers. It allows risk-sharing between generations of policyholders, and thus creates value. Gollier (2008) shows that this solidarity could improve households' welfare as much as would a 1% increase in the annual return on their savings. However, it is impossible to organise such

Chart 2
Average returns of euro-denominated policies
(excl. management loadings and incl. social security levies)
and money market rate

(%)

- — Returns on euro-denominated products
- ---- Money market rate
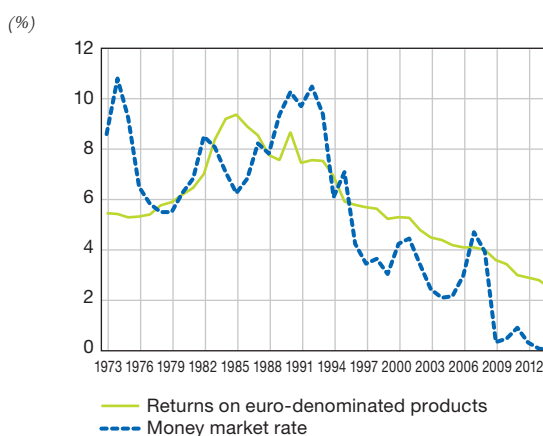
Source: Fédération française des sociétés d'assurance.

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[1] AIG is obviously an exception. Note that the activities of AIG that led to its resounding rescue in September 2008 were its banking activities.

an intergenerational solidarity without public intervention. This requires setting up a special tax system, in order to reduce the opportunistic behaviour of savers, otherwise tempted to go in and out of life insurance depending on whether the returns offered are higher or lower than those of direct asset holdings. This risk is real, since funds are blocked for a limited period of eight years to obtain the full tax advantage. Since 2009, the competition between life insurance and the *Livret A* passbook illustrates the volatility that insurers are confronted with.

The logical counterpart of the high liquidity of life insurance in France is an investment strategy whereby life insurers invest the EUR 1.5 trillion held on their balance sheet in safe and liquid assets. This asset-liability matching is reinforced by two crucial features. The first concerns the rate guarantee, which has gradually been reduced from 4.5% to 0% over the past two decades. The second is the so-called "ratchet effect", which each year offers policyholders the full and entire ownership of the returns recorded in the past. For a long time, poor regulation of the sector's solvency enabled policyholders to have the best of both worlds, i.e. enjoy liquid, safe and profitable savings products thanks to investments in relatively high-risk assets. This was made possible through two complementary mechanisms, an implicit government insurance against the risk of default of insurance companies and free portfolio insurance generated by the rate guarantee. The much tighter capital requirements imposed by Solvency II will logically force policyholders to eventually choose between safety and profitability. By reducing the moral hazard generated by the implicit government insurance against default risk, they will lead to an increase in the cost of capital for life insurers holding a large amount of non-hedged high-risk assets. The market will therefore have to choose between liquidity, safety and profitability. In the short run, long-term profitability has been sacrificed, since insurers have drastically cut back the share of their reserves invested in equities and real estate in recent years. In this article, I develop the idea that this development is incompatible with the public interest, not only from the point of view of savers but also in terms of our economy's dynamism. Economic efficiency suggests another route: that of a market shift towards long-term savings products where financial risk is more evenly shared between the parties involved. This should lead to a greater investment of life insurance outstandings in the financing of our economy.

A FEW THEORETICAL POINTS ON LONG-TERM SAVINGS

1| Asset allocation and savings horizon

In an economy with no savings and no investment as described by Lucas (1978), each year households consume their year's income. In such an economy, consumption is highly volatile and households bear significant risks that reduce their welfare. Their appetite to take additional risks is limited. Saving during the good years and spending those savings during the lean years is a very useful way of managing risks by smoothing out any shocks. Not only do these precautionary savings raise households' welfare, but they also increase their risk tolerance. This is especially true for the youngest households which have a greater number of years before them to smooth out temporary shocks to their income using this strategy of building up and drawing on these long-term savings.

Savers with a long-term investment horizon and a sufficiently large amount of liquid savings are thus in a position to diversify their risk over time. Epstein (1983), Gollier (2001, 2002) and Gollier and Zeckhauser (2002) have shown that this ability to manage risks over time massively increases the risk tolerance of those households that can afford to take on such risk. This justifies that households invest a much larger share of their wealth in high-risk assets such as equities to take advantage of the risk premium associated with these asset classes. In other words, long-term savings should naturally be steered towards the financing of long-term and high-risk investments. It is therefore absurd that in France the EUR 1.5 trillion in life insurance savings are primarily invested in bonds, especially in the current context of historically low interest rates. In other countries, such as the United States, the Netherlands and Great Britain, the long-term savings of funded pension schemes are invested more heavily in high-risk assets.

In general equilibrium, this loss of interest in long-term and high-risk assets leads to excessive risk premiums for these asset classes. This increases the cost of capital for the companies that carry these investments, which constrains their competitiveness, employment and growth. It makes the economy too short-termist.

2| Intergenerational risk-sharing and collective tolerance to risk

Life is unfortunately too short for human beings to fully benefit from the effects of intertemporal risk diversification. Their investment horizon rarely exceeds forty years. Now the fate of households with a portfolio of securities held over a period of twenty years is very heterogeneous, depending on the generation of investors to which they belong: in the United States, 1 dollar invested in a diversified equity portfolio in early 1949 generated 10.8 dollars in accumulated capital at end-1968, but only 1.2 dollars over the period 1901-1920. At present, there is no market mechanism that allows one generation of savers to actually share risks with the following generations. This market incompleteness does therefore not enable an efficient allocation of risk between generations. This absence of an effective market based on intergenerational risk-sharing poses a real problem both in terms of social equity and of financial risk expectations.

Economic efficiency, as well as equity, call for public intervention with the objective of setting up a risk-sharing framework between generations of investors. Public long-term institutional investors and collective pension funds are well suited to carry out this task alongside governments, whose time horizon is infinite and which take into account the welfare of future generations. By acting as the representatives of the different generations of citizens, these financial intermediaries may accumulate financial reserves over long periods of time to ensure a better social redistribution of welfare through their investments, in particular during hard times, by smoothing out financial shocks over time and across generations. This mechanism improves the welfare of all generations, at least ex ante. It has been shown (Gollier, 2008) that this effect on welfare amounts, in the economy, to a 1% increase in the return on capital, in particular thanks to a decrease in collective risk aversion brought about by this intergenerational risk diversification.

Defined-contribution pension funds have broadly succeeded in setting up this intergenerational solidarity in Anglo-Saxon countries thanks to the illiquidity of long-term savings and the significant tax incentives incorporated into this system in these countries. Can the same be said about life

insurance in France? Of course not and this for four reasons:

- this savings product is too liquid;

- the tax advantage disappears completely after only eight years;

- future returns are guaranteed;

- policyholders have the full and entire ownership of past returns (ratchet effect).

Each one of these four characteristics of French life insurance is incompatible with intertemporal and intergenerational risk-sharing. It leads life insurance companies to invest the sums collected in short-term, safe and liquid assets, which goes against the conclusions of section 1. This is a social and financial disaster for France.

The existential test of the French life insurance system will take place the day interest rates in the euro area start to rise, in particular if they increase rapidly. In such a scenario, insurers will end up with a considerable stock of bonds showing an unrealised loss just when policyholders will be drawn to interest rate assets offered on the market with much more attractive returns than today. To put it plainly, the opposite phenomenon of that observed for the past twenty five years will occur. Over this period, the fall in interest rates has offered new clients the historically high returns of the bonds purchased for the long-standing clients captured by the tax break. This so-called dilution phenomenon, a corollary of the intergenerational diversification described above, has led to the extraordinary success of life insurance, which has transferred wealth from the older generations of savers to the new ones. When interest rates eventually start to rise, a reverse transfer should be organised: new clients should accept lower expected life insurance returns than interest rates, since the high rate bonds purchased with their savings shall be diluted with the low rate bonds currently purchased by insurers on the market. In this inevitable scenario, this dilution clearly does not make this savings product very attractive for potential new policyholders, which are expected to turn to other products. Moreover, even if a certain degree of inertia is to be expected, the long-standing policyholders should also ask themselves questions, and potentially exercise their exit option if the tax advantage that they

would lose in the process is insufficient. In such a situation, the life insurance market could well be in a critical situation. This insurance crisis would in some way only be the counterpart of the very low interest rate policy implemented since 2007 to rescue the banking system. It would also demonstrate the failure of the intergenerational risk-sharing that this market has attempted to set up for the past four decades thanks to the tax advantage for savers who agree to freeze their savings for more than eight years. This scenario also raises the issue of the need to review the tax system governing life insurance in France, should there exist in this country a political will to establish a long-term collective savings system based on intergenerational solidarity.

3| Mean reversion and long-term risks[2]

What matters for long-term investors and their discretionary clients is the uncertainty about the flow of asset returns, which should cover liabilities over the long run. Consequently, it makes economic sense for them to adjust in their allocation model the risk premiums attached to the different financial instruments according to the length of the different liabilities. For example, if investments are made to cover a ten year liability, the problem is measuring the risk of these investments not covering this ten year liability. In other words, it is all about assessing the volatility of this asset's performance over ten years. Note also that the performance of this asset is to be compared not with the short-term risk-free rate but with the performance of ten year sovereign bonds.

Given the complexity of statistical relationships as regards the dynamics of asset class performances, it is generally not easy to switch from an assessment of the traditional annual volatility of these assets to that of a ten year volatility. The easiest case consists in assuming that equity returns are not correlated over time, i.e. past returns do not predict future returns. In this case, a negative correlation of returns over time lowers the aggregate risk by raising the holding period. Let us briefly summarise the state of our knowledge on this subject. In the short run, shares are riskier than bonds. As an illustration, over the period from 1890 to 1998 in the United States, the volatility of annual equity returns was 18%, while

that of bonds was only 6.5%. In the absence of any serial correlation of asset returns, the volatility of the annual return of the different asset classes is a good measure of risk irrespective of the length of the investment. However, it has now been acknowledged that the returns of most financial assets do not follow a random walk. For example, certain studies (see Fama and French, 1988 and Bansal and Yaron, 2004) show that equity returns tend to revert to the mean, i.e. they are negatively autocorrelated. Although shares display a slight positive autocorrelation at high frequency (a few days), what matters for long-term investors is the existence of six to ten-year cycles. Consequently, investors with long-term liabilities are in a position to better diversify their equity risk over time.

The existence of a positive serial correlation of bond yields and a negative serial correlation of equity returns means that the relative equity versus bond risk decreases with the time horizon of the investment. Campbell and Viceira (2002) estimate a vector autoregressive model over the period 1953-1999 to describe the US yield processes. They use as predictive variables the price-earnings ratio, the short-term/long-term rate spread and the nominal interest rate. The main results are presented in Chart 3. In this chart, the volatility of annualised investment yields over k quarters is

Chart 3
Volatility of financial asset returns in the United States
Quarterly data 1953Q2-1999Q4

*(x axis: holding period, k, in quarters,
y axis: annualised standard deviation of k – period return)*
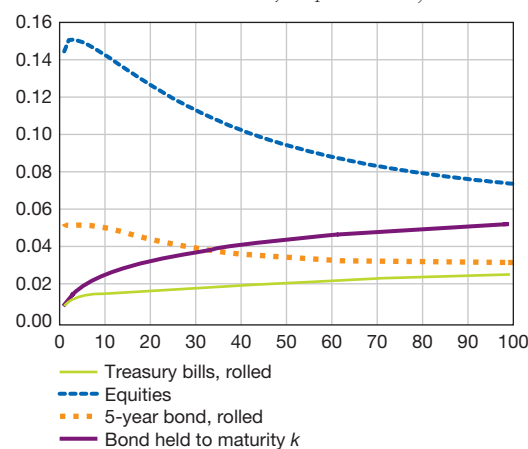
Source: *Campbell and Viceira (2002).*

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shown according to *k,* for shares, Treasury bills and bonds respectively. It is striking that the relative risk of holding shares decreases rapidly for holding periods of between 1 and 20 years, while the risk of holding long-term bonds increases sharply for holding periods of between 1 and 5 years. For time horizons between 20 and 50 years, the volatilities of aggregate returns on shares and long-term bonds are close. Bec and Gollier (2008) obtain similar, albeit less marked, results using French data.

From this we can draw the lesson that thanks to the smoothing of shocks on asset returns, and also potentially thanks to the temporal diversification of equity risk, savers with a long-term investment horizon may benefit from a more favourable risk-performance relationship than short-term investors. From the perspective of optimising the common good, this reinforces the results of section 1 which favour a portfolio strategy focused on assets that appear risky over a short-term horizon.

4| Who should benefit from a portfolio insurance?

Non-unit linked life insurance in France offers a guarantee of non-negative returns. This portfolio insurance is a surprising element for such a popular long-term savings product despite a rather skewed distribution in favour of higher-income households. It may be useful to recall a simple truth: if saver *A* has an insurance against non-diversifiable risk, this means that agent *B* has agreed to sell it to him. In other words, it is physically impossible to insure 100% of economic agents: macroeconomic risk is collectively uninsurable and must ultimately be borne by savers. Obviously, this portfolio insurance is intrinsically very attractive since it guarantees an income in situations where the community has become impoverished. If one recalls, like Barro (2006, 2009), that the risk premium on financial markets may be explained by a collective belief that GDP could collapse by roughly 40% with an annual

probability of 1.7%, then the value given by savers to this portfolio insurance is easily understandable. However, symmetrically, economic agents who provide the counterpart on this portfolio insurance market should insist on a substantial premium.

My hypothesis is that the life insurance market in France has malfunctioned in this area. The market has offered this portfolio insurance on the EUR 1.2 trillion outstanding amount without policyholders actually having to pay the cost. This hypothesis is based on the now well-known phenomenon of moral hazard: in the event of a macroeconomic disaster, the rate guarantee would bankrupt most insurers, forcing governments to bail them out in line with the "too-big-to-fail" belief that prevailed in the banking sector in 2008. Insurers are therefore not encouraged to value this risk that they do not cover themselves[3] and policyholders have an incentive to purchase euro-denominated policies containing this "free" insurance to the detriment of unit-linked policies which tend to be more profitable in the long run.

The Solvency II rules have completely disrupted this past balance essentially by forcing insurers to keep these extreme risks on their balance sheets. This should lead to quite fundamental market adjustments in the coming years. The price paid by policyholders to maintain this rate guarantee should increase. This should encourage them to switch from euro-denominated policies to unit-linked policies, which would meet the general interest as explained above. Curiously, this is not what is actually happening. The market has reacted to the new rules by continuing to strongly focus on offering guaranteed rate products, while reducing equity investments.[4] This is illustrated by the announced failure of the new "*euro-croissance*" policies, which are still far from being optimal: although they remove the ratchet effect, they maintain the rate guarantee at maturity. This leads me to formulate a second hypothesis: the market has not yet priced portfolio insurance at its real value, which has not encouraged savers to rebalance their savings. Indeed, the Solvency II rules shall not be fully operational for several years.

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3   *This reminds us that life insurance products with a rate guarantee and variable annuities are of a systemic nature if their portfolio insurance component is not covered by matching assets (Bobtcheff, Chaney and Gollier, 2014).*

4   *According to the 2014 Annual Report of the Fédération française des sociétés d'assurance, the investment share of life, capitalisation and mixed insurance companies in shares and mutual funds dropped from 29% in 2007 to 21% in 2013.*
    http://www.ffsa.fr/sites/upload/docs/application/pdf/2014-07/ffsa_ra_2013_9-07_light.pdf

This failure contributes to maintaining a strong banking intermediation in our country, at a time when this sector is restricting its financing to the economy for different reasons. In the United States, 80% of companies' financing needs are covered by the market and 20% by banks; in France it is the opposite. The absence of long-term savings invested in high-risk financial assets in Europe partly explains this strong disabling asymmetry.

CONCLUSION AND FUTURE OUTLOOK

French life insurance is at a crossroads. After two decades of extraordinary growth, this popular long-term savings product is no longer able to meet the requirements of a dynamic economy. Given that the leading product (the euro-denominated policy) is excessively liquid, it is structurally incapable of organising an intergenerational solidarity close to that which can be found in defined contribution pension schemes in Anglo-Saxon countries and which has contributed to the latter's economic dynamism and prosperity. It is also structurally incapable of steering households' long-term savings into the long-term investment opportunities of our economy, thereby resulting in excessively high risk premiums and under-investment in projects that foster long-term growth.

Even though they are not perfect (the length of insurance liabilities and the mean reversion of asset returns are not properly taken into account, for example), the new Solvency II rules should in the coming years lead to major changes in the life insurance sector in France conducive to less short-termism and greater risk-taking. Given that the liquidity of life insurance products shall now be more costly in the framework of the sector's new Solvency rules, this excess liquidity of long-term savings products in France should decrease. In the future, savers will have to arbitrate between conflicting objectives of liquidity, rate guarantee and profitability. This is the price to pay to prevent government and taxpayers from having to bear the sector's financial losses in the event of a massive financial crisis, but, from a more positive perspective, it is also the price to pay to set up in France a financial system more compatible with the public interest.

The fact remains that savings taxation in France is problematic. The market is structurally incapable of organising an intergenerational diversification of financial and macroeconomic risks, such as can be found in well-managed pay-as-you-go pension systems and in mandatory defined contribution pension schemes. It is only by setting up tax incentives that penalise liquid savings and subsidise less liquid long-term savings that the market shall be able to offer products that create such an intergenerational solidarity, a source of collective welfare. We still have a long way to go in France.

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