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The "new normal" for savings in Italy: More products under management and less bonds
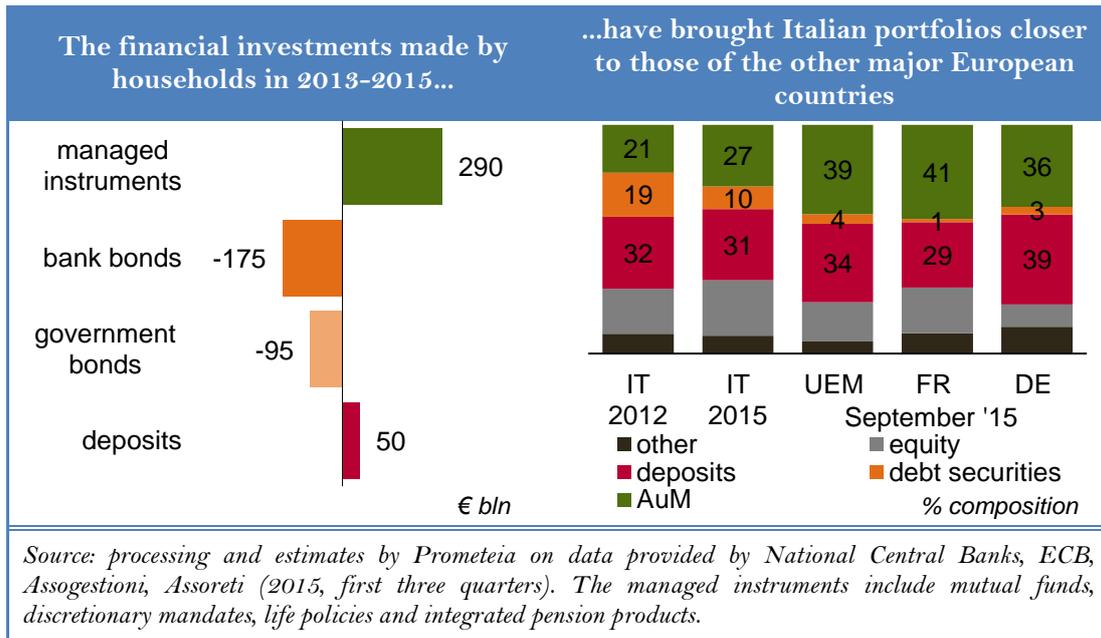
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The most recent data on the behavior of Italian households illustrate a context of all-important changes in the attitude towards savings as compared to the recent past. By borrowing a term used to refer to the economic cycle, we could speak in terms of "new normal" financial behavior of households in order to indicate that the effects of the financial and economic crisis and the changes of the banking system may have generated "structural" changes in the attitudes of households towards finance. First of all, in the new normality, the portion of income set aside as savings is and will be lower than the one in the years prior to the crisis. This is a consequence of the slow recovery of the disposable income - that started to rise in 2015, for the first time in 7 years - and of the prolonged containment of consumption, that is currently fuelling a revival of expenditure, albeit a modest one, that will grow at regular rates, also in coming years. This does not mean that savings will not increase, as indeed the worst of the crisis is behind us and the savings flows will go back to giving a more significant contribution to the rise in wealth, although they will remain lower t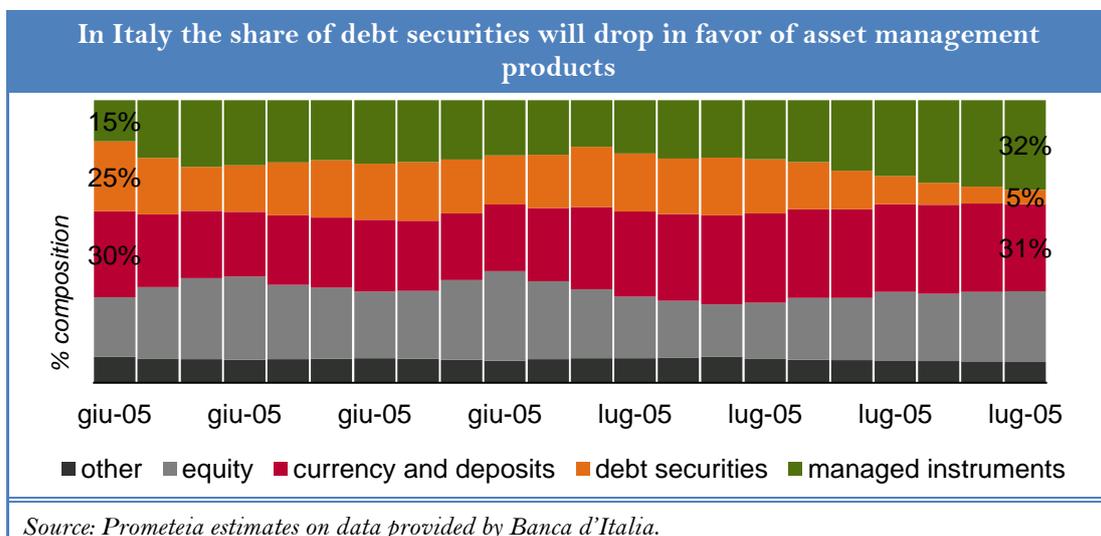han in the early 2000s. Therefore, this year financial wealth may re-attain the levels of 2006 and increase more steadily over the coming years.

Secondly, but also as a result of the need to find more effective investment solutions for allocating structurally lower savings, the response of households to the drop in the interest rates and changes concerning the banking system has been particularly intense. In the past three years, Italian households have invested almost 300 billion euros in instruments managed by institutional investors, largely deriving from the decline in bank bonds, given the lower need of the banks to finance themselves and, to a lesser extent, of government securities, whose profitability is very low nowadays. This is a paramount change for Italian households, which have always held conspicuous banking and government securities. Mutual funds, life policies and pension products thus currently make up 27% of household portfolios, that is to say the highest level in the past 20 years (they had reached 23.6% towards the end of 1999), bringing Italian household portfolios closer to the structure characterizing other countries, in which direct investment in debt securities is limited.

The financial investments made by households in 2013-2015...

	€ bln
managed instruments	290
bank bonds	-175
government bonds	-95
deposits	50

...have brought Italian portfolios closer to those of the other major European countries

	IT 2012	IT 2015	UEM	FR	DE
AuM	21	27	39	41	36
debt securities	19	10	4	1	3
deposits	32	31	34	29	39

September '15
% composition

Legend: other, equity, deposits, debt securities, AuM

Source: processing and estimates by Prometeia on data provided by National Central Banks, ECB, Assogestioni, Assoreti (2015, first three quarters). The managed instruments include mutual funds, discretionary mandates, life policies and integrated pension products.
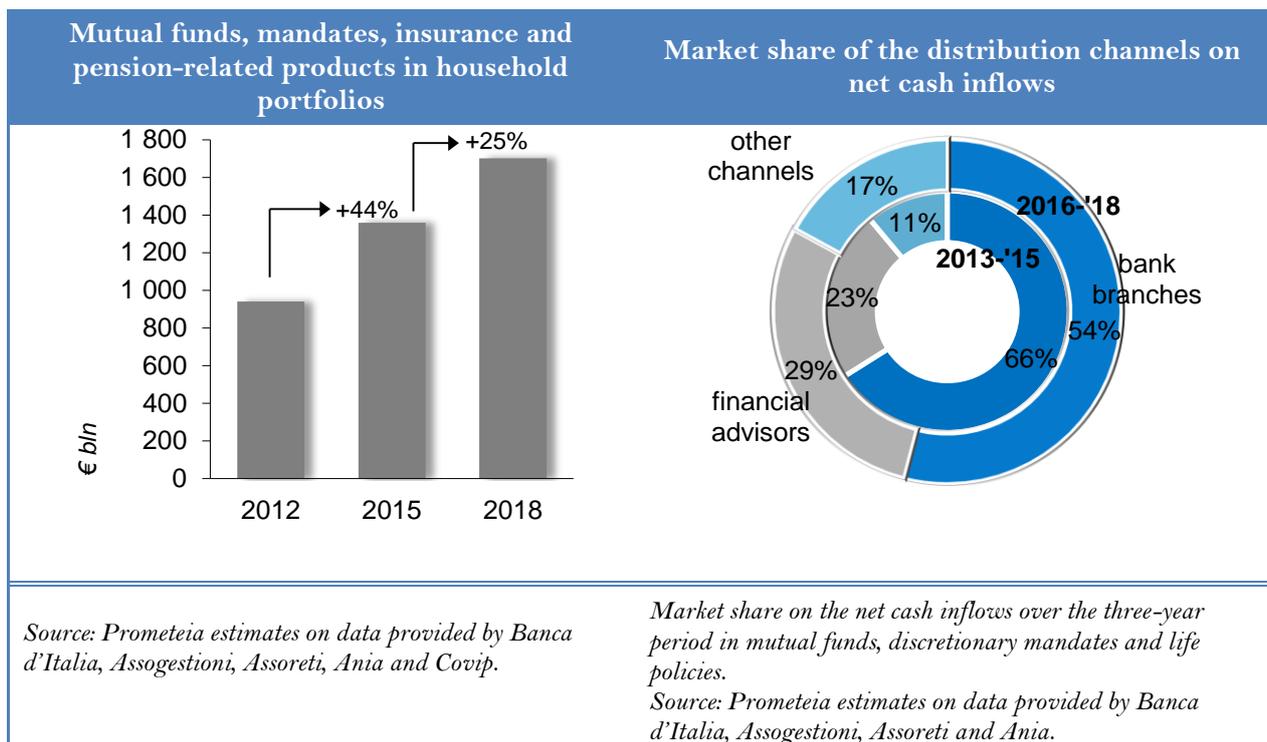
The expected financial scenario in the next few years points towards a further decrease in debt securities in household portfolios, also as a result of the measures approved at the beginning of March by the ECB. The increase in the amount of monthly purchases will contribute to reducing the profitability on debt securities, with medium- and long-term returns on the Italian government bonds that will remain below 1.5% in the course of the entire three-year period, whereas banks may be financed with the new long-term funds of the ECB, thus further reducing the use of bonds, in particular those sold to households, which are also penalized by the recently introduced bail-in rule. Hence, towards the end of 2018, the share of debt securities might be almost in line with the Euro Area (5.1% in Italy vs. 4% on average of the EMU in September 2015), with bank bonds below 1%, whereas the impact of the products managed by institutional investors may reach 1/3 of total household investments.

In Italy the share of debt securities will drop in favor of asset management products

% composition

	giu-05			giu-05			giu-05			giu-05			lug-05			lug-05			lug-05			lug-05

15% ... 32%
25% ... 5%
30% ... 31%

Legend: other, equity, currency and deposits, debt securities, managed instruments

Source: Prometeia estimates on data provided by Banca d'Italia.

Products under asset management - mutual funds, discretionary mandates, life policies and pension funds - in Italian household portfolios, exceeding EUR 1,350 billion at the end of 2015, may therefore grow further, even if at less favorable rates compared to the past three years (25% in 2016-2018 vs. 45% in 2013-2015). Within the market, a relevant part will be made up of mutual funds, both those that enter the portfolios directly via funds of funds and discretionary mandates, as well as via the further rebalancing of the insurance business towards unit-linked policies. The growth of the asset management market will be mainly driven by the development of financial advisors networks and of post offices, whereas banks may ultimately lose market share given the

downsizing over time of the assets under custody - from which currently the investments in managed instruments of bank customers largely derives - and owing to a lower ability to attract the new household savings flows. Even taking into account the ongoing reorganization, the banking channel will continue to be affected by the gap between their service model and that of the competition, in favor of financial advisors, that are proving more effective in their offer of business services, and of the post office group, that has always enjoyed a capillary distribution structure and has meaningful development plans for the managed instruments.

Source: Prometeia estimates on data provided by Banca d'Italia, Assogestioni, Assoreti, Ania and Covip.

Market share on the net cash inflows over the three-year period in mutual funds, discretionary mandates and life policies.
Source: Prometeia estimates on data provided by Banca d'Italia, Assogestioni, Assoreti and Ania.

ECB rates and Europe's Over-Saving Problem

Paul Jackson
Managing Director - Head of Research
Source

Summary and conclusions

Looking across countries, low interest rates are associated with high savings, suggesting that low ECB rates could encourage savings and depress economic activity.

However, the evidence is less clear when we look at time series data for individual countries. Outside of the Euro zone, Japanese and UK data supports the notion that low rates discourage savings but Switzerland is the reverse. Low rates may have reduced the current account surplus in Japan but perhaps widened it in Switzerland.

Euro zone data is patchy – household savings tend to be discouraged when rates fall but the reverse often seems to be true for the corporate sector. Germany is a good example of a country where household savings fall with interest rates but where total economy savings rise. As with Switzerland, low rates may have contributed to the expansion of the current account surplus.

The relationship between savings and interest rates varies over time and can be impacted by economic shocks, such as the financial crisis. It is not certain whether zero or negative interest rates constitute such a shock but it is interesting that household savings have risen in many countries in recent years, when the opposite might have been expected, given the further decline in interest rates.

On balance, historical evidence would suggest a decline in household savings and a boost to consumer spending as ECB interest rates decline. However, at the full economy level the reverse could apply. Overall, it is not clear that lower rates will discourage total savings, nor boost the economy.

Introduction

There is much debate about the effect of low interest rates on savings behavior. If there is a positive correlation between rates and savings, it would allow the possibility that current ECB policies could help to reduce the tendency to over-save in much of Europe, thereby boosting economic growth. On the other hand, there is concern that low interest rates may actually force more saving, thus dampening the economy.

That there is an excess of saving in Europe is indicated by the existence of current account surpluses in the Eurozone (especially Germany) and Switzerland, though the large deficit in the UK provides some offset. Of course, viewing savings through the optic of current account balances is somewhat difficult, as investment is the other side of the current account equation (current account = savings less investment). It is therefore important to look at a range of savings and this analysis includes household savings rates, private sector net savings and gross national savings.

Naturally, the relationship between interest rates and savings is complex and may change over time or under different economic circumstances. In some ways, the supply of savings can be thought of in the same way as the supply of labor: wages are the reward for labor and interest is the compensation for saving. When analyzing how an individual changes the supply of savings or labor in

response to a change in remuneration, we can think of both income and substitution effects. In the case of savings, the income effect would suggest that lower interest rates require a higher level of saving to generate the same income (low interest rates dampen spending), whereas the substitution effect argues for a reduction in savings (in favor of more spending) as the reward for savings declines. The net result depends on whether income or substitution effects dominate and that balance could change over time.

Another complication concerns the direction of causality. The existence of correlation tells us nothing about which factor is driving the other. Just as movements in interest rates could dictate changes in savings, it is possible that changes in savings could bring about an effect on interest rates (a ceteris paribus increase in savings may be expected to reduce interest rates). If the correlation between interest rates and savings is positive (higher rates go with higher savings), it seems likely that causality flows from interest rates to savings (why would higher savings boost interest rates?). However, a negative correlation leaves us not knowing the direction of causality. Statistical tests exist to determine causality but are beyond the scope of this paper.

This analysis features long bond yields as the measure of interest rates against which to judge savings behavior. An alternative would be policy rates or short term money market rates but they are so similar across countries as to make comparisons difficult (and they have not changed a great deal in recent years).

Savings and interest rates: a cross sectional approach

That there is a tendency to over-save in much of Europe is evidenced by persistent current account surpluses in many countries

(such surpluses occur when savings exceed investment). **Figure 1** shows that the Eurozone ran a current account surplus of 3.3% of GDP in 2015, including a surplus of 8.5% in Germany, while Switzerland and Denmark had surpluses of 11.4% and 6.9%, respectively. The UK is an exception, with a deficit of 5.2%.

Figure 1: Current account balances in 2015 (% of GDP)
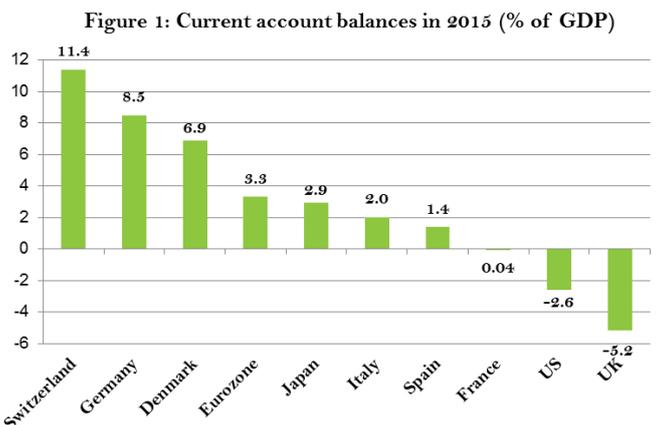
Source: IMF, OECD, Bloomberg, Datastream and Source Research

That there could be some link with interest rates is immediately obvious from **Figure 2**, which compares those 2015 current account surpluses with local 10 year bond yields at end-2015 (bond yields are used rather than policy rates as there has been a large degree of convergence in policy rates over recent years). The Eurozone is excluded from the chart to avoid double counting with member countries.
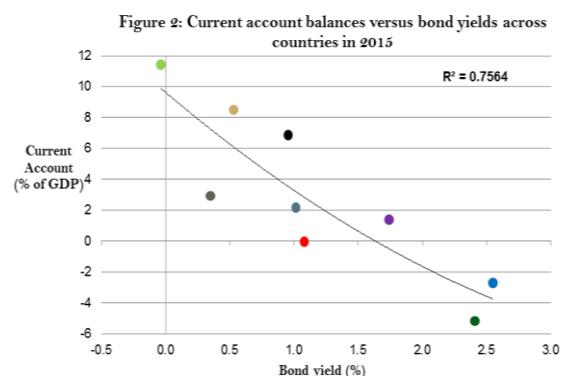
Figure 2: Current account balances versus bond yields across countries in 2015

Source: IMF, OECD, Bloomberg, Datastream and Source Research. Countries shown are: Denmark, France, Germany, Italy, Japan, Spain, Switzerland, UK and US. The fitted line is a second order polynomial.

Lower bond yields appear to be associated with higher current account surpluses (and therefore increased excess savings). This would seem to indicate that lower interest rates are synonymous with higher savings. Of course, we have so far been working on the assumption that causality flows from interest rates to savings but it could be the other way around – that higher savings exert downward pressure on yields.
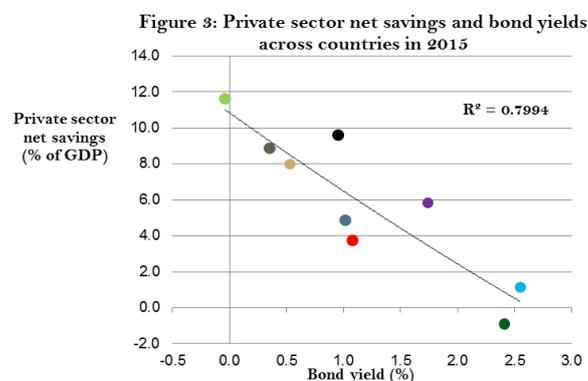
Current account balances may feel a little removed from the concept of savings that are most commonly used but the same negative correlation with bond yields exists whether we use household savings, net private sector savings or gross national savings. The strongest correlations are with net private sector savings and gross national savings, while that with household saving rates is not so clear cut (see **Figure 3** which shows the example of private sector net savings).

So, the cross sectional evidence would suggest a clear negative correlation between bond yields and savings. This could indicate that low interest rates encourage saving (and discourage spending), which is problematic if policy makers expect low interest rates to boost economic activity. Of course, the negative correlation could simply be a sign that higher savings have depressed interest rates.

Savings and interest rates: a time series approach

To better understand whether low interest rates are genuinely associated with higher savings, it is necessary to explore the relationship between those variables over time within each country or region. **Figure 4** shows the historical correlation within each country between bond yields and each of the measure of savings described above. The results can best be described as mixed. Perhaps the most striking feature when

looking across markets is the tendency for household savings to be positively correlated with bond yields (Switzerland and France are the notable exceptions).

Figure 3: Private sector net savings and bond yields across countries in 2015

$R^2 = 0.7994$

Private sector net savings (% of GDP)

Bond yield (%)

*Source: IMF, OECD, Bloomberg, Datastream and Source Research. Countries shown are: **Denmark**, France, Germany, Italy, Japan, Spain, Switzerland, UK and US. The fitted line is a second order polynomial.*

Figure 4: Correlations between savings and bond yields over time (full histories)

	EZ	DK	FR	DE	IT	ES	CH	UK	JP	US	Avge
Current Account	-0.73	-0.91	0.57	-0.84	-0.10	0.12	0.14	0.84	0.17	-0.06	-0.08
Gross national savings	-0.18	-0.77	0.02	-0.61	0.16	-0.40	-0.07	0.86	0.89	0.41	0.03
Private sector net savings	-0.50	-0.77	-0.10	-0.18	-0.85	0.07	-0.08	0.26	-0.07	-0.29	-0.25
Household savings	0.94	0.02	-0.32	0.78	0.85	0.53	-0.77	0.57	0.87	0.31	0.38
Average	-0.12	-0.61	0.04	-0.21	0.02	0.08	-0.19	0.63	0.46	0.09	0.02

Source: IMF, OECD, Bloomberg, Datastream and Source Research. Note: Based on annual data. EZ = Eurozone. Current account data is from 1996; gross national savings from 1991; private sector net savings from 2006 and household savings from 1991.

This is encouraging as it suggests the current tendency toward low interest rates may discourage saving in the household sector (and boost spending). Whereas it was mentioned above that a negative correlation tells us nothing about causality, it seems reasonable to assume a positive correlation is consistent with causality flowing from rates to savings (though higher rates could cause higher savings, it is hard to imagine why higher savings would result in higher rates).

Of the countries considered, the UK is the only one for which all measures of savings have been positively correlated with bond yields, suggesting a fair degree of confidence that lower rates in the UK provoke lower savings and therefore higher spending. Unfortunately, the picture is less clear when it comes to other countries: in Germany (and the Eurozone as a whole) and Denmark, for example, all measures of savings except household savings appear to be negatively correlated with bond yields, opening up the possibility that lower rates may actually lead to higher savings, thereby depressing economic activity (or that higher savings are driving yields lower).

Surprisingly, given the positive correlation with household savings rates, it appears that in most countries (except Spain and the UK) bond yields are negatively correlated with private sector net savings. Perhaps the corporate sector saves more as bond yields decline (maybe they invest less as low interest rates are associated with economic stress).

Did the financial crisis change savings behavior?

It could be argued that savings behavior, including the sensitivity to interest rates, may have been impacted by the financial crisis. **Figure 5** shows the correlations using data starting in 2006. A comparison between **Figures 4** and **5** would suggest that the correlations have unambiguously declined in the US, UK and Italy over the last 10 years: in the US, it would now appear that lower rates are associated with higher saving, whereas it was not previously clear; in the UK, lower rates still seem to be associated with lower saving but the relationship is less strong than it was and in Italy it is still hard to draw any conclusions about the effect of rates on savings.

Figure 5: Correlations between savings and bond yields since 2006

	EZ	Den	Fra	Ger	Ita	Spa	Swi	UK	Jap	US	Avge
Current Account	-0.93	-0.91	-0.04	-0.79	-0.84	-0.22	0.06	0.67	0.71	-0.82	-0.31
Gross national savings	0.03	0.03	0.58	-0.19	0.01	-0.36	0.37	0.66	0.62	-0.27	0.15
Private sector net savings	-0.50	-0.77	-0.10	-0.18	-0.85	0.07	-0.08	0.26	-0.07	-0.29	-0.25
Household savings	0.57	0.21	0.14	0.84	0.23	0.00	-0.64	0.39	-0.06	-0.62	0.11
Average	-0.21	-0.36	0.15	-0.08	-0.36	-0.13	-0.07	0.50	0.30	-0.50	-0.08

Note: Correlations are based on annual data. EZ = Eurozone.
Source: IMF, OECD, Bloomberg, Datastream and Source Research

Elsewhere, the correlations have unambiguously increased in Germany, making them more positive for the household sector (saving even less as rates decline) and less negative for the other measures of savings (giving less of a boost to savings as rates decline).

Otherwise, it is hard to draw any particular conclusions about the effect of the financial crisis.

Are there any lessons from Japan?

On the basis that a picture paints a thousand words, it may be worth taking a look at the history of national savings behavior in Japan – a country where policy rates have been below 1% since the mid-1990s and where the correlations between savings and yields is quite striking (for household savings and gross national savings). **Figure 6** suggests a clear positive correlation between interest rates and savings. It seems reasonable to

conclude that the decline in rates over recent decades has resulted in a lower rate of national savings. The abrupt decline in savings in 2008/9 was no doubt due to government efforts to support the economy during the financial crisis, as private sector savings increased at the time (see the behavior of household savings in **Figure 7**, for example). It is also interesting to note the upturn in savings in recent years, despite the further decline in yields, and it seems to be a private sector phenomenon (see **Figure 7**). This could be evidence that yields have fallen so far that household saving behavior is now dominated by income rather than substitution effects. However, it could also be related to the sales tax increase of April 2014 (households may have increased spending in the run-up to the tax increase, effectively bringing forward spending and delaying saving).

Figure 6: Japan gross national savings (% of GDP) and bond yield (%)
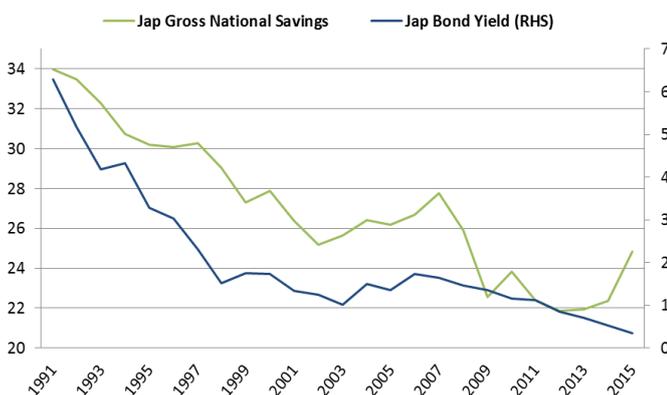
Source: IMF, OECD, Bloomberg, Datastream and Source Research

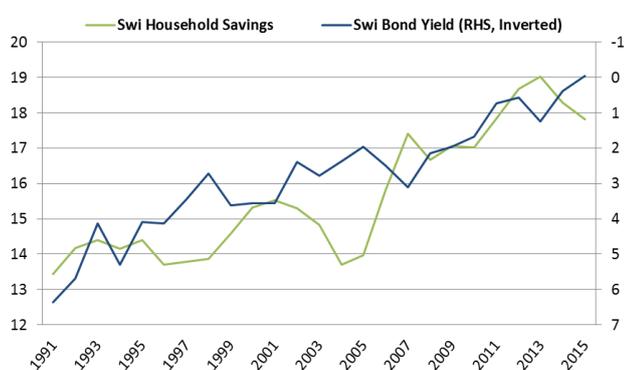Figure 7: Japan household savings ratio and bond yields (%)
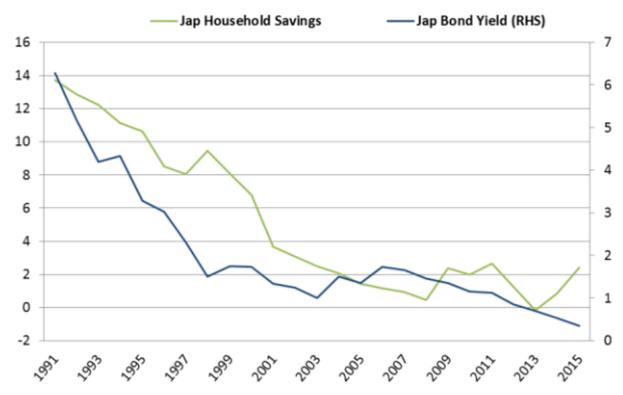
Note: the household savings ratio is savings divided by disposable income.
Source: IMF, OECD, Bloomberg, Datastream and Source Research

Overall, Japan is a country where interest rates have been low for two decades and where savings still seem to decline when interest rates decline. Put another way, the substitution effect dominates. There is some inkling of a change in that relationship as bond yields have approached zero, with a recent upturn in savings, but the evidence is not conclusive and is complicated by the change in consumer taxation.

What about Switzerland, the Japan of Europe?

The closest equivalent to Japan in Europe is Switzerland, where bond yields have been below 1% since 2011 and negative since 2015. However, the relationship with savings is very different to that in Japan. As indicated in **Figure 4**, there is little correlation between gross national savings and bond yields, while that for household savings is negative. **Figure 8** shows how household savings have risen in Switzerland as bond yields have fallen (the bond yield axis is inverted in the chart). As mentioned frequently, it could be that for Swiss households the income effect dominates the substitution effect, driving up saving as interest rates decline. Then again, it could be that higher savings are depressing yields.

Figure 8: Switzerland household savings ratio and bond yields (%)

Note: Household savings ratio is household savings divided by disposable income.
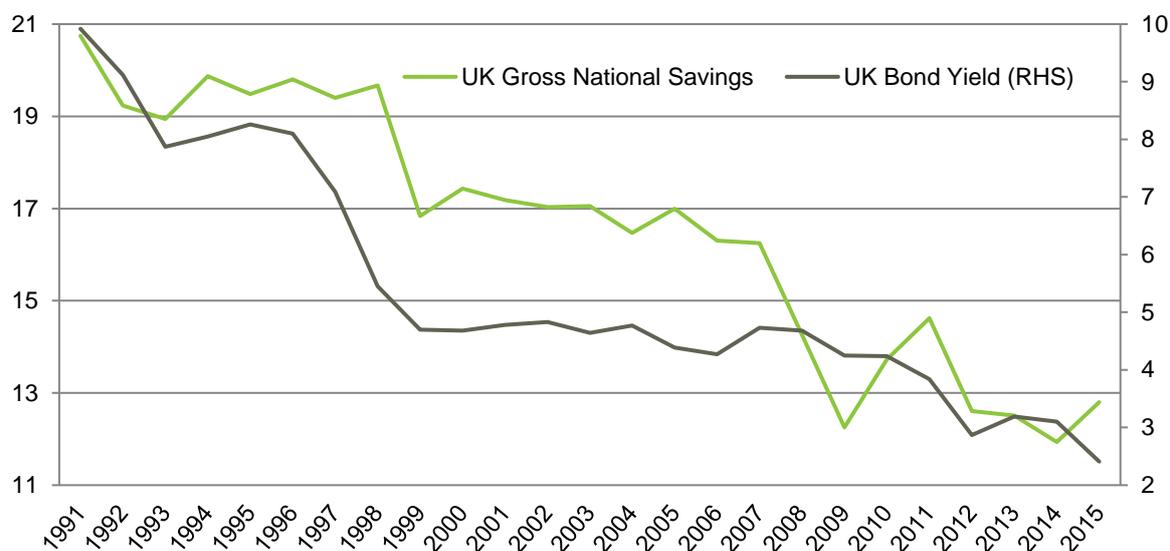Source: IMF, OECD, Bloomberg, Datastream and Source Research

As in Japan, there has been a reversal of the household savings trend in Switzerland in recent years. While in Japan there has been an uptick in savings despite the further decline in yields, in Switzerland there has been a decline in savings, when the decline in rates might have suggested an uptick. That both countries have this reversal in common is interesting but that it goes in opposite directions makes it difficult to generalize.

What about the special case of the UK?

Japan and Switzerland are both current account surplus countries (savings exceed investment), so it is interesting that their savings behavior differs so much. In the case of Japan, lower interest rates may have been a factor limiting the current account surplus, whereas in Switzerland they may have exacerbated the surplus (see **Figure 1** for a reminder of the magnitudes).

It is interesting to note that the country with the largest current account deficit (the UK), displays the most consistent positive correlation between savings and interest rates (lower rates lead to lower savings, which then increases the current account deficit). **Figure 4** shows the correlations and **Figure 9** shows how savings have followed rates lower. Given the reputation of the UK consumer to spend, spend, spend, it should come as little surprise that spending rises as interest rates fall (the UK consumer thinks little of the future, so income effects are limited and easily dominated by substitution effects, to use a caricature).

Figure 9: UK gross national savings (% of GDP) and bond yields (%)

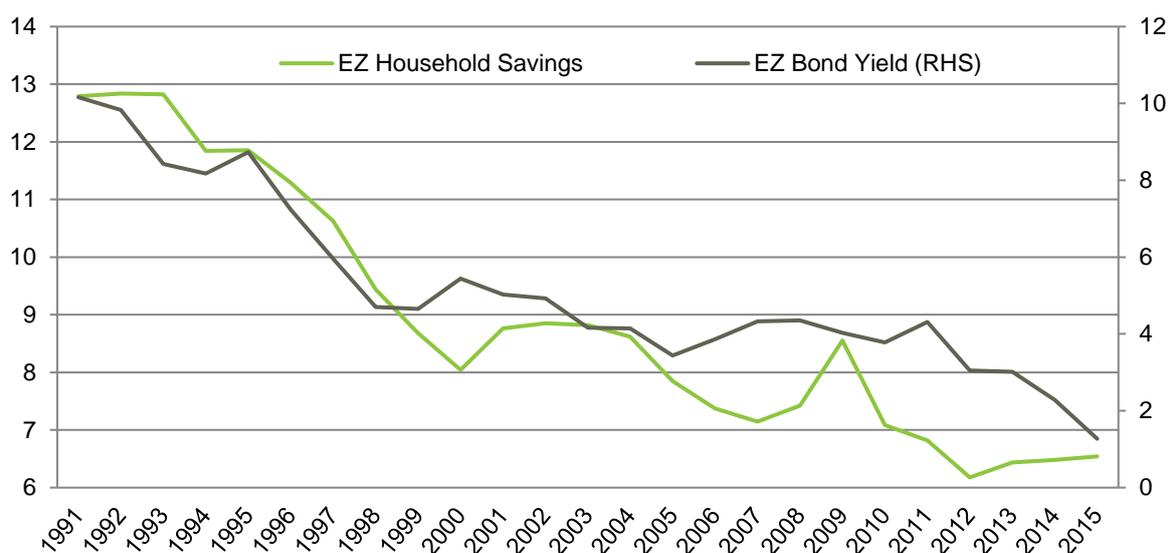*Source: IMF, OECD, Bloomberg, Datastream and Source Research*

So, the UK is an example of a large European economy where the correlation between interest rates and savings is clearly positive, suggesting that lower interest rates discourage saving and stimulate spending.

The Eurozone is a mixed bag

As with Japan and Switzerland, the Eurozone runs a current account surplus, though more in line with that of Japan (see **Figure 1**). It is then interesting to observe that, though the broader measures of savings are negatively correlated with interest rates, the reverse applies to household savings (the full period correlation is even stronger for the Eurozone than for Japan). **Figure 10** shows the historical relationship between household savings and bond yields, with a hint of a weakening of the correlation in the last 10 years (see **Figures 4** and **5**).

Figure 10: Eurozone household savings ratio and bond yields (%)

Note: Household savings ratio is household savings divided by disposable income.
Source: IMF, OECD, Bloomberg, Datastream and Source Research

It was observed earlier that there has been an upturn in savings in Japan in recent years, despite further declines in interest rates. The same would appear to be true in the Eurozone. In fact, gross national savings increased from a low of 21% of GDP in 2009 to almost 23% in 2015. It appears that the public and private sectors moved in opposite directions: the public sector increased net spending in 2008/9 and then retrenched thereafter; the private sector increased saving during the financial crisis (especially the corporate sector) and saved less thereafter. Interestingly, that decline in private sector savings has been slightly reversed since 2011/12, despite the further decline in interest rates. This tendency for household saving to rise over the recent past is not a broadly based international phenomenon – it has fallen in Switzerland and the UK, for example.

Germany is a conundrum

The largest Eurozone economy is Germany and it is something of a puzzle.

With a current account surplus of 8.5% of GDP, there is clearly a tendency to over-save. Gross national savings and private sector net savings appear to be negatively correlated to interest rates (see **Figure 4**), suggesting that savings rise as interest rates fall (income effects dominate). This may well have contributed to the widening of the current account surplus in recent years, as in Switzerland.

However, **Figure 4** also suggests that household savings are positively correlated with interest rates (substitution effects dominate and households spend more as interest rates decline). The historical relationship is shown in **Figure 11** and at first sight there appears to have been a break around the turn of the century (perhaps the drive for competitiveness and labor market reforms of that time resulted in a more cautious household sector). However, on closer inspection, the correlation seems to have resumed from around 2005/6 (as corroborated by **Figure 5**).

Figure 11: Germany household savings ratio and bond yields (%)
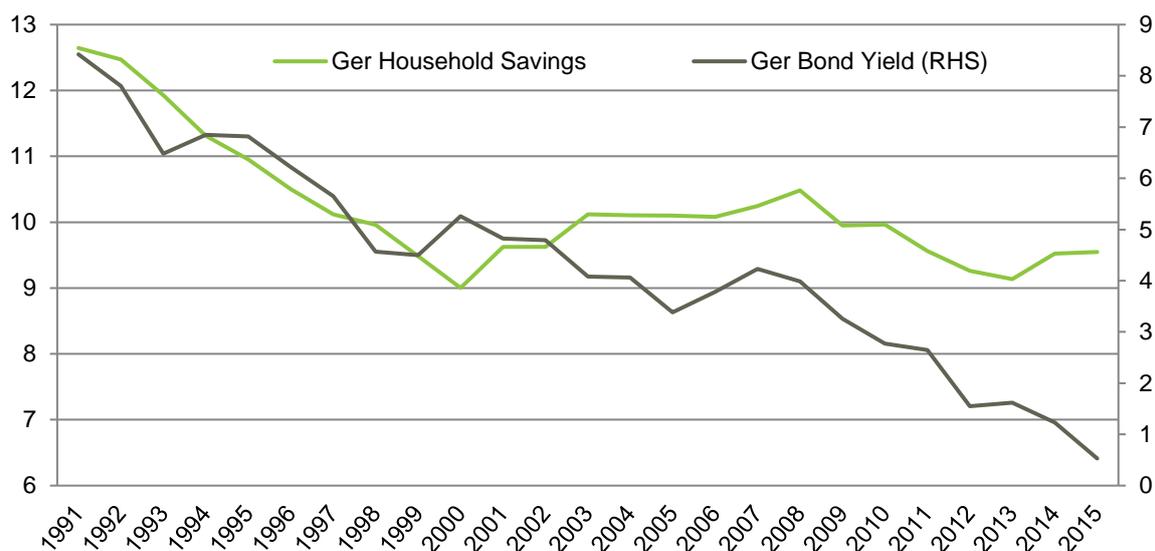
Note: Household savings ratio is household savings divided by disposable income.
Source: IMF, OECD, Bloomberg, Datastream and Source Research

As noted earlier for Japan and the Eurozone as a whole, there has been a rise in household saving in recent years, despite the sharp decline in yields.

The fact that broad private sector (and national) savings are negatively correlated to rates, while household savings are positively correlated suggests the corporate sector has saved more as rates have declined. If true, this could be a reflection of the perceived lack of investment opportunities over recent years, which then resulted in higher savings at the same time that rates were declining. In that sense, the two variables (savings and rates) may be correlated but not causal – a third common factor (poor economy and lack of investment opportunities) could explain the negative correlation.

What about France and Italy?

As indicated in **Figures 4** and **5**, there is little correlation between yields and savings behavior in France. However, in the case of Italy there are sizeable (but contradictory) correlations between yields and household and privates sector savings.

Figure 12 shows the history of the relationship for the household sector and it is reasonably clear (savings fall with interest rates), though Italy is another example of a country where there has been an uptick in savings in recent years. As with Germany, the fact that total private sector savings have a positive correlation with yields suggests that the Italian corporate sector has tended to increase savings as rates have fallen.

Figure 12: Italy household savings ratio and bond yields (%)
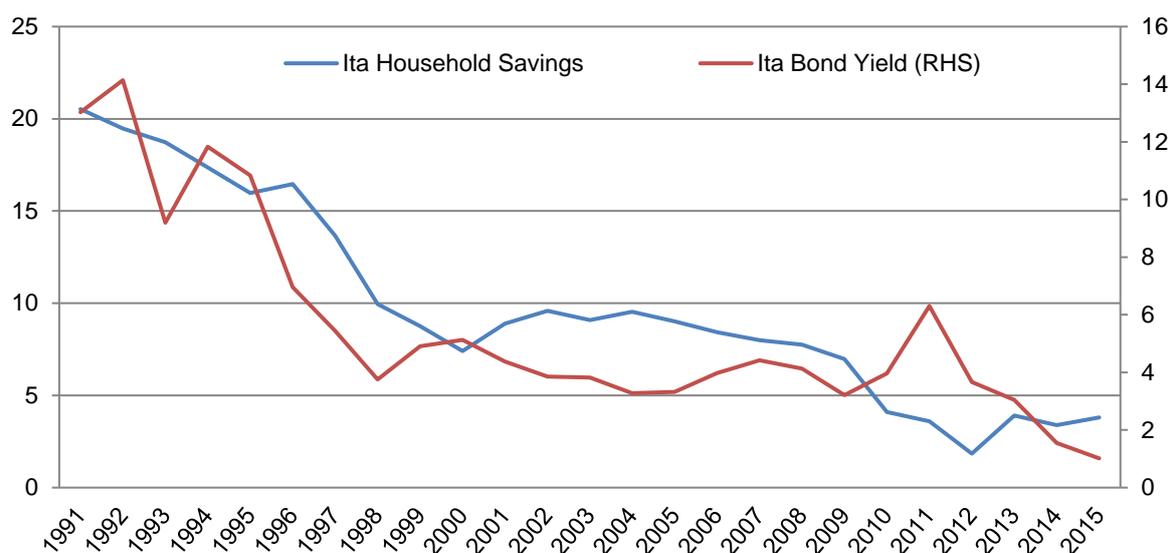
Note: Household savings ratio is household savings divided by disposable income.
Source: IMF, OECD, Bloomberg, Datastream and Source Research

Conclusions

There is reasonable evidence on a cross-sectional basis to suggest that lower interest rates are associated with higher savings, whether we refer to household, private sector or national savings. On this basis, there is a risk that low interest rates could increase savings and depress economic activity.

However, the evidence is patchier when we look at time series data within individual countries. Japan has the longest history of low interest rates and the data supports the idea that falling interest rates produce ever lower rates of saving. The UK shows similar evidence but the correlations in Switzerland are the reverse (lower rates are associated with higher savings).

The evidence from the Eurozone is mixed, with an interesting contrast between corporate and household sectors – the household sector seems to save less as interest rates decline, while the reverse is true for the corporate sector. In particular, national gross saving in Germany tends to rise when interest rates decline, which suggests low interest rates have contributed to the widening of the current account surplus.

There is evidence that the relationship between interest rates and savings can be disturbed by economic shocks – for instance, the financial crisis resulted in a sharp rise in private sector savings, while the public sector reduced its net savings (or increased its excess spending) to support economic activity.

Whether the advent of zero or negative interest rates constitutes such a shock is not clear. Interestingly, household savings have risen in the last two years in a number of countries (Japan and Germany, for example), whereas historical relationships would have suggested a further decline on the back of falling interest rates. This may be a sign that savings patterns are changing but it is too early to be sure and is not true for all countries (Switzerland and the UK are obvious counter examples).

On balance, history would suggest that household savings in Europe are likely to decline as a result of depressed interest rates, with the very clear exception of Switzerland. The same applies to savings across a broad range of sectors in the UK but the relationships are not so clear for non-household sectors in the Eurozone, with no clear relationship at the full economy level. On this basis, negative ECB rates are likely to have little effect on broad Eurozone savings, though household sector savings may decline further. History suggests that Germany, like Switzerland, will see a rise in savings and a further expansion of the current account surplus.

La longévité : combien coûte-elle aux assureurs[1] ?

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Depuis plusieurs années, le risque de longévité est au centre des préoccupations des assureurs et des gérants de fonds de retraite. Un tel risque[2] découle de l'allongement de l'espérance de vie et surtout l'augmentation du temps passé à la retraite en dépit des réformes entreprises au cours des deux dernières décennies.

Le risque de longévité impacte l'équilibre des fonds de rente et fragilise leur solvabilité. En outre, l'entrée en vigueur du cadre prudentiel dit Solvabilité 2 entraîne l'immobilisation de ressources additionnelles pour couvrir les divers risques inhérents aux garanties offertes aux assurés dont le risque de longévité. Par ailleurs, la persistance d'un environnement de taux bas empêche la technique classique des assureurs du recours aux produits financiers pour combler les éventuelles pertes techniques dues aux dérives de longévité de fonctionner. Pire, beaucoup d'assureurs

L'allongement de la durée de vie pose indubitablement la question de la pertinence des tables de mortalité réglementaires pour tarifer et provisionner les contrats. Sachant que les dernières tables sont prospectives par génération et qu'elles datent seulement du 1er janvier 2007, la question de leur mise à jour, voire de leur changement se pose. Pour apporter un début de réponse, cette note compare sur un échantillon de rentiers observés sur une période de sept ans, les décès issus des tables aux décès observés. D'autre part, nous avons quantifié le coût de la longévité et lorsque nous avons observé un écart, nous avons cherché à identifier son origine.

Puisque les tables de mortalité comme les taux techniques ont un impact sur le développement des produits de retraite supplémentaire, la mise à jour ou le changement de table n'est donc pas neutre. Alors que la modification introduite dans la loi de finance 2011 avait pour but d'inciter les salariés à effectuer des versements individuels et facultatifs, la baisse des taux peut décourager certains assurés à entreprendre des versements sur ces produits. Aussi non seulement on constate une collecte limitée sur ce derniers, il apparaît que celle-ci est

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[1] Cette note est un produit joint d'un travail en cours qui sera présenté aux Troisièmes Journées de *l'European Actuarial Journal* organisées à l'ISFA (Lyon) en septembre 2016.

[2] Le risque de longévité est un risque long et peut être systématique non diversifiable et non mutualisable ou encore idiosyncratique mutualisable et peut être éliminé par l'augmentation de la taille de groupe

principalement motivée par des raisons fiscales. Le graphique 1 montre que le montant de la pension varie considérablement en fonction de taux technique ou d'escompte à la liquidation. Ce taux est indéterminé au moment de versement des primes et varie aux grés de la fluctuation du Taux Moyen des Emprunts d'Etats (TME). Rappelons que la réglementation fixe le taux technique maximum que les organismes d'assurance ont le droit d'utiliser. Pour les garanties en cas de vie au-delà de 8 ans, ce taux est au maximum 60% du TME. Ainsi pour un assuré âgé de 62 ans ayant constitué un capital de 50 000 €, le passage du taux technique de 2,50% à 0,50% (taux actuel en vigueur), peut entraîner une baisse du montant de la rente de 29,39%. Dans cette conjoncture de baisse de taux, renforcer les tables de mortalités ne peut que décourager le développement de la retraite supplémentaire.

Ces derniers temps, des voix s'élèvent pour interroger la pertinente des tables de mortalité dans leurs formes actuelles à anticiper la tendance de la longévité. Certains chercheurs et/ou professionnels proposent, pour mieux prendre en compte la longévité, d'intégrer des facteurs autres que l'âge, le sexe et la génération. Parmi ceux-ci se trouvent la catégorie socioprofessionnelle, le revenu, le style de vie etc. Il s'agit pour les promoteurs de cette approche d'aller vers une modélisation micro de la mortalité en intégrant des caractéristiques objectives qui expliquent mieux la longévité ou la mortalité.

Figure 1 - Effet de la baisse de taux d'escompte sur le montant annuel de la pension
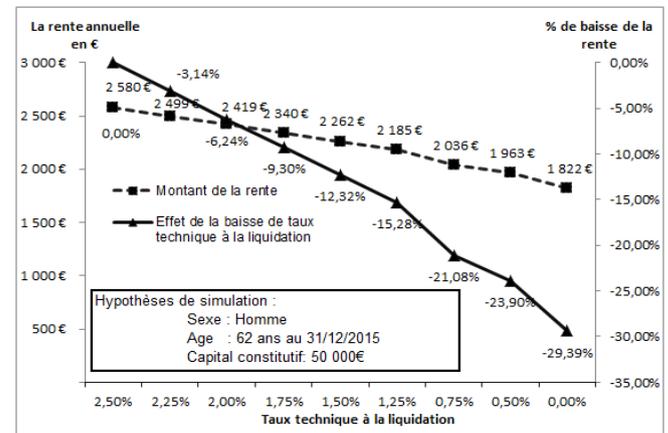
Source des données et périmètre de l'étude

Les données utilisées dans cette note sont issues du fichier d'une importante compagnie d'assurance et portent sur deux types de cibles : la retraite supplémentaire collective et la retraite supplémentaire individuelle. La première cible couvre la retraite d'entreprise, en l'occurrence les produits relatifs aux Articles 83, 82 et 39 du CGI destinés aux salariés des grandes entreprises. La seconde cible est constituée des professions libérales, travailleurs non-salariés et des TPE. La période d'observation débute le 01/01/2007 et se termine le 31/12/2013, soit sept ans. Dans les deux types de retraite supplémentaire, on recense plus d'hommes que de femmes (tableau 1). La pension moyenne est plus élevée dans la retraite supplémentaire collective par rapport à la retraite individuelle et professionnelle.

(4 268€ contre 2 770 €). Comme la retraite collective concerne souvent les grandes entreprises, non seulement les salaires y

sont généralement plus élevés, les pensions sont également proportionnellement plus élevés. Cette différence des pensions accentue l'écart entre les travailleurs salariés et non-salariés Ces derniers sont ceux qui reçoivent les plus faibles pensions de régimes obligatoires et développent donc davantage de stratégies alternatives de compensation notamment autour de l'assurance-vie. L'âge moyen de départ à la retraite dans les deux types de dispositifs est quasi-identique. Les assurés liquident leurs droits, en moyenne, de 3 à 6 mois après leur 62ième anniversaire.

compagnies d'assurance et de mutuelles. Les tables obtenues sont ajustées, par manque de données, en se référant à la population nationale. Le principe de leur construction est basé sur l'exploitation de la tendance passée de mortalité pour prédire la mortalité future. Ces tables constituent des bases techniques les mieux adaptées pour tarifer les engagements où le risque viager est important.

Pour mesurer le coût de la longévité, il faut se donner un ou plusieurs indicateurs. Nous retenons trois indicateurs de mortalité, deux en nombres et un troisième en montants ou en provisions.

Tableau 1 - Caractéristiques de l'échantillon de rentiers

	Genre	% de pensionnaires par sexe -- Nombre de pensionnaires	Pension moyenne	% de décès par sexe -- Nombre de décès	Age moyen à la liquidation
Retraite supplémentaire individuelle	Homme	75%	2 835 €	69%	62 ans et 3 mois
	Femme	25%	2 545 €	31%	
	Global	53 786	2 770 €	5 885	
Retraite supplémentaire collective	Homme	67%	4 491 €	66%	62 ans et 6 mois
	Femme	33%	3 809 €	34%	
	Global	14 859	4 268 €	1035	
	Total	68 645		6 920	

Approche méthodologique

La question à laquelle il faut répondre est celle de savoir comment se positionne la mortalité observée dans notre échantillon par rapport à celle qui est anticipée par les tables réglementaires. Pour rappel, les tables de mortalité pour évaluer les engagements de rente sont des tables prospectives donnant, pour chaque âge et génération, la probabilité annuelle de décès d'un individu. Ces tables sont construites par l'exploitation des données sur 700 000 rentiers observés sur la période 1993-2005 issues des bases de 17

Pour la mortalité en nombres, nous calculons, un premier indicateur sur la période entière et un deuxième sur une année d'exercice. Pour l'analyse globale sur la période 2007-2013, nous comparons le nombre de décès observé et celui anticipé par les tables. Cette comparaison permet de définir un écart entre le taux de décès observés et le taux de décès anticipés Lorsque cet écart est positif, nous concluons qu'il y a plus de décès observés que ceux anticipés par les tables réglementaires. Ce calcul d'écart effectué sur la période entière est aussi entrepris exercice par exercice et constitue le deuxième indicateur.

Quant au troisième indicateur qui concerne le coût ou gain de la mortalité en montant ou en provision, nous le mesurons par la perte ou le gain technique rapporté aux provisions d'ouverture ou provisions de début d'exercice. La perte ou gain technique sur un exercice se compose en deux parties. Une première comprend l'écart entre les prestations brutes probables attendues et les prestations brutes effectives. La seconde partie se détermine par l'écart entre la provision de clôture probable attendue en fin d'exercice et la provision effective constituée.

Les résultats obtenus

L'analyse de l'écart de taux de mortalité sur la période 2007-2013 (tableau 2), c'est-à-dire l'écart entre le taux de mortalité observé et le taux anticipé par les tables réglementaires montre bien qu'en nombres, il y a plus de décès observés que de décès anticipés. Cet écart s'élève à 1,36%. Il est en outre plus important chez les hommes que chez les femmes. Concrètement, les rentières femmes meurent moins comparées aux rentiers hommes. Ces derniers sont à 50% de plus par rapport aux femmes.

A première vue, on peut hâtivement conclure qu'il n'y a pas de problème de longévité pour les assureurs puisque les tables utilisées pour le provisionnement et la tarification sont plus prudentes. Elles anticipent moins de décès. Il n'en rien en réalité. Se fier à l'analyse en nombres ne suffit pas à cause d'hétérogénéité de la population des rentiers. Il faut au moins compléter ce premier résultat par une analyse en nombres année par année. Nous réalisons cet exercice en nombres par année d'exercice avant de le reproduire sur des montants. La figure 2 présente les résultats obtenus. Cette dernière montre en particulier que les résultats de mortalité en nombre et en provisions ne vont pas toujours dans le même sens. En effet, en 2008, le portefeuille global présente un gain en nombres (+0,13%), alors qu'en provisions ou en capitaux, nous constatons une perte de mortalité (-0,10%), c'est-à-dire une perte de 10 centimes sur 1 € euros de provisions d'ouverture. Globalement, nous remarquons que 4 fois sur 6, il y a plus de décès observés qu'attendus. Il y a en outre plus de perte de mortalité que de gain.

Tableau 2 - Evolution de la mortalité des rentiers sur la période 2007-2013

| Sexe	Effectif	Nombre de décès observé (DO)	Nb de décès anticipé (DA)	$\dfrac{DO}{DA}$	Taux de décès observé $\dfrac{DO}{N}$	Taux de décès Anticipé $\dfrac{DA}{N}$	Ecart de mortalité
Total	68 645	6 920	5 989	115,55%	10,08%	8,72%	1,36%
Homme	46 563	4 766	4 061	117,36%	10,24%	8,72%	1,51%
Femme	22 082	2 154	1 928	111,75%	9,75%	8,73%	1,03%

Figure 2 – Evolution de l'écart de taux de mortalité annuel (en nombres et en provisions)
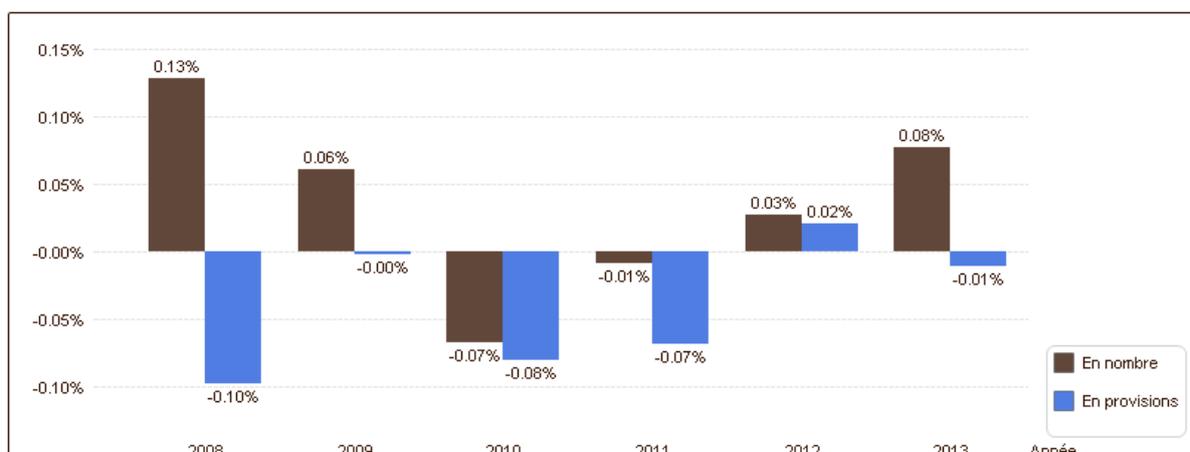
Un autre résultat significatif auquel cette note aboutit est que les rentiers avec petites pensions vivent moins longtemps que ceux qui touchent des pensions plus élevées. En effet, si nous regroupons les taux de mortalité par niveau de pension, nous remarquons que les rentiers dont la pension annuelle est inférieure ou égale à 5 000 € ont en nombre un taux de décès observé supérieur à celui estimé par les tables réglementaire (+0,10%). En termes de capitaux, ils procurent un gain de mortalité à l'assureur (+0,05%). Pour les tranches de pension supérieures à 5000 €, nous observons bien qu'il y a plus de décès anticipés que ceux observés mais aussi plus de perte en capitaux. Par ailleurs, les pertes en capitaux et l'écart de taux de mortalité s'accentuent globalement avec la hausse du montant de la pension. Ainsi les rentiers dont la pension annuelle est supérieure à 20 000 € meurent moins que ne le prédit les tables (-0,54%) et ils font perdre à l'assureur (-0,20%) de la provision d'ouverture.

Figure 3 – Evolution de l'écart de taux de mortalité annuel en fonction du montant de la pension
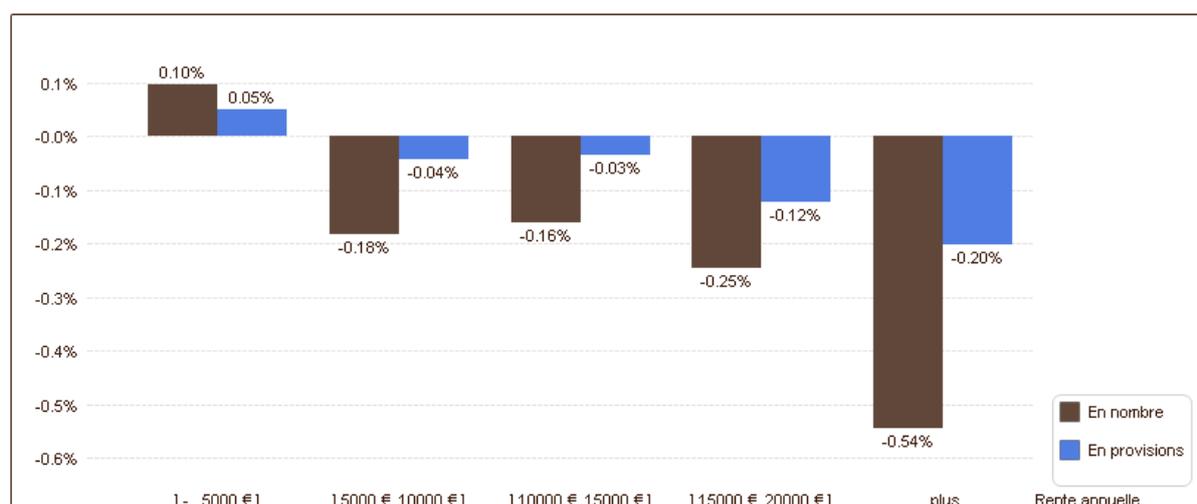
Conclusion

Les résultats de cette note montrent que les tables de mortalité, dans leurs formes actuelles, en se basant sur l'âge, le sexe et la génération de naissance, ne permettent pas d'évaluer correctement le risque de longévité. A défaut d'avoir des informations plus détaillées sur les rentiers tels que les catégories socio-professionnelles, le style de vie, le montant de la pension constitue un bon indicateur du risque de longévité. La segmentation du portefeuille selon des indicateurs **autres** que ceux utilisés par les tables de mortalité aidera à mieux évaluer le coût de la longévité et les engagements de l'assureur. De plus,

vouloir toujours renforcer les tables de mortalité peut conduire à décourager les assurés à acheter des produits de retraite. Le transfert de risque de longévité vers les marchés financiers peut constituer une solution pour se couvrir contre le risque de longévité à travers des produits tels que: swaps de longévité, les survivors bonds ou encore la titrisation. Néanmoins, en France le recours aux marchés n'est pas pour demain principalement à cause de la cherté de certains produits tels que les swaps de longévité mais aussi la difficulté à trouver un référentiel neutre de swap ou un marché liquide.

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