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The impact of low interest rates and quantitative easing on the financial sector

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Content:

Workshop report

Report of the 6th Vlerick Regulatory Workshop on low interest rates and QE

By Marion Dupire

As a development of [Vlerick policy paper 3](#) about Quantitative Easing (QE) in the Eurozone by Prof. Freddy van den Spiegel, this paper summarizes the content of the 6th Vlerick CFS regulatory workshop which took place on 20 May 2016 on the topic of the impact of low interest rates and QE on the financial sector.

Every month, the ECB is buying €60bn of (mostly) government bonds as part of a QE program launched in January 2015, and this will go on until September 2016. This program was initiated after a sharp fall of Europe's interest rates in 2014 to historically low levels. What is the impact on the financial sector itself? While leading to a direct impact on the money in circulation and the demand for specific securities, it can deteriorate the outlook for investors. Artificially lower risk premiums are also likely to distort the normal functioning of markets and generate growing bubbles. QE also increases the risk of insolvency for institutional investors like life insurance companies and pension funds who see their return on assets declining.

During the workshop, 5 experts analysed the situation from different angles: academic, regulatory and practitioner-oriented. This paper provides a summary of these discussions. More specifically, it is organized as follows:

- 1. The academic point of view**, Azzim Gulamhussen (Professor at Vlerick Business School)
- 2. The regulatory view**, Dieter Hendrickx (Actuary at the National Bank of Belgium)
- 3. How do banks adapt their offer?** Rik Janssen (Group Treasurer at KBC)
- 4. The impact on the insurance sector - a view from the asset side**, Kris Vanderstede (Head Front Office Investments General Account at AG Insurance)
- 5. The Japanese experience**, Frederik Allossery (Head of Financial Risk at Ageas)

Introduction

Freddy Van den Spiegel, professor at Vlerick Business School

Quantitative easing, low interest rates, and a flattening yield curve are good reasons for the financial sector to be worried. The sector is used to survive to this kind of evolution in the short term but if it takes too long it will lead to structural problems. This difference between short-term and long-term effects is an important challenge for everybody in the financial industry. 5 different points of view are presented here: one academic, one regulatory, one from the banking sector, one for the insurance and one focusing on the Japanese experience.

The academic point of view

Azzim Gulamhussen, professor at Vlerick Business School

Background

The impact of low interest rates is being extensively debated by policy-makers, academics and the media. At the micro level, the debate rests on opposing views with respect to the (dis) incentives for savers to expand their savings due to low interest rates, and (dis) incentives for high quality entrepreneurs to go ahead with their projects due to the uncertainty surrounding the growth prospects of the economy and the monetary policy. At a macro-level, the debate revolves around whether governments should expand public expenditure on infrastructure to counteract the retraction in private investment.

Policy-makers are interested in assessing the effectiveness of their policies through eventual shifts in the business models of banks, without compromising banks' performance, while bank managers are interested in assessing the impact of eventual shifts in their business model on their performance.

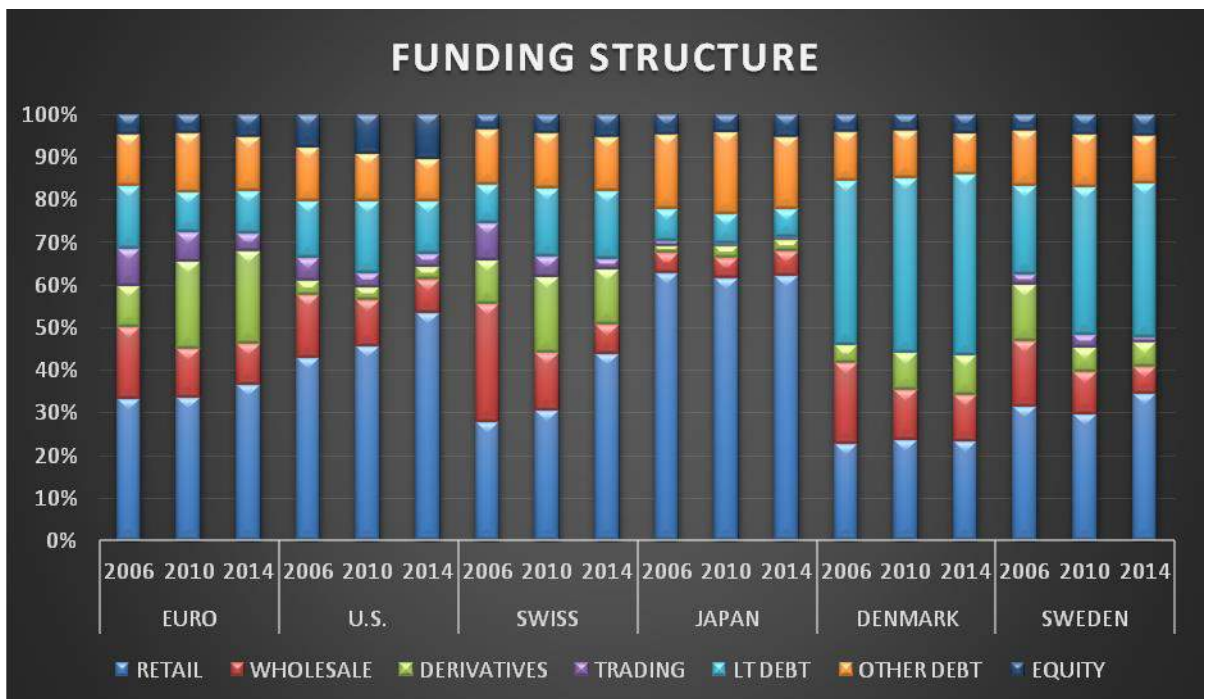
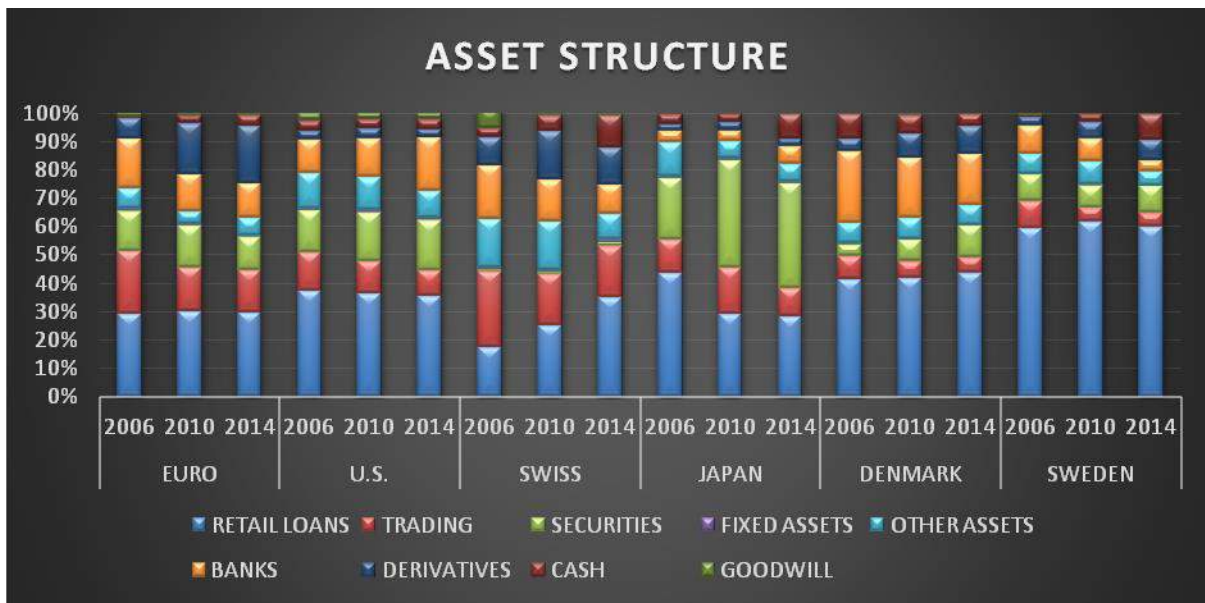
Framework

The aim of this study is to identify eventual shifts in the business models by analyzing changes in the financial accounting performance of the five largest banks in Europe, US, Switzerland, Japan, Denmark and Sweden, namely region/countries that experienced distinct interest rate environments in 2006 (high), 2010 (low) and 2014 (negative or close to); it aims to identify eventual changes in the business models of banks and their performance in high and low interest rate environments.¹

¹ The Fisher Theorem equates nominal interest rate to real interest rates and inflation (and default risk). The analysis of the data of the referred countries showed zero to negative real interest rates indicative of a policy incentive to promote private investment. The analysis of this data is suppressed for the sake of brevity and of focus on the main objective of the report.

Business models in high and low interest rate environments

The asset structure shows, a significant reduction in interbank market assets and wholesale deposits; a slight increase in retail loans extended by banks in Switzerland; a significant increase in securities held by banks in Japan; and maintenance of the proportion of retail loans extend by banks in Sweden.

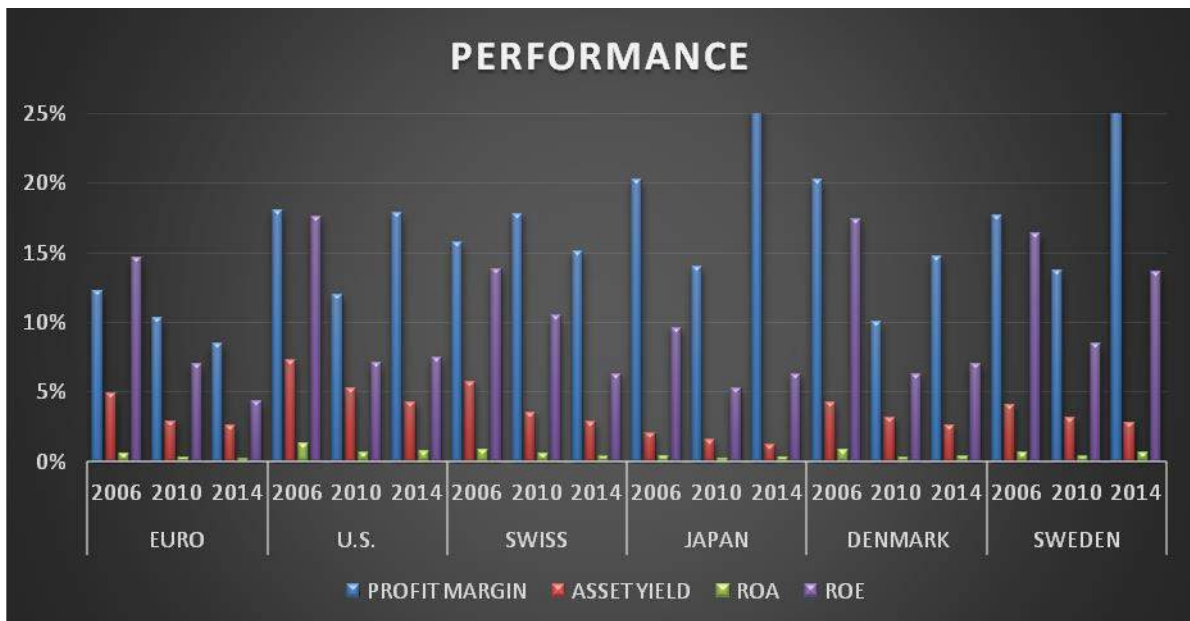


INCOME STRUCTURE



COST STRUCTURE





The funding structure shows, a significant difference in the use of long-term debt by banks in Denmark and Sweden compared to the rest of Europe, the U.S., Switzerland and Japan; secondly, an increase in retail deposits attracted by banks in the U.S. and in Switzerland; and a larger proportion of deposits attracted by banks in Japan.

In terms of income structure, there is a strong reliance on interest income and a higher fee income in the case of Swiss banks. In terms of the cost structure, interest expenses declined in all the countries.

Overall, in terms of performance, the return on equity and leverage remained stable, the profit margin increased and the asset yield showed a general decrease.

Summary

- The impact of a low interest rate environment on the banking industry is highly debated in policy, academic and media circles.
- Policy makers are interested in assessing the effectiveness of their policies in unlocking growth through the eventual shift of banks' business models without compromising banks' performance, and bank managers are interested in assessing the impact of an eventual shift in their business models on performance.
- Banks in Japan shifted towards holding a higher proportion of securities whilst retaining a stable source of funding through retail deposits.
- Banks in Denmark and Sweden maintained their reliance on long-term debt to fund retail loans.
- Banks in Sweden maintained higher proportion in retail loans.
- Banks in Switzerland funded the increase in the proportion of retail loans through retail deposits.
- Banks increased their profit margin which might be attributed to a faster repricing of deposits than loans.
- Banks exhibit pressure in the ROE (return on equity) and ROA (return on assets), in the latter case through the asset yield.
- Banks in the U.S. saw a significant reduction in their leverage.
- The evolution of the asset yield across the region and countries points towards a lower level of revenues in relation to the assets or the same level of revenues for a higher level of assets, which indicates a potential challenge with non-performing assets.

Conclusions

- A prolonged period of a low interest rate environment is likely to force banks to shift their business model with a consequent impact on their performance.
- Major shifts are likely to be towards the sourcing of stable funding in the form of retail deposits and their transformation into retail loans and securities.
- The benefits of repricing deposits in the period immediately following policy changes are likely to fade away over time.
- A prolonged period of economic trough is likely to expose non-performing assets held by banks.

Going forward

- The study merely scratched the surface of the impact of low interest rate policies on the business model of banks and on their performance.
- A simple way in which the study in hand could be extended is to compare the return on equity with the cost of equity, and the growth with sustainable growth, to ascertain whether banks were able to create value for their shareholders during the low interest rate policy environment.
- A more sophisticated extension of this study entails conducting detailed statistical and econometric analyses to unveil further insights into the impact of low interest rate policies on business models of banks, and their performance and value creation, during the low interest rate policy environment.
- The aforementioned avenues are also likely to shed light on the effectiveness of the low interest rate policy environment in unlocking growth through the bank channel.

Discussion

A first point of discussion raised from the audience queried whether interest rates would have been different without any policy intervention. The gist of the discussion on this point was that monetary policy in contemporary economies is directed by central banks. Whether an absence of intervention would have led to the same outcome will remain unknown.

A second point of discussion explored whether banks retracted the supply of credit or if SMEs reduced demand for credit following the shift in interest rate policy. The gist of discussion on this point was that, before this question could be answered, it was necessary to make an empirical analysis that could clearly identify whether the impact of changes in the policy led to a retraction in the supply or in the demand. If an SME files an application for a loan at two banks, the bank that is most severely affected by a policy will most likely retract on lending. Such data, if it could be assembled, would allow the question to be answered. The common arguments for the retraction in demand are the uncertainty surrounding the economic prospects and monetary policy.

The key point drawn from the discussion is that banks and SMEs are exposed to a multitude of external shocks and the impact of the different shocks on their activity requires sophisticated statistical and econometric analyses.

The regulatory view

Dieter Hendrickx, Actuary at the National Bank of Belgium

The purpose of Mr. Hendrickx' s presentation was to give a view on the low interest rate environment from a regulatory perspective and on whether the supervisory authority needs to react.

Context

Today we experience the lowest interest rates that we have seen in at least 5 decades. If we look at the past, the interest rate decline started in the mid-80s both in Belgium and in the EU. This general decline has been accelerated by the global financial crisis and the EU bond crisis. Taking the low rate environment as given, the question is whether this situation will remain. According to the economists, the yield that we observe today is a consequence of the recent crisis which decreased productivity and the demand for investments. But there are also more structural aspects at play. First, **people aging** increases the demand for savings and decreases global productivity, and this is here to stay. Second, the **regulatory reforms** prompt financial institutions to invest in a different way. In Germany for example, an increasing demand for long-term bonds has been observed, probably fostered by German insurers trying to decrease their duration gap in view of the upcoming Solvency II regime. This kind of behaviour also has an impact on the interest rates. Third, **technological change** brings in a lot of competition and substitutability, drives prices down, and also has consequences on the interest rates.

All this taken together, the state of the economy is very uncertain and people rather have a tendency to save than to invest. People are afraid of the future, inflation is low. All this also contributes to the low yield environment and there is a risk of further deepening of this phenomenon.

Potential risks of a low yield environment

One of the prudential initiatives taken to get a better grasp on the potential consequences of a low yield environment, is the ESRB task-force on the low interest rate environment. This taskforce looks at interest rates in a cross-sectoral perspective, trying to grasp what might happen to the different financial players in the financial markets following this low yield environment.

Profitability and resilience

A first potential consequence of a low yield environment is on the profitability and resilience of the different financial players. This is valid for insurance companies and pension funds. Insurance companies in Belgium have their life-insurance portfolio which is often characterized by rather high interest rate guarantees, pension funds often promise relatively high levels of income in the future even with the low yield that we have today. The current low yield environment will have an impact on the profitability of these companies, as well as on the Solvency regime. We have different regimes for pension funds and insurance companies. For insurance companies the move to Solvency II means that the impact of low interest rates is directly translated on the prudential balance sheet. The low yield environment has both a positive and negative impact on non-life insurers as one the one hand investment income is driven down, but on the other hand they tend to focus more on the underwriting income.

Banks are also affected. On the one hand, it is true that low interest rates have a positive impact on banks, there is a higher valuation of bonds, less impairments. There

is some initial gain on the refinancing of loans, but there is a debate among the supervisory community that these short term positive effects do not hide away the long term negative effects of the reduced net interest rate margin. That combined with a flat low yield curve puts the liquidity or maturity transformation (the basis of the classical banking model) under pressure.

Financial stability

Another potential consequence is the impact on the financial markets as a whole. It is true that for all financial players, low yields prompt both financial institutions and individuals to search for profit/yield. So if you are not happy with the return on your deposits, you might look for some riskier investments in an attempt to keep your personal yield at an acceptable level. It might lead to higher leverage, which is indeed the case for some investment funds.

All in all, this can create situations where companies and individuals have higher leverage, reduced asset quality, and are more prone to amplify certain future potential financial shocks. We have seen as well that some asset positions get very crowded. This creates a financial market with low liquidity, increased asset volatility and misleading asset prices. Some studies on several parts of the corporate bond market tempt to highlight the fact that the corporate bond market today is not giving the right prices, that the real underlying credit risk might not be priced correctly for these corporate bonds.

Sudden increase of interest rates

Persistent low yield environment gets financial players stuck in an environment and exposes them to a sudden increase in interest rates. A sudden increase can cause a correction on the financial markets and the consequences might not be very positive for the different players. We know that if the low yield environment persists banks might get stuck with these loans which give low income. Even banks who focus on floating rates loans might get a nasty surprise if the rates go up because they will notice that these performing loans will turn into non-performing loans.

Insurance companies are less exposed to this type of risk but a sudden increase in interest rates is also dangerous for them. Several of these products contain penalties, market value adjustments ... etc which protect them against this kind of environment but it is not excluded - as warned by some European institutions - that certain life insurance products are in fact easily surrendered and more prone to this risk of sudden increase in interest rates.

Investment funds in such circumstances would be confronted with rising costs which could lead to an outflow of funds and a forced sale of assets. All in all, a downward spiral can occur where sale of assets can cause a decrease in liquidity and spreads, declining market values, causing a sell of assets again. This spiral is potentially very dangerous and can be prompted by a persistent low yield environment.

Long-term structural impacts

There are potential consequences on the classical banking model, the shadow banking system might be prompted to jump in, banks may not want to issue more loans for instance. As a consequence, the classical banking model might be under pressure in a low yield environment.

Do safer insurance products (i.e. life insurance) have a true future in a low yield environment? These high guarantees of the past are not offered anymore, it can be observed that a lot of insurance companies have moved to the more unique-linked type of products. This typical life business which we used to know in Belgium might disappear. It is unclear whether this is a good or a bad thing. For companies it might be a good thing, however for consumers it might be a bad thing because the diversity of investments is decreasing. If everybody is moving to the unique-linked type of products, investment funds, insurance companies and pension funds will abandon their typical guarantee schemes. Of course the choice of the consumer will be reduced. Also, if the investment risk is finally moved to households, one could wonder if that is the best way in which to allocate the investment risk amongst the different financial players. If financial intermediaries move to unique-linked, then they willingly put the investment risk to the consumer which might end up with more volatile and lower pensions. It might therefore have an impact on the consumption as well.

Then, certain financial players such as pure life-insurance companies or pure classic banks might have a difficult time with this low yield environment, and target to become more diversified via mergers and takeovers, which can end up in an increase in consolidation and interconnectedness.

Need for supervisory action?

Certain things have been done already. First there is an attempt for the supervisors to measure the issue of low interest rates and we really see that it has gained a prominent place. There are reporting requirements, more and more focussing on this low yield environment, at least for the insurance sector. There has been extensive investigation into business models mainly for banks and the question of how we can make sure that applying the classic model of banks is still something that is useful for the future.

The table below summarizes the actions that have already been taken and the future considerations at the EU level.

All the items in this table need to be discussed. The identification of the risks and the potential policy recommendations will hopefully be gathered in one report which could be issued by the ESRB this year.

Actions Performed	Future Considerations (EU level)
Stress Testing (e.g. Low Yield scenarios EIOPA insurance & pension stress test)	Strengthen system-wide resilience: <ul style="list-style-type: none"> • Resolution framework beyond banking • Capital increases and/or benefit reductions? • Focus on activity-based instruments? • Enhanced supervision shadow banking sector
Reporting requirements (e.g. interest rate risk reporting insurance sector)	Increase effectiveness financial system (central clearing, penalize opaque products, monitoring collateral (re-)use, ...)
Business model analysis (e.g. banks)	Need for consumer protection measures & aligned tax incentives
Prudential interventions e.g.: <ul style="list-style-type: none"> • lowering maximum guaranteed interest rate insurance • No exemption flashing light provision 	System-wide stress testing

Q&As

A first question was raised from the audience on whether a resolution mechanism applies for insurers as for banks. Mr. Hendrickx answered that banks do currently have decent resolution schemes while insurers don't. There are also initiatives at the national level but, as financial institutions become more and more international, national measures may not be a solution. Nevertheless, we seem to need at least a European solution if we ever want to implement a credible resolution framework for insurers. An important trigger for this debate is the question of whether or not insurance companies are systemically relevant. That has not yet been fully clarified at the European level. It is something very important that needs to be done in the near future.

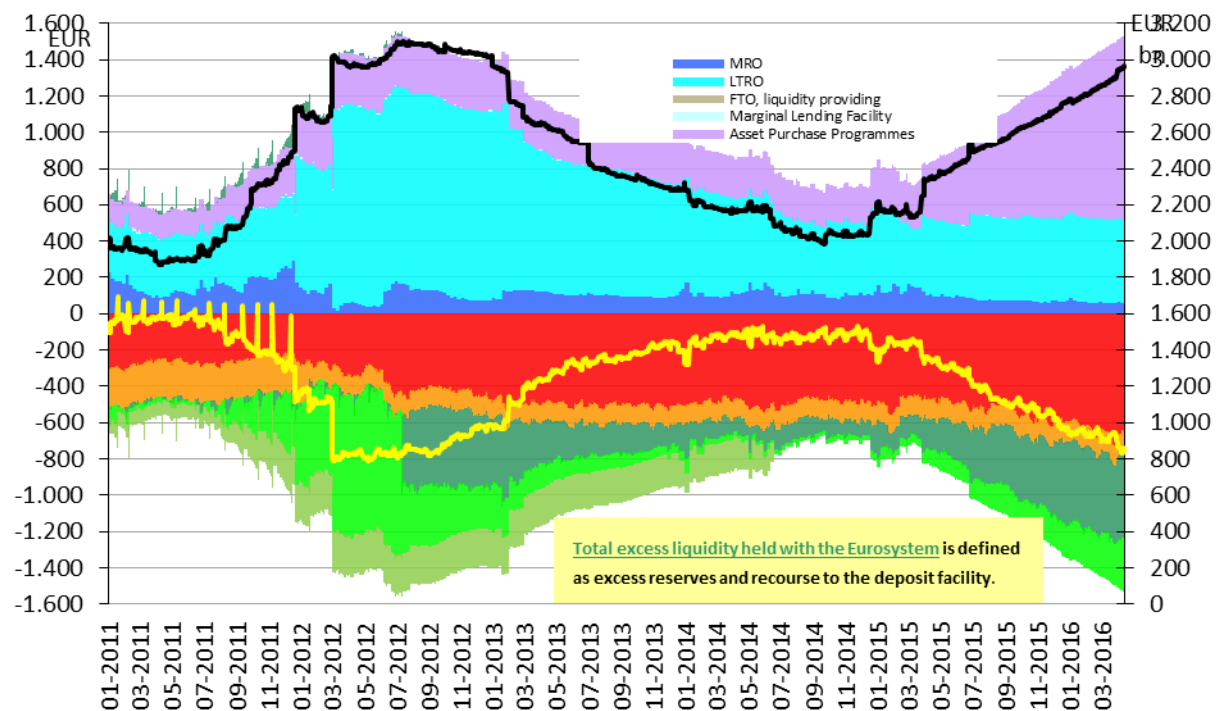
Then another question was discussed, about the effect of interest rates increases for insurers, and whether such increases would affect the Solvency capital. As explained by the speaker, long-term guarantee measures aim at , amongst others, dampening the effect of spread increases to the balance sheet of the insurers. An increase in interest rates would hit the asset side but would, as such, also be compensated on the liability side through the use of certain of these long-term guarantee measures. Whether these long-term guarantee schemes will function well or not is something which we will probably only know if a spread increase happens and would, at least need a few more years of Solvency II experience. For now, there seems to be not so much appetite to use the so-called transitional measures on the Belgian market, probably because there are high reporting requirements associated to the use of these measures.

How do banks adapt their offer?

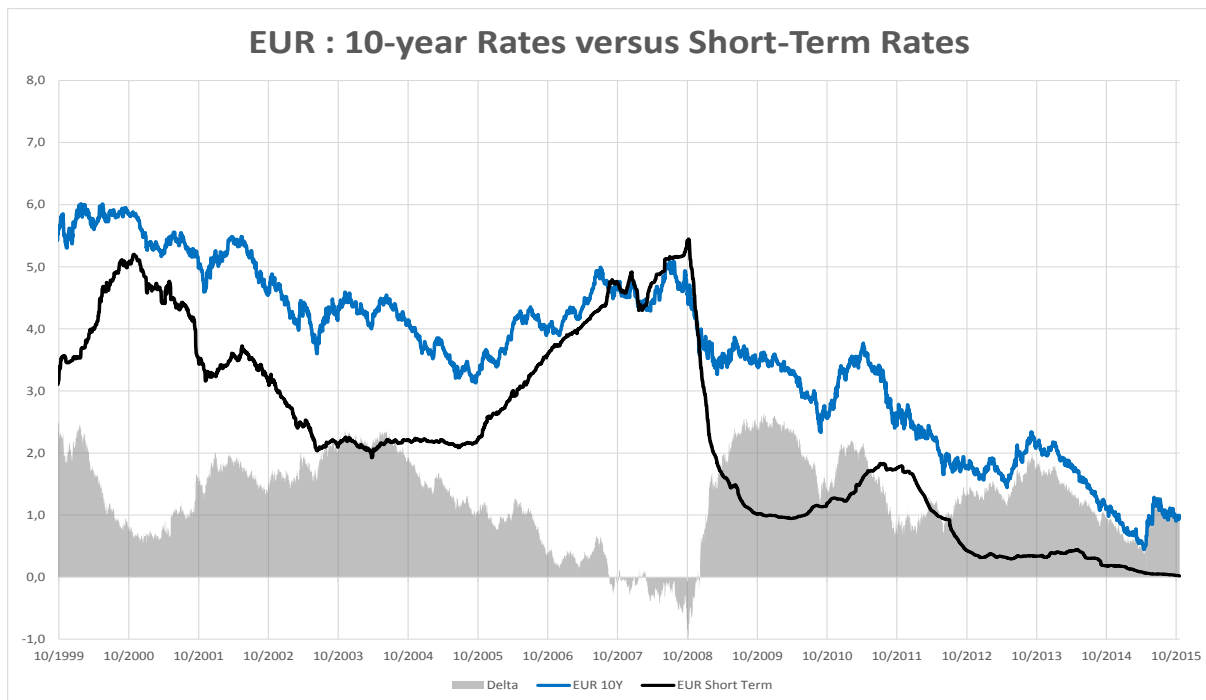
Rik Janssen, Group Treasurer at KBC

Rik Janssen presented the mechanics of how low interest rates affect banks, and what banks can do to mitigate this effect.

Size and composition of the consolidated Eurosystem balance sheet



On the balance sheet of the ECB, only long-term assets increased with the euro crisis. Then it gradually came down, until the QE program. On the liability side, this money is flowing back to the ECB, and not pumped in back to the economy as it should be.



When we look at interest rates in Europe in both long- and short-term, we see a strong decline, but the steepness of the curve (difference between short-term and long-term rates) remains at an average level. Another observation is also that the lowest rate environment is below zero. In 2011 long-term interest rates were at 3%, in 2014 it was hardly above 1%. However the effect on KBC was actually limited, KBC interest rates remained relatively stable.

In basic banking we have long-term credits which are funded with shorter term deposits – typically banks can realise a nice interest margin by charging a high rate on the long-term credits than what they pay on the short-term deposit. However as interest rates rise the cost of the short-term deposits increase and the overall margin decreases or even becomes negative. To overcome this problem, treasurers use Interest Rates Swaps (IRS) to fully hedge the interest rate risk. The margin is then fixed at a certain level and changes in market rates do not influence the margin for the bank for the duration of the contract. Interest risk is there but rather in the form of liquidity risk and credit risk. Therefore the impact of low interest rates is quite low on this type of business, the net interest income is only determined by commercial margins which are not strongly dependent on the rate environment.

Negative rates decrease commercial margins

Since recently, we observe negative interest rates on the market (swap rates are negative up to 5 years). This has a drastic impact on the way in which banks operate. Not only interest rates have gone down, but the floating market rate (short end of the interest rate swap) has also become negative. Retail deposits can however not be priced with negative interest rates and this mechanism therefore leads to negative margins on the liability side (cost paid to retail client is higher than what banks receive in short end

of the swaps they make to hedge long-term credits), which a bank can compensate with higher margins on the other side. The net interest income is not negatively impacted by negative rates as long as either credit volumes increase and/or credit pricing can be maintained. But overall, negative rates actually make it more difficult for a bank to handle credit and deposit pricing.

Long-term investment and the stability of the Net Interest Income (NII)

Another way in which negative rates impact the income of a bank is through the transformation mechanism: in order to manage a bank soundly, all current savings have to be invested on a longer horizon. Investing in the short-term creates a lot of volatility in terms of interest margins. It is a question of opportunity, if interest rates decrease the longer you invested the higher income you will get. On the opposite, if interest rates increase there is a kind of missed opportunity on these higher rates. As these investments mature they have to be replaced by new long-term investments which can only be invested at new rates. Overall low rates have a negative impact in the long term. It is a gradual mechanism that happens very slowly, but the NII will gradually drop if rates remain low.

NII and P&L: other drivers than the level of rates

Low rates gradually reduce the transformation margin, and negative rates may decrease commercial margins, but NII is determined by other drivers as well. Margins on Belgian mortgages have 'normalised' after the crisis, funding cost (negative margin) on term funding gradually decreases and banks can benefit from very inexpensive TLTRO-funding. These lower funding costs balance partly the negative effect of low rates on the interest margin.

There are also positive volume effects, low rates lead to higher volumes on current and savings accounts, partially compensating the effect on the results of the lower transformation margins. If the ECB succeeds in its economic intentions, a credit growth is likely to also affect NII.

Concerning the P&L, the low rate environment creates very low credit impairments which is also a positive factor. However it is clear that low rates put a considerable pressure on the income sources of banks and therefore diversification towards fee income (e.g. selling asset management and insurance products) is key. Without any doubts, cost efficiency is also a major point of attention in this environment.

Challenges for the bank-insurance business model

For the bank-insurance model, a similar story applies since low levels of rates are the new norm and will remain substantially low. There are structural trends why we can expect that the rates will remain low for a long period of time. But this does not mean that they will have to stay at the current almost ridiculous levels.

We can expect that there will be continuous pressure on the NII for the next few years, even if interest rates increase 1%, because the maturing investments were made at much higher rates.

In terms of volume growth, the economic figures in the Eurozone are not fantastic but not particularly bad either – this points to an increase of a certain level of growth on the credit side which should balance partly the lower interest margins. As a consequence of this continued pressure on NII, other income sources are needed. Diversification of activities is key, especially in the classical banking model with an emphasis on maturity on transformation, which is definitely going to be much less profitable than it was in the past. Here the bankinsurance model actually shows its resilience as it is very well placed to deliver such a diversification of income sources. Cost efficiency also needs to be improved. Finally, in a context of more regulatory pressure it is crucial not to forget about the challenges of digitalisation and big data.

The impact on the insurance sector – A view from the asset side

Kris Vanderstede, Head Front Office Investments General Account at AG Insurance

Interest rates are going down and even reach negative levels. In addition, the expected net supply of government bonds this year is decreasing by 400 billion euros. When we compare the 10-year government bond yield in Belgium to the guaranteed rate insurers are offering on 8-year insurance savings products, we see that insurance was a relatively straightforward business in the past thanks to the spread between what is guaranteed to the clients and what can be obtained from a default investment. But this has started to change, interest rates have become very low and sometimes even negative, which make it more difficult to generate positive margins.

Also from the point of view of the client, it becomes less and less attractive. Indeed when the client invests, some money gets subtracted to pay taxes - which does not depend on interest rates -, as well as to cover transaction fees. In the current low yield environment it is already critical just to breakeven after 8 years, and that depends on the level of fees that insurance companies take (2,5 to 3%).

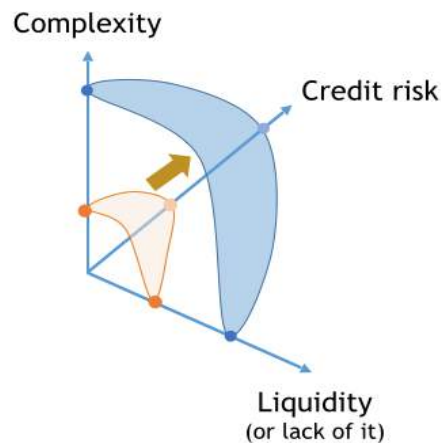
In such a context, how do we manage the assets of an insurance company?

One solution is to do more other business, and in the case of insurance companies, that means doing more non-life business. However, if everybody takes the same approach, the margins in non-life business will also come under pressure.

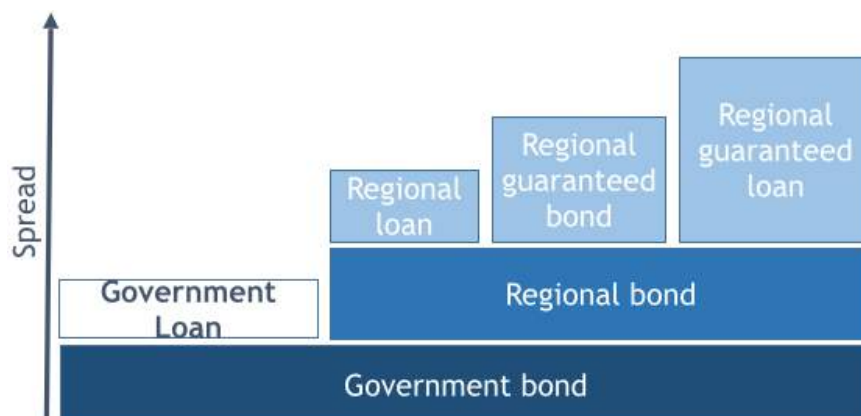
About the business of managing financial assets

From a practitioner point of view, the life of insurers is in a three-dimensional space as represented here, involving complexity, liquidity and credit risk. In the past few years, the colored envelope, which represents insurers' efficient frontier, had been pushed

further away from the origin. Insurance investments are therefore becoming less liquid, more complex and offer more credit risk.



The diagram below shows what is meant by this three-dimensional space.



The base investment is a government bond. A government loan has the same characteristics except that it is a loan and not a bond. As we evolve along the liquidity space so we have less liquid instruments for which an illiquidity premium is expected. We can also move on the credit space and take a regional bond instead of a government bond. And we can go further in getting a little bit more credit risk with a regional loan, a regional guaranteed bond or a regional guaranteed loan. The extra-spread increases by moving in the three-dimensional graph.

However, one can never make a pure play on this, you will never be able to take one investment with exactly the same credit risk as another investment. And when it is more complex, usually it is also less liquid.

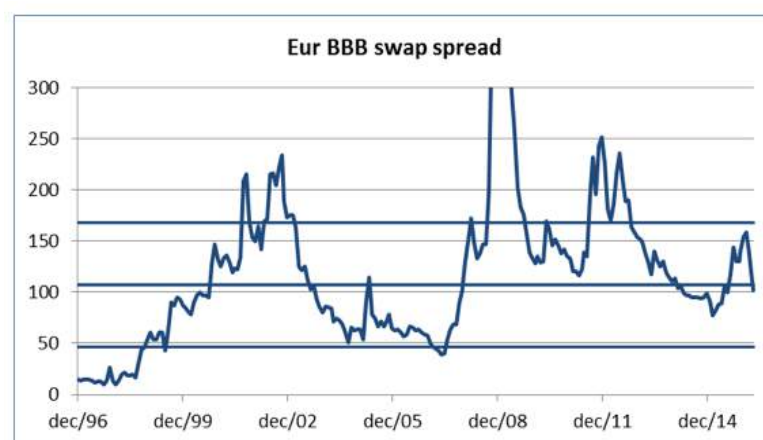
Complexity

What is meant by complexity can be illustrated by the very high number of regulations that need to be complied with when making an investment. It includes for example the

question of revaluation: how to evaluate less liquid instruments on a balance sheet? That is typically an important issue that has to be solved before going into any investment.

Credit risk

In fact, credit risk is less important than people seem to think. We often hear that a consequence of negative interest rates is that investors take more credit risk. However, as we can see on the graph below, corporate bonds are neither really cheap nor overly expensive. We are in fact at average levels, the latest move has to do with the latest announcement that the ECB is going to buy corporate bonds. Overall we did not really see a rush on taking credit risk at any price.

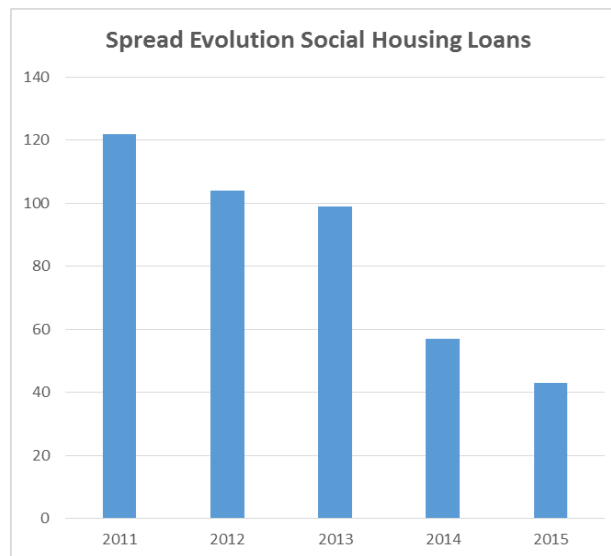


There are two main explanations to this phenomenon. First, the Solvency framework makes you pay if you take more credit risk. Second, the risk function in any insurance company has become much more important than in the past. Now the function of Chief Risk Officer and the whole structure that has been built around risk is much more important.

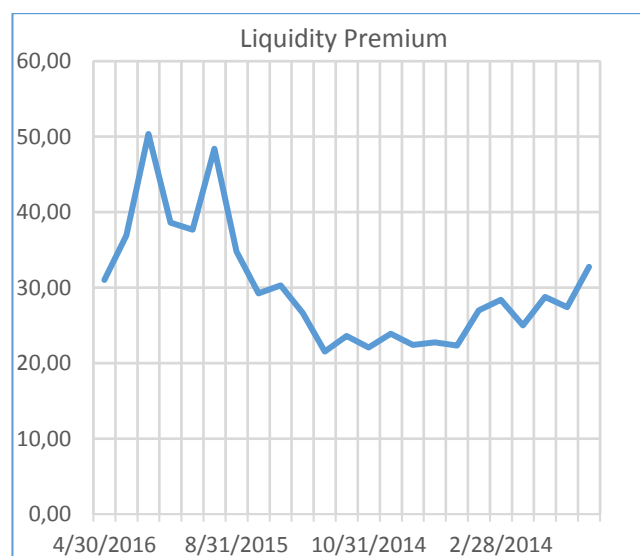
Therefore, within the three-dimensional space, it is certainly true that we are taking more credit risk but this has not been a rush for credit at any cost. The problem is not that the spreads are too low, but more that the base yield is very low, when you look at expected returns after losses it becomes less and less attractive to invest in corporate bonds.

Liquidity

The graph hereafter shows the spread, that AG Insurance has known, on investing in loans issued by social housing companies. These companies grant mortgages to people with low income or to large families. A loan to such company is paid back in an annuity form and has the explicit guarantee of the Flemish government. Therefore the liquidity spread of such loans can be considered as a good proxy for the liquidity spread.



As a comparison, the next graph shows the liquidity spread as calculated according to the Solvency framework.



Here we see that there has been a very strong decrease of the liquidity spread in the system. A way to monetize this liquidity premium and bring it all to the balance sheet is loans, private placement, collateral exchanges ... etc. The extent to which one can invest in less liquid instruments depends on the liability side. In Belgium we can have value adjustments if clients want to leave early, and it is also tax considerations that makes the investment in less liquid instruments a sensible proposition.

What is the right level of liquidity premium?

In Solvency II, the proxy for the liquidity premium is the minimum of zero and 50% of the spread of corporate bonds minus 40 basis points.

$$LP = \text{MIN} [0 ; 50\% (S - 40 \text{ bps})]$$

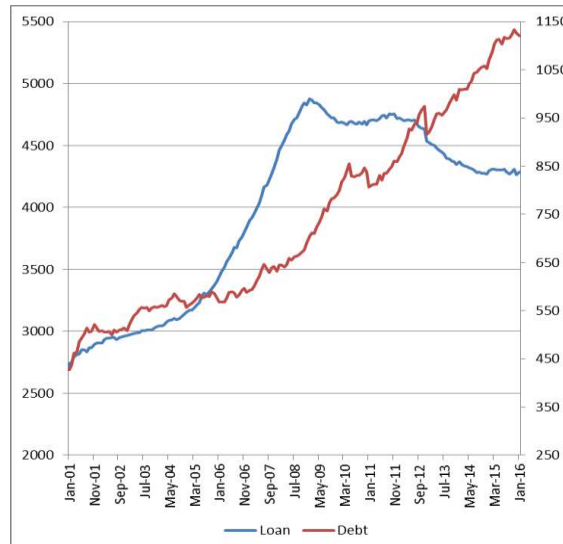
With S : iBoxx EUR Corporate Swap Spread

This does not necessarily translate what we see in practice. The evolution of the liquidity premium is not really the same as the one of Solvency II's proxy.

In addition, we are never at the shelter of regulatory surprises. As an illustration, a regulation states that exposure to regional governments and local authorities is considered as exposures to the central government, so that exposures which are guaranteed by central governments are equivalent to exposures to the central government. But on the other hand exposures that are guaranteed by a regional government or local authority *are not* equivalent, and therefore become (highly rated) corporates. Thus even with these « pure » plays we never know what will happen with the regulation.

The corporate loan market

Corporate loans are less liquid investments. One could argue that these are part of a broader trend towards bank intermediation, which now seems to be happening as illustrated in the graph below (but mind the scales!).



Source: Société Générale

red line: outstanding debt securities issued by non-financial corporations (RHS)

blue line: bank credit to non-financial corporations (LHS)

It is true that we have seen more activity in bonds with very small issue sizes, or loans. It always comes back to this idea of taking on board the same credit risk under a less liquid form so that we can earn the liquidity premium. There are some hurdles because this market is not rated in many cases.

Mortgage loans

A whole mortgage loans portfolio is an attractive proposition because it is « Solvency-free ». But is it the same for banks? Is there some kind of incentive to do a regulatory arbitrage and to park mortgage portfolios with insurance companies because they have a better capital treatment?

Infrastructure loans

Infrastructure loans are a hot topic, a Goldman Sachs study recently shows that insurance companies are all planning to do more infrastructure loans. In terms of default experience it is quite good compared to corporate bonds, and as an infrastructure loan ages its rating tends to improve. The regulator has also given insurers the possibility for certain qualified projects to decrease even further the Solvency capital requirement. So at first sight, infrastructure loans look like a match made in heaven.

But this is not that obvious in all aspects. These investments indeed usually account a mix of floating rate and fixed rate loans. Floating rates for an insurance company is a very difficult issue within the ALM context. The competition with banks is also another issue that has to be taken very seriously.

Conclusions

Overall the low rate environment makes life very difficult for insurance companies but it is still possible to counter this effect by extending on the credit risk/complexity/illiquidity spectrum. Other axes may also help, including maturity extension, invest in other currencies, writing options on rates. Nevertheless, Solvency II provides an effective deterrent for undue risk taking. If rates go down further, the life insurance business model will come under further pressure.

Q&As

One question was raised about the ultimate forward rate (UFR), a key factor in calculating insurers' long-term liabilities under Solvency II which has come under criticism for being unrealistically high in the current economic environment. For liabilities with maturities between 0 and 20 years a swap rate is used. Beyond 60 years, the UFR is used. Between 20 and 60 years an extrapolation is applied. The current UFR is 4.2%, which is the sum of the 2% inflation target set by the ECB, and the 2.2% long-term real interest rate. After remarks by the ESRB, EIOPA (the equivalent of the European Banking Authority for insurers) published a consultation paper inviting industry feedback on its proposals to reduce the UFR to 3.7%. The question was addressed to Frederik Allossery (Ageas) about his opinion on the possible change in the UFR. Mr. Allossery's answer was that it would not significantly affect the capital requirements of Solvency II.

A debate was then engaged on whether a UFR decrease to 3.7% would come from inflation or from the long-term interest rate? On the one hand, the Bank of England recently showed that, using 300 years of data, a long-term real interest rate of 2.2% is

quite reasonable. On the other hand, a change in inflation would put the credibility of the ECB at stake. This therefore remains an open debate.

The case of Japan

Frederik Allossery, Ageas

Setting the scene

The non-life business is partially taken into account in the pricing strategy and is therefore not really affected by the low interest rate environment.

For the life savings business on the other hand, low interest rates are a significant strategic problem. Within life saving products, we distinguish:

- Unit linked products, created by policy holders, for which no big issue has been identified.
- Guaranteed rate, where there is a big issue as it is a big lever for profit and loss.
- Investment margin, another important product as one of the key profit sources of guarantee products, although it is not the only component under stress.
- A final important element is the key difference between current investment portfolio and future investments.

Insurers are very exposed to the government bond rates. The yield evolution of the European 10-year government rates is declining steadily since the last two decades for all countries in the Eurozone.



Source: www.tradingeconomics.com

2% has been defined as the threshold under which we can considered to be in a low interest rate environment. As we can see on the above figure, government bond yields are currently low in the US, Germany, the UK and in Japan. But in Japan the yields have been low since already 25 years. Today the 10Y yield in Japan is negative, which is a big challenge for someone who has invested long term in Japan.

Nevertheless, Japan is today the second largest insurance industry in the world, after the US, in terms of premium volume. The insurance business is therefore still relevant, despite the low interest rate environment. When we look at forecasts for the future, Japan is going to remain a key insurance market at least until 2020.

The storm faced by Japanese life insurers

Many Japanese life insurers had built up substantial books of long dated guaranteed life business in the post World War II era. This, in combination with unmatched and risky balance sheets, made Japanese life insurers vulnerable to a prolonged period of low interest rates. Low interest rate scenario in Japan materialized during the 1990s with a significant drop of the Japanese interest rates. As we can see on the graph below, the 10-year government rate dropped from roughly 7% to levels below 2% in a span of 6-7 years and did not recover since.



Source: www.tradingeconomics.com

That has led a number of companies into default. Between 1996 and 2001, 7 insurers have been defaulted or merged or converted. These include companies like Nissan Life or Tokyo Life. But besides low interest rates, there were multiple other deteriorating elements. For example the Japanese **stock index dropped** 50% in the 90s, for 22% of the portfolio. One of the consequence was to invest abroad, impacting the **exchange rate** of the currency. Another element is the **aging population**, which puts pressure on household savings growth, as aging population is driving higher consumption instead of savings. Population demographics not only show an older population but also a reducing population for the future. These elements led to a **reduction in the income** of the Japanese population, which additionally led to a lower search for insurance products. Other trends are also that Japanese people tend to remain single or postpone marriage.

Efforts of the Japanese Life Insurance Industry

This negative situation was to large extent the reason for low interest rates. The insurance industry reacted by having **better diversified asset portfolio**, and shifting towards more defensive asset allocation. This has led to investments in government bonds, and strong investments on the longer term in order to close the duration gap between the returns earned on the one hand and the returns offered on the other hand. We also observed a continuing decrease in more risky assets such as financial loans and stocks.

Additionally, on the liability side, we saw a significant shift from spread business (endowment products) to protection (especially Health and Medical) products. Overall they had **better diversified insurance liability products**.

Moreover, insurance companies decreased their operating expense ratio to total premium income (**cost-cutting**). And, with the increased regulatory pressure, they created low interest rate reserves in order to ensure further financial soundness and dissolve negative spread. In parallel, a revision in distribution regulation reduced the bottom limit of the distribution to policy dividends from 80% to 20% in order to secure **adequate internal reserves** in 2002. Another element is that the Japanese regulator developed a **resolution scheme** requiring contribution of life insurers to a protection fund.

Summary table: lessons learnt from Japan

Key evolutions in Japan

- Prolonged low interest markets for almost two decades
- Important decrease equity markets
- Japan's ageing (& potentially decreasing) population

Learning points from Japan

- Gradual reduction in asset risk & shift to a diversified asset mix
- Better matching ALM positions: Manage interest rate risk "at start"
- Dramatic shift towards a diversified product mix
- Cost reduction and optimization
- Accumulation of additional reserves
- Insolvency and restructuring of weaker players

Key question: « Japanification » of Europe?

To what extent is Europe the new Japan? The share interest rate decline is certainly there, the large duration mismatch is depending from country to country, the equity market decline is not that sharp, they had a large proportion of savings type policies as we have in Europe, they also had low insurance profits, the exposure of the local currency to foreign currency is not the same problem, the aging population is also an issue in the European insurance business.

As a conclusion, although the Japanese case does not immediately apply to Europe, we can draw important learning points:

- **Diversification is key:** a healthy insurer should have a diversified product mix, diversified asset mix, diversified risk mix and multiple sources of profit.
- **Product design is key:** errors are expensive and risky to solve via asset side solutions.
- **Manage interest rate risk at the start:** try not to depend (too much) on interest rates.

Q&As

A remark was made about the isomorphism between the reactions of banks and insurance companies, which are both holding more government securities. Another striking element pointed out in the audience, is that insurers are holding more foreign securities. Then a question was asked on whether Solvency II would help or make it

more difficult. As emphasized by the speaker, in Solvency II risk awareness is put forward. Pillar 1 is important in terms of being a measure of comparison, in Pillar 2 the risk and solvency assessment exercise really takes into account how the business reacts. A lot of questions remain on the first pillar but the second pillar is key with respect to reacting properly to the low interest rate environment.

About the comparison between insurance and bank, another question was raised on whether, if rates and spread start to go up, it could even be more difficult for insurance if it is combined with shocks in the markets; the exit could even be more painful than remaining where we are. As discussed by the speakers, on the banking side it would only be a problem if it is a sudden shock, a gradual movement would be very beneficial. But banks will be able to react quicker than insurers. Under this perspective, combining bank and insurance under the same umbrella would be a good idea to diversify risk.