Economic & Financial Analysis

Insurance sector

Financials

18 August 2021

Insurers' triple trouble

Fragile balance between SCR, return on capital and duration

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Introduction

Pressure on insurers: Solvency Capital Requirement return on capital and duration

2016 was a game-changing year for European insurers, as Solvency II, a prudential framework for the supervision of insurers, was introduced, somewhat mimicking the Capital Requirements Regulation (CRR)/ Capital Requirements Directive IV (CRDIV) framework put in place for banks. While the regulatory change was long-needed and long-awaited, it shook the insurance sector to its core.

Effective from 1st of January 2016, the major transformation of this regulatory regime was its risk-based nature, expressed in Solvency Capital Requirement (SCR) and mark-to-market balance sheet valuation. From now on, the amount of buffer an insurer had to maintain was based on the market price of items on their balance sheet and the risk measured via the standard or internal model. The new Solvency ratio corresponds to own funds divided by SCR, and the denominator represents the risk-based buffer. Therefore, the amount of buffer will differ between insurers exposed to more risk and insurers that are not, including the composition of own funds and such aspects as investments in higher or lower risk assets.

The introduction of Solvency II coincided with the environment of unprecedented low-interest rates giving rise to cumbersome challenges for insurance companies. While currently, most insurers do not write policies with fixed guarantees, legacy policies promised policyholders relatively high returns, in any case, above returns on investments that could be achieved in today's market environment of low yields with the current portfolio composition. At the same time, re-risking portfolios to achieve higher returns come at the expense of higher capital charges under the new regulatory framework.

Another ongoing challenge for insurers arises from the nature of their long term liabilities, especially crucial for life insurers. Long-term investments are relatively scarce, leading to a big duration gap (the duration of an insurer's liabilities is on average 12 years). While over the last few years, we have mostly been talking about the ongoing low interest rate environment. The interest rates this year have demonstrated a positive trend, which opens up a whole new challenge of interest rate risk management as the insurers are heavily invested in fixed income assets.

Current asset mix composition

With over €10trn in assets, insurance companies are the largest institutional investors in Europe. Historically, insurers maintained a relatively stable asset portfolio composition. The lion's share of the allocation was invested in bonds and loans.

€10trn Total assets of insurance companies

> *"On average 64% of insurers' assets are invested in corporate and govie bonds"*

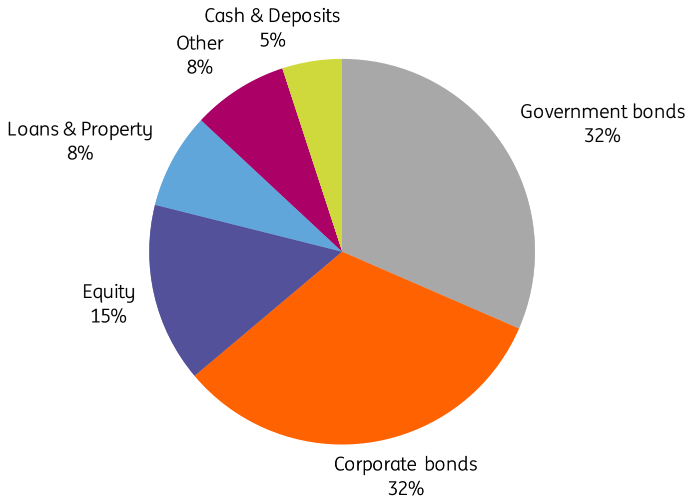
According to 2020 data from European Capital Markets Institute, bonds accounted on average for 64% of the investment portfolios of European insurers, with approximately 31.4% invested in government bonds and 32.2% in corporates. Most of the investments were in euro-denominated debt, with a slight preference for local issuers. Equity still occupies an essential place in the asset mix, albeit its share is substantially lower than that of fixed income instruments and has been gradually declining over the years, even before the introduction of Solvency II.

Non-life insurers invest as much as 20% into equities, whilst this share is only 10% for life insurers. The rest of the portfolio consists of loans, mortgages, property, cash, deposits and alternative investments. Western and Southern European companies show a significant domination of bonds, while in Northern European countries, equity plays an important role, while Dutch and Belgian insurers are heavily exposed to mortgages.

While limited data is available, European Insurance and Occupational Pensions Authority (EIOPA) pointed out a trend whereby insurers are re-risking their portfolios, with a slight decrease in investments in debt instruments versus an increase in other asset classes, such as unlisted equity, loans and mortgages. As for the trends and strategies of insurers in the coming years, they have indicated (according to European Capital Markets Institute research) that they plan to increase the share of the infrastructure project in their asset mix. Re-risking comes in the form of investing in riskier assets and more illiquid instruments, although this trend is not observed across insurance companies.

The below figure shows the average asset allocation across European insurers as of 2019.

Asset allocation



Source: ING, EIOPA, CEPS

While insurers have adjusted mainly to Solvency II and new capital requirements, various aspects such as duration and return on capital are still evolving, with the search for yield ongoing in the ever-changing market environment. We expect to see changes in the medium to long term (over the coming five-10 years), accompanied by an ever-evolving regulatory framework.

The current asset mix does not always optimally and fully correspond to insurers' needs. If we can make a broad generalisation, the return on Solvency capital tends to be on the lower side, the duration gap for many insurers is still relatively wide, and uncertainty remains with regards to the trend of re-risking their portfolio without burdening themselves with additional capital charges.

But what can insurers do now to balance out their SCR, return on capital and duration needs while limiting their exposure to increasingly volatile interest rate risk? In this report, we explore alternative asset classes investments which could benefit insurers across Europe. We will also cover the interest rate risks associated with the market trends of increasing interest rates, to which insurers are highly exposed due to their investments in fixed income assets.

Alternative asset classes

Adding duration with mortgages

> *"Mortgages are an optimal way to add duration to the portfolio without being penalised by high SC"*

What is the optimal way to find longer-dated assets without increasing the penalising duration factor for SCR? Since the introduction of Solvency II, mortgage loans have started attracting increasing interest from insurance and reinsurance undertakings. While banks have traditionally dominated the mortgage market, more and more insurers have stepped up their game in the last few years.

For SCR calculations, mortgage investments fall within the counterparty credit risk exposure module. To qualify, the loans have to meet certain requirements, of which the key ones are:

- the exposure should be to a natural person or a small or medium-sized enterprise;
- the property has to be occupied or let by the owner;
- the exposure should be similar to existing exposures to reduce risk;
- legal certainty requirements are met (mortgage is enforceable in all relevant jurisdictions, requirements for establishment of pledge fulfilled, etc);
- requirements on property valuation have to be met (value monitored at least once every three years, valuation is reviewed if the property value declined materially compared to the general market).

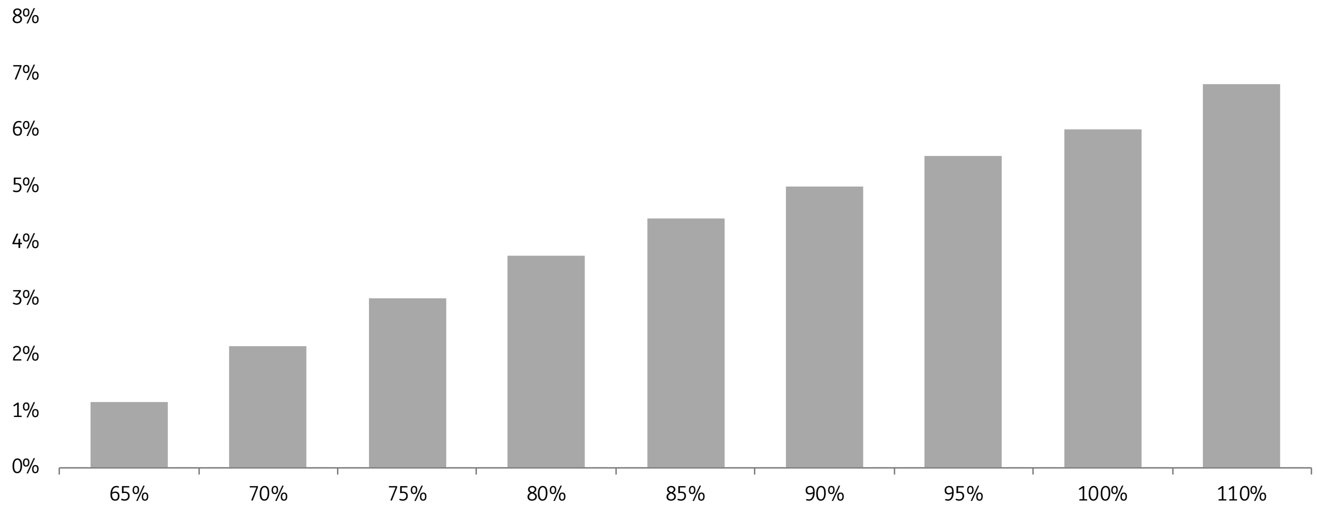
The SCR for mortgage loans represents the sum of the capital charges for a mortgage exposure based on LGD and the due payments in arrears for longer than three months and is calculated based on the below formula:

90%* LGD receivables>3months + Σi 15%*LGDi

(Where LGD is loss given default (calculated on the formula LGD=max(loan-(80%*mortgage+guarantee);0), the mortgage is taken at its risk-adjusted value, which is 75% of the total mortgage value, and payment due in arrears are longer than three months). The guarantee was not present in the initial Solvency II regime, but was added in its revision.)

Here, the SCR is calculated per LTV bracket. The below figure shows the mortgage without guarantee, assuming no payments in arrears, the asset class most likely to attract insurers' appetite.

SCR per LTV bucket



Source: ING, Solvency II

As we focus more on the Dutch insurance sector, we will look into the Dutch mortgage market. The Dutch owner-occupied mortgage market remains robust with a total volume of €740bn in 2Q20 (according to the Dutch Securitisation Association).

The pandemic had a limited impact on the market, despite the fall in consumer confidence. The share of insurance companies in the market has been growing slowly but steadily, both through origination and buying mortgage portfolios from banks. Statista research shows that insurers' market share rose to 13.7% in 2Q20, while the banks' share decreased to 55.8%, with the balance made up by non-bank lenders.

Certain specific features of investments in mortgages provide for the attractiveness of this sector for European insurers:

- **Low capital charges** – as you can see from the graphs above, the SCR requirements are relatively low. It is not expensive to hold mortgages on the balance sheet of an insurer.
- **Limited risk** – Default rates on Dutch mortgages have historically been low. And while mortgages are already considered a rather safe investment class, about 20-25% of the Dutch residential mortgage market are state-guaranteed NHG mortgages, which provides insurers with an opportunity to invest in even lower-risk assets. While a guarantee component was not present in the initial Solvency II (but was added in its revision), unfortunately, under a standard formula, NHG mortgages do not qualify for special treatment under this provision as they do not meet Solvency II requirements. Under the NHG guarantee, the insurer must first pursue the obligor and only then obtain payment by the guarantor. For beneficial treatment under the guarantee provision, the insurer has to have direct recourse to the guarantor.
- Nonetheless, using the internal model sometimes can allow insurers to partially factor in the guarantee. While the total share of insurers in the mortgage market is at 13.7%, the NHG guaranteed mortgage segment is heavily dominated by insurance companies due to their low-risk profile. The Dutch central bank states that payments in arrears in the Dutch residential mortgage market are substantially lower than in other countries. The recourse to the borrower is also vast, not being limited to the underlying property, but also includes the wealth and future income of the borrower.

- **Amortising assets** – as the borrowers pay down their mortgages, the portfolio is gradually amortising, ensuring continuous capital returns for pay-outs on P&C and life policies. On the flip side, it comes with the risk of pre-payments, which causes fluctuations in the value and duration of the mortgage portfolio and lesser predictability on its returns. In the Netherlands, in 2013, the rules of tax deductibility were changed in January 2013. From that time, the owners can only get tax relief if they are paying off their annuity or linear mortgage fully within 30 years. The new rules stimulate faster and on schedule repayment of the mortgages.
- **No duration factor** – one of the most significant advantages of mortgage loans, as opposed to any other investments covered in the spread risk sub-module, is the absence of a penalising regulatory duration factor. This is especially important for life insurers, who must match very long liabilities and face expensive SCR in more "traditional" long duration investments. Adjustable-rate mortgages provide investors with an opportunity to tailor duration to their needs: shorter rate fixed periods will bring the term down. In contrast, longer fixed periods will allow increasing duration.
- **Interest rate hedge** - with floating or more common, fixed-to-reset mortgages, insurance companies can naturally protect themselves from rising interest rates by allowing themselves to reset the mortgage interest rates in line with the prevailing market rate.

As such, mortgages are a rather lucrative alternative to government or corporate bonds. Without SCR increasing with the duration of the asset, this is an optimal way to add duration to the portfolio for life insurers. All that coupled with built-in partial interest rate risk hedge and low-risk profile makes mortgages a very attractive asset class.

Large scale opportunities in infrastructure

Another alternative investment opportunity for insurance companies looking for duration presents itself in the infrastructure sector. In June 2017, a Commission Delegated Regulation amended the original requirements for calculating regulatory capital for specific infrastructure corporate categories to attract insurance companies into the sector. Main infrastructure sectors include utilities and energy (generation, transmission, electricity, waste etc.), transportation (toll roads, airports, railways, ports etc.) and social infrastructure (social housing, hospitals, schools). However, not all investments in infrastructure projects, both in the form of loans/bonds and equity, qualify for preferential treatment, which is limited to qualifying infrastructure corporates and must meet several requirements.

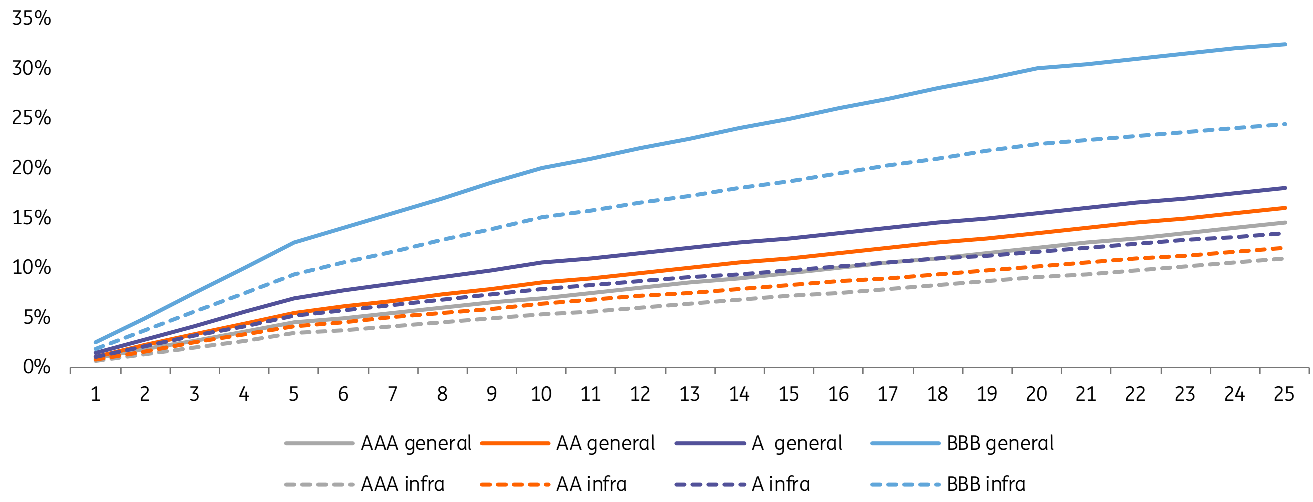
To protect investors, as well as infrastructure entities, qualifying corporate infrastructure investments have to meet certain criteria, of which the most crucial are:

- the majority of revenues is derived from assets located in the EEA or OECD;
- generated cash flow allows for all financial obligations to be met under stresses relevant for the risks of the project;
- the revenues are diversified;
- the insurance or reinsurance undertaking can demonstrate that it can hold the investment till maturity;
- if the entity has a rating, it has to fall between credit quality step 0 and 3 (AAA to BBB);
- if no ECAI rating is available, the capital structure shall allow for servicing all debt, and the entity has to be active for at least three years;

- the capital structure of the infrastructure corporate is such that it allows servicing all its debt under conservative assumptions based on an analysis of the relevant financial ratios.

While infrastructure equity investments are also in the scope of this revision, they continue to attract high-risk factor stress, making them very expensive to hold from the point of view of the SCR. However, debt investments look more and more attractive to insurance and reinsurance companies. Here, you can see the treatment of general infrastructure investments compared to general bonds and loans of the same rating. Clearly, this is a lucrative alternative, which provides both high return on capital and longer duration for their portfolio, in a trade-off for illiquidity.

SCR for infrastructure vs general bonds/loans (per duration)



Source: ING, Solvency II

> *"Infrastructure counters all three insurers' challenges in one go"*

What makes infrastructure such an attractive asset class for insurance and insurance undertakings? The triple problem that all of them are now facing is finding an optimal way to find lower SCR and increase return on capital and duration. As we will see below, infrastructure investments are a good way to diversify their portfolio to counter these challenges.

- **Large scale opportunities** - according to McKinsey report of 2018, by 2030, the world's need for infrastructure is estimated at $60trn, providing investors with ample opportunities across the globe.

$60trn world's infrastructure needs by 2030

- **Longer duration** – projects can vary in their duration. While some are relatively short, completed within 1-4 years, some can be as long as 30 years or even longer. This is a substantially longer duration than one can find in the corporate and financial bonds and loans pool. Government bonds provide an opportunity to invest in longer-dated paper; however, the low yield environment results in a meagre return on capital. Therefore infrastructure investments are lucrative for life insurers, which need to find assets to meet their long liabilities while generating a return on capital.

- **Sustainability factor** – by investing in social infrastructure, renewable energy, healthcare etc., insurance and reinsurance companies can also participate in ESG goals and making a societal impact. There are plenty of opportunities for investments in sustainable energy sectors in Europe, such as renewable and solar energy.
- **Illiquidity premium and yield** – illiquidity of investments is a clear trade-off for higher spreads. While for P&C entities, illiquidity may mean opting for investments in shorter infrastructure projects, the life sector comprises more of a buy-to-hold investor looking for long assets that they can hold for a longer period.
- **Favourable treatment for SCR** – while infrastructure debt always enjoyed preferential treatment over general bonds and loans with the same ECAI rating, the 2017 revision of provisions for such investments resulted in qualifying infrastructure debt becoming even more lucrative from capital requirements perspective. It allows insurers to add yield and duration to their portfolio while maintaining a relatively low-risk profile.
- **Non-market correlated portfolio diversification** – as infrastructure projects are not market instruments, they generally are not correlated with such assets as bonds and loans, providing insurers with a certain risk hedge by diversifying their portfolio.
- **Relatively stable cash flows** – one of the requirements for qualifying infrastructure corporates is producing predictable cash flows.

Going forward, we see many opportunities to grow the share of infrastructure in insurers' portfolios in the coming years, allowing insurers to add duration to their portfolio. In 2020 the European Capital Markets Institute disclosed that insurers are planning to increase investments in infrastructure to 5-10% of their portfolio in the coming years.

Search for yield in unrated bonds and loans

In the search for yield, insurance companies are seeking to re-risk their portfolios.

One opportunity that could be attractive for insurance companies are investments in unrated bonds and loans. While most debt instruments in the European market come in the form of public issuances, an increasing portion of the market is comprised of private placements (PP). In the US, the private placement market has existed and been booming for quite a long time now, whereas in the EU, we are still on the way to creating it.

The European Commission adopted a plan to create a Capital Markets Union in the EU, with the first action plan launched in 2015. The goal is to facilitate money flow across the EU. One of the important action points is to direct SMEs to alternative funding sources, which includes PPs. At the moment, Germany and France can boast with the most developed private markets.

According to Helaba estimations in 2020, the total volume of Schuldschein transactions amounted to €20bn across 102 transactions (about 70% of them in Germany and 30% elsewhere in Europe). Despite being negatively affected by the pandemic (down from €26.5bn in 2019).

Insurance companies comprise up to 15% of the investors in this market. In France, PPs are issued in the form of Euro PP - a framework for bonds and loans developed in 2012-2019. The volume remains modest, with only an estimated €30bn raised in that period, but the work on the framework did not cease to evolve to boost the growth of Euro PPs. Insurers are a significant player in Euro PPs, with their share amounting to up to 80% of total investments.

> "Tailor made instruments benefit both issuers and investors"

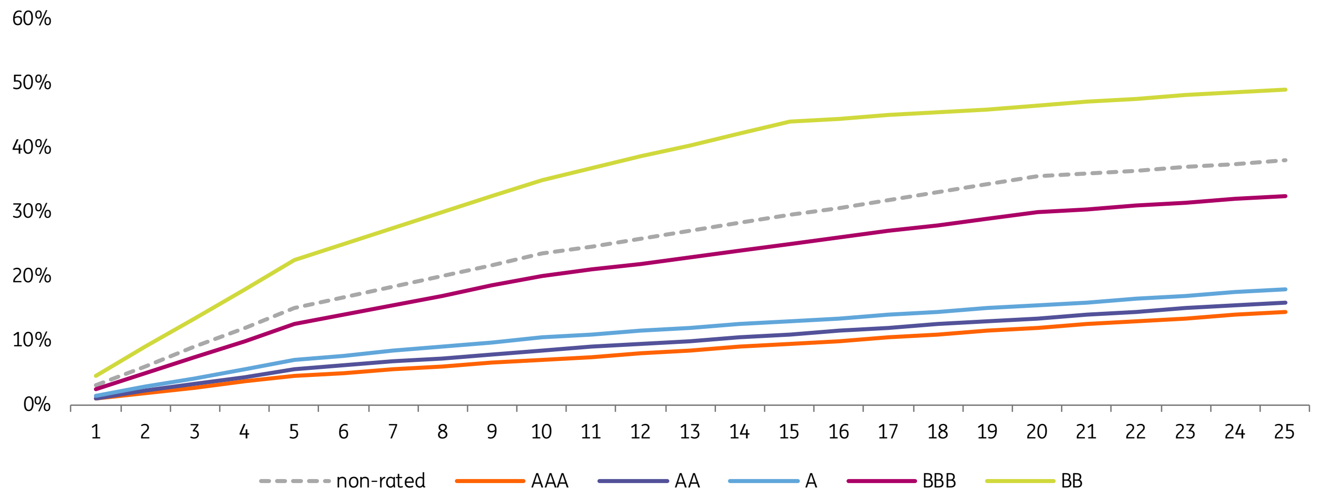
PPs are win-win instruments. They provide issuers with cost-efficient capital raising opportunities with multiple advantages: more accessible access to capital markets, no obligation to produce a prospectus or obtain ratings, mostly without clearing or listing, diversify investor base, tailored made instrument that corresponds precisely to companies' needs in terms of currency and duration etc. Generally characterised by wider spreads and higher yields than the public debt market, PP markets could provide insurers with an opportunity to diversify their portfolio on more lucrative terms, with the following significant benefits:

- **Illiquidity premium** – the secondary market for PPs is very limited. Most often than not being listed on the exchange, the only opportunity to dispose of the PP holdings is via the OTC market. However, it is challenging to match a seller with a buyer due to a limited number of investors in this market. While this leads to issuers paying a certain illiquidity premium, this is generally not a challenge for insurance companies that tend to be more buy-and-hold investors. In 2015 NN IP estimated that the illiquidity pick-up in PPs amounted to 50-250bps at the time.

50-250bps estimated pick-up on PPs

- **SCR treatment** – Solvency II (and its update) provided for separate requirements for investments in private bonds and loans. With the capital requirement coming just slightly above BBB rated debt and significantly lower than sub-investment grade exposure, non-rated instruments can provide an alternative to lower-rated general bonds and loans.

SCR unrated vs rated bonds (per duration)



Source: ING, Solvency II

- **Low risk** – PPs are generally considered to be relatively safe investments with low default rates.
- **Tailor-made products** – the issuer and the investor go through adjusting each PP to match the needs of both of them. Therefore it allows insurers to lock in attractive yields across various currencies and tenors, depending on where their appetite lies.

- **Greater price transparency** – the pricing process of private debt issuance differs dramatically from big syndicated public deals, providing investors with greater clarity on the price discovery process.
- **No mark-to-market valuation** – as a non-tradable instrument, PPs do not require mark-to-market valuation, limiting the volatility of its value.

As the PP market continues to grow, we expect the share of insurers in the market and the percentage of assets allocated to PPs to rise as insurance companies keep looking for yield in tailor-made instruments to match their liability profiles.

Buying loans from banks: CRRII/CRDV/Solvency II

Albeit a relatively recent and so far a limited alternative, acquiring loan portfolios from banks is another option to consider. While banks are seeking to maximise their return on capital, they are looking to offload some of their loan portfolios with higher RWA, especially since the introduction of standardised RWA floors (CRRII/CRDIV).

For insurers, there is a possibility for certain CRRII/CRDV/Solvency II arbitrage as some loans receive better treatment on their balance sheet than they did on the one of the banks. With a growing risk appetite, insurers are looking to add duration and diversify their portfolio with mortgages, consumer and SME loans, despite certain risks associated with them.

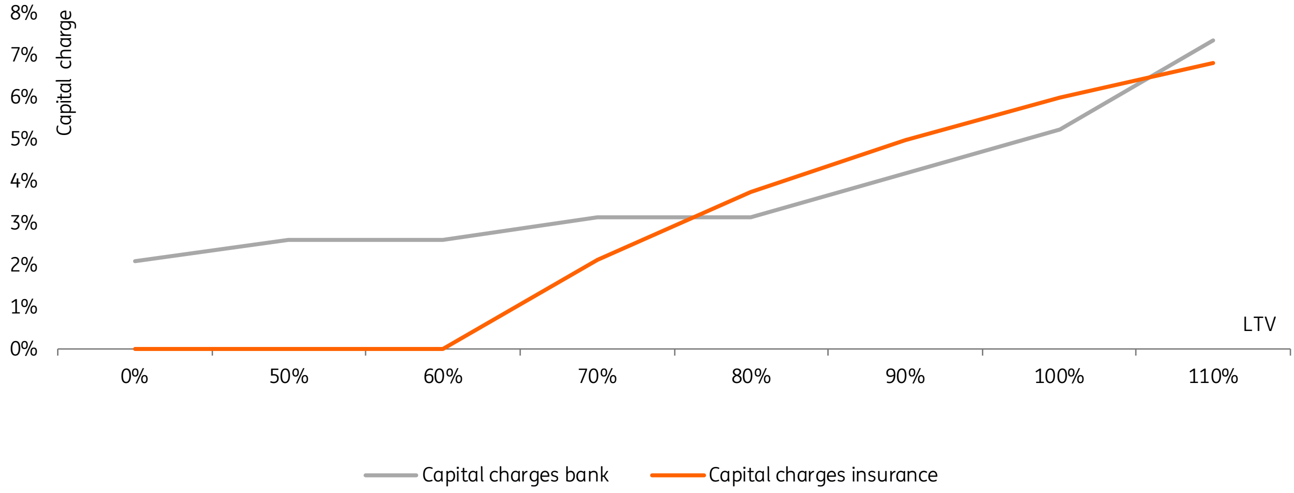
The main risks perceived in investments in loans are counterparty default risk (borrower defaulting on its obligations), variability in returns (inconsistent performance of the loans leading to different returns in different years), pre-payments (the borrower pays off the whole or part of the loan earlier which in turn shortens the duration).

In the Netherlands, this is becoming an increasingly important topic with the upcoming revisions to RWA calculations strongly affecting Dutch banks and pushing up the amount of capital they hold against their loans, especially in the mortgage market. This provides insurers with ample opportunities.

Regulatory arbitrage is made possible due to the inherently different purposes of banking and insurance regulatory frameworks. After the major 2008 financial crisis, the main risk perceived in the banking sector was a systemic risk, with Basel III looking to strengthen the international banking system. Au contraire, in the insurance sector, Solvency II was mainly introduced with a purpose to protect the policyholders, ensuring payments on their policies in case of a default of a specific insurance company. This resulted in a different treatment of similar products for capital/loss absorbency requirements.

We can take an example of capital mortgage requirements to compare the treatment on insurers' and banks' balance sheets.

Solvency II vs Basel capital charges per LTV bucket



Source: ING, Solvency II, Basel 3.5

Solvency II capital requirements are calculated in line with the above section on mortgage investments. We have taken into account an 8% total minimum capital requirement for banks, supplemented by a 2.5% capital conservation buffer.

As you can see in the figure above, the treatment of mortgages with lower LTVs is more favourable on an insurer's balance sheet than on a bank's balance sheet. Insurers pay lower capital charges than banks on up to nearly 80% LTV, providing them with an opportunity to buy either low LTV or amortised mortgages from banks.

The lower LTV market has seen a great shift towards insurance companies in the Netherlands over the last few years. LTVs for newly originated loans have been decreasing over the previous years and will continue to fall.

For instance, in the Netherlands the maximum LTV was reduced to 100% in 2018, to cap it at 90% by the year 2028. Mortgages that fall in the 80-100% bucket receive better treatment on the banks' balance sheets. However, relatively high LTVs of over 100% attract more capital charges again with banks than with insurers. While the market for such high LTV mortgages is low and mainly comprised of legacy products, it is an excellent opportunity for insurers to re-risk their portfolio with high yielding assets.

Countering pressure with interest rate risk hedging

Due to the nature of their assets and liabilities, insurance companies are highly exposed to interest rate (IR) risks.

If we are talking about insurers' exposure to IR, it is essential to mention the Ultimate Forward Rate (UFR). The UFR, based on the estimate of the long-term inflation rate and expected real rate, has been lowered from January 2021 to 3.6%, down from 3.75% in 2020. The UFR is an adjustment to the market rate to derive a less volatile discount rate for insurer's liabilities. The UFR now higher than the market rates, leading to a lower present value of insurers' liabilities and an increase in Solvency II ratios. Applied only to liabilities, it makes the liability side of the balance sheet less exposed to market IR risk, while assets of the insurers are fully exposed to IR fluctuations.

"Reverse trend in interest rates can lead to new challenges for insurers"

In the past years, we have observed an unprecedented environment of low-interest rates. However, since the start of the year, we have been witnessing a different trend – rates in the Eurozone have increased steadily. If this trend continues, it is possible (albeit rather unlikely) that the UFR could be increased to reflect the changes in market rates and rising inflation; for insurers, it would mean that an even higher discount curve will be used to derive the net present value of their future liabilities.

Market rate rises would also lead to the value of their assets going down, albeit probably less than the value of liabilities. As the gap between the value of assets and liabilities will increase, more equity is freed up, contributing to higher Solvency ratios. Thereby it becomes easier to meet capital requirements, a clearly positive development or insurers.

Together with an increase in rates, we have observed a rise in inflation expectations. What does it mean precisely for insurance companies? Inflation has a positive effect on life insurers but an adverse one on non-life insurers. This is again mainly due the fact that inflation is one of the main drivers of interest rates. If inflation rises, so do interest rates, resulting, as mentioned above, in a higher discount rate which leads to lower liabilities and higher shareholders capital.

Non-life insurers write policies based on the current costs. For instance, in P&C insurance the cost of repairing the insured property is based on current prices, so the premiums written reflect those costs. With the increase in inflation, prices generally tend to rise, resulting in higher claims costs, negatively impacting the company's profits. Consequently, insurers have to adjust premiums, which is not always possible, especially in periods of prolonged rising inflation.

Hedging IR risk: FRNs, re-fixable mortgages and derivatives

The most significant interest rate risk lies in the nature of insurers' portfolio composition. With 60-80% invested in fixed income assets during a period of low interest rates, rising interest rates mean that the companies are effectively getting lower return on their capital than the market rate. There are several ways insurers could (and should) protect themselves from such shifts. There are two main ways to hedge IR risk. First, via natural hedges, such as floating-rate notes (FRNs) and re-fixable mortgages, and secondly via the use of derivatives, mainly swaps and swaptions.

Natural hedges

- **FRNs** – a bond with a variable interest rate, tied to a benchmark rate, pays out the current market rate plus an initial credit spread. As the rates change, so does the underlying rate of33333 the FRN. If market rates were to increase, investors would receive a higher rate plus the credit spread. While this is a valuable hedge against the rise in IRs, it exposes the investor to the risk of IRs going down.
- **Re-fixable mortgages** - while fixed for life mortgages are also present in the market, to protect themselves from the rise in interest rates, insurers' focus lies in the shorter fixed period mortgage contracts. Fixed for an initial period from 5 to 10 years, these types of mortgages allow insurers to reset the rate after this period based on prevailing market rates, therefore partially ensuring that they have greater returns if the market rates rise.

Alternatively, insurers can choose to manage IR risk through derivatives. Insurers typically look to engage in micro and macro hedging of their asset portfolio (through asset swaps) and their general account duration through the use of swaps and swaptions. Insurers can mitigate IR risk by maintaining a balanced payer position that they can look to steer by entering into macro-hedges, maintaining a staggered swaption portfolio, or selectively hedging asset purchases.

Insurers current approach to IR risk

Insurers approach interest rate risk in different manners.

In the Netherlands, different companies take a different approach to managing interest rate risk. In its 2020 annual report, Aegon stated that IR volatility and the prolonged low-interest-rate environment could negatively affect its profitability. Both the assets and liabilities of the insurer are sensitive to changes in IRs, with one of the risks being a sharp increase of interest rates. Withdrawals and surrenders may increase, and the asset portfolio could require some sales while its value will decrease. To counter this risk, Aegon engages in hedging activities. The insurer extensively uses IR swaps and swaptions on its fixed-income assets, limiting their sensitivity to fluctuations in market IRs. NN claims to have limited interest risk sensitivity, with the company mainly focusing on how to deal with the long period of low-interest rates through adjusting their policies and creating new products. While having a large share of assets invested in government paper is a safe solution during the environment of low-interest rates, this could lead to potential challenges as the rates increase, leading to a drop in the value of fixed income portfolios.

Achmea is also focused on the environment of low-interest rates and their negative impact on the investment income. However, like Aegon, Achmea uses swaps and swaptions to balance its IR risk.

Phoenix manages its interest rate risk in the UK by optimally matching assets and liabilities; however, it also enters into derivatives contracts for hedging. Through engagement in hedging activities and careful matching, Phoenix claims that the sensitivity to interest rate changes is very low.

Allianz recognises market risks stemming from volatility in interest rates. It mitigates this through increasing asset duration. Allianz sees the greatest interest risk resulting from asset/liability mismatches, especially due to the scarce supply of long-dated assets. In case of the increase of interest rates, the insurer sees an opportunity to reinvest in higher-yielding assets, increasing returns from investments.

Further South, Generali is mainly concerned with low-interest rates, which is somewhat offset by a limited duration gap. The insurer engaged in asset portfolio rebalancing through duration lengthening via government paper (39% of its total asset mix), improving corporate bonds and equity portfolio management quality. In the latest SFCR report, the insurer doesn't specifically mention the risks associated with the increase in IRs or its use of derivatives to manage it.

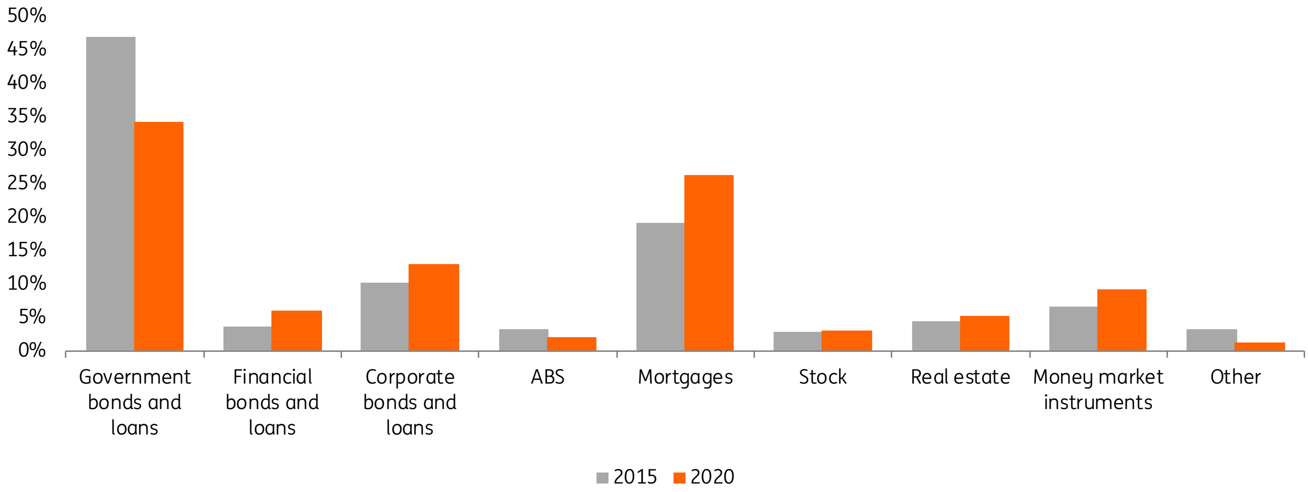
Based on the previously mentioned examples, we can observe that quite a few insurers already use various derivatives to mitigate interest rate risk. While a few are mostly focused on the pitfalls of continuously lowering the interest rates, some are also preparing themselves for potential increases. While insurers manage their portfolio dynamically, it may take them some time to adjust their asset mix to adapt to a new environment.

Recent shifts in allocation

As Solvency II has been a major driving force in insurers' asset allocation strategies since 2016, we can already observe some trends in the change of composition of their investment portfolios. Taking as an example major Dutch players NN Group and Aegon, we see the shifts they have made between 2015 and 2020.

The share of low yielding govies in NN's portfolio has decreased from 47% to 34% in five years. While such paper is not expensive to hold on the balance sheet, it is not contributing much to the return on capital in the current environment. While this remains an important asset class due to its low-risk profile, the insurer chose to reallocate part of its assets towards higher-yielding assets, such as mortgage loans. Exposure to mortgages in NN's portfolio increased from 19% to 26%. Other asset classes remained relatively stable over that period.

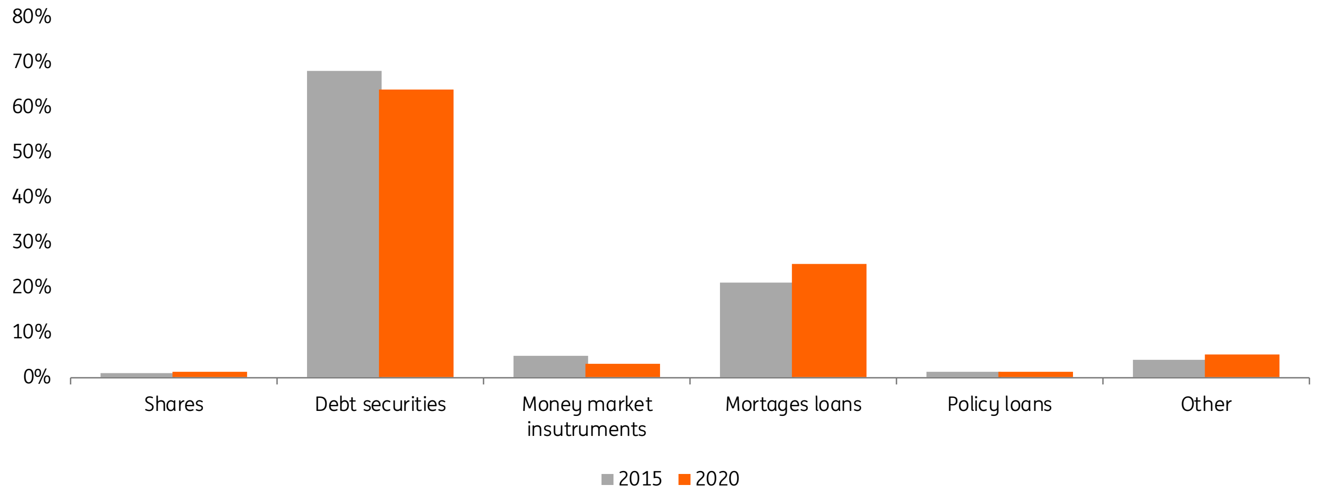
NN Group's asset allocation 2015 vs 2020



Source: ING, NN Group Annual Report 2015, NN Annual Report 2020

If we look at Aegon, we will see a very similar trend. The total share of debt in the investment portfolio went from 68% in 2015 to 64% in 2020. Whilst it is a very small change, it is very possible that it occurred due to the sale of some govie holdings like with NN Group. Meanwhile, the share of mortgage loans increased from 21% to 25%.

Aegon's asset allocation 2015 vs 2020



Source: ING, Aegon Annual Report 2015, Aegon Annual Report 2020

Similar trends are observed across other big European insurers. Adapting to the environment of low yields and capital charges that their investments carry, insurers are looking to optimise their portfolio. While keeping low SCR remains an important consideration, insurers are also seeking to increase their returns on capital to match promised returns on their liabilities and add duration to cover the asset/liability duration gap. In this paper, we have discussed which alternative asset classes can help insurers in the optimisation process, such as adding duration with mortgages, boosting the return on capital with infrastructure and non-rated bonds, and looking for new opportunities arising from Solvency II/Basel 3.5 arbitrage. We expect insurers to continue shifting their portfolio from more traditional towards more illiquid and novel assets classes over the coming 5-10 years.

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