Dynamic lapses following an increase in interest rates

Overview of the key EU markets

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In this paper we study recent lapse experience in the key European Union (EU) markets for products with profit participation—Germany, France and Italy—with numerical studies for the Italian market where the increase in lapse rates was most severe.

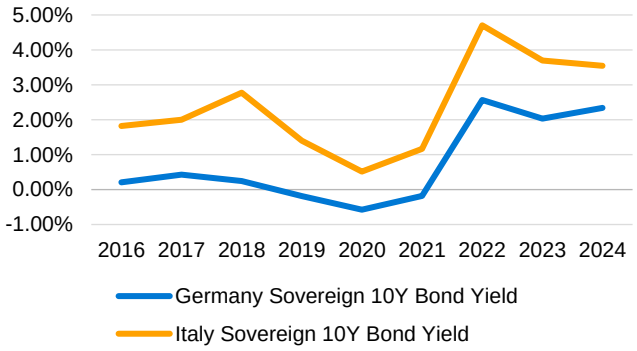
The concept of dynamic lapses is quite simple. The theory is that when interest rates rise, policies with low interest rate guarantees, which were purchased during a low interest environment, are more likely to lapse/surrender in order to reinvest money in more profitable products because many better investment opportunities pop up in the market. Conversely, when interest rates fall and interest rate guarantees on insurance products become relatively high, rational policyholders would attach high value to the guarantee and would be more likely to keep their policies. In fact, in such conditions even taking additional loans to satisfy spending needs could have more economic justification than surrendering high-yielding insurance products.

The concept of dynamic policyholders' behaviour (and in particular dynamic lapses) and the reasons why it should be considered highly relevant for insurers have been recognised and understood by insurers for about two decades. However until now the practical aspects of dealing with dynamic lapse modelling have been very challenging. The biggest challenge was related to the availability of suitable data to calibrate these rules.

In fact from the late 1970s until 2021, interest rates have been in a decreasing trend, with only limited upward changes during this time. Typically companies have relatively a short period of historical surrender data—probably very few would have data prior to 2000. Thus in practice any historical studies have been performed only during a period of decreasing interest rates.

The years 2022 and 2023 were the first in recent times in which interest rates significantly increased as a result of inflationary pressure. For the first time in a long time, central banks decided to increase interest rates significantly, leading to significant increase in the yield curves. Figure 1 illustrates the yields on German and Italian government bonds.

FIGURE 1: COMPARISON BETWEEN ITALIAN AND GERMAN 10Y BOND YIELDS



Liquidity is a related aspect. According to the 2023 study by the European Insurance and Occupational Pensions Authority (EIOPA),[1] in the European Economic Area (EAA) the liquid asset ratio (liquid assets over total assets) dropped from 46.4% in 2017 to 39.5% in 2022. At the same time the surrender value over liquid assets moved from 87.0% in 2017 to 111.4% in 2022, and the absolute surrender value in 2022 almost reached the peak of 2017 (€124.1 billion in 2022 compared to €125.9 billion in 2017). See Figure 2 for more information.

FIGURE 2: LIQUIDITY AND SURRENDER VALUE RATIOS IN THE EEA (2016–2022)

	EEA LIQUID ASSET RATIO	EEA SURRENDER VALUE TO LIQUID ASSETS
2016	45.6%	87.7%
2017	46.4%	87.0%
2018	45.6%	90.6%
2019	45.1%	86.5%
2020	44.5%	84.9%
2021	43.2%	82.7%
2022	39.5%	111.4%

1. European Insurance and Occupational Pensions Authority. (5 October 2023). Impact of inflation on the insurance sector. Retrieved March 21, 2025, from https://www.eiopa.europa.eu/publications/report-impact-inflation-insurance-sector_en.

However, in reality the liquidity problems for insurers go further than that. In the period of low interest rates, the widespread policy of duration matching increased the investments in long-term bonds, leading to an accumulation of substantial unrealised capital losses (UCLs) following the increase in interest rates. Although government bonds, for example, as an asset class are usually classified as liquid, insurers want to avoid realising losses by selling bonds with high UCLs, which clearly becomes a liquidity issue.

In this paper we describe to what extent the 2022 and 2023 rise in interest rates has driven policyholder behaviour for savings products with profit participation in the key EU markets: Germany, France and Italy. In general it turns out that the impact has not been the same in these markets. The highest impact has been observed in Italy, which is mainly driven by the relative simplicity of products and regulation and no specific tax rules that penalise surrenders. As a result, withdrawing money and reinvesting it in more competitive financial products is relatively easy for customers. In addition, insurance companies in Italy don't have profit-sharing instruments which would allow for efficient mitigation of the lapse risk compared, for example, to those in France.

In the following sections, we provide a comparison for the three key markets: Germany, France and Italy.

The German market

MARKET EXPERIENCE

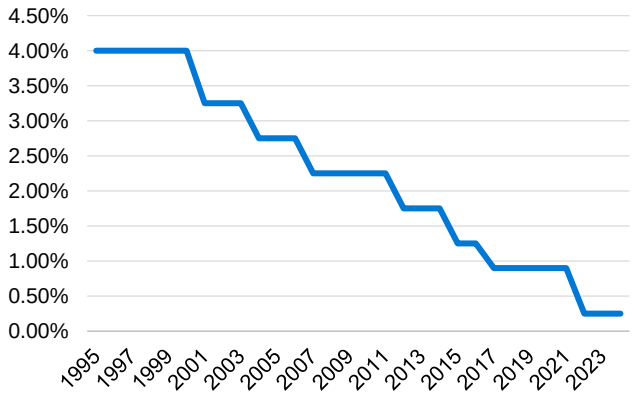
Overall, the average lapse rates in the German life insurance market are relatively low and have been decreasing from their peak in the 2000s (when they equalled approximately 4%). There were no significant changes from 2021 to 2023 in overall lapse rates observed in the market, as shown in Figure 3[2].

FIGURE 3: AVERAGE LAPSE RATES (GERMANY)

	2021	2022	2023
Overall lapse rate	2,57%	2,51%	2,56%

The first reason for such stable lapse rates is that older legacy products with high interest rate guarantees still have the highest share of life insurance reserves in Germany (more recent products with low interest rate guarantees have relatively low sales volumes). In Figure 4 we summarise the level of guaranteed interest rates for new contracts in the German market by calendar year.

FIGURE 4: MAXIMUM GUARANTEED RATE (GERMANY)



A moderate increase in lapse rates has been reported from savings products with low guaranteed interest rates only. In fact, the most popular class of insurance products in Germany—savings with a deferred annuity option—is part of Pillar 3 of the pension system. Policyholders holding such contracts may be less driven by short-term investment opportunities offered in the market.

However, there are also specific market segments where the impact of increasing interest rates on lapses has been really significant—for example single premium investment products. It is rather intuitive, as these products are mainly bought by financially rational people seeking a competitive investment return. Such people are more likely to change their focus (e.g., to bank products offering higher returns).

It has been observed that lapses increase more for the banking sales channel compared to other channels (like agents), especially for single premium products. This is related both to the fact that the single premium clients tend to be more financially rational and seek higher returns, but also to the fact that banks are active in persuading people to reinvest their saving in higher-yielding bank products.

MODELLING DYNAMIC LAPSES

In the German life insurance market, most of the insurance companies use the *Branchensimulationsmodell* by the German Insurance Association (GDV) to calculate Solvency II figures. It is a publicly available cash flow model and economic scenario generator in which cash flows are calculated with so-called flexing (i.e., a linear scaling of the underlying best estimate cash flows). Flexed cash flows are used to calculate the best estimate of liabilities (BEL) and the time value of financial Options and guarantees (TVFOG) as required by Solvency II.

2. Source: Die deutsche Lebensversicherung in Zahlen 2023 Eine Information der deutschen Lebensversicherer

Regarding dynamic lapses, these models use the difference between the net return for the underlying contract (grouped by interest rate levels) within one year and the 10-year swap rate, i.e.:

Lapse_Sensitivity =
Max ((Swap_10y – Net_Return_Policy - Threshold); 0)

Note that this formula assumes only the possibility of lapses increasing when interest rates increase, and it is not possible to have a decrease in lapses compared to the base level even in the case of very low interest rates.

If the *Lapse_Sensitivity* is higher than a pre-defined threshold (normally between 2% and 4%), the model will apply a flexing on the lapse rates, i.e.:

*Lapse_Rate_New = (1 + Lapse_Sensitivity * Dynamic_Lapse_Factor) * Lapse_Rate_Old*

Life insurance companies normally assume the *Dynamic_Lapse_Factor* to be in the range of 10–30 (i.e., for each 1% difference between the swap rate and the net return (above the threshold), the lapse rates are increased linearly by the *Dynamic_Lapse_Factor_*.

The dynamic lapse parameters are set up separately for each liability segment.

In Figure 5, we provide an example of calculation of dynamic lapses with the typical formula for a German market. Note that the parameters are only illustrative; they don't necessarily reconcile with the parameters used by companies.

FIGURE 5: EXAMPLE CALCULATION OF DYNAMIC LAPSES (GERMANY)

FORMULA PARAMETERS	
Threshold	2%
Dynamic lapse factor	20
Base lapse rate	3%
INPUT VARIABLES	
10y swap rate	6%
Net return on policy	1.5%
FORMULA OUTCOME	
Lapse sensitivity	2.5%
Lapse rate new	4.5%

It should be noted that in the German market, the modelled dynamic policyholders' behaviour comprises not only dynamic lapses, but also dynamic annuitisation. It is out of the scope of this study, but given the impact in the German market it would also be worth investigation.

After interest rates increased, most companies in the German market did not adjust the dynamic lapse formula parameters. Moreover, in the updated annual studies they increased the base lapse parameters. This approach in fact leads to a permanent increase in the base lapse parameter rather than explaining increased lapse rates as a temporary response to increased interest rates.

RELATED RISK MANAGEMENT ISSUES

Life insurance companies in Germany calculate different metrics for asset-liability management. They are particularly focused on estimating and minimising the duration gap between assets and liabilities. Derivatives (e.g., swaps and swaptions) are commonly used to reduce interest rate risks.

Consequently, the majority of life insurance companies have invested in very long government bonds with low interest rates, which has proved to be a significant constraint on liquidity. Liquidity has become one of the most important concerns in the industry, much more important than, for example, solvency ratios.

Note that In this context, liquidity could be understood differently than market liquidity. From the perspective of being tradeable, there might be no constraints for the long-term bonds. However, from the accounting perspective the realisations of substantial losses might be very problematic to companies, especially for high interest rate guarantees. This is why they would likely consider such assets illiquid problematic to sell to raise cash.

LAPSE SOLVENCY CAPITAL REQUIREMENT (SCR)

A significant increase in (mass) lapse SCR has been reported within the German market. It is driven by the two main factors. On one hand, the increased interest rates moved the surrender strain from negative to positive (i.e., as the value of business in force is higher, the lapses are more costly to companies in terms of loss of value). On the other hand, in increased lapse scenarios a significant amount of UCLs on the assets need to be realised. Typically, the accumulated UCLs are often in the range of 20%–30% of the market values of long government bonds with historically low coupons. Consequently, a significant hit on lapse rates has a direct impact on the profit and loss (P&L) as there is not enough liquidity to pay out all claims, leading to the need to realise losses in the SCR stress scenario.

The French market

MARKET EXPERIENCE

The following insight comes from the annual survey performed by the French regulator on the French saving market, 'Le marché de l'assurance-vie en 2023.'[3]

The total volume of lapses has reached €84 billion in 2023, showing an increase of €11 billion compared to 2022. This increase was driven mainly by unit-linked products (ULs) for which a 41% increase in lapses was reported (+€6.3 billion) while for French products with participation, lapses increased by 9% (an increase of +€5.1 billion).

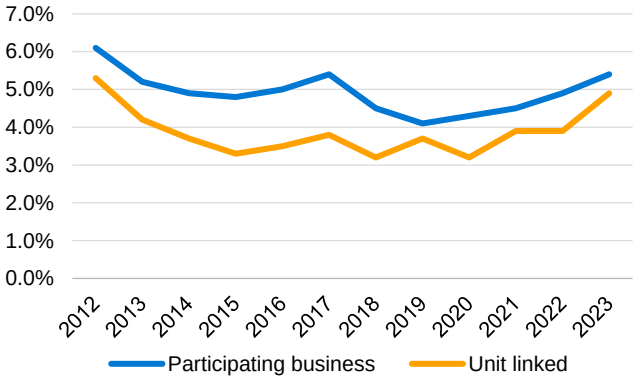
There are three main reasons which could explain this trend:

1. The increase in interest rates for new housing loans (from 1.07% in January 2022 to 2.31% in January 2023 and 4.04% by the end of 2023). As a result, many households used savings for at least partial financing of real estate purchases.
2. Higher interest rates led to better returns on bank saving products, making them more attractive for customers. (For example, the average interest rate for regulated savings accounts rose from 2.2% at the end of 2022 to 3.3% at the end of 2023, and the average rate for term accounts of less than two years increased from 1.7% at the end of 2022 to 3.6% at the end of 2023.)
3. Inflation may have also forced some households to use savings for daily expenses. In 2020, 'purchases and leisure' was the third most common reason for holding a life insurance contract (18.2%), behind 'precautionary savings' (31.6%) and 'retirement preparation' (26.6%).

Figure 6 provides historical lapse rates for products with participation and unit-linked products. Lapse rates have increased slightly for participating products, reaching 5.4% in 2023 compared to 4.9% in 2022. For unit-linked products, the lapse rate rose from 3.9% in 2022 to 4.9% in 2023.

However, this increase remains moderate compared to certain past periods. For example lapse rates were significantly higher during the sovereign debt crisis in the Eurozone in 2011–2012.

FIGURE 6: LAPSE RATES IN FRANCE 2012–2023



In general the French market demonstrated resilience to an increase in interest rates. The current level of lapses is only slightly above the long-term average observed between 2011 and 2022, but it remains well-below the historical peak recorded in the second half of 2011. In the French market no clear difference in lapse behaviour was observed between the *bancassurance* and other business models in the life insurance market.

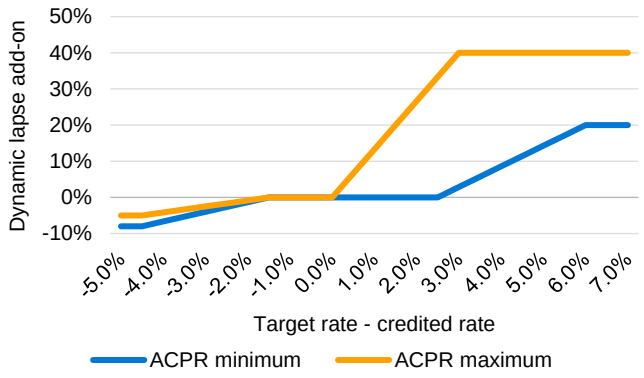
MODELLING DYNAMIC LAPSES

From the beginning of the Solvency II preparatory phases, the French regulator supported the market by sharing national guidelines related to different aspects of the Solvency II Directive. In 2013 the *Autorité de contrôle prudentiel et de resolution* (ACPR, the French insurance supervisor) wrote, 'Given their nature, dynamic lapses cannot be estimated using experience laws. Similar to what was proposed in the QIS 5 National Guidelines, two redemption laws are proposed for the preparatory exercise: one corresponding to a maximum redemption cap and the other to a minimum redemption threshold. Participating organisations are invited to adjust their dynamic redemption law so it falls within this established range.'

Under this approach, the dynamic lapse rate should be added to the structural lapse rate. If the credited rate is lower than the expected rate by policyholders, they will tend to redeem more than implied by the structural redemption curve the following year. Conversely, if policyholders are offered a rate higher than their expectations, they will redeem less the following year compared to the past.

3 L'Autorité de contrôle prudentiel et de résolution (ACPR), Banque de France. (7 January 2025). N° 157: Le marché de l'assurance-vie en 2023. Retrieved March 21, 2025, from https://acpr.banque-france.fr/le-marche-de-lassurance-vie-en-2023.

FIGURE 7: ACPR DYNAMIC LAPSE FORMULA



Although there have been several discussions in the meantime, in 2019 the French regulator confirmed that all companies should follow the original QIS5 National Guidelines, which has become market practice, and that companies must not deviate from the corridor defined by the guidelines, although, for example, they have freedom to choose the target rate, which was not defined in this framework.

For the Solvency II reporting (TVFOG, BEL in the stochastic and central scenario, SCR), most companies use segmentation of dynamic lapses, which can depend on the type of product or the policyholder characteristics (e.g., age, duration, etc.).

According to market practice, the target rate is typically defined as a mix of:

- The target rate from the previous year
- Current rate levels, which are a mix of:
  - Competitor insurance rates
  - New competitor insurance rates
  - Competitor bank rates
- Smoothing mechanisms

Summarising, compared to Germany which defines the target rate simply as a 10-year swap rate, in France this definition is more focused on competition and in practice involves more subjectivity and expert judgement.

RELATED RISK MANAGEMENT ISSUES

Profit-sharing policy

The profit sharing in France is allocated based on book returns, however what is characteristic of French market is the ability to accumulate profit-sharing reserves, where instead of allocating all profit sharing immediately to the policyholders, the insurers can split the allocated profit sharing into two parts:

- The part which is credited immediately to the mathematical reserves.
- The part which is allocated to a specific reserve (Provision pour Participation aux Bénéfices (PPB)) in order to smooth the distribution of the profit sharing over time. This profit sharing should then be distributed to the policyholders in the coming eight years.

In the period of low interest rates there was no competitive pressure to credit immediately to the policyholders a substantial amount of profit sharing, and insurers allocated a substantial amount of it to the profit-sharing reserve, which could be used to co-finance the higher profit-sharing returns in 2022 and 2023.

After many consecutive years of decline, profit-sharing rates started to increase in 2022 (the average rate in 2022 was equal to 2.0% compared to 1.3% in 2021). Normally, long-term bonds with substantial UCLs held by insurers would limit insurers' ability to quickly increase profit-sharing rates to remain competitive to other products like savings accounts. However the increase could be supported by the profit-sharing reserve accumulated during the period of falling rates. The level of profit-sharing reserves reached nearly 5.5% of total reserves at the end of 2021, offering the capacity to provide relatively good profit-sharing rates, which helped mitigate the risk of increased lapse rates in 2022 and 2023 for participating products.

Other factors in French regulation

Apart from the profit-sharing policy, there are regulatory factors which significantly diminish the eagerness of people to lapse. First of all, there are tax restrictions in the first eight years of holding life-saving insurance contracts which make lapsing in this period unattractive. There are also valued inheritance advantages offered by the French life-saving business.

Furthermore, in 2016, the new law called Sapin 2 was introduced, which aimed at modernising economic life while ensuring the protection of savers and investors. The 'Haut Conseil de Stabilité Financière' (i.e., a macro prudential supervisory body in charge of ensuring the overall soundness of the French financial system) has been enhanced with new capabilities to take early-intervention action against insurers, including the following:

- Temporarily restrict the exercise of certain transactions or activities, including the acceptance of premiums or payments
- Temporarily restrict the free disposal of all or part of the assets
- Temporarily limit the payment of the redemption values
- Delay or temporarily limit the option of arbitrage or the payment of advances on a contract

These restrictions could be applied to an entire portfolio or part of the portfolio for a period of three months and renewed for another three months (one time) if necessary.

Reinsurance

According to EIOPA's informal survey from the last quarter of 2023, most national supervisors (nine out of 11) reported identifying at least one mass-lapse reinsurance treaty in their jurisdiction, with the majority of these treaties being signed

since 2020. From the information included in the SFCRs[4], we know that at least four companies in the French market (Swiss Life, APICIL, HSBC and Le Conservateur) have in place a reinsurance treaty on their savings book business.

There are two main types of reinsurance treaties in the French market for savings business:

- Specific treaties set up to mitigate the mass lapse risk. A typical reinsurance policy would require a reinsurer to cover the loss of value of business in force (VIF) in case of a mass lapse event between certain attachment and detachment points (e.g., 20% and 40%) in order to reduce the mass lapse SCR.
- Stop-loss programs that more broadly cover financial losses, based on the P&L as the underlying risk factor, including therefore the lapse mass risk.

LAPSE SCR

As presented in the Milliman SFCR survey,[5] insurers using the Solvency II standard formula have been significantly impacted by the standard calibration of the SCR for mass lapse risk following the sharp rise in interest rates starting in 2022. It has led to an increase of more than 40% in the risk margin.

The reasons for the increase in mass lapse risk capital are broadly the same for savings products in different markets and have been explained above for the German market.

In the French market it has been reported that changes have been made in stochastic asset-liability management (ALM) models in order to reduce the impact of the mass lapse SCR shocks:

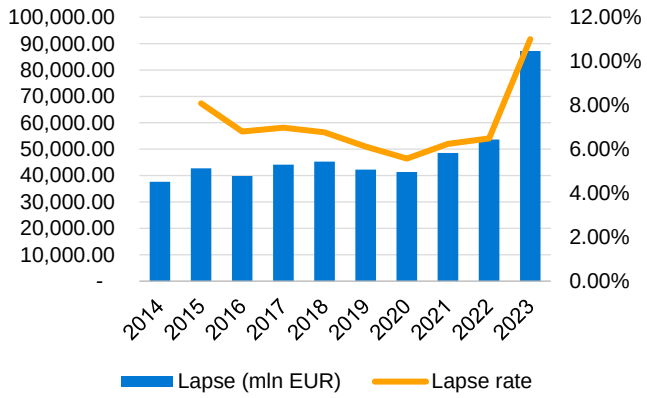
- Optimisation of bond selling in the mass lapse scenario, giving sales priority to bonds with shorter durations
- Optimisation of the profit-sharing algorithm to better use different accounting reserves existing in the French system (in particular the profit-sharing reserve), as well as the realised capital gains and losses on the equity and property portfolio being subject to the Réserve de Capitalisation[6]
- Implementation of corridors for the strategic asset allocation and modulation of the reinvestment duration
- Modelling reinsurance treaties
- Optimising the calibration of economic scenarios, for example by introducing alternative real estate indices in order to represent the experienced volatility on the real estate portfolio, reviewing the weights of swaption volatilities in the interest rate calibration process, etc.

The Italian market

MARKET EXPERIENCE

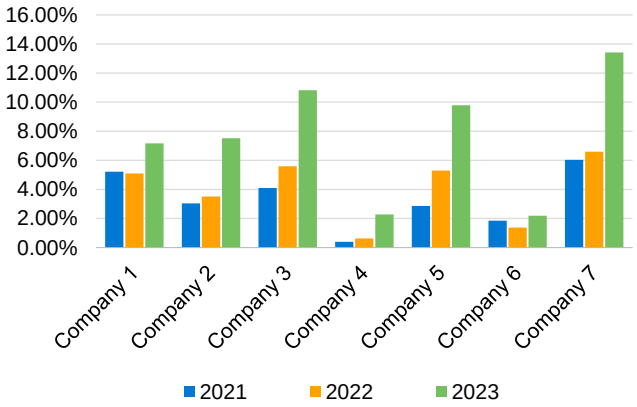
After a long period of very low market interest rates, the sharp rise from the second half of 2022 triggered a significant increase in lapses in the Italian market. This resulted in pressure on the Italian insurance industry as the market values of assets backing guarantees declined leading to high unrealised capital losses. At the same time, assets had to be sold to cover the surrender claims. Figure 8, based on the Italian Supervisory Authority (IVASS) data, shows the total lapse amount to reach historically high levels in recent years.[7]

FIGURE 8: OVERALL LAPSE VOLUMES PER YEAR (ITALIAN INSURERS)



In Figure 9 we show the lapse data from seven anonymised companies in the Italian market, observing a consistent increase for all of them.

FIGURE 9: LAPSE RATES BY COMPANY AND YEAR



Another interesting issue has been reported in the Appendix to the IVASS 2023 annual report. It shows very high levels of surrender value over premiums in the years 2022 and 2023.

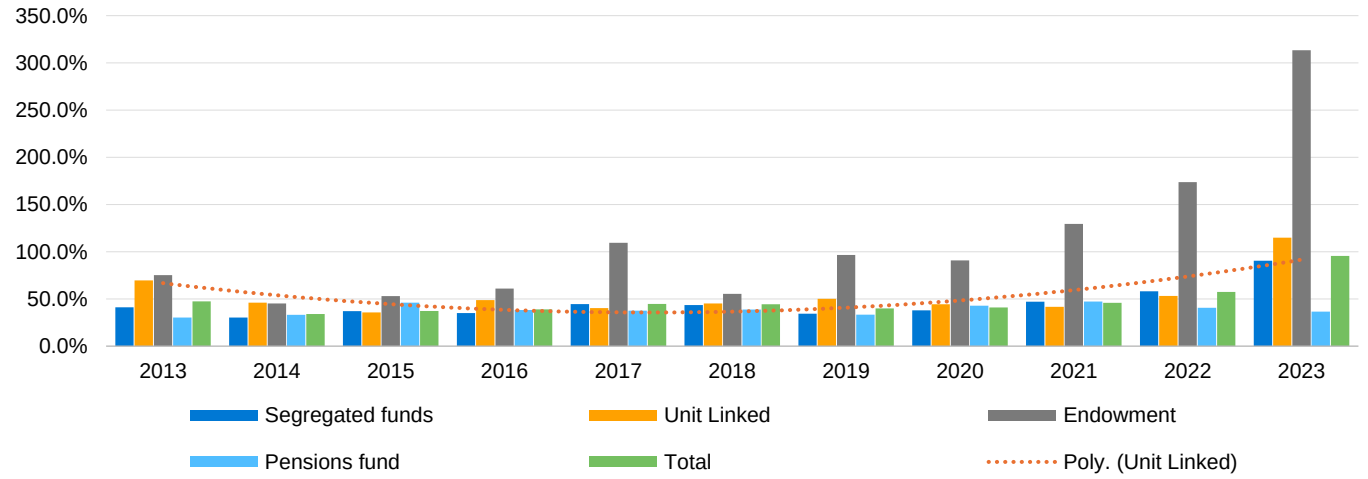
4 Solvency and Financial Condition Report, disclosed publicly by all insurers.

5 Queffeulou, S., Gauttier, A., & Ludwig, F. (18 July 2024). Etude SFCR 2023 sur le marché français de l'assurance vie. Milliman. Available from https://fr.milliman.com/fr-fr/insight/etude-mlm-sfcr-2023-vie.

6 A specific technical reserve ion the French market which is set up in case of unrealised capital losses on the equity and property portfolio.

7 Istituto per la Vigilanza Sulle Assicurazioni. (24 June 2024). Relazione sull'attività svolta dall'Istituto nell'anno 2023. Available from www.ivass.it/pubblicazioni-e-statistiche/pubblicazioni/relazione-annuale/2024.

FIGURE 10: SURRENDER VALUE OVER PREMIUMS IN ITALY



When we consider the volume of surrender values over premiums, endowment products appear to be the most exposed to dynamic policyholders' behaviour, however they are not very common in the Italian market. The segregated funds and unit-linked products have much higher market share and also faced a significant increase in this metric in recent years. These two product types are quite often sold in the Italian market in combination as hybrid products.

As in the other markets, the management of segregated funds represents a liquidity challenge following the increase in interest rates, as increased lapses often result in the need to sell bonds realising unrecognised losses.

MODELLING DYNAMIC LAPSES

In general, in Italy companies are free to choose the modelling approach for dynamic lapses. Nevertheless the majority of insurers have opted to use piecewise linear shock functions, with only a minority using other approaches such as generalised linear models (GLMs). We describe these two approaches below.

Piecewise linear shock function

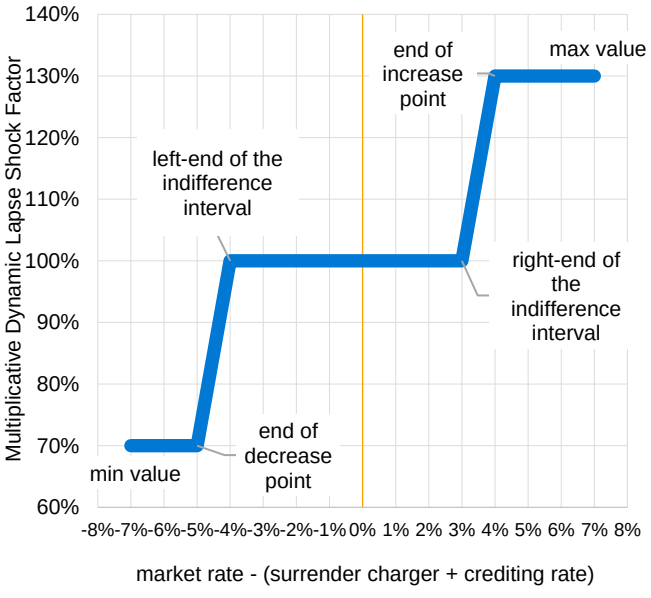
A shock function is modelled as a multiplicative factor applied to the base lapse rates. In Figure 11 we show an example of such a function.

The key characteristics of this approach are:

- If the shock function remains in some bounded range (from the left-end to the right-end of the indifference interval), the policyholders' inclination to lapse is unchanged and, in this case, the base lapse rate applies.
- If it is greater than some parametric threshold, the policyholder's inclination to lapse reaches its maximum. (In the illustration shown on the graph above, the maximum level is 130% of the base lapse rate.)
- If it is smaller than some parametric threshold, the policyholder's inclination to lapse reaches its minimum. (In the illustration shown on the graph above, the minimum level is 70% of the base lapse rate.)
- For other values the shock function is interpolated linearly.

The calibration of the piecewise linear shock function is challenging. In general, companies may base the calibrations up to large extent on expert judgment and follow market best practices, as it is difficult to use past date for the calibration. In fact, for most insurers the results predicted for years 2022 and 2023 by the models calibrated before 2021 were significantly lower than those observed as the lapse sensitivity applied in the models was typically not high enough.

FIGURE 11: TYPICAL MULTIPLICATIVE DYNAMIC LAPSE SHOCK FACTOR



Generalised linear models

Some companies use GLMs to estimate dynamic lapses, typically by applying the logarithmic regression. If $P(S)$ denotes the probability that a policyholder surrenders, and X denotes a vector of the explanatory variables (e.g., the interest rates or excess of market rates over client returns, policy year, macro category like sales channel, minimum guaranteed rate, sum insured), then the log function of the lapse rate $P(S)$ can be written as a linear combination of the explanatory variables:

$$\ln\left(\frac{P(S)}{1-P(S)}\right) = \alpha + \beta \cdot X,$$

or, in other words,

$$P(S) = \frac{1}{1+e^{-(\alpha+\beta\cdot X)}}.$$

The available data is usually about five to 10 years. Using the GLMs is challenging for insurers. On one hand they have the advantage of objectivity; on the other hand they presumes certain aspects, for example the downward shocks are in fact conjugated to the upward shocks. Moreover the calibrations tend to be unstable.

One of the reasons the piecewise linear shock functions are preferred in the Italian market is better management control over the stability of the estimates between subsequent reporting periods (stability of results).

RELATED RISK MANAGEMENT ISSUES

Mass lapse reinsurance contractS

Mass lapse reinsurance contracts protect the insurer from losses due to mass lapses in its portfolio. This type of contract has already been used in some European countries. They are typically carried out with an attachment point of 40% defining the level of losses at which the reinsurer begins to pay out a claim and a detachment point defining the level of losses above which the risk is taken by the insurance company (usually between 20% and 40%). This type of contract is usually longer than 12 months (typically two years with a one-year transaction period to ensure regulatory efficiency in the framework of Solvency II where an immediate 40% lapse stress is considered).

Lapse up/down reinsurance contractS

Alongside mass lapse reinsurance contracts, lapse up/down reinsurance contracts have also been considered by some companies. The coverage of such reinsurance contracts is usually defined as the lifetime of a policy, but it also allows commutation of the contract after a certain period has elapsed. Also, in this case, attachment or detachment points are similarly defined to bind the range of reinsurance coverage to a certain interval.

We refer to a Milliman Research Report on this topic for more details.[8]

LAPSE SCR

In Italy there were similar issues related to the increase in mass lapse SCR as in other analysed markets. In general it seems that the impact for Italian insurers was more severe than in the other markets as in the market the level of increase of the lapse SCR was typically between 50% and 200%. Some of insurers suffered even unexpected solvency ratio decrease in spite of increased interest rates.

A case study for the Italian market

For the purpose of this case study, the lapse rate between time t_0 and t_1 is defined as:

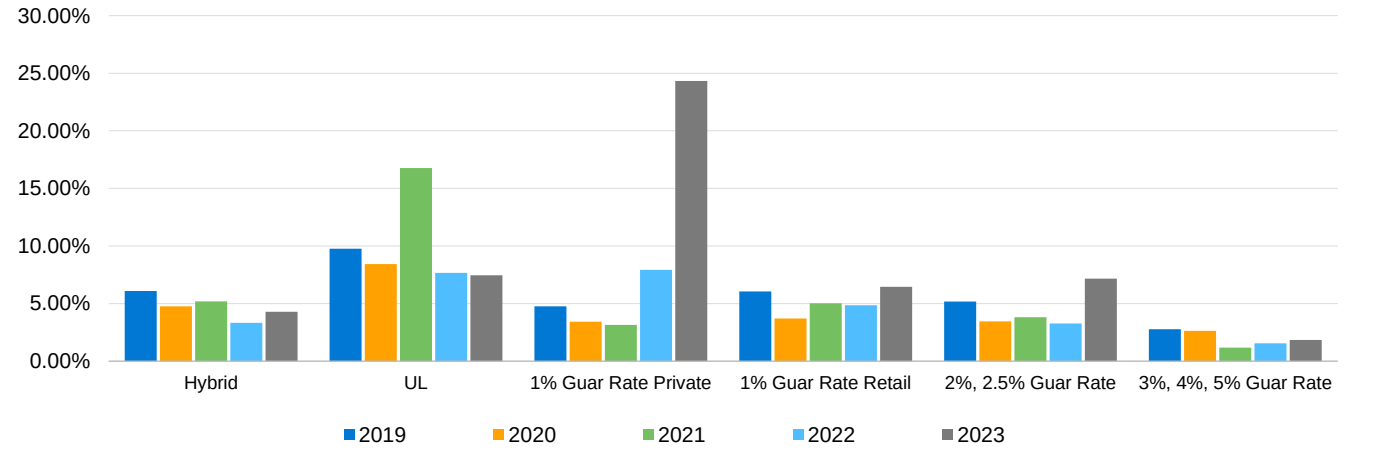
$$lapse\ rate_{t_0}^{t_1} = \frac{surrender\ amount_{t_0}^{t_1}}{surrender\ amount_{t_0}^{t_1} + reserve_{t_1}}$$

In the following section we study how the lapse rates changed after the increase in interest rates.

We have based our study on a sample of representative insurance companies. We observed that the increase in lapse rates affected some lines of business more materially, but there were also some lines which were affected to a lesser extent, such as unit-linked products. The main Italian line of savings business, segregated funds, which exhibited low policyholders' returns (often not higher than 1%), was particularly hit by increased lapse rates. The increase in lapse rates for hybrid products (i.e., combination of unit-linked and segregated fund) was not so significant, which could be at least partially explained by good equity performance in the unit-linked funds. This shows that packaging products in the hybrid form was an efficient method of mitigating dynamic lapse risk. The unit linked (UL) part of these products may have compensated for the low return of the segregated fund. This is particularly true when the UL fund is a stock fund (but it could also be a combination of a stock and bond fund with several durations).

8. Comerford, E., Fulcher, P., van Beers, R., & Maher, R. (6 July 2020). Reinsurance as a capital management tool for life insurers. Milliman. https://ie.milliman.com/en-gb/insight/Reinsurance-as-a-capital-management-tool-for-life-insurers.

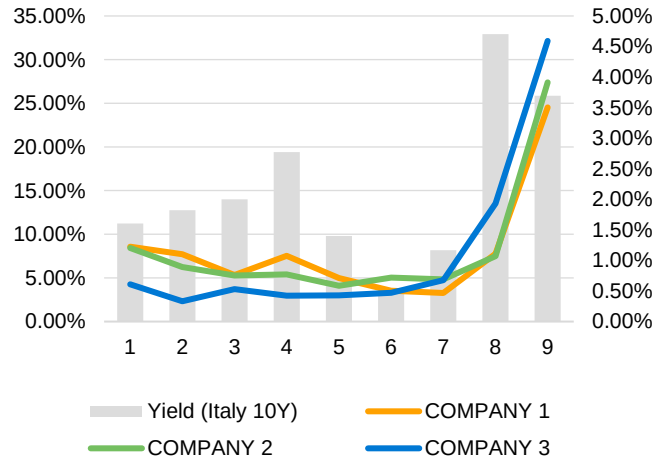
FIGURE 12: COMPARISON OF LAPSES FOR DIFFERENT LOBs



In the following figures we show the historical evolution of lapses and yields on 10-year Italian government bonds (BTPs). (An analysis based on the difference between interest rates and bonus rates offered to clients would have been more appropriate, but we have not had sufficient data granularity to do such analysis.)

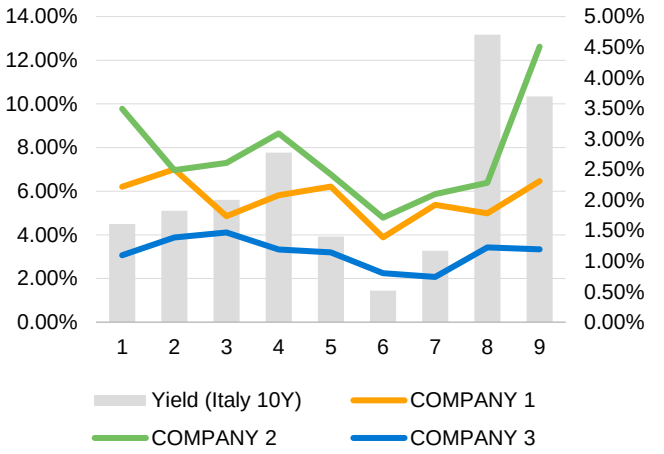
For policies offered by private banking (the 'private segment'), the high correlation of increased lapse rates with increased interest rates is clearly apparent in the investigated sample. In 2023 observed lapses were more than three times higher than the average lapse rates over the previous eight years. This is logical as private banking customers are expected to make the most rational decisions (as they invest significant volumes, have individual advisors, etc.)

FIGURE 13: LAPSE TREND AND 10Y BTP INTEREST RATE—PRIVATE BANKING



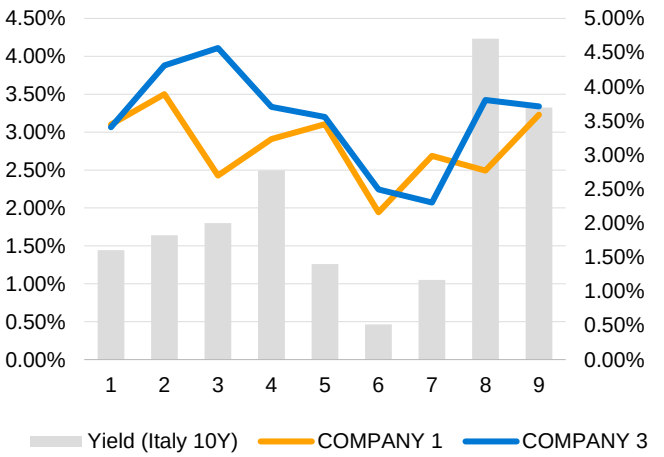
This relationship is less strong for the retail segment (both bancassurance and agents sales channel), as shown in Figure 14.

FIGURE 14: LAPSE TREND AND 10Y BTP INTEREST RATE—RETAIL



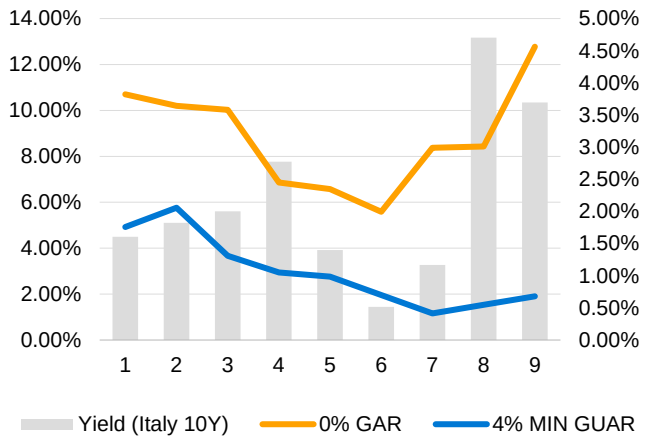
Finally, we see only a minor correlation between the BTP yields and lapses for pension products as shown in Figure 15.

FIGURE 15: LAPSE TREND AND 10Y BTP INTEREST RATE—PENSION



However, the impact of dynamic lapses for pension products depends on the guaranteed interest rate: For products offering a 0% guarantee, lapses are much higher than for older legacy products with high interest rate guarantees of 4%, as shown in Figure 16. This is not surprising as a 4% interest rate guarantee is still very valuable for clients even after increased interest rates.

FIGURE 16: LAPSE TREND AND 10Y BTP INTEREST RATE—PENSION



CORRELATION ANALYSIS

Analysing correlations between lapse rates and market rates is another way of understanding the mutual interdependence between those variables. We studied the correlations of lapses (adjusted for surrender penalties) with the following market benchmarks/indicators:

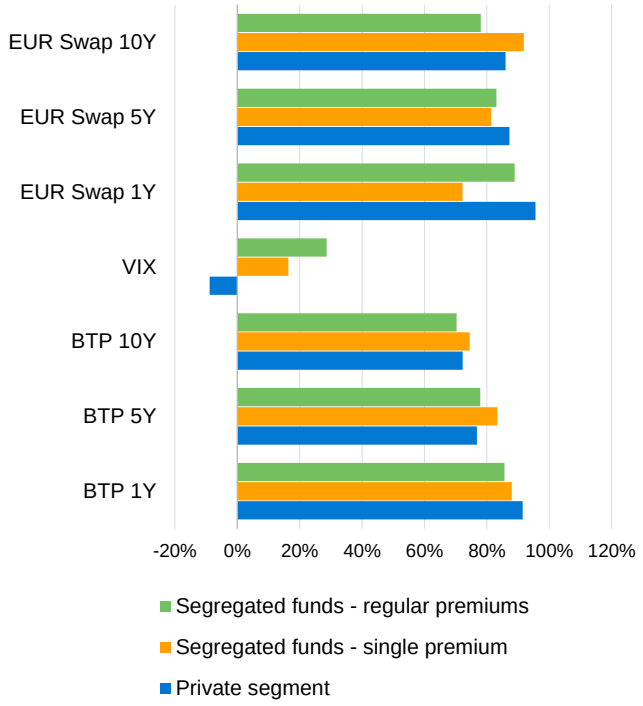
- BTP yields for maturities 1, 5 and 10 years
- Euroswap rates for maturities 1, 5 and 10 years
- VIX index in order to understand the relation between dynamic lapses and the market volatility

The correlation analysis confirmed that the correlation of high lapse rates and increased lapses in the private segment is highest. We have found that the correlation is higher for shorter maturities which can be explained by the competitiveness of short-term banking products.

Surprisingly for single premium products, while the correlation with 1-year BTP yields is higher than the correlation with the BTP yields for longer maturities, for euroswaps we observe the opposite (higher correlation for longer maturities). The latter is not the case for the private segment and recurrent premium products.

As would be expected, the correlation is much lower for the VIX (for the private segment it is even negative) which shows that market volatility is not a major driver for lapse decisions. For rational policyholders one could expect even negative correlations, as guarantees become more valuable for customers when volatility is higher. Interestingly, we observe that the correlation with volatility is slightly higher for recurrent premium products. (see Figure 17)

FIGURE 17: CORRELATIONS FOR DIFFERENT MARKET SEGMENTS



Conclusions

In this paper we have investigated the extent to which the 2022 and 2023 rise in interest rates has driven policyholders' behaviour for savings products with profit participation in the key EU markets: Germany, France and Italy. In reality we found that there were important differences in the experience in each of the three markets.

The highest increase in lapse rates was observed in Italy. It seems the main reasons for the vulnerability of Italian markets were the relative simplicity of products and risk management, and having no specific tax rules which would penalise surrenders. As a result, withdrawing money and reinvesting it in more competitive financial products is relatively easy for customers. At the same time, insurance companies in Italy don't have profit-sharing instruments which would allow for efficient mitigation of lapse risk compared, for example, to those existing in France, which build buffers during a period of low interest rates that could be used by insurers following an increase in interest rates.

One lesson from the Italian market which seems to be optimistic is that apparently product innovation helped to mitigate the risk of increased lapses. In particular the lapse experience for recently introduced hybrid products (i.e., mix between traditional product with participation and a unit-linked policy) had significantly better lapse experience compared to the classical products with participation. It could be possibly explained by the fact that the with profit and unit-linked counterparts provide natural diversification.

It has been also observed that, in general, more dynamic lapses tend to be observed in the bancassurance markets than for other sales channel (e.g.. German and Italian experience). It can be explained by the fact that the banks are more likely to persuade the clients to change their investment products especially that after increase of interest rates they could often offer more banking products with more attractive yields compared to the long-term insurance saving products,

In general the companies have become aware about the risk of increased lapses in case of increased interest rates. This is one of the reasons why lapse reinsurance contracts have gained significant interest in different countries in Europe.

In reality however most markets proved to be more resilient to the lapse risk after increase of interest rates than could have been expected.

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