ADEVA
TRAINING AND CONSULTING

Key Risks

Life Insurance

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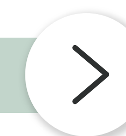

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Contents Menu: Key Risks

Here are the topics that we will cover in this module. We estimate that this module will take 30 minutes to complete.

You can jump to any of these topics by clicking on the headings below, or by using the bookmarks menu in the PDF reader.

TOPICS

- Key Risks >
- Investment Guarantee and Negative Spread Risk >
- Persistency Risk >
- Illustration Risk Breakdown >

KEY AIMS

- Identify and prioritize the 4 main types of risk faced by life insurers
- Recognize the risks arising from investment guarantees and negative spread
- Understand how persistency risk impacts life insurers
- Use solvency capital requirement (SCR) data to evaluate risk profile

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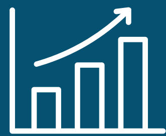
Key Risks

Life insurance is generally considered a low risk business as the cash flows (from premiums and fees) are received in advance and claims occur over a long period and are relatively predictable.



INVESTMENT (OR MARKET)

Investment risk: investment returns achieved on invested assets may be insufficient to cover amounts promised to policyholders. Volatility in the valuation of assets may also have an adverse impact on solvency.

PERSISTENCY

Persistency risk: this refers to the number of outstanding policies that continue (persist) each year. If lapses/surrenders deviate from expected, this can cause significant losses through inadequate pricing, surrender guarantees, or expenses.

INSURANCE / UNDERWRITING

Insurance underwriting risk: most policies have some insurance risk where pay-outs might be contingent on mortality, longevity or morbidity. Generally speaking these events are predicable over a wide population and time frame and so underwriting risk is lower than other risks. Annuity products with substantial longevity risk can be the exception.

EXPENSE

Expense risk: life insurance products tend to have low margins and high upfront costs in the form of broker's commissions. Insurance companies may not be able to cover or recoup their costs if lapses are high and/or investment returns are low.

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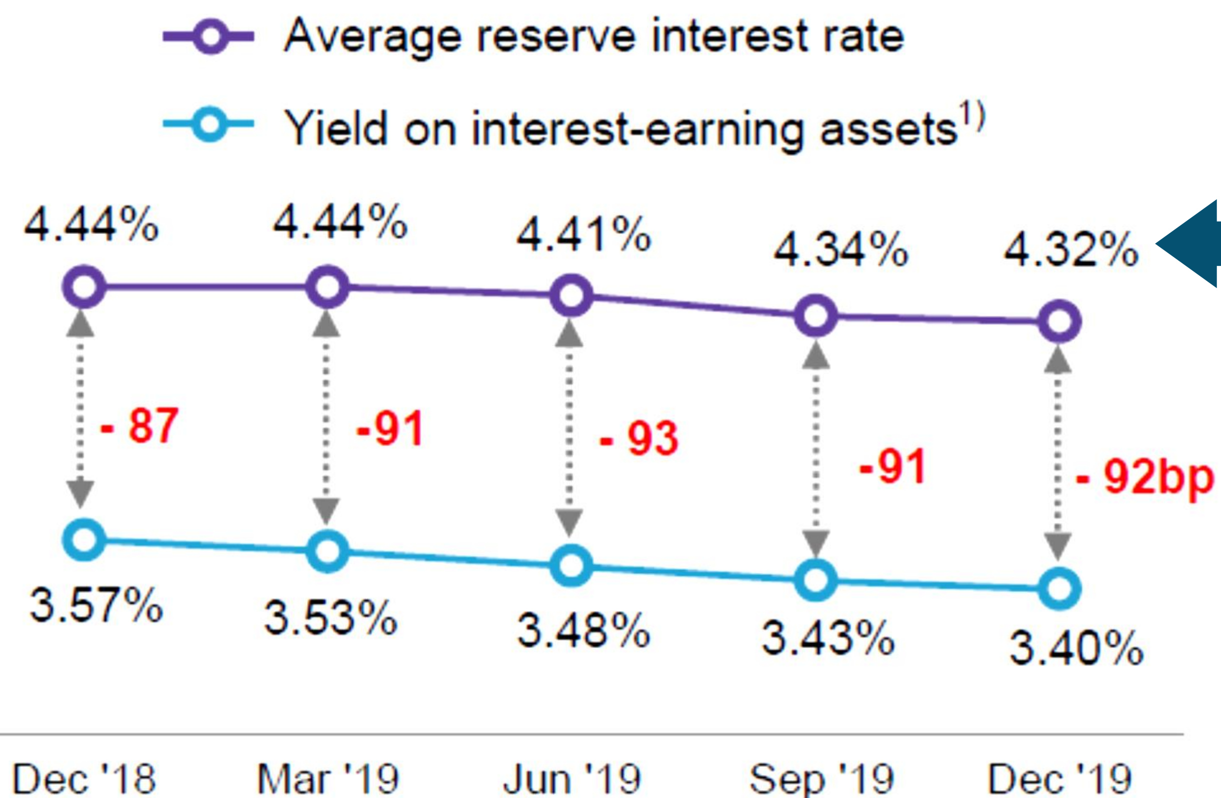
Investment Guarantee and Negative Spread Risk

Low or negative spreads is a key risk for insurers who offer spread based products. Life insurance products are traditionally low risk, but negative spread over a long period can erode capital and the ability to service obligations.

EXAMPLE: NEGATIVE SPREAD
SAMSUNG LIFE



Source: Samsung Life Investor Presentation 2019 results, page 11.

Investment risk: In many countries, insurers are obliged to commit to a minimum guaranteed return at the outset of a policy, meaning that the policies can end up in 'negative spread' if investment returns fall below the income earned on assets. Even without regulated minimum guarantees, insurers often offer high annual bonuses or guarantees on products for competitive reasons, which can lead to loss or reduced profits.

Average rate guaranteed to policyholders on accumulated reserves. This is an average of the rate paid on guaranteed reserves of 6.48% and 2.92% on non-guaranteed policies.

Investment spread loss absorbed by the insurer. Despite this negative spread, Samsung generated positive net income of KW 977 million due to underwriting gains and other income.

Note: Samsung Life recognises this loss through the profit and loss each year. In other countries, insurers are obliged to build a reserve against the guarantees (embedded options) thereby recognising the loss up front.

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Test Your Understanding

CHOOSE ONE: Negative spread arises for which of the following reason?

- Investment returns are negative.
- Investment returns in the economy have declined below the guaranteed rates on existing policies.
- Fees charged on policies have fallen below the cost of administering the policies.
- Actual mortality rates are higher than predicted mortality rates.

Investment returns in the economy have declined below the guaranteed rates on existing policies.

When you are ready, hover your mouse over 'reveal answer'.

Reveal answer

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Persistency Risk

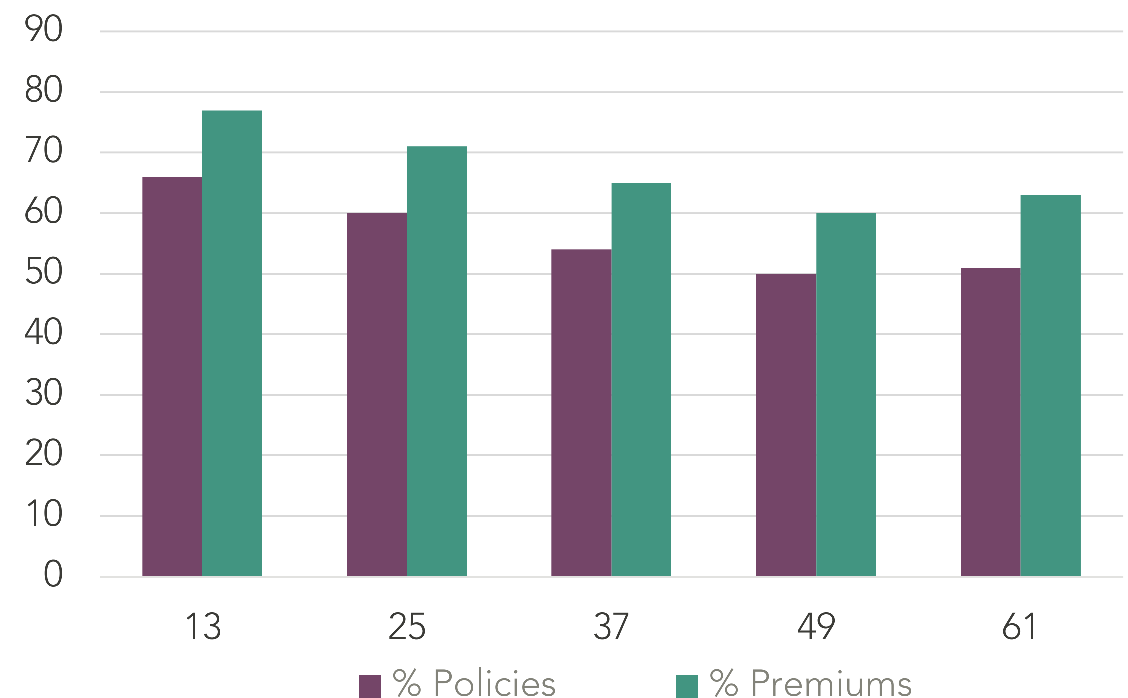
Persistency risk (also known as lapse risk): The key measure of persistency is the persistency rate which refers to the number of outstanding policies that continue (persist) each year.

Policies can cease either because the policyholder ceases payment of premiums and forfeits the right to further claims (a lapse) and / or because the policyholder cashes in the policy (surrender). Lapses and surrenders can either be a positive or a negative for insurance companies depending on whether expenses have been recouped or not.

Profits or losses may also arise upon lapse / surrender depending on whether the lapse rate differs from initial projections. High levels of surrenders can also give rise to liquidity risk. Surrenders may be discouraged by surrender penalties, enabling insurers to recoup costs and even make profits on the surrender.

Persistency is typically much lower in less developed markets, such as India, where life insurance products are less well known and customers have more precarious wealth.

Note: Data is given by 13th, 25th etc month as broker commission claw-back can occur at 12 and 24 months



This graph shows that 66% of LIC's policies remain in force at the end of 13 months (34% have lapsed). By the end of 61 months only 51% remain in force.

The % are higher when the value of premiums is counted showing that higher value contracts are more persistent.

Source: Life Insurance Co India Annual Report 2019, page 110.

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Test Your Understanding

CHOOSE ONE: Which of the following best describes why persistency is a risk for life insurers?

- Insurance companies cannot make money unless policies run to full term.
- If policies lapse, insurance companies may not have sufficient liquid assets to meet surrenders.
- Most expenses are incurred at the beginning of a life insurance contract and if lapses are too high and / or too early, these expenses may not be recovered..
- The policies that lapse are likely to be the higher margin products.

Most expenses are incurred at the beginning of a life insurance contract and if lapses are too high and / or too early, these expenses may not be recovered.

When you are ready, hover your mouse over 'reveal answer'.

Reveal answer

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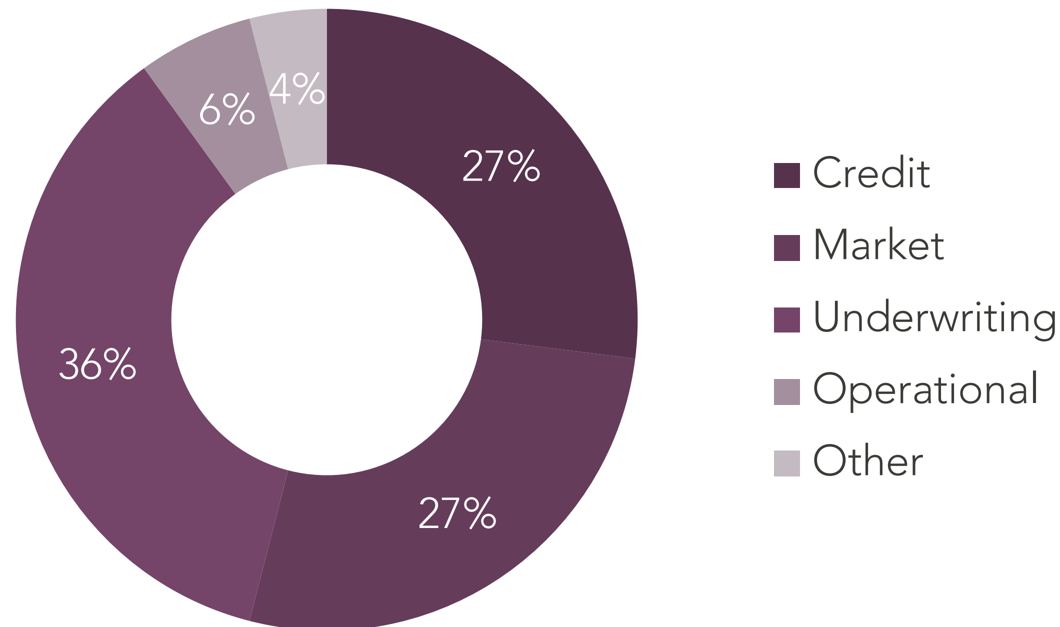
Illustration Risk Breakdown: Legal & General



Source: Legal & General Solvency and Financial Condition Report 2019, pages 7, 8, 99.

Note: Solvency regulations usually allow insurers to take account of diversification whereby all risks do not happen at the same time. These % breakdown are shown before diversification benefits.

Legal & General is a UK life insurer which specialises in annuities and unit linked products.

Under Solvency II insurers quantify their risks using either internal or standardised models or a mixture of both. The Solvency Capital Requirement (SCR) figures are designed to show 'unexpected loss' with a 99.5% confidence band or, in other terms, a 1 in 200 year loss event.

Insurers must demonstrate that they have enough capital to support this. Legal & General had a regulatory SCR of £ 9,439 million and capital coverage of 179% in 2019.

CLICK HERE FOR MORE DETAIL ON THESE RISKS AS EXPLAINED BY LEGAL & GENERAL

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Excerpts from Risk Statements - Legal & General

LEGAL & GENERAL – CREDIT RISKS	
BOND DEFAULT RISK	
A significant portfolio of corporate bonds and commercial loans are held to back the liabilities arising from writing general insurance and annuities business. Whilst the portfolio is diversified, the asset class is inherently exposed to the risk of issuer default, with the possibility of financial loss.	Note: The insurer bears all the investment risk on annuities (in pay-out phase) and therefore is more exposed to credit risk.
REINSURANCE COUNTERPARTY RISK	
Exposure to insurance risk is mitigated by ceding part of the risks assumed to the reinsurance market. Default of a reinsurer would require the business to be re-brokered potentially on less advantageous terms, or for the risks to be borne directly resulting in possible financial loss. Credit risk syndication also exposes the group to counterparty default risks. The group is required to carry an element of associated credit risk capital on its balance sheet should the business not be re- brokered on the same terms.	Note: L&G has a policy of only accepting reinsurance contracts where the reinsurer is rated A- or better from Standard and Poor's. concentration risk limits and collateral are further ways to mitigate this exposure.
PROPERTY LENDING COUNTERPARTY RISK	
As part of our asset diversification strategy, we hold property lending and sale and leaseback investments. We are inherently exposed to the risk of default by a borrower or tenant.	
BANKING COUNTERPARTY RISK	
The group is exposed to potential financial loss should banks or the issuers of financial instruments default on their obligations to us. We are also exposed to counterparty risks in respect of the providers of settlement and custody services.	Note: Insurers contract long dated derivatives contracts with banks exposing them to counterparty risk.

Source: Legal & General Solvency and Financial Condition Report 2019, pages 45-51.

Excerpts from Risk Statements - Legal & General

LEGAL & GENERAL – MARKET RISKS

INVESTMENT PERFORMANCE RISK

Annuities and protection: The group is exposed to the risk that the income from, and value of, assets held to back insurance liabilities do not perform in line with investment and product pricing assumptions leading to a potential financial loss.

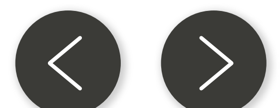
With profits: The financial risk exposure for participating contracts is different from that for non- participating business. Lower investment returns increase the costs associated with maturity and investment guarantees provided on these contracts. Greater emphasis is placed on investing to maximize future investment returns rather than matching assets to liabilities. This results in holding significant equity and property investments.

For **unit linked contracts**, there is a risk of volatility in asset management fee income due to the impact of interest rate and market price movements on the fair value of the assets held in the linked funds, on which investment management fees are based. There is also the risk of expense over-runs should the market depress the level of charges which could be imposed.

PROPERTY RISK

Lifetime mortgages include a no-negative equity guarantee which transfers an exposure to loss to the group as a result of low house price inflation and an exposure to specific properties which may experience lower house price inflation for whatever reason.

Note: The type of policy being written makes a big difference to the magnitude and type of investment performance risk.



Source: Legal & General Solvency and Financial Condition Report 2019, pages 45-51.

Excerpts from Risk Statements - Legal & General

LEGAL & GENERAL – MARKET RISKS *(CONTINUED)*

CURRENCY RISK

To diversify credit risk within the annuities business corporate bond portfolio, investments are held in corporate bonds denominated in non-sterling currencies. LGC also invest in overseas assets. Fluctuations in the value of, or income from, these assets relative to liabilities denominated in sterling could result in unforeseen loss.

The consolidated international subsidiaries and financial instruments of subsidiaries are translated into sterling in the consolidated accounts. Changes in the sterling value can impact consolidated equity but may be mitigated by associated hedging transactions.

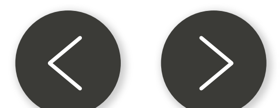
Note: Insurers try to invest premiums in the same currency as the obligation. However, in many countries there are insufficient long duration investment assets and so insurers invest in foreign currency assets

INFLATION RISK

Inflation risk is the potential for loss as a result of relative or absolute changes in inflation rates. Annuity contracts may provide for future benefits to be paid taking account of changes in the level of inflation. Annuity contracts in payment may include an annual adjustment for movements in price indices.

INTEREST RATE RISK

Interest rate risk is the risk that the group is exposed to lower returns or loss as a direct or indirect result of fluctuations in the value of, or income from, specific assets and liabilities arising from changes in underlying interest rates. The group is exposed to interest rate risk on the investment portfolio it maintains to meet the obligations and commitments under its non-linked insurance and investment contracts, in that the proceeds from the assets may not be sufficient to meet the group's obligations to policyholders.



Source: Legal & General Solvency and Financial Condition Report 2019, pages 45-51.

Excerpts from Risk Statements - Legal & General

LEGAL & GENERAL – INSURANCE RISKS

LONGEVITY, MORTALITY & MORBIDITY RISKS

For contracts providing death benefits, higher mortality rates would lead to an increase in claims costs. The cost of health-related claims depends on both the incidence of policyholders becoming ill and the duration over which they remain ill. Higher than expected incidence or duration would increase costs over the level currently assumed in the calculation of liabilities.

Note: Health claims are vulnerable to increases in both frequency and severity like non-life products.

For savings contracts providing minimum assured death benefits, higher mortality rates may result in an increase in claims costs.

Longevity: Older contracts containing a basic guaranteed benefit expressed as an amount of pension payable or a guaranteed annuity option, expose the group to interest rate and longevity risk. The cost of guarantees increases during periods when interest rates are low or when annuitant mortality improves faster than expected

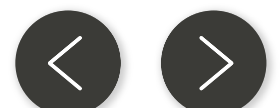
Note: Guaranteed annuity options were the primary cause of the failure of Equitable Life in the UK.

For annuity contracts, the group is exposed to the risk that mortality experience is lower than assumed. Lower than expected mortality would require payments to be made for longer and increase the cost of benefits provided. Lifetime mortgage business also explicitly has some exposure to the life expectancy of borrowers.

PERSISTENCY RISK

In the early years of a policy, lapses may result in a loss to the group, as the acquisition costs associated with the contract would not have been recovered from product margins.

Note: Persistency risk arises in the early years of a policy due to the risk that upfront expenses may not be recovered.



Source: Legal & General Solvency and Financial Condition Report 2019, pages 45-51.

Excerpts from Risk Statements - Legal & General

LEGAL & GENERAL – INSURANCE RISKS *(CONTINUED)*
EXPENSE RISK
In pricing long term insurance business, assumptions are made as to the future cost of product servicing. A significant adverse divergence in actual expenses experience could reduce product profitability.
CONCENTRATION (CATASTROPHE) RISK
Insurance risk may be concentrated in geographic regions, altering the risk profile of the group. The most significant exposure of this type arises for group protection business, where a single event could result in a large number of related claims.
EPIDEMIC (CATASTROPHE) RISK
The spread of an epidemic could cause large aggregate claims across the group's portfolio of protection businesses.

Note: Key expense risk is divergence from assumptions built into product pricing.

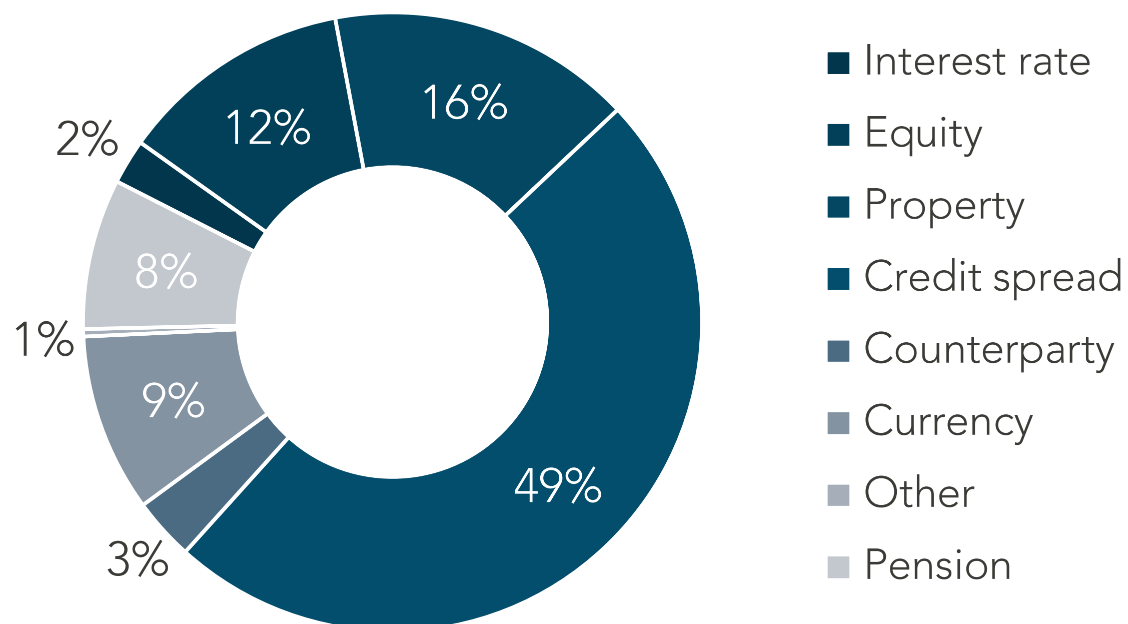
Source: Legal & General Solvency and Financial Condition Report 2019, pages 45-51.

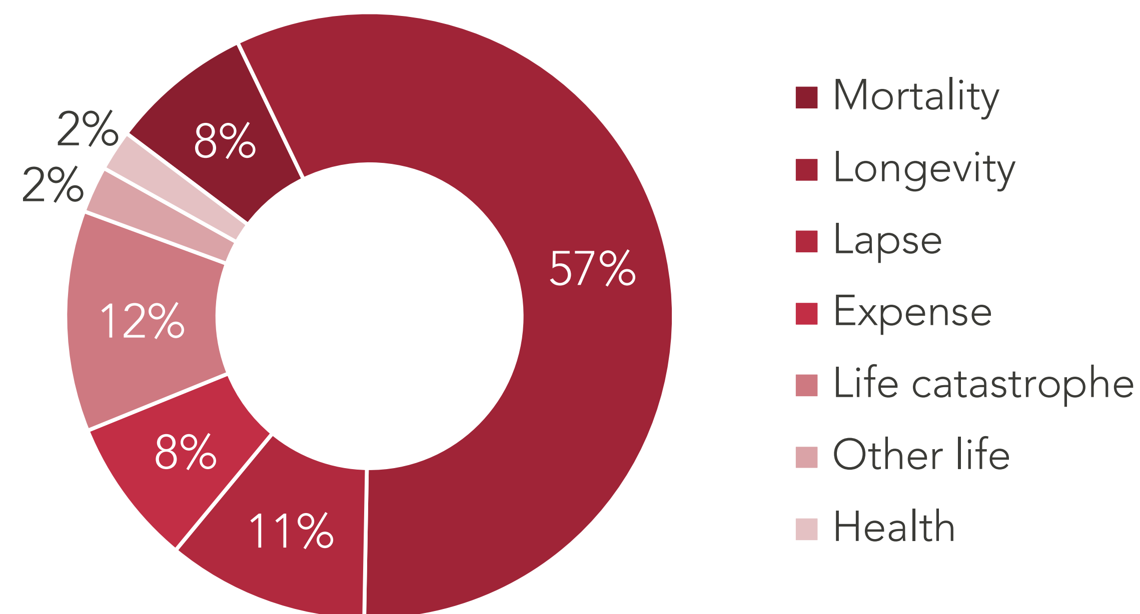
Illustration Risk Breakdown: Legal & General

Legal & General's biggest risks are credit spread risk and longevity risk.

For most life insurers, credit risk arising from the bond portfolio is the most significant risk. Property risk is increasing in recent years as life insurers invest in long term property and infrastructure portfolios to enhance yield and match duration.

Longevity is a particular risk in countries with significant annuity markets, such as the UK. By contrast, mortality risk is often less significant than other risks, such as lapse and expense risk. This is because it is relatively easy to predict and is not too volatile.





Source: Legal & General Solvency and Financial Condition Report 2019, pages 7, 8, 99.

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Test Your Knowledge

TRUE OR FALSE: Use the information on Legal and General to select whether the following statements are true or false.

Statement	True	False	Answer
The main type of underwriting risk faced by L&G is mortality risk.			**FALSE** – L&G's main product line is annuities where the main risk is longevity.
L&G uses models to quantify risk based on 1 in 200 year loss events.			**TRUE** – EU Solvency II capital requirements are based on 99.5% confidence or 1 in 200 years.
Both persistency and life catastrophe risk (e.g. due to a pandemic) are more significant for L&G than traditional mortality risk			**TRUE** – L&G quantifies both persistency and catastrophe risk as 12% each of underwriting risk vs only 8% for mortality.
L&G's biggest risk on the investment side is to equities			**FALSE** – L&G's main risk is credit spread risk arising from bond portfolios. Property risk is also more significant than equity risk.

When you are ready, hover your mouse over 'reveal answer'.

Reveal answer

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Key Risks – Key Learning Points

1	Risk profile depends on product structure. Generally investment risk is the greatest risk, unless this is entirely passed on to the policyholder (unit linked with limited or no guarantees).
2	Many regulators require minimum guaranteed returns on certain products and, even if not, competition drives similar structures. Negative or low spreads is a key risk for insurers in periods of low interest rates.
3	Longevity, mortality and morbidity (claim) risks are relatively easy to quantify, price and manage.
4	Persistency (lapses and surrenders) is a key risk due to low margins and the fact that most costs are upfront (broker commissions). Surrenders can also give rise to liquidity risk.
5	Solvency capital requirements (either risk based capital or Solvency II) can be used to evaluate the overall risk profile of an insurer.

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