Guarantees in Insurance: Master the Flame, Don't Get Burned

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Outline

- Types & popularity of guarantees
- Risks of guarantees
- Risk management techniques
- BONUS: Trends in guarantees

Types and popularity of guarantees

Types of guarantees

Guaranteed maturity value (single or **recurring premium**)	Guaranteed minimum maturity value on linked / participating contract (single or **recurring premium, or long term.)**	Guaranteed minimum death benefit on linked / participating contract	Guaranteed surrender value on linked / participating contract	Guaranteed surrender value on guaranteed capital 5 year / longer contract
Guaranteed insurability (rider) option (depends on max age, size of addition)	Guaranteed continuation option	Guaranteed renewal	Guaranteed Annuity Option	Guaranteed Premium (for 10 to 20 years or WOL)
Guaranteed maximum premium increase	Guaranteed Income (longevity, credit, and long duration interest rate risks increase as term increases)	Guaranteed Minimum Income Benefit	Guaranteed Replacement Cost	Guaranteed Issue (depends on term, waiting periods, pre-selection, heterogeneity)

Should we provide guarantees at all?

More/longer guarantees

- Marketing, Sales & Distribution
- CEO incentivised by growth or volumes
- Product Development
- ALM and hedging (?)

Fewer guarantees

- Administration
- Risk management
- Reinsurers
- ALM and hedging (?)

Popularity of guarantees

- **Investment guarantees*** can differentiate insurance products from asset managers
- Demand driven by higher interest rates
- Demand can increase during uncertain economic / market conditions
- Still considered key for sales in Europe
- Continue to be important in the US
- With Profits declining in popularity
- Often expected across rest of Africa

- **Premium guarantees** evaluating demand complicated by customer understanding
- Broker demand for long-term policies to boost commission
- Consumer demand for “true guaranteed for life” quite strong. Important marketing message.
- Guaranteed renewability vs limited premium guarantee term
- Hyperbolic discounting interferes with decision

Risks of guarantees

Case studies

1. Very old UK with profit insurer
2. Well known South African insurance group
3. Smoothed Bonus product with unintentionally generously worded guarantees
4. Local underwritten level premium WOL contracts
5. Local niche USD WOL life policies
6. Local short-term insurer writing life policies
7. Offshore affiliate of local insurer writing linked business with guarantees
8. European insurer writing long-term guaranteed products with guaranteed surrender values
9. Japanese insurers facing equity market falls and decreasing interest rates
10. US insurers writing Long Term Care products
11. US life insurer issuing guaranteed products with attractive returns, backing with junk bonds

Lessons from case studies (hypothetical)…1

Hypothetical case study	Lesson
Very old UK with profit insurer	Interest rates can change more than you think. Guarantees thought to be low risk can bite. Actuaries shouldn't pretend to be lawyers.
Well known South African insurance group	Over-declaring bonuses will eventually get you. Concentrated assets are volatile. Strong governance is key.
Smoothed Bonus product with unintentionally generously worded guarantees	Watch your policy wording!
Local underwritten level premium WOL contracts	Lapse-supported policies expose insurers to policyholder behaviour (low or no lapses) and can become toxic.
Local niche USD WOL life policies	Review your models. Review your assumptions. Don't just trust a reinsurer or cell provider pricing. Independent review!
Local short-term insurer writing life policies with marketing scripts that strongly imply guaranteed premiums for life	Poor governance, poor risk management, poor understanding risks, evaluating policy wording and call scripts, insufficient stress testing and more, not involving the right experts with the right skills, using the wrong regulatory vehicle.

Lessons from case studies (hypothetical)…2

Hypothetical case study	Lesson
Offshore subsidiary of local insurer writing linked business with guarantees, but allowing unhedgeable underlying funds	Understand the assets and funds involved in guarantees. Guarantee costs must reflect the volatility and cost of hedging. Trust brokers and customers to be smart enough to select against you. Small businesses can cause big risks.
European insurer writing long-term guaranteed products with guaranteed surrender values, facing increasing interest rates	Surrender value guarantees can be dangerous. Interest rates can move more than you think. Spreads can move. Real, severe stress testing is key.
Japanese insurers facing equity market falls and decreasing interest rates	Matching matters. Don't rely on healthy solvency. Equities can fall and stay low forever. Interest rates can move more than you can imagine.
US insurers writing Long Term Care products	New products and new markets are risky. Pricing for rapid growth can succeed and you might regret it. Long-term risks are difficult to predict.
US life insurer issuing guaranteed products with attractive returns, backing with junk bonds	Chasing yield uplift inevitably leads to taking on risk. More of the spread is for credit risk than you think.

Where does under-pricing come from?

Under-estimating risk

“Equities always go up, at least in the long term”

Equity markets always go up?

- Japan (Nikkei 225) - 1989 to present Peak: December 29, 1989 (38,957)
- Worst year: 1990 (-39%)
- 25 years of overall declines AFTER the initial crash
- Largest drawdown: -82% (from 1989 peak to 2009 low)
- Time to return to highs: ~45 years

LESSON: Mean reversion won’t always save you.

Equity stress scenarios – Other countries

•**United States** (Dow Jones) - 1929 to 1954 Peak: September 3, 1929 (381.17)

•Worst year: 1931 (-52.7%)

•Largest drawdown: **-89%** (1929 to 1932)

•Time to return to highs: 25 years (reached in 1954)

•**China** (Shanghai Composite) - 2007 to present Peak: October 16, 2007 (6,124)

•Worst year: 2008 (-65%)

•Largest drawdown: **-72%** (2007 to 2008)

•Time to return to highs: Has not yet returned (as of 2023)

•**Greece** (Athens Stock Exchange) - 1999 to present Peak: late 1999

•Worst 12 months: GFC 2009ish (-68%)

•Largest drawdown: **-95%** (1999 to 2012)

•Time to return to highs: Has not yet returned (as of 2023)

•3 major crashes in last 35 years

•**Imperial Russia** - 1917 The Bolshevik Revolution wiped out the stock market.

•100% loss for equity holders.

•No recovery (market ceased to exist).

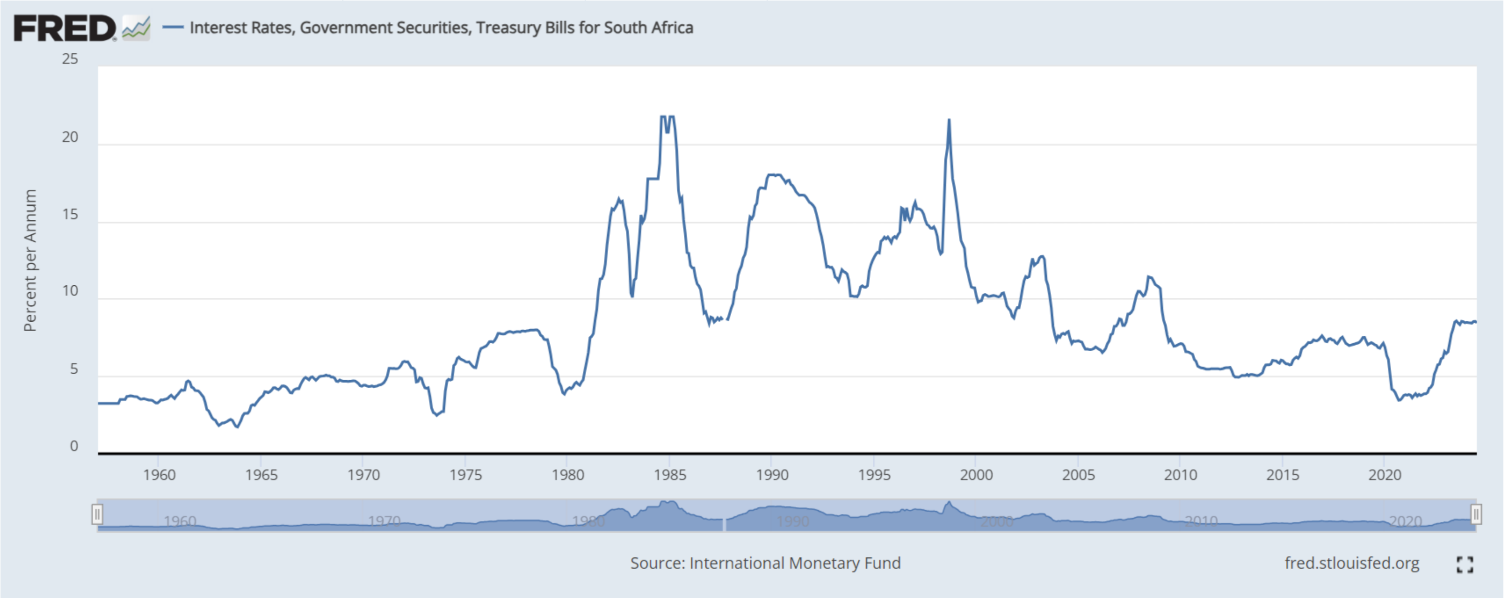
Source: various secondary internet sources. Not own calculations.

Interest rate stresses in South Africa

South Africa - Late 1990s Currency Crisis

Short-term rates (South African Reserve Bank Repo Rate):

- Start: 14.50% (February 1996)
- Peak: 25.50% (June 1998)
- In line with SAM 1 in 200 year stress



International Monetary Fund, Interest Rates, Government Securities, Treasury Bills for South Africa [INTGSTZAM193N], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/INTGSTZAM193N, August 27, 2024.

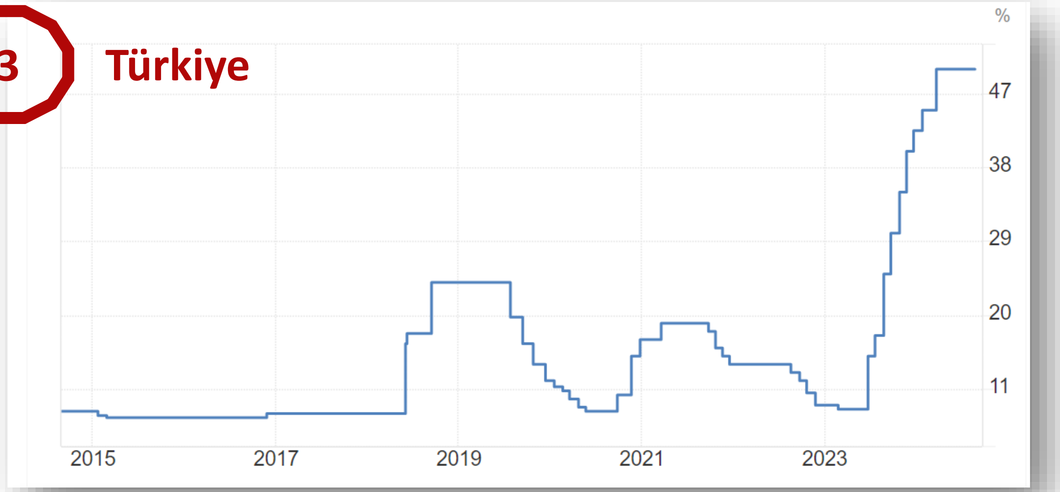
Interest rates - guess the country

1 **Argentina**

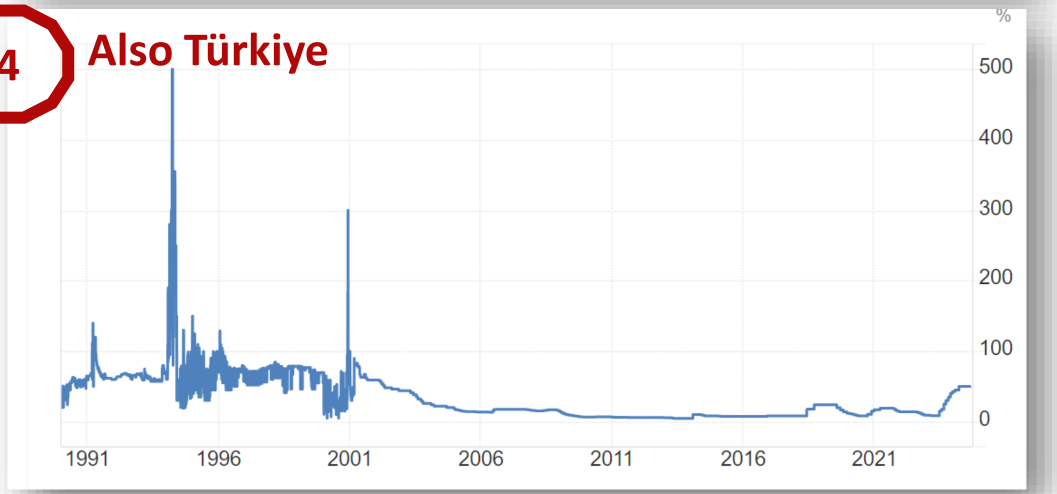
2 **Lebanon**

- Inflation currently at 35%
- Lowest its been in 4 years
- Max inflation recently 270%

3 **Türkiye**



4 **Also Türkiye**



Interest rate stress scenarios – Other countries

United States - Volcker Era (1979-1982**) 10-year Treasury yield**: Start: 9.10% (August 1979)

Peak: 15.84% (September 1981)

1-year move: +6.38% (Aug 1980 to Aug 1981)

Multi-year change: +6.74% over 2 years

United States - Volcker Era (1979-1982) ***Short-term rates (Federal Funds Rate):***

Peak: 20% (June 1981)

Increase: From 11.2% in 1979 to 20% in 1981

Sovereign Debt Crisis (2010-2012) **Greek 10-year** government bond yield:

Start: 5.49% (January 2010)

Peak: 48.60% (March 2012)

Largest 1-year move: +16.23% (Mar 2011 to Mar 2012)

Multi-year change: +43.11% over 2.25 years

Japan - Start of Zero Interest Rate Policy (1990s) **10-year government bond yield**: Start: 8.05% (September 1990)

End: 1.70% (September 1998)

Largest 1-year move: -2.63% (Sep 1995 to Sep 1996)

Multi-year change: -6.35% over 8 years

Source: various secondary internet sources. Not own calculations.

Insurance risk experience

Major new generation life insurance product launched years ago.	Heavily reinsured Reinsurer rates were loss making Saved by reinsurance
Modern life insurance product launched within last decade	Heavily reinsured Reinsurer rates were loss making Required risk rate increases of more than 25% within about 5 years Saved by limited premium guarantees
US insurers leaving California and Florida	Catastrophic losses increasing (storm, flood, wildfire) Unable to increase premiums adequately due to regulatory restrictions Leaving market segments
Long Term Care products in the US	Claims higher than expected (generous benefits, aggressive pricing) Longevity better than expected Interest rates lower than expected Lapse rates lower than expected (lapse supported product)

Conclusion:

This time is not different.
The future can be far from what you expect.

What does under-pricing produce?

Rapid growth and concentration

Risk management techniques

Guarantee risk management basics 1/6

Risk management starts at product design

- Price (robustly) for guarantees – don’t assume they are free
- Shorten premium guarantee periods
- As and when commission to not unnecessarily extend term
- Check marketing materials and call scripts don’t create implied guarantee differently from what was intended and priced for
- Consider guaranteed renewability rather than premium review points
- Stay away from policyholder options without serious caution and limits
- Consider risk mitigation and hedging at product and pricing stage
- Consider operational (system and risk) implications of product complexity
- Careful not to create fairness / conduct risks by managing financial risks. Don’t break customer value proposition or make the product unsellable – low volumes and below-scale legacy products are a risk all of their own.
- **Limit volumes & market share**

Guarantee risk management basics 2/6

Matching and hedging

- Match reinsurance guarantee terms with underlying
- Consider matching target – SCR, EV, ECAP, IFRS17 & impact of OCI
- Duration matching is necessary[*] but not sufficient. One-off matching is not sufficient.
- Duration mismatching can be palatable[*]. Risk Appetite is key.
- Stochastic modelling is sometimes required but **doesn’t take the place of stress testing**
- Calibration to shallow and imperfect markets is hard
- Consider complexity, operational, and liquidity risks of hedging. Model risk is real.
- Watch concentration risk, spread/default risk

Guarantee risk management basics 3/6

Stress & Scenario testing

- Multi factor (e.g. interest rates and lapses) stress testing
- Severe stress testing – learn from broader markets!
- Maintain your credibility within the team rather than proposing 1 in 1,000 scenarios.
- Consider dynamic policyholder behaviour
- 3 years may* be enough for an ORSA but longer term stress tests may be necessary for good risk management

Guarantee risk management basics 4/6

Monitoring

- Monitoring sales growth. Excessive growth should be a red flag.
- Concentration* by product, by risk, and asset counterparty
- Appropriate risk adjusted returns. Appropriate allocation of capital, or VNB adjusted for specific product risks.
- Monitoring risk limits
- Greater risk = more frequent monitoring

Guarantee risk management basics 5/6

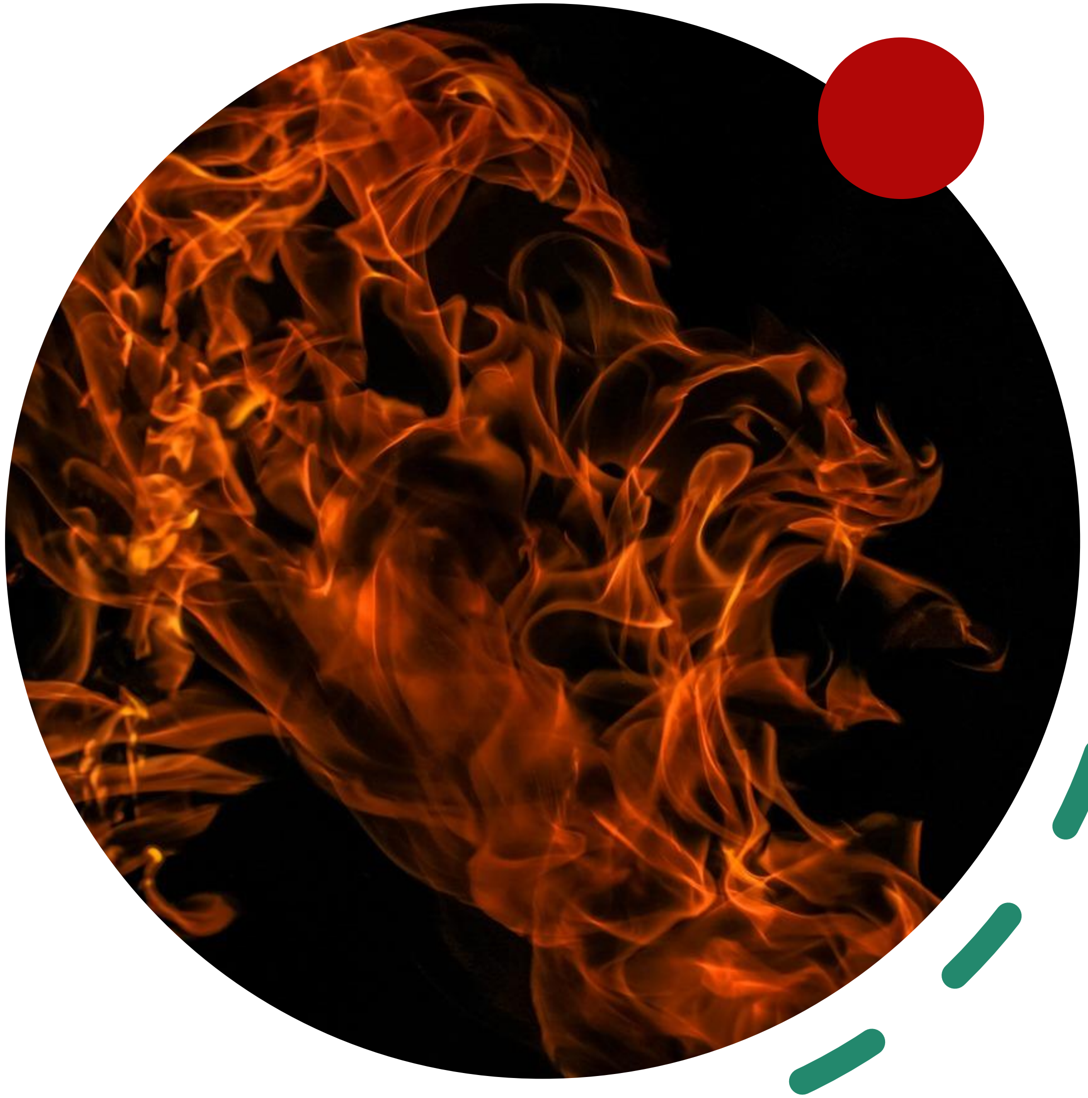
Get an independent view!

- Credible internal independent structures
- Appropriate culture of constructive challenge
- Design the scope of external review carefully and consciously

Guarantee risk management basics 6/6

No set of risk management steps is complete.

Tailor your risk management approach to your specific risks



BONUS: Some trends impacting provision of guarantees

Shorter premium guarantee periods

Shorter premium guarantee periods with guaranteed renewability / dynamic underwriting

Algorithmic smoothing of investment returns without explicit guarantees (and allowing negative "bonuses")

Tiered guarantee structures – guarantees at different levels with explicitly different costs

Higher interest rates driving more interest in guaranteed products and life annuities

More retirees globally driving demand for a range of guaranteed income products

Conclusions & Q&A

Guarantees remain popular and important

Guarantees present significant risks

Good risk measurement is possible

Master the Flame. Don't Get Burned