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The impact of inflation on insurers – focus on non-life

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Summary

- Inflation concerns are elevated
  - Fiscal deficits are large in many of the developed economies
  - Monetary policy is loose in most economies of the world
- Inflation affects insurers through numerous channels
  - Non-life insurers: rising claims costs
  - Life insurers: deflation poses risk to interest-rate guarantees. Inflation is a benefit, if accompanied by higher interest rates.
  - Investments: inflation impacts returns
- Modest inflation likely, but inflation risks rise over the medium term
- Insurers can partially mitigate inflation risk through contract design, reinsurance and investment strategy

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Insurers consider inflation a medium-term concern

When will inflation risk and deflation risk become a concern in your market? (CIO survey)

	Next year	2-3 years	3-5 years	Not in 5 years
Inflation	10%	41%	36%	13%
Deflation	10%	8%	3%	79%

Source: Goldman Sachs Asset Management – 2013 Insurance Survey

- Insurance CFOs broadly consider credit and equity market volatility (29%) the greatest macro risk, followed by the European debt crisis (14%) and inflation (14%).
- P&C CFOs consider inflation a significant concern (65%)
- Life CFOs are more focused on credit and equity market volatility (59%)

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Inflation expectations

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Inflation: Some background views

- The recent "Great Recession" and resulting monetary and fiscal policy actions have increased apprehension about potential inflation: large deficits, loose monetary policy and quantitative easing
- We have found that money supply and deficits no longer have a strong relation with CPI inflation. Instead we track
  - Core inflation, and
  - Wage inflation
  - Unemployment rate, capacity utilization in manufacturing
- Though moderate growth and inflation are the most likely in the near term, risks remain, so it is necessary to stay vigilant on inflation.
- Central banks have the tools – and the will – to control inflation
  - But politics may intervene (the real risk of inflation)
  - There is a growing need to inflate to reduce rising debt burdens

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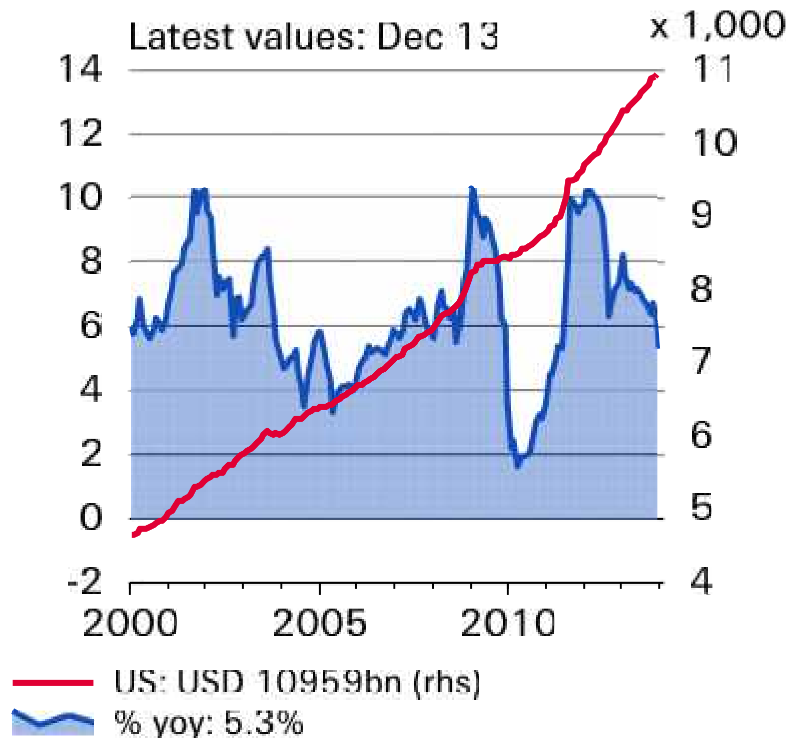
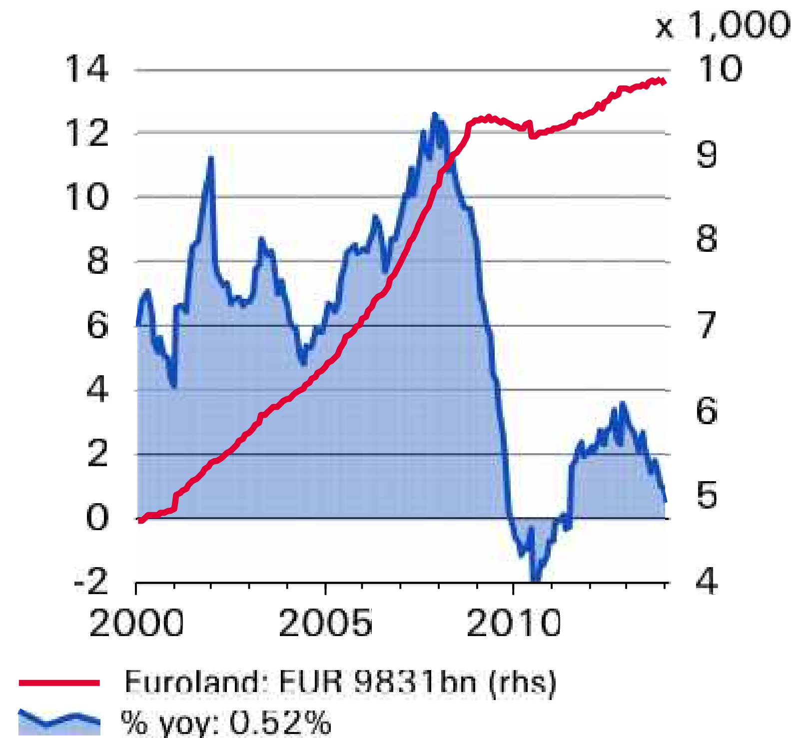
Broad money supply growth has been more moderate recently

US M2 and Euro area M3, bn USD or EUR (right axis) and %-change yoy (left axis), monthly data





Source: Datastream

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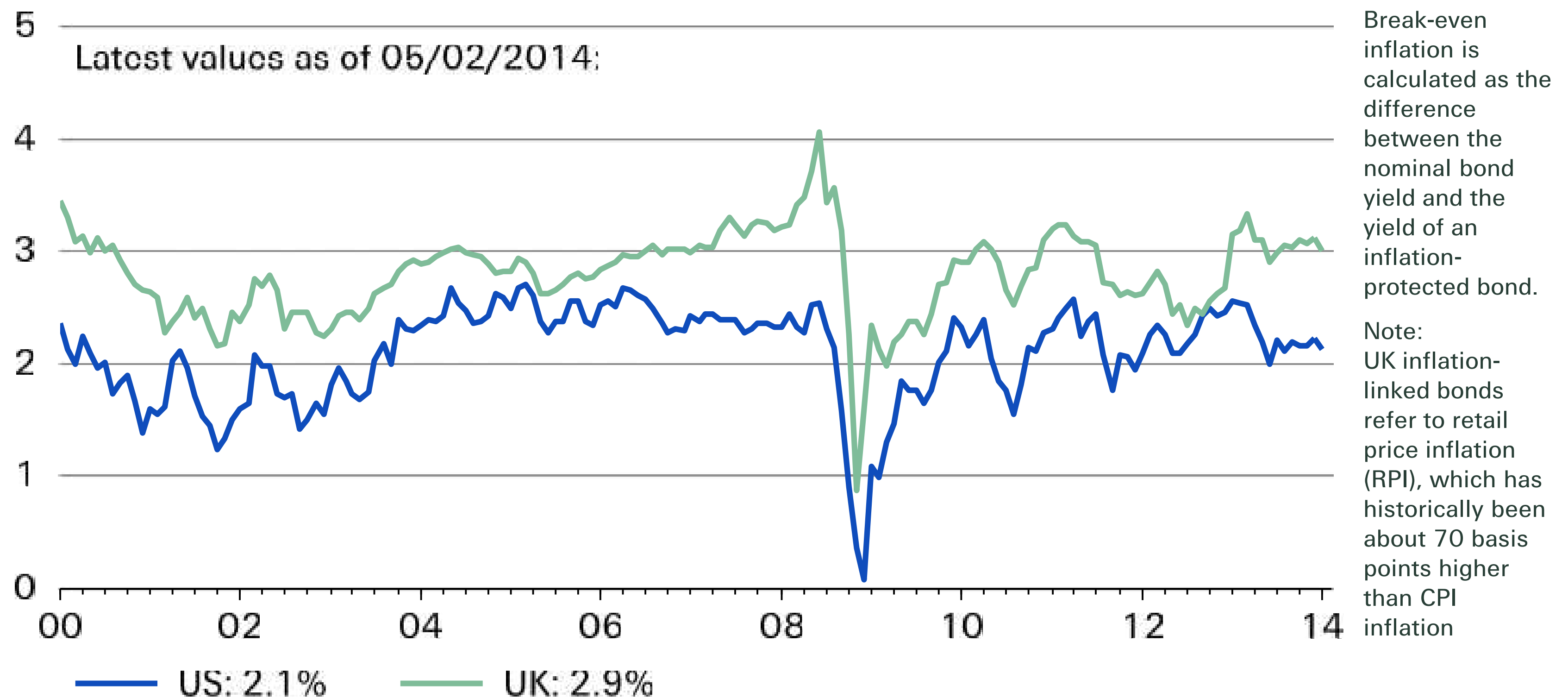
Long-term inflation expectations remain well contained

Break-even Inflation, 10yr Bonds, weekly data



Break-even inflation is calculated as the difference between the nominal bond yield and the yield of an inflation-protected bond.

Note:
UK inflation-linked bonds refer to retail price inflation (RPI), which has historically been about 70 basis points higher than CPI inflation

Source: Bloomberg

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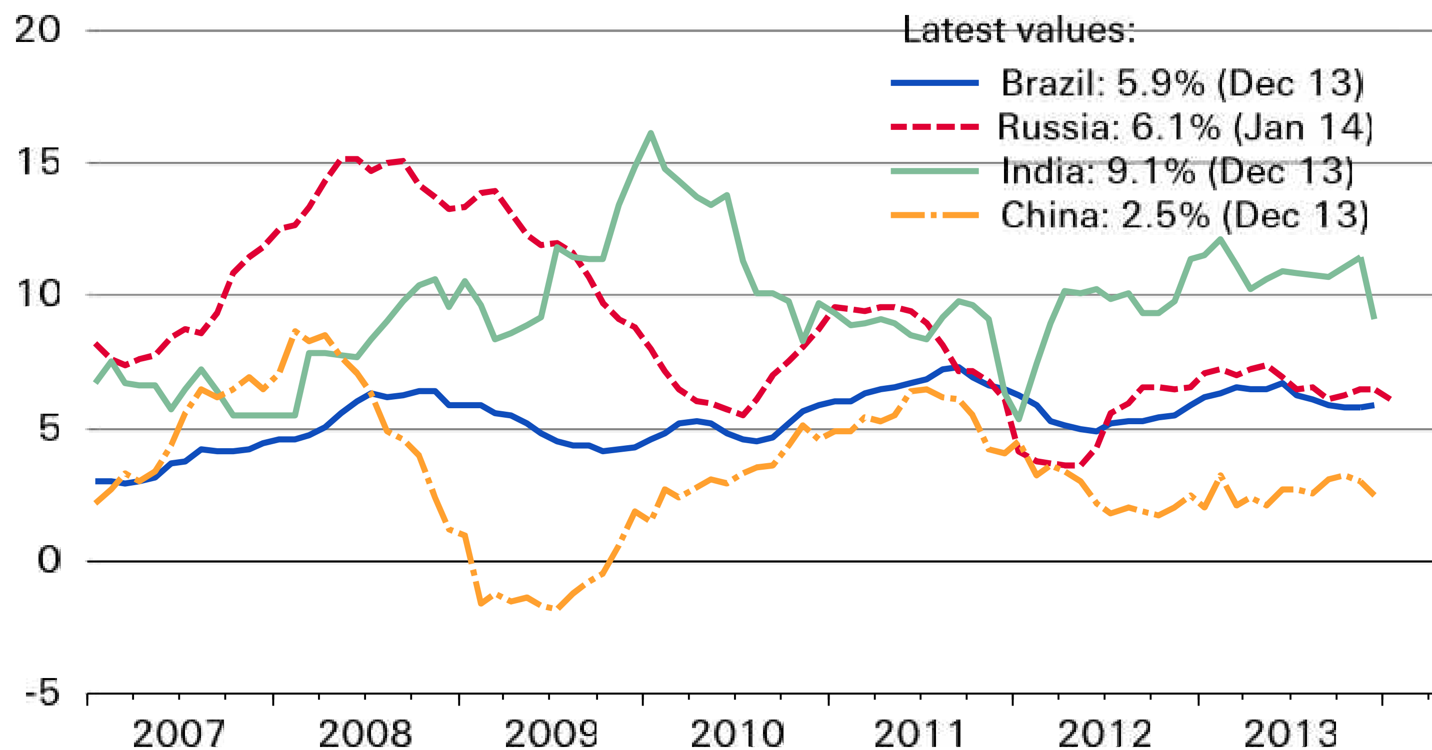
Inflation has declined recently in emerging markets, particularly in India

Consumer Price Index, %-change yoy, monthly data



Source: Datastream

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How inflation affects insurers

Measuring inflation

- Inflation, typically measured by CPI, is the rate of change of the general price level
- When measuring inflation, governments adjust for quality improvements.
  - Example: In the US, the average price of new vehicles has risen 15% over the past decade, but New Vehicle CPI has fallen 6%
- *Claims inflation*, a measure of claims severity, includes CPI inflation as well other factors
  - Example: motor insurance claims are affected improvements in medical care as well as increased costs, litigation costs and the wage level of car repairmen
  - Not just CPI inflation and these factors are not what economist call "inflation," they reflect rising costs, which are what affect claims (*social cost escalation*)
- Claims inflation has historically exceeded CPI inflation

* Harmonised Index of Consumer Prices (HICP)

Inflation expectations drive interest rates and asset returns

- **Treasury bills** closely track inflation, but earn modest returns
- **Commodities, real estate and inflation-indexed bonds** also serve as inflation hedges
- **Long-term bonds** fare poorly under inflation but are a *deflation* hedge
- **Equity** returns are not very correlated with inflation
- Does not mitigate against *social cost escalations*

Correlation between annual asset returns and CPI, 98-09

Asset class	Correlation with CPI	
Treasury bills	0.64	**
TIPS	0.48	
Real estate	0.43	**
Commodities	0.34	*
US stocks	-0.09	
Non-US stocks	-0.10	
Intermediate Treasury bond	-0.31	*
Long-term Treasury bond	-0.39	**

** 99% significance;
* 95% significance

Inflation expectations may translate into higher nominal interest rates and erode the mark-to-market values of fixed income investments.

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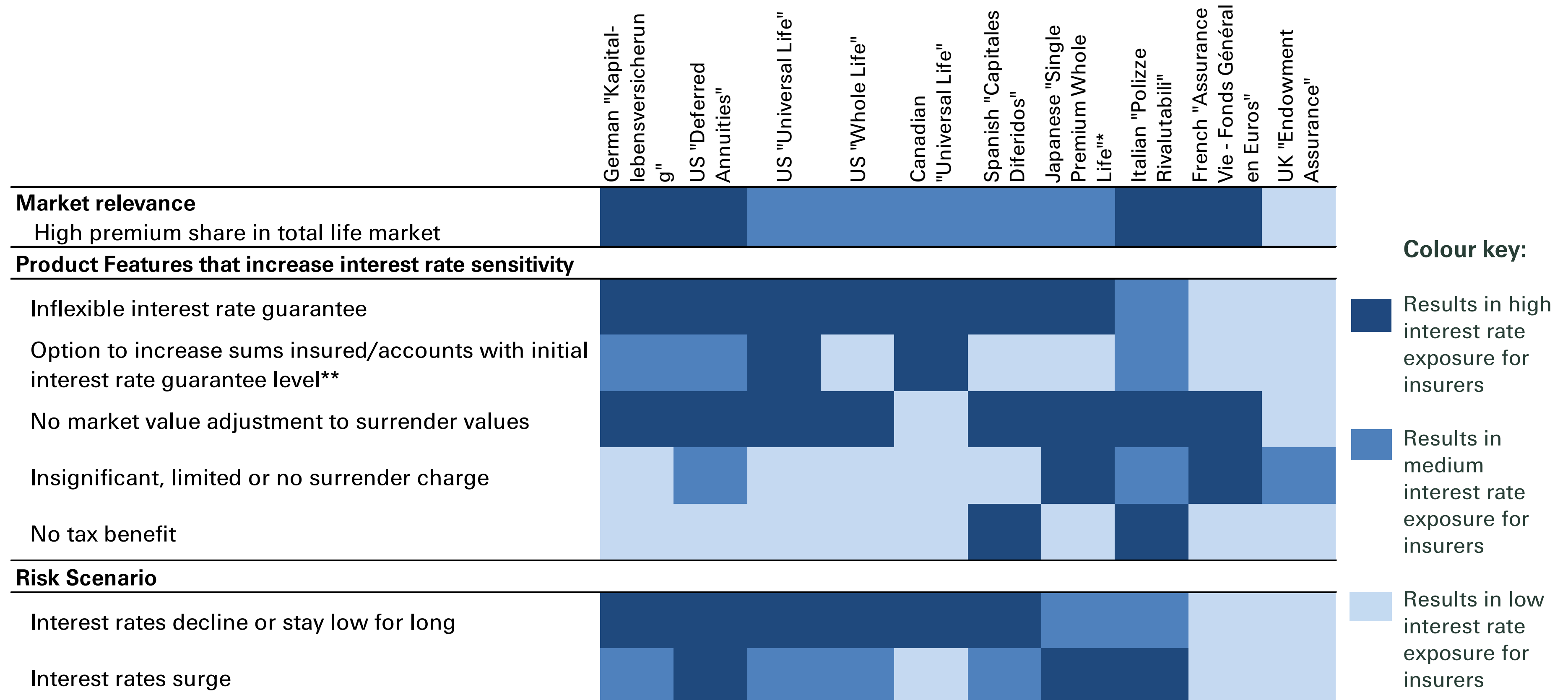
Impact of inflation on life insurers

- Greatest risk for many life insurers: **low inflation**
  - Deflation or declining inflation reduces interest rates
  - Substantial risk for savings products with minimum return guarantees
  - Investment yields earned fall short of the guaranteed returns
- For most life products, benefits are fixed in nominal terms
  - Changes in inflation therefore do not strongly impact liabilities
  - Examples: mortality, wealth accumulation, and longevity protection policies
- **High or rising inflation** erodes the value proposition of many life products
  - At 5% inflation, a death benefit loses more than half its value in 15 years
  - Also a concern for annuities
- **Rising inflation and interest rates** erode persistency of many life products
  - Example: policies with fixed returns purchased when interest rates were lower

Significant differences in life insurers' interest rate exposure in key markets



* Sums insured in the first five to ten years are limited to the single premium payment.

** These options are available depending on the contract terms or only on special occasions such as marriage or the birth of a child.

Source: sigma 4/2012 'Facing the interest rate challenge'

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Impact of inflation on non-life insurers

- In property insurance, inflation requires regular adjustments of sums insured to reflect increased values
  - Can be automated by indexing
- In liability insurance, premium rates need to be adjusted regularly to reflect rising wages and prices
  - Generally occurs with a time lag
- Periods of severe or prolonged **inflation shocks** are problematic
- **Rate regulation** compounds the problem
  - Restricts ability to adjust premiums when inflation rises, yet requires a full adjustment for falling inflation.
- Umbrella, excess liability, and non-proportional reinsurance are highly exposed to inflation due to the nature of **excess-of-loss** contracts with fixed deductibles
- **Long tail lines of business** are more exposed to inflation risk

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Long-run growth trends of liability claims
1975 - 2012

- In the major markets, liability insurance claims have risen **faster than general inflation** (CPI)
  - Ratio of liability claims growth to CPI inflation ranges from 1.8 (US) to 2.2 (Canada)
  - In US, general liability claims rose 1.8% for every 1% rise in CPI (1975-2012)
- Liability claims have also **grown faster than the general economy** (measured by GDP)
  - Ratio of liability claims real growth to GDP real growth ranges from 1.1 US, claims paid) to 2.8 (Italy)
  - This trend has been stronger prior to 2005. **Claims declined in real terms since 2005**
- Multi-year trends in claims growth are **highly correlated with**:
  - growth in **medical expenditures and wage inflation**

Liability claims trends – an unusual decade of moderation – when do we see a return of the long-term trend?

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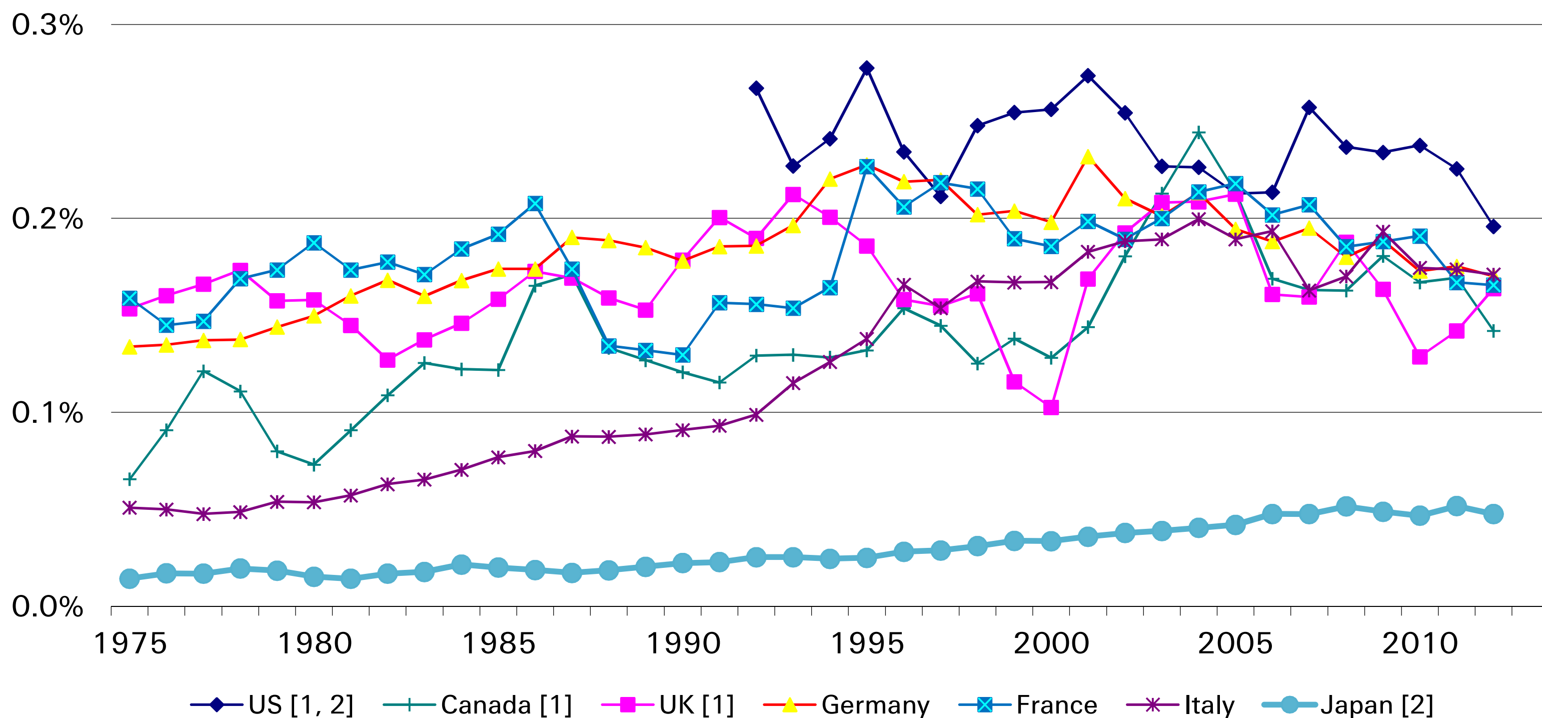

Source: Swiss Re Economic Research & Consulting

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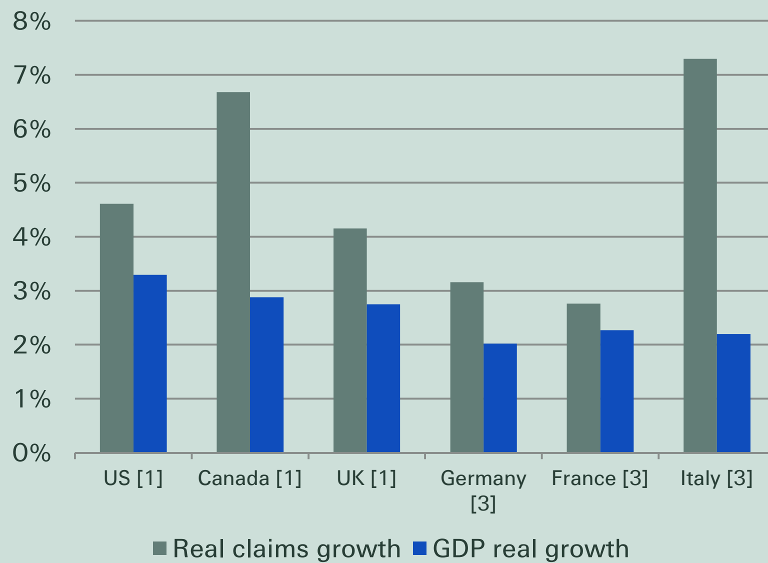
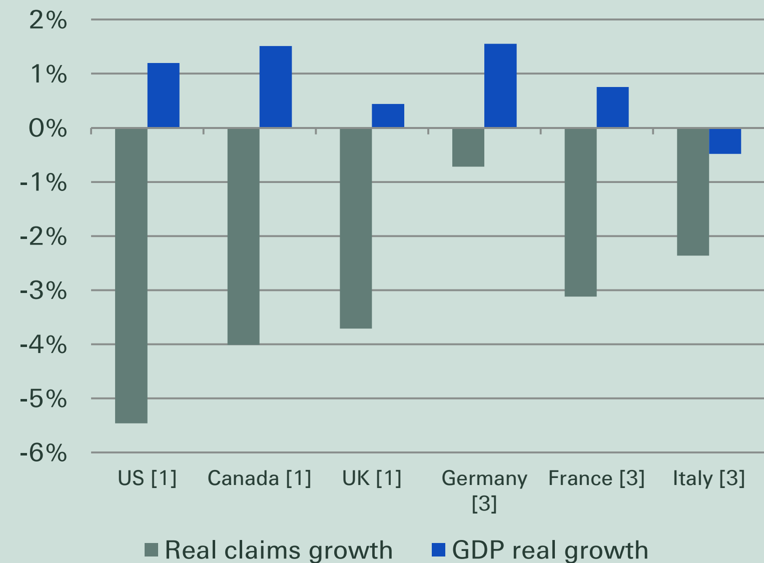
Liability claims grew faster than GDP before the crisis; slower since





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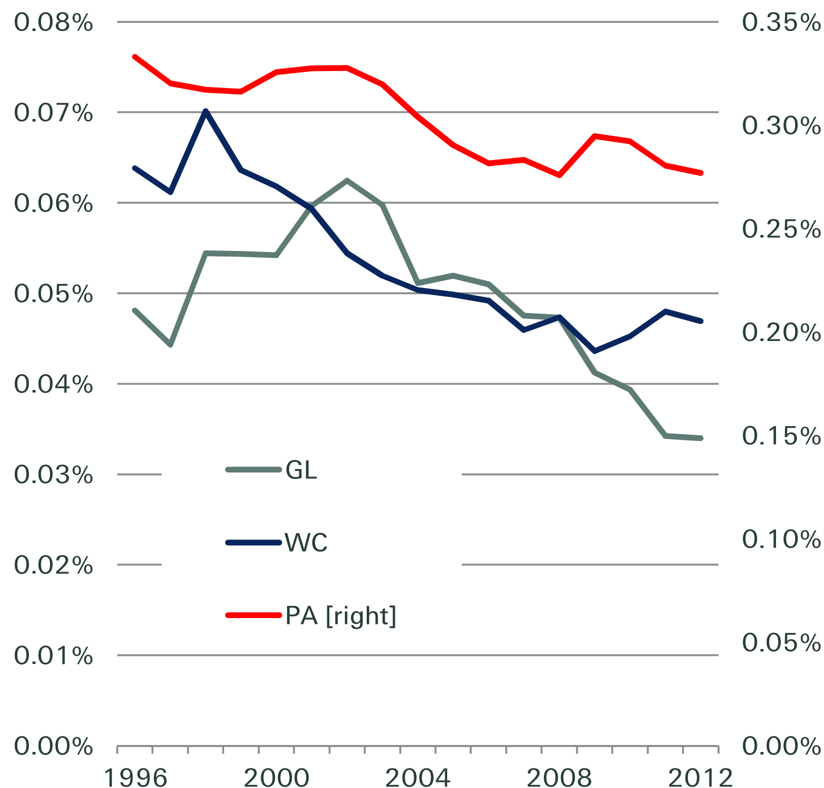
GL first year claims declined strongly in relation to GDP



Claims paid in initial loss year. Source: SNL

- GL peaked in 2002 and declined after; strong correlation with growth of healthcare expenditures and unemployment rate (UER).
- More steady decline for AL; with some cyclical component; another drop after 2009; significant correlation with growth of healthcare expenditures (moderate) and UER (moderate)
- W/C declined 1998 through 2009; moderate correlation with growth of wages, UER, and real GDP

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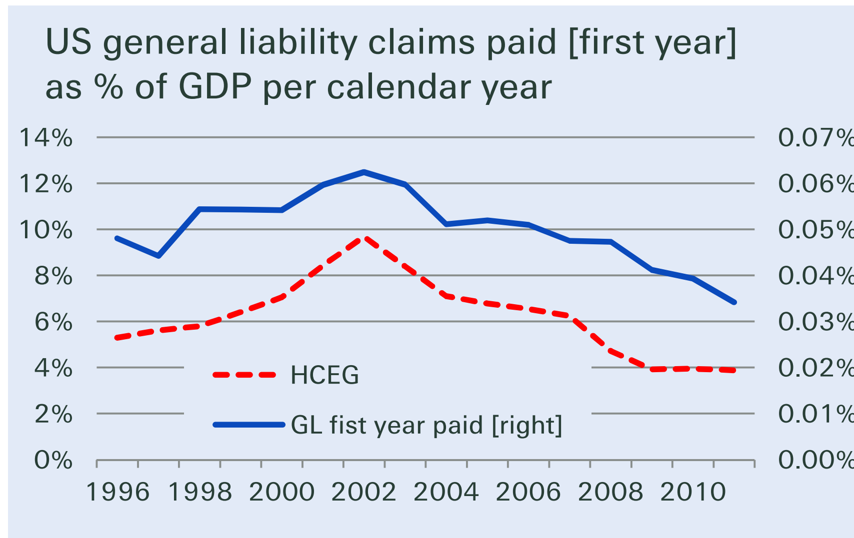
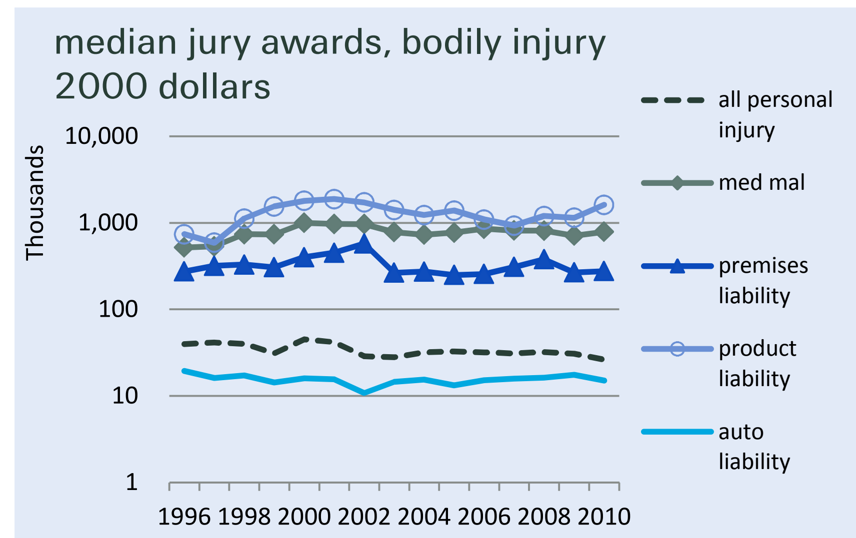
Loss trends – general liability





- GL claims trends have been unusually benign due to low medical and wage inflation
- GL first year claims paid grew slower than GDP since 2002, claims incurred declined after 2004
- Average personal injury awards (measured by the median) declined at a compound annual real growth rate (CAGR) of -5% from 2000 to 2010

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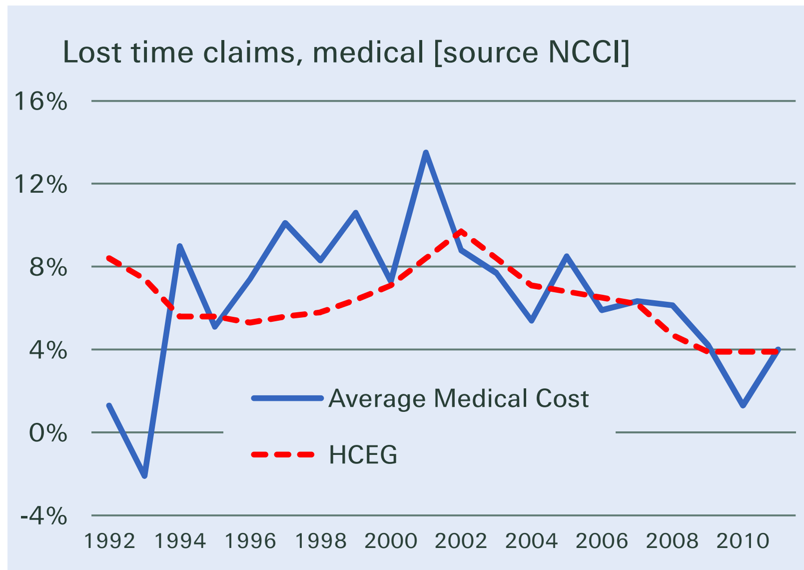
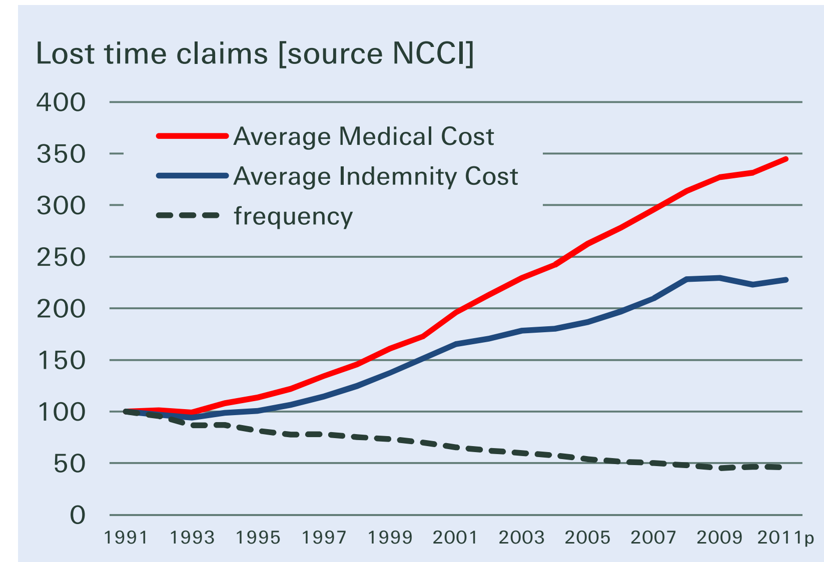
Claims severity trends – workers comp





- Medical cost severity trended broadly in line with health care expenditures
- WC claim frequency trended down 3.4% on average over the last decade, but increased 3% in 2010
- The recent economic downturn has driven down medical cost escalation, wage growth and pushed up unemployment; all driving down claims escalation

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Health expenses are a significant driver of casualty claims costs

- Statistical analysis shows that US casualty lines claims growth is partially driven by **wage inflation** and **health care expenditure** costs. Both variables grew below longer-term trends during the last four to five years.
  - The impact is the strongest for general liability claims but also significant for auto liability and workers comp
  - The correlations are not very strong for year-over-year changes but become stronger with multi-year averages
- About 56% of personal auto liability claims are **bodily injury claims**; while W/C claims have ~ 53% bodily injury claims
- Healthcare expenditure growth slowed dramatically in 2007-2012
  - Recent studies argue that healthcare cost moderation predated the recession
  - Estimates of the impact of the recession vary from 37% to 77%; the rest is attributed to structural changes in the health system that could last longer

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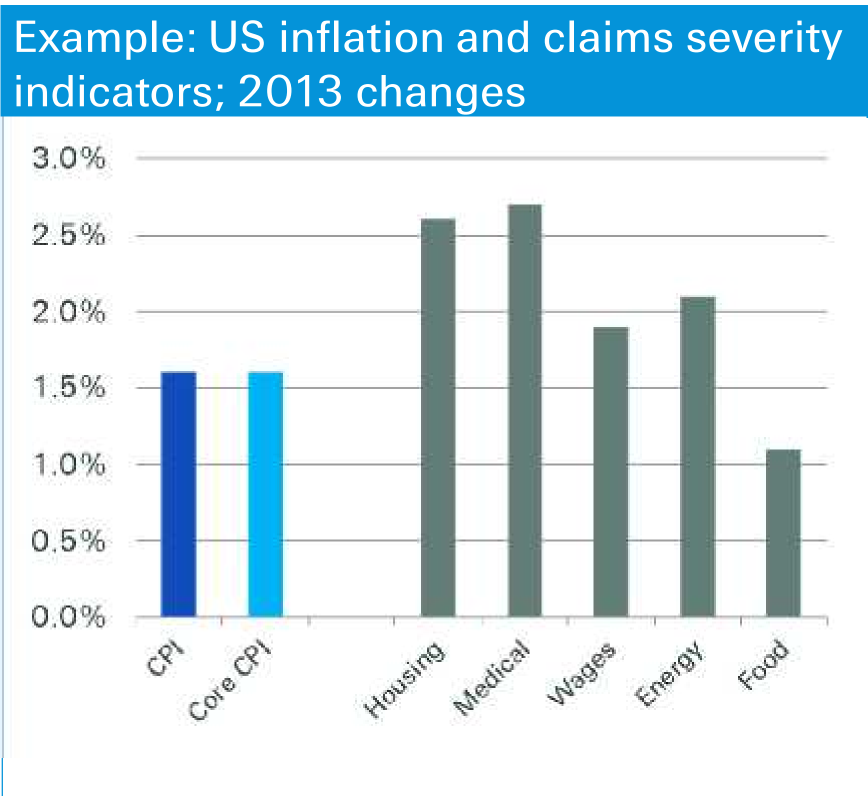
Claims severity usually exceeds general inflation

Not every type of inflation impacts claims the same way

Example: US inflation and claims severity indicators; 2013 changes



Sources: BLS, Economic Research & Consulting

Types of "inflation" and impact on claims "inflation"

Inflation	Impact
Food & energy	low
Housing	low
Medical cost escalation	high
Wage inflation	high
Social cost escalation	
Pain & suffering	high
Lost income	high

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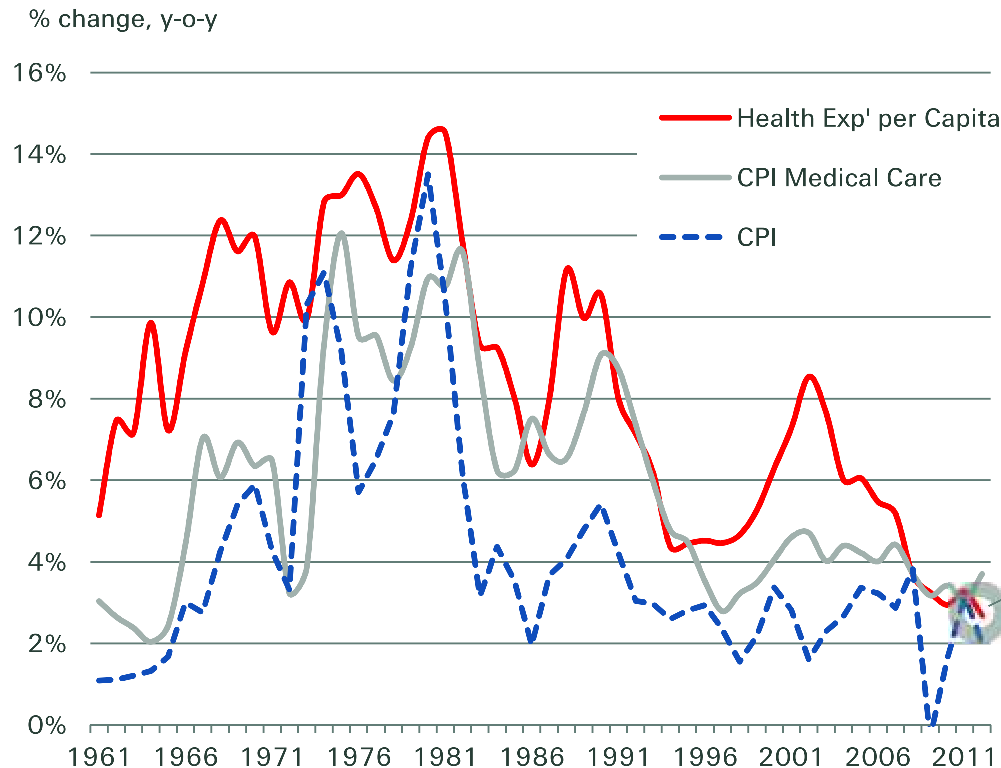
Healthcare costs have consistently outpaced the CPI



CAGR	National health expenditures	National health expenditures per capita
1960-1970	10.6%	9.3%
1970-1980	13.1%	12.1%
1980-1990	11.0%	9.9%
1990-2000	6.6%	5.5%
2000-2007	7.6%	6.6%
2007-2012	4.0%	3.1%
1960-2012	**9.3%**	**8.2%**

- latest value 2.7%
- below-average,
- down from prior year

Notes: The CPI is the general indicator for inflation. The CPI for medical care measures the prices of "out-of-pocket" expenses of consumers (including health insurance premiums), not the overall cost of medical care. It too is outpaced by Health care costs.

Sources: National Health Expenditure and PHI Payments data from the Centers for Medicare and Medicaid, CPI from Bureau of Labor Statistics

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Which non-life business lines are most vulnerable to inflation?

- Umbrella, excess liability, and non-proportional reinsurance are highly exposed to inflation due to the nature of excess-of-loss contracts with fixed deductibles
  - Inflation increases frequency and severity of claims exceeding the deductible
  - This is called "the leveraged effect of inflation"
- The longer the tail of a line of business, the more inflation is an issue
  - Long-tail lines include: general liability, med mal, and workers' comp
- Contract terms can reduce the inflation exposure of many property risks
  - Policy limits
  - Clauses linking premiums, limits and deductibles/retention to an inflation index
- Reinsurance is a tool to mitigate inflation risks

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Inflation and non-life profitability

There is some evidence that inflation erodes the underwriting discipline and profitability of non-life insurers:

- In the 1970s, increases in inflation (1969-70, 1973-74, and 1979- 81) coincided with subsequent drops in underwriting and overall profitability
- Disinflation (falling inflation) in 1971-72 and 1975-76 led to subsequent improvements in underwriting results
- Recent decades, characterised by moderate and stable inflation, offer little evidence on how inflation affects profitability. Inflation has been too stable to be an influence.
- Experience from the recent severe economic downturn suggests that a drop in CPI and wage inflation were mirrored by an unexpected drop in claims severity, boosting underwriting results and fuelling vast releases in claims reserves.

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Conclusions

- The recent “Great Recession” and resulting monetary policy actions have increased apprehension about potential inflation.
- Though moderate growth and inflation are the most likely over the next few years, risks remain. Insurers must stay vigilant in monitoring inflation.
- Because non-life insurers generally promise full indemnity, inflation contributes to a rise in claims severity, increasing their nominal liabilities. Many other societal factors – "social cost escalation" – also play a role.
- Deflation, generally accompanied by declining interest rates, poses a risk to life insurers writing interest-rate guarantee savings products.
- Insurers can manage their exposure to inflation risk through:
  - carefully crafted contract terms
  - the use of reinsurance
  - investing in assets that perform well in high-inflation periods

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