CILA

Living With a Low Interest Rate Environment

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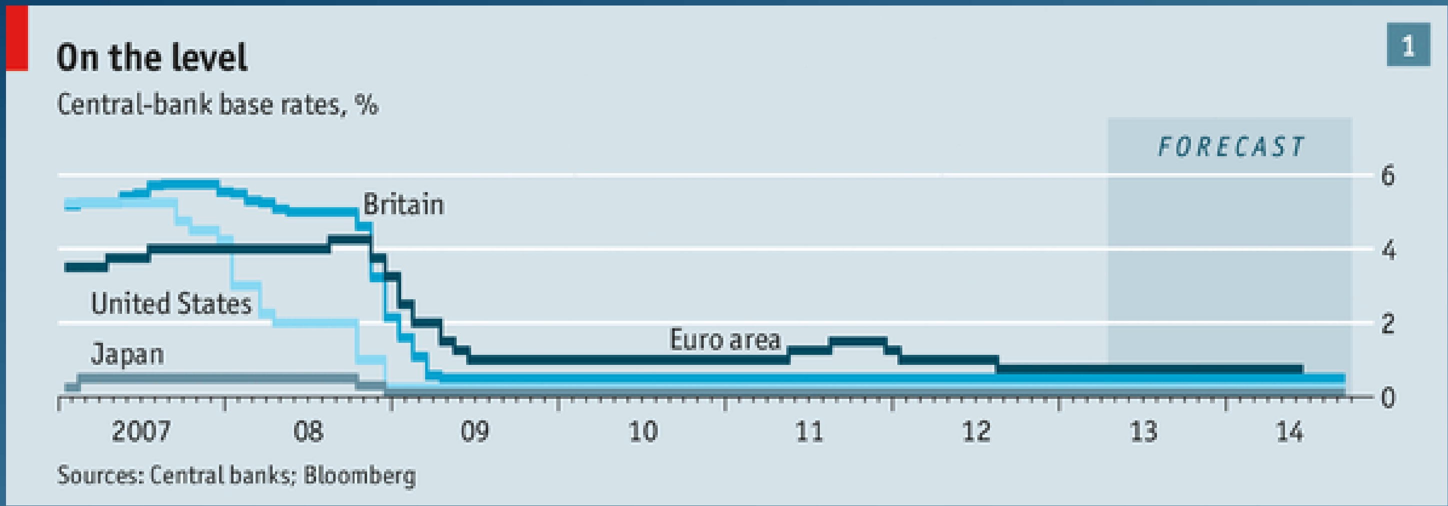
Agenda

- ZIRP (Zero Interest Rate Policy)
- European Insurance Impact
- Japanese Case Study
- Lessons for the UK?

Global ZIRP

Flat-lining in the G7

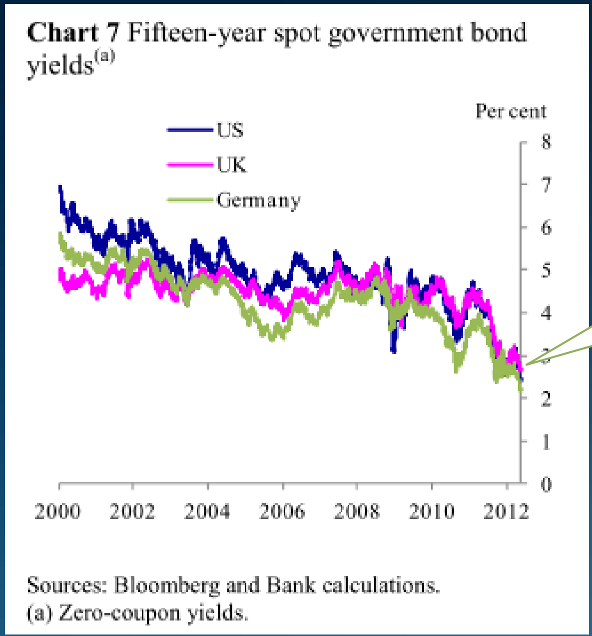
Short rates have ticked down in 2008 as a short term measure – or so we all thought – but low rates have arrived across the developed world and seem set to be around for a while yet.



Source : The Economist

Longer Term Rates

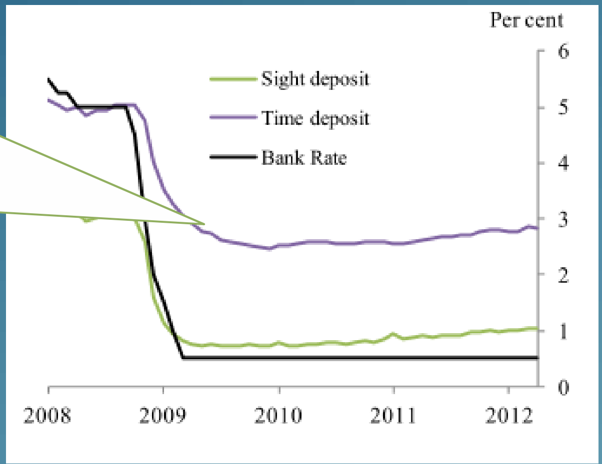
Sucked down too



Shown here are the long term (15Y) US / DE / UK rates all gradually being pulled down to 2%-3%.

Time deposit rates have kept rates higher – it is thought by BoE due to the value of hoarding liquidity as banking reforms are brought in.

Liquidity has a value.



Source : Bank of England

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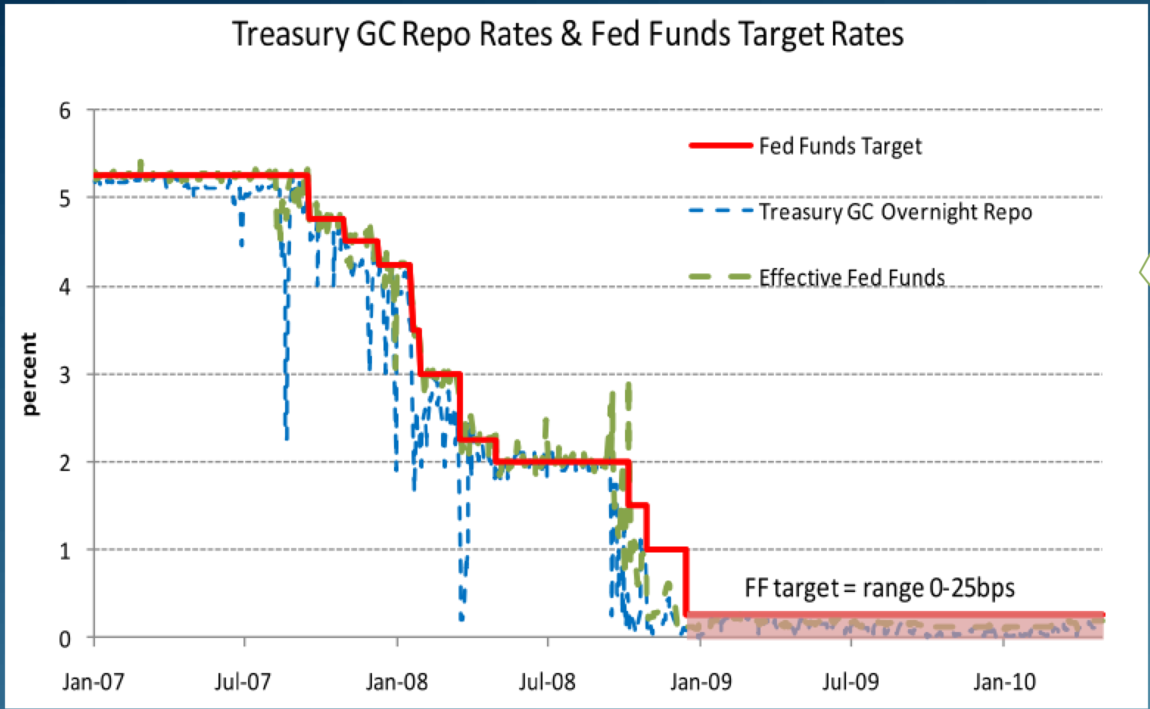
What drove rates lower?

Maybe central banks were pulled there



Commentators suggest that the fall in the short rate is less driven by a pro-active central bank desire to bring down rates but rather a reaction to the private market rates pulling down the bank rate.

The dips in General Collateral Repo rates appearing to pull down the Fed Funds Target rate in its wake.

But why would private sector lenders accept these lower rates?

Source : New York Federal Reserve

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Hoarding Cash at Negative Rates

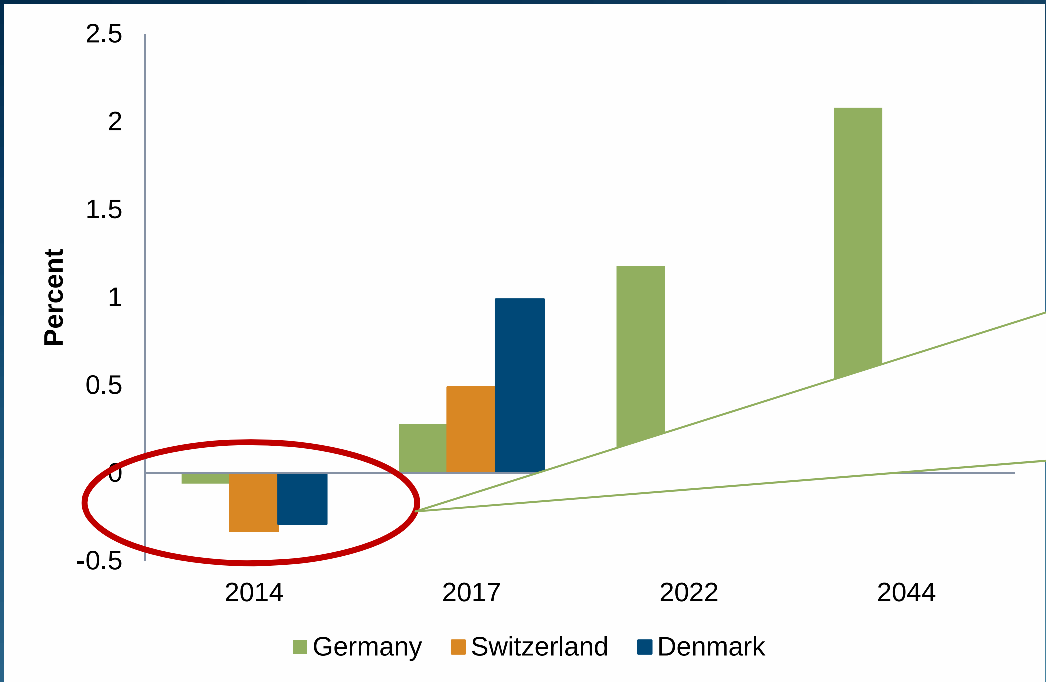
Happened last time we (our grandparents) were here

"Times in which public confidence is shaken are characterized not only by high rates on unsafe loans, but by efforts on the part of timid investors to find a safe place for their savings, even if they have to sacrifice some or all of the interest upon them. They will even hoard savings in stockings and safe deposit vaults. We may even occasionally find cases in which the desire to obtain a safe method of keeping capital is so keen and so difficult to satisfy that the rate of interest is negative. The investor is then thankful enough to receive the assurance that his capital, by being intrusted to another, will not be diminished, to say nothing of being increased."

Irving Fischer, 1930

From ZIRP to NIRP

Negative Rates in Europe 23 July 2012



When the Danish Government issues Certificates of Deposit at …

-0.2%

German and Swiss bonds trading below zero too.

Source : Thompson Reuters

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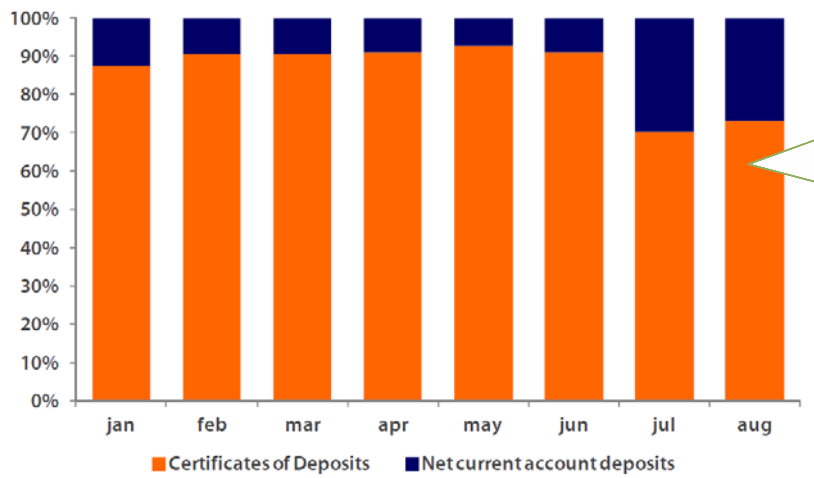
European Negative Rates

What the banks did next…

Figure 5 – Banks have moved excess liquidity from CDs to current accounts held at DN



Source: Denmark's Nationalbank, August 2012

Danmarks NationalBank expanded the amount allowed on deposit as a current account and the banks jumped at the chance to escape the negative carry.

Source : RaboBank

Negative Rates Policy

Its in the locker … if we need it … but don't make us use it!

"We're going to continue to think about these. I hope we'll think about whether there are constraints to setting negative interest rates. This would be an extraordinary thing to do and it needs to be thought through very carefully."

Paul Tucker speaking at the Treasury Select Committee – Feb 2013

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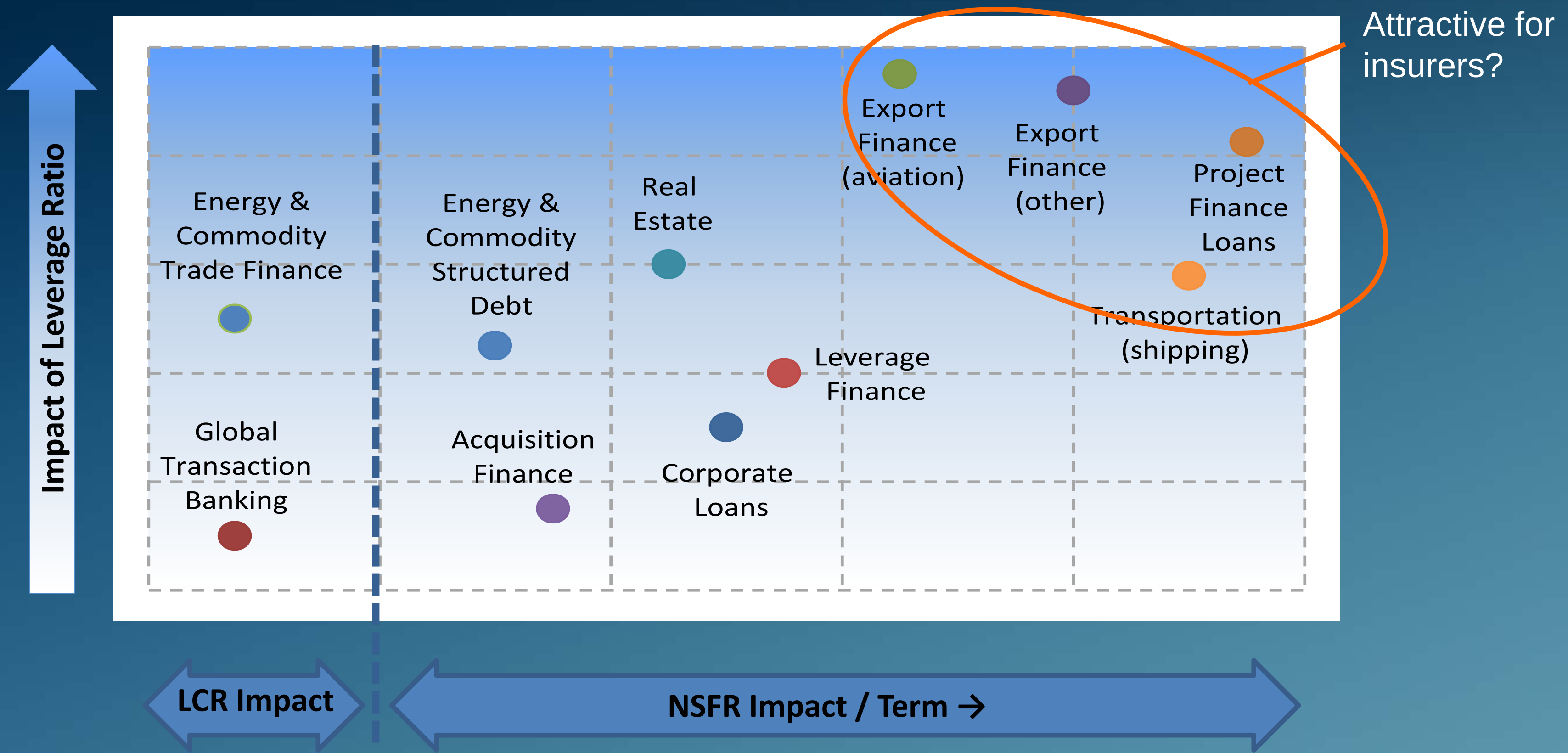
Opportunities For Insurers

Alternative Assets for Insurers as Banks Get Squeezed?



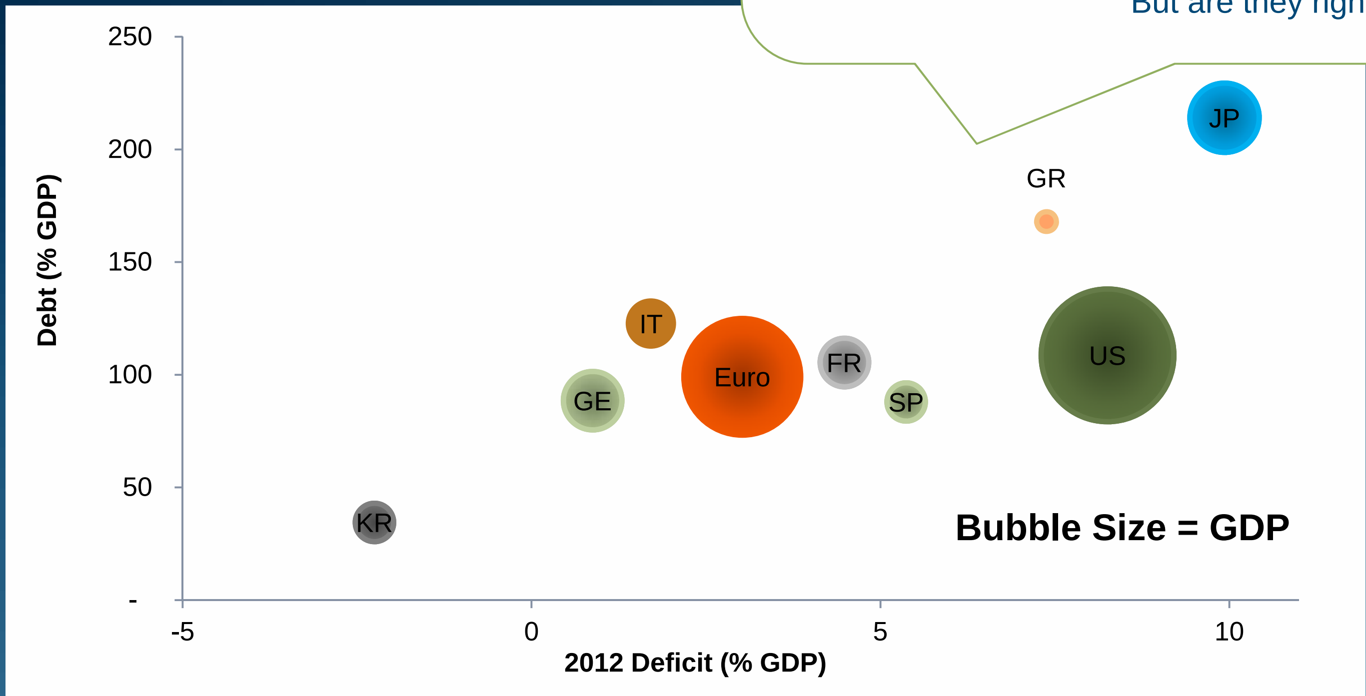
Return Free Risk

The “new” risk free return

The low – even negative - yields being offered on government debt may not be going anywhere fast. High level of debt vs. GDP persist – yet deficits continue to pile up the debt.

Rogoff et al would have us believe that this will act as a brake on the growth needed to stimulate the economy.

But are they right?



Source : OECD - ISSN 2074-384x - © OECD 2012

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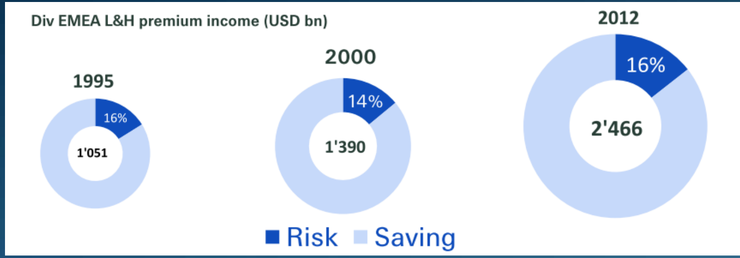
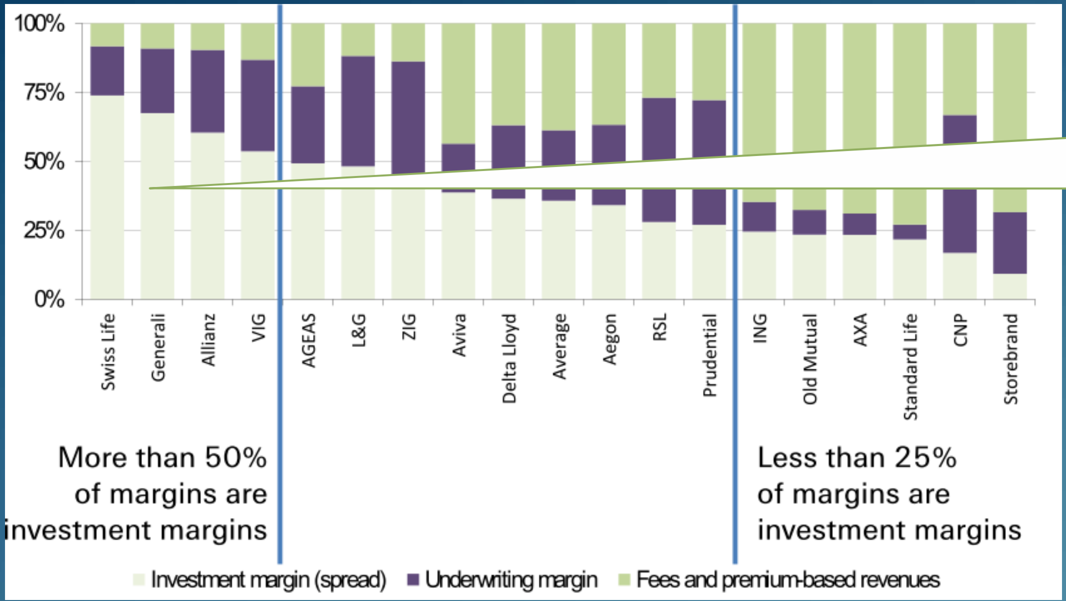
European Vulnerability

European Life Still Mainly Saving / European Names Exposed to Rates

Over 17 years the premium income in Europe has grown (in nominal USD terms) but the mix is pretty static:

c85% - Savings
c15% - Risk





Some of Europe's biggest and most successful insurers are particularly reliant on the investment margin.

Source : Swiss Re Economic Research & Consulting - Sigma 4/2012

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Global Investors Concerned

Geneva Association

Low Interest Rates Remain the Key Risk for the Insurance Industry—Investor Expectations for 10–12% ROE Remain Unchanged

This survey of investors in the insurance market see low interest rates as "more than ever a key issue".

Ominously they highlighted in 2009 and still do in 2012 where the Life Insurance model (for value generation) is viable.

Key industry issues/ risks seen by investors

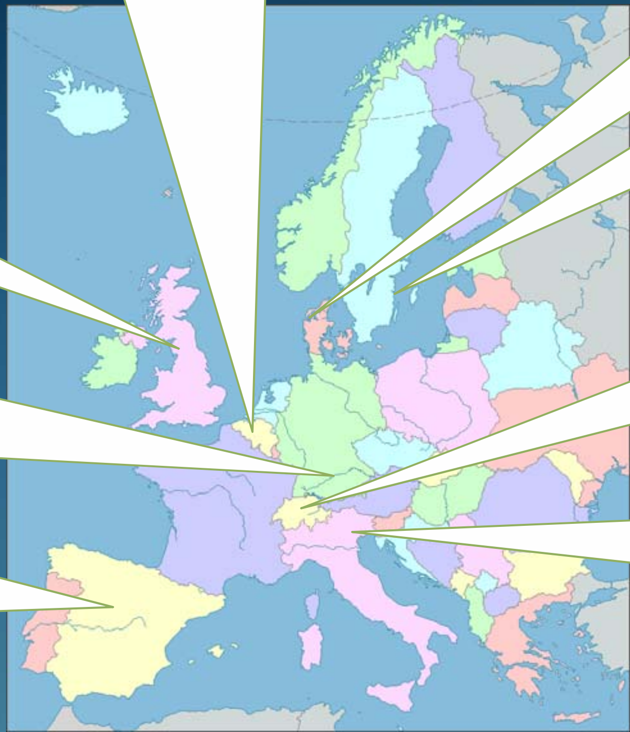
December 2009 / October 2012

- **Solvency II**: negative especially for life ins and long-tail; SST more than S2; more EU than US issue; might lead to cap hikes
  - Regulation remains an issue but not a key issue any more; SST equivalence
- **Accounting**: low transparency; difficult comparability; constant change; investor remains an " outsider"
  - no big issue any more!?
- **Interest rates**: low interest rates as a challenge; potential quick uptick not good neither; question mark on viability of life insurance model
  - more than ever a **key issue**; yield compression; higher yield assets (credit risk)
- **P&C reserving**: recession impact on claims only to come; non-life pricing cycle a challenge;
  - remains a key issue; insurance pricing cycle; reserve adequacy long-tail
- **Inflation risk (new):** potential inflation shock/ spike – a bigger issue today than in 2009
- **Growth challenge (new):** recession impact Europe

Source: Vontobel

Source : Geneva Association / Vontobel

European Regulatory Reaction



NL

Discount rates higher than EUR swap curve allowed.

DK

Discount rates higher than EUR swap curve allowed.

UK

Carry on Solvency 1+ system inc. ICA.

SE

Discount rates higher than EUR swap curve allowed.

DE

Additional reserves *Zinszusatzreserven* need to be set aside for policies with high reference yield.

CH

Allowed to use swaps less 10b.p. to 2015.

IT

Allow exclusion of M2M government bond yield movements.

ES

Allow exclusion of M2M government bond yield movements.

European (EIOPA) Regulatory Reaction

"Can we be coordinated please lads?"

EIOPA
EUROPEAN INSURANCE
AND OCCUPATIONAL PENSIONS AUTHORITY

Opinion

of the European Insurance and Occupational Pensions Authority of 28 February 2013 on

Supervisory Response to a Prolonged Low Interest Rate Environment

Supervisory Action

28. If national competent authorities have taken or are considering taking measures that would be applied to all firms in their jurisdiction facing these risks, EIOPA recommends that such measures should incorporate, as appropriate, conditionality and exit features if needed. It is expected that conditionality would set out clear criteria for availing of the measures being offered. Equally, there should be clear exit criteria for the cessation of such market wide measures, if feasible.

29. If national competent authorities are considering taking market-wide measures then they should notify EIOPA and its Members of this intention. This will allow better coordination of measures across jurisdictions in terms of timing and broad design. Discussion of proposed measures with EIOPA Member authorities that have already taken such action would also help to improve policy design.

30. EIOPA would engage in a follow-up exercise with Members in 2014 to explore what actions have been taken in light of this Opinion. A formal report would be prepared for consideration at the EIOPA Board of Supervisors.

EIOPA is of course keen to ensure that there is a harmonised regime.

This note calls for EIOPA and members to be notified (presumably in advance) - consult with the other NCA (regulators).

It also calls for exit criteria to be incorporated into NCA proposals.

Source : EIOPA

European Regulatory Reaction

Adapt the business model

Opinion

of the European Insurance and Occupational Pensions Authority of 28 February 2013 on

Supervisory Response to a Prolonged Low Interest Rate Environment

Unsustainable business models in particular should face challenge from supervisors at an early stage and it is expected that insurance undertakings should be encouraged to resolve their own problems. Even in those countries where the capital impact of low interest rates has already been recognised through market-consistent accounting, a threat to business models still exists. Persistent low interest rates may damage the underlying value proposition of insurers, resulting in a downward pressure on sales and consequently pressures on expense ratios. Additionally low interest rates may encourage other business model changes such as alterations in asset allocations in a "search for yield", which may create new risks on the asset side of the balance sheet.

National supervisory authorities should explore with insurance undertakings the other measures that could be taken regarding new contracts. Such measures might include adaptation product designs in such a way as to address the risks arising from low interest rates. The latter could include a de-risking of products or measures to increase their flexibility.

EIOPA in their opinion encourage NCA supervisors to challenge unviable business models at an early stage – even where market consistency is less recognised.

They warn on the search for yield in creating new risks but suggest product adaption, de-risking and increasing the firms flexibility.

Source : EIOPA

A Couple of Insurer Quotes from 2011 AR

Aviva and Allianz

Allianz describe an expectation of the business mix slowly drifting to unit-linked and protection business if the low rate regime perseveres.

Mitigating low rate environment actions on pricing, expenses, ALM and capital optimisation.

Aviva describe the way on which driver of risk are monitored as part of the risk appetite process – and cite the risk of a sustained low rate environment in that context.

In the LIFE sector, we expect relatively low interest rates to continue, limiting sales and profitability in mature markets, but growth in emerging markets is expected to remain robust. At the product level, traditional offerings will be less favored by insurers due to the high cost of providing guarantees and stringent capital requirements. Competition with banks in the short-term savings market is also expected to remain intense - to the detriment of bancassurance life sales. If low interest rates continue as anticipated, we also envisage that the life business mix will continue to slowly evolve towards more profitable unit-linked and protection business. As this shift takes place we expect new business profitability and the quality of earnings to improve.

in our asset base. The investment result for 2012 is expected to improve compared with 2011. We will continue to take action in 2012 in response to the challenging market environment, particularly low interest rates. This includes product and pricing actions, expense management, asset/liability management and capital optimization. Still, it must be noted

Risk appetite monitoring
As the macro-economic climate deteriorated in the latter half of the year, the Committee received regular detailed reports on key risk exposures, the drivers of risk in the Group and emerging and potential risks, including the risk of a sustained low interest rate environment. The Committee gave particular focus to the

Source : Company Accounts YE2011

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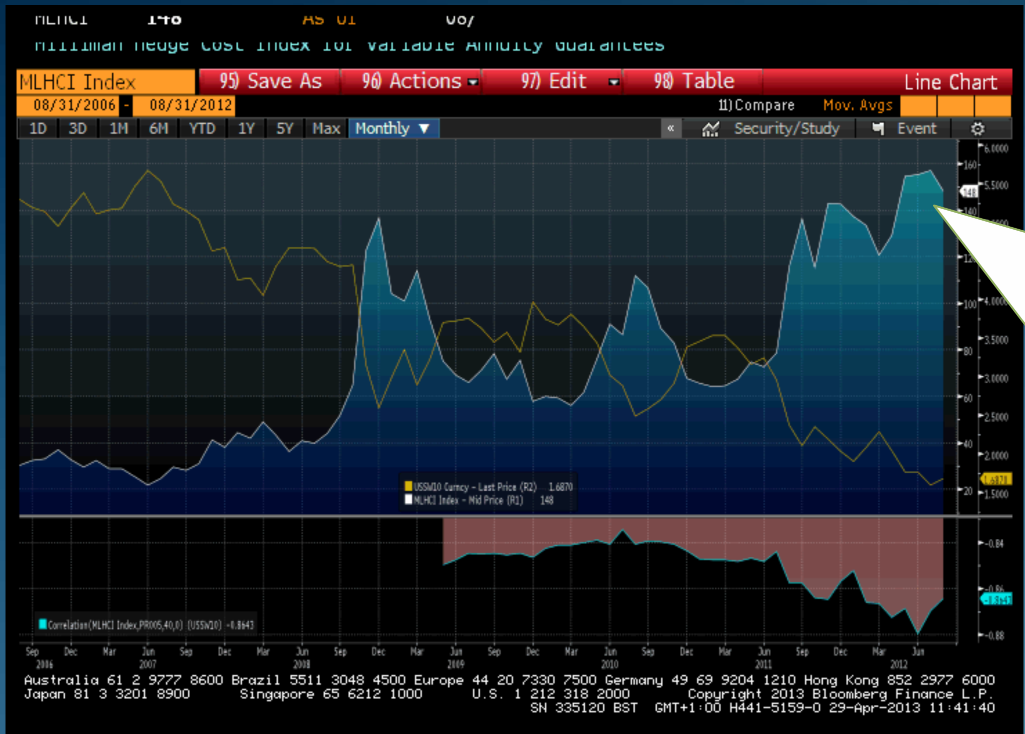
Cost of Hedging Guarantees

Rate Falls Have Impact



This – blue line - is a Milliman GMWB Hedge Cost Index published on Bloomberg (Ticker = MLHCI)

The orange line is the 10Y Swap Rate.

The correlation between these since c2006 has been around -85%.

A lot of the hedge cost has been driven by the falls in rates – underlying the importance of *rho (interest rate sensitivity)* hedging when undertaking dynamic hedging.

Practice has differed in Europe and US over whether – with low rates – it is still worth hedging.

Source : Milliman / Bloomberg

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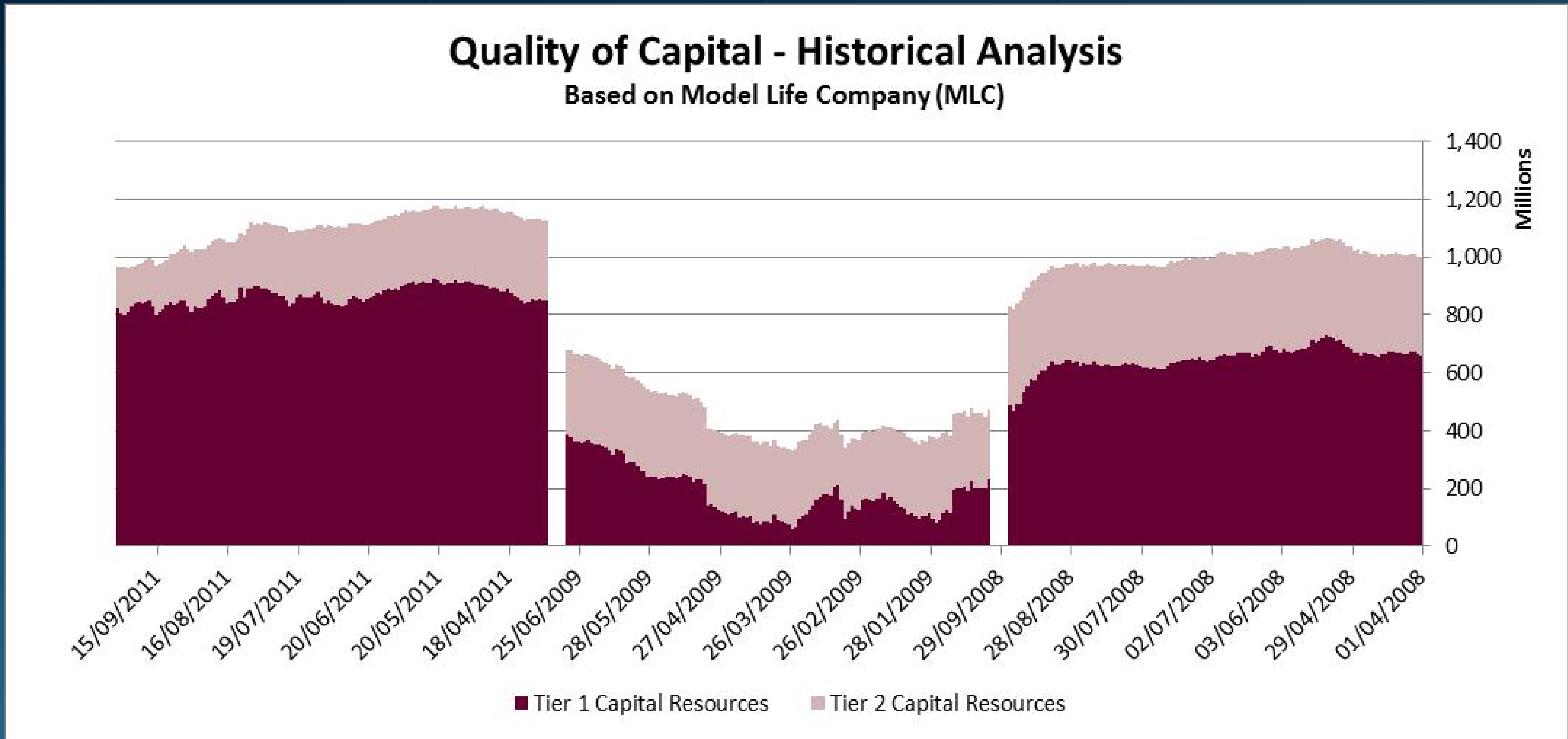
EMIR

While we are on the subject of hedging…



Looking back over recent history, margin calls would have had a material impact on capital quality - and on a typical insurers ability to cover the SCR

Source: Milliman Analysis

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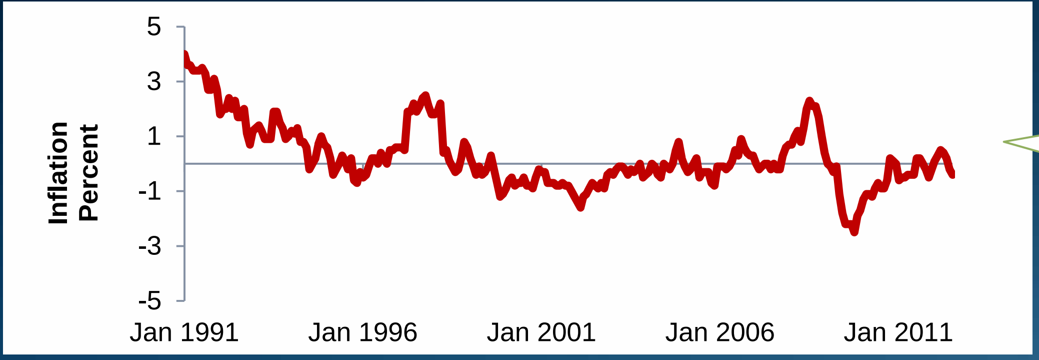
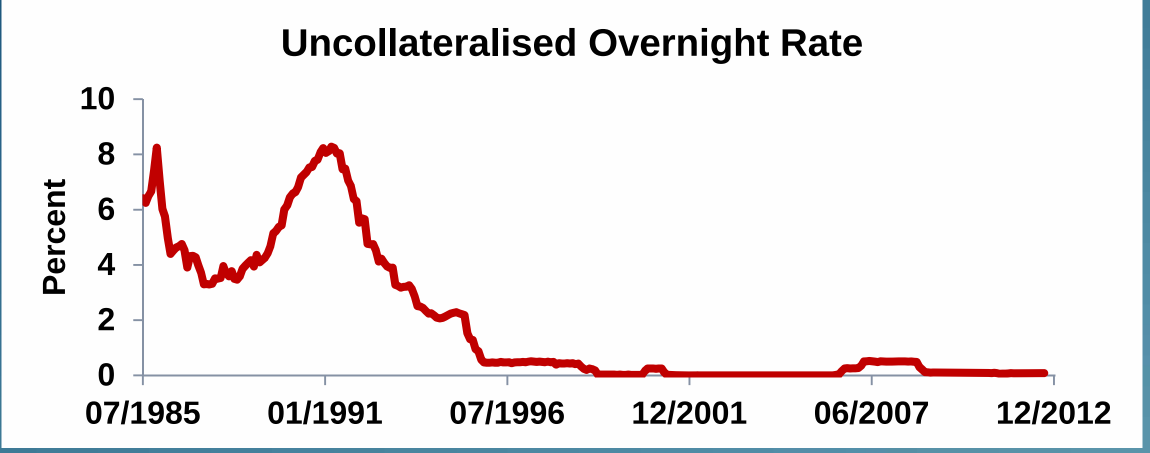
ZIRP in Japan

Combat Deflation with ZIRP



For much of the 1990s, Japan suffered from deflation.

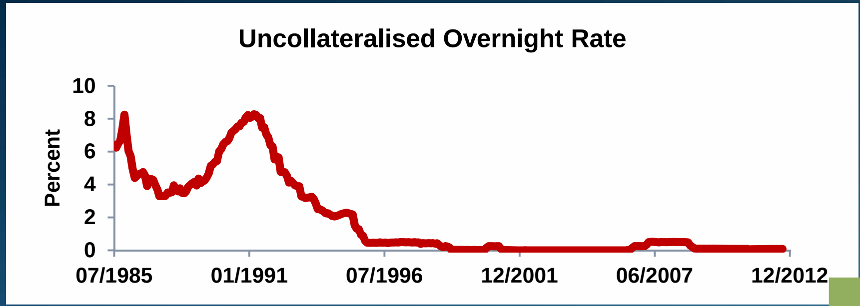
To tackle the deflationary climate, in February 1999, the Policy Board of the BOJ embarked on ZIRP
To manage expectations, the BOJ added that it was committed to ZIRP until deflationary concerns had alleviated



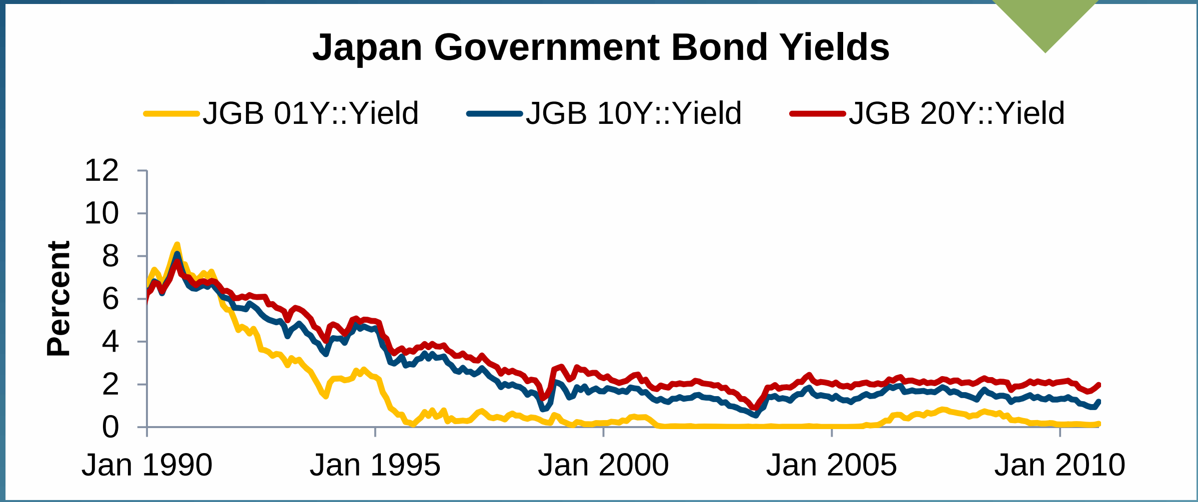
Source : Milliman / Japanese Government

ZIRP in Japan

… and the long rates too.



The impact of deflation and ZIRP on JGB yields has been pronounced.



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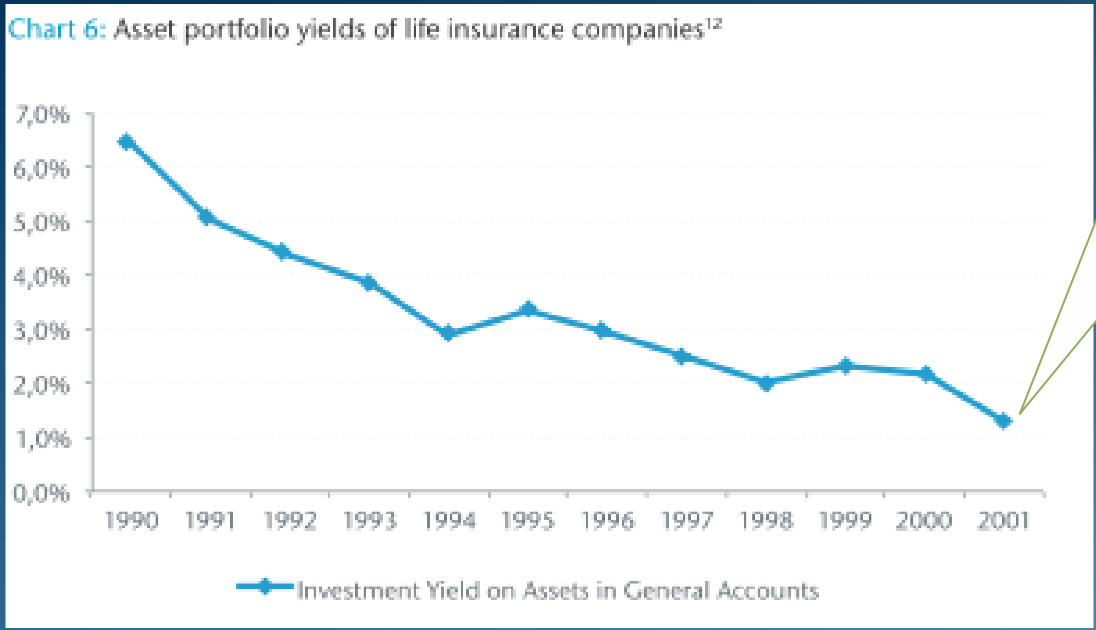
Japan Case Study

Falling Yields Through 1990s



With guarantees that had been sold c4% to compete with the – then – public sector post office savings account – a strong negative carry was forced onto the Japanese Life sector.

The rates that new long term policies were sold at did fall – but at nowhere near the rate that that could be earned in the markets.

Nissan Mutual Life (the first insurance company to go bust since WWII) was paying 4.7% and earning 3.2%.

Source : Charts originally published in "10 Years of Low Interest Rate Environment - Experiences From The Japanese Life Insurance Market", April 2013, by the copyright holder, General Reinsurance, and reprinted with its permission.

Japan Case Study

Insolvency Solution

Table 1: Insolvent Japanese life insurance companies in the rehabilitation process[15]

	Nissan Life	Toho Life	Daihyaku Life	Taisho Life	Chiyoda Life	Kyoei Life	Tokyo Life	Yamato Life
Legal structure of company	Mutual	Mutual	Mutual	Stock	Mutual	Stock	Mutual	Stock
Date of insolvency	April 1997	June 1999	May 2000	August 2000	October 2000	October 2000	March 2001	October 2008
Latest published Solvency Margin	-	154.3% (March 1998)	304.6% (March 1999)	67.7% (March 2000)	263.1% (March 2000)	210.6% (March 2000)	446.7% (March 2000)	555.0% (March 2008)
Excess Debt (JPY bio)	309.2 (May 1997)	650.0 (September 1999)	317.7 (September 2000)	36.5 (August 2000)	595.0 (October 2000)	689.5 (October 2000)	73.1 (March 2001)	64.3 (October 2008)
Future maximum guaranteed interest rate	2.75%	1.5%	1.0%	1.0%	1.5%	1.75%	2.6%	1.0%
Reduction of reserve	0%	10%	10%	10%	10%	8%	0%	10%
PPC fund injection (JPY bio)	-/-	366.3	145.0	26.7	0	0	0	27.7
Sponsoring company	Aoba Life	GE Edison Life	Manulife	Azami Life	AIG	Prudential	T&D	Gibraltar

In the late 1990s and early 2000's 9 (nine) insurers collapsed under the pressure of sustained low rates imposing a strong negative carry on the industry.

Japanese FSA resolution plan involved:

1. Remaining Capital Use
2. Reserve (P/H Benefit) Mark-Down
3. Industry Fund
4. Sponsor Company (Western Firms Enter Market)
5. Government Guarantee Underpin
6. Penal Lapse Fees

The Finance Ministry did not indemnify policyholders leading to a loss of trust in the sector when losses were allocated.

Source : Charts originally published in "10 Years of Low Interest Rate Environment - Experiences From The Japanese Life Insurance Market", April 2013, by the copyright holder, General Reinsurance, and reprinted with its permission.

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Japan Case Study

Market Restructuring

Faced with persistently low investment returns, the industry found a number of solutions including a focus on product strategy, distribution, risk management

… where Insolvency wasn't used.

Deregulation of product and price; dramatic shift in sales mix

Improved financial reporting; solvency requirements

Gradual implementation of risk management processes

Rationalisation of sales; reduction in sales force size

Staff reductions; hiring freezes; compensation reductions

Growth of new distribution channels

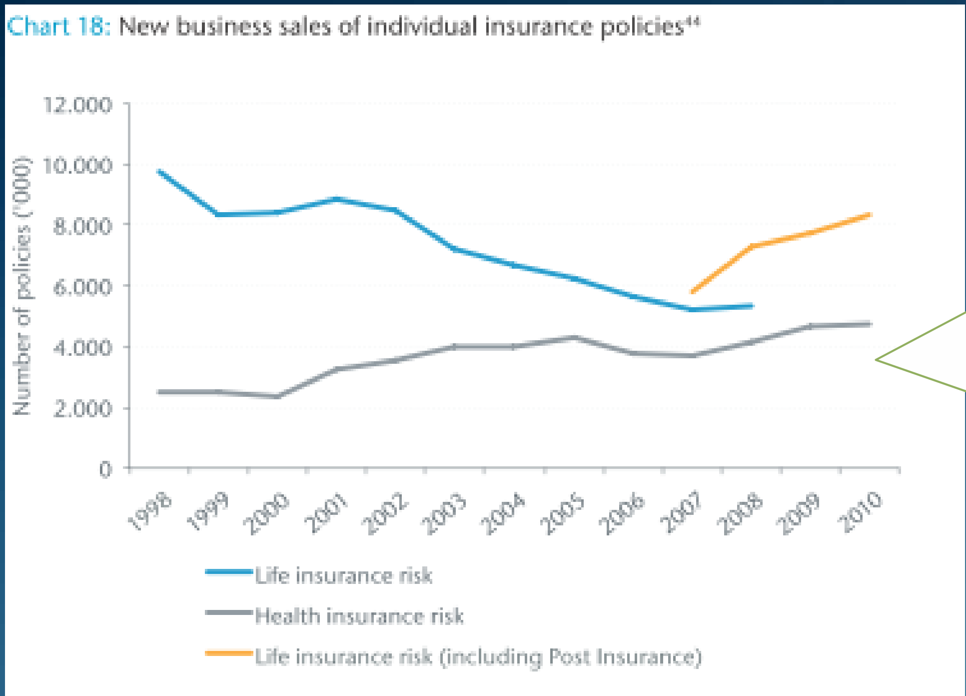
Insolvency and restructuring of weaker players

Gradual reduction in balance sheet risk

Dramatic growth of well managed new entrants

Japan Case Study

Fortunes reversed



Japanese industry – has been growing its protection sector and appears to have reversed the decline in life insurance sales post crisis.

The cross-sell is an important source of profit for the insurance firms.

These firms are finding a way to earn their way out of the negative carry they are suffering on heritage life insurance business.

Source : Charts originally published in "10 Years of Low Interest Rate Environment - Experiences From The Japanese Life Insurance Market", April 2013, by the copyright holder, General Reinsurance, and reprinted with its permission.

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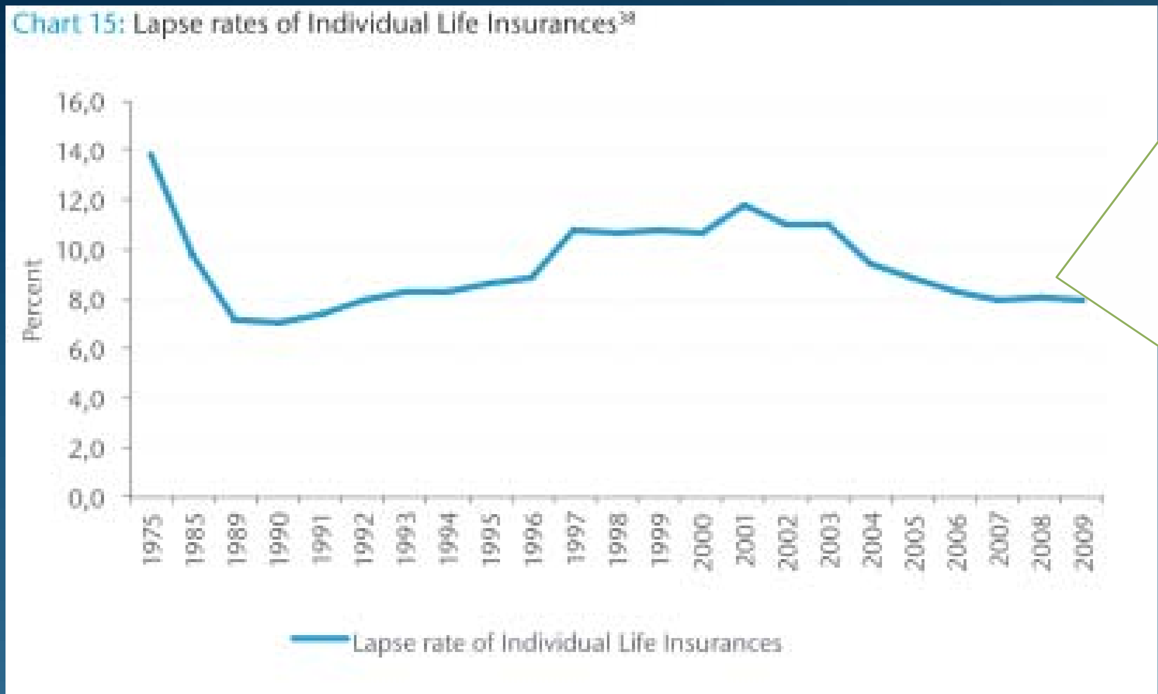
Japan Case Study

Taking lapse seriously



A lot of effort has been put into reducing lapse rates – the purpose to keep the customers on board for cross-selling protection products.

What is "a lot" of effort?

900 (yes you read that right – 9-0-0) strong retention team focussed on preventing customers leaving.

Is this just Japanese cultural conservatism wanting to maintain stability of – in this case – their customer base?

Maybe helps to understand the "Insurance Ladies" sales network that has operated in Japan post-war.

Source : Charts originally published in "10 Years of Low Interest Rate Environment - Experiences From The Japanese Life Insurance Market", April 2013, by the copyright holder, General Reinsurance, and reprinted with its permission.

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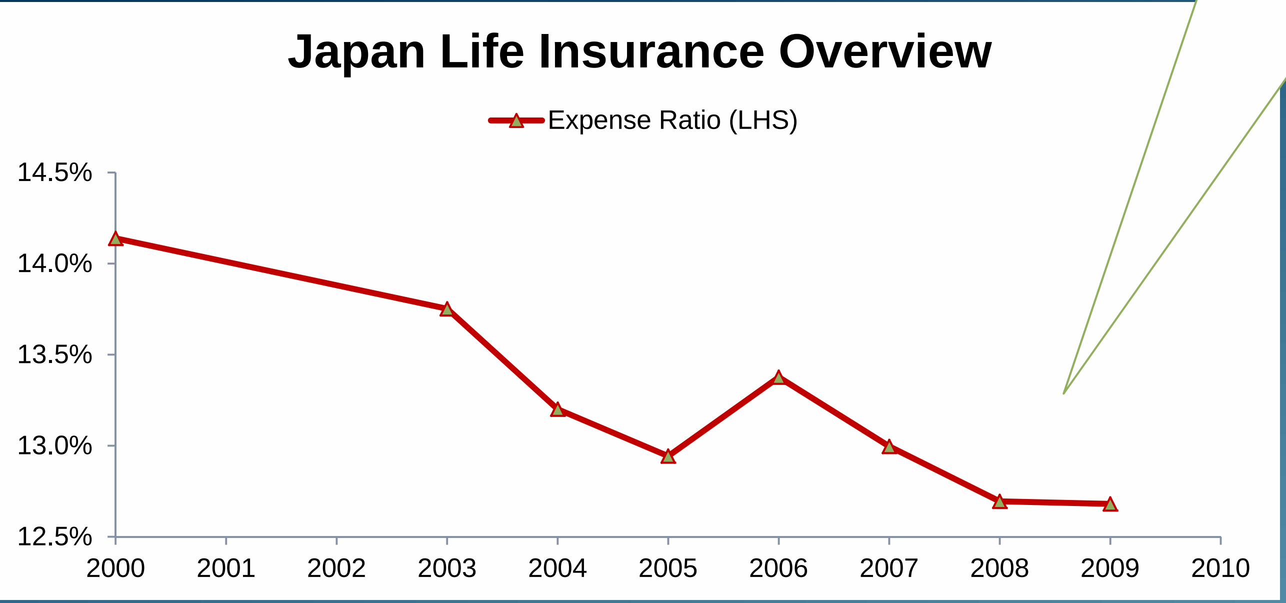
Japanese Case Study

Expenses Reduced

Successful companies have managed costs aggressively.

Also mortality profits against the reserving bases have made helpful contributions to the bottom line.

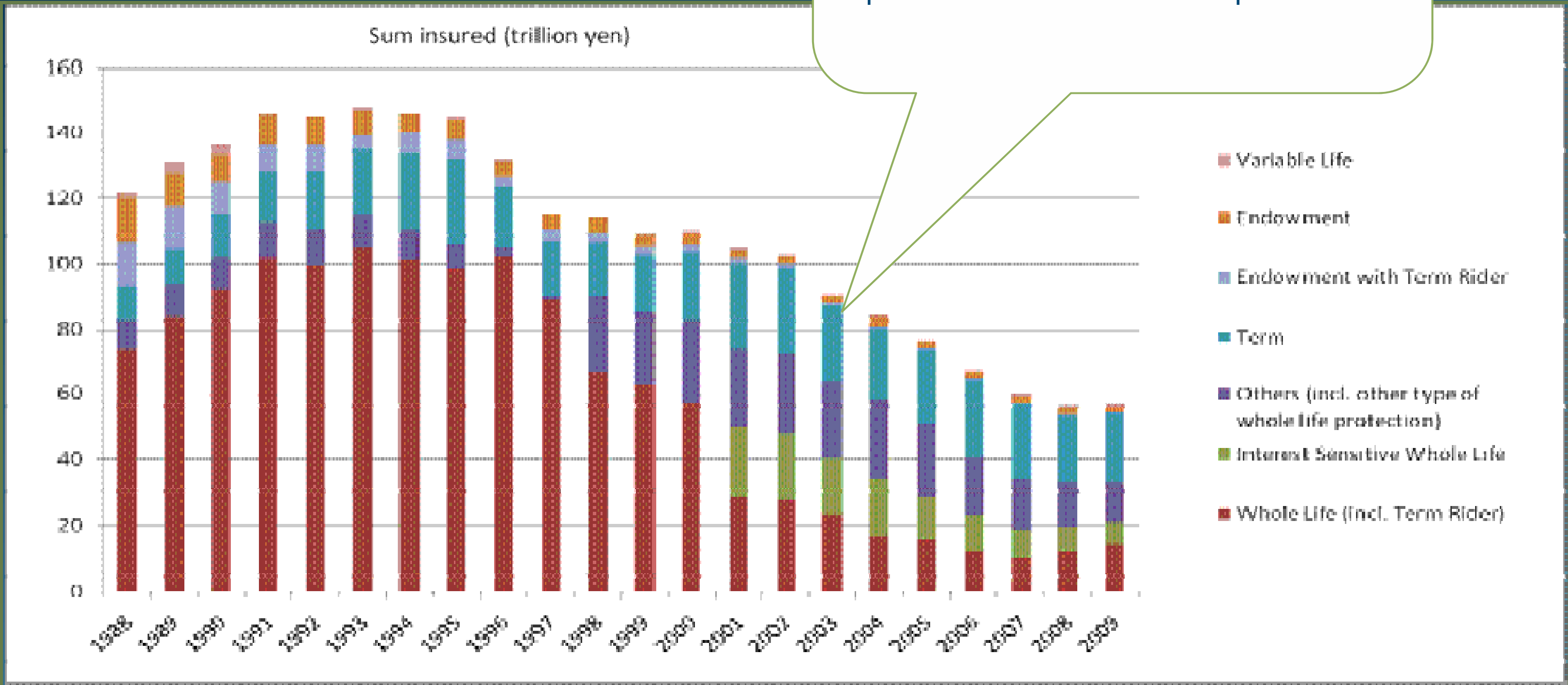


Source : Life Insurance Association of Japan

Japanese Case Study

Product Mix Changed

The major response has been a shift away from the traditional whole life product with riders to interest sensitive products and also towards protection.



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Japanese Case Study

Product Mix

Guaranteed interest rate reductions, price increases

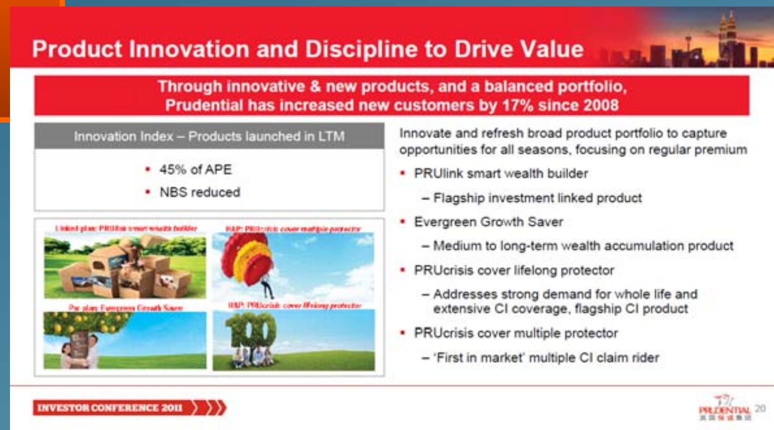
Redesign and repositioning of traditional Whole of Life

Competition for distribution, and competition based on innovation in product design has been fierce, but price competition has been muted, allowing companies to rebuild capital & surplus

Product deregulation and new product introductions, e.g.

- **Interest sensitive life**
- **Move to risk protection**
- **Medical and LTC coverage**
- **Variable annuity**

Sale of high margin medical business by mainstream players



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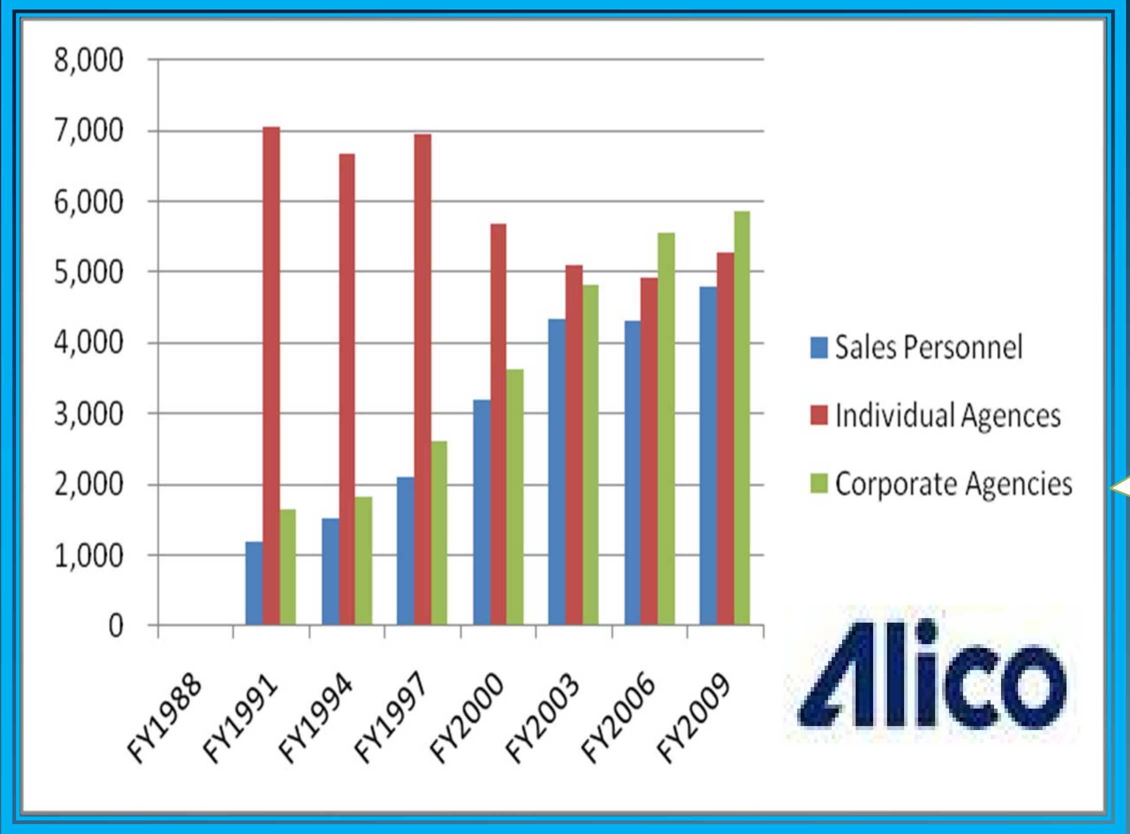
Japan Case Study

Distribution Restructured



Traditional sales forces have been restructured.

Professional sales advisor channels have grown.

This example from Alico in Japan.

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Japan Case Study

Investments

Shift to foreign currency denominated products

- Now AUD is the most popular saving products in Japan

Extension of asset duration

- Notwithstanding the low interest rates, insurance companies tended to lengthen the portfolios allowing them to better manage the ALM risk and secure a small pick-up in yield from longer dated assets

Betting on credit spread

- Before the crisis, there was a trend of increasing the exposure of foreign corporate bonds or securitized products with currency fully hedged as corporate bond market in Japan is not deep

China Interbank Market products may offer higher nominal rates of return.

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Japan Case Studies

The Winners

Daido Life

- Focused market niche: term life sales in the small and medium sized business market
- Savings products sold prudently
- Early awareness of ALM and risk management; reduced equity exposure
- Alliance with Taiyo Life to achieve scale and efficiencies(e.g. – joint system development)
- Access to capital market through demutualization
- Transparency of reporting; EVs

Aflac

- Capitalized on new product niche (cancer, dread disease)
- Highly successful pursuit of distribution through corporate agencies
- High investment in systems; focus on policyholder services and efficiency
- Innovative investment strategy coupled with risk management
- Meticulous financial reporting
- Continual product pricing, repricing, and evaluation

Prudential

- Along with Sony, introduced first professional distribution channel focused on needs based sales
- Patient and obsessive focus on quality in agent recruitment and training
- Products with high protection component – lower interest rate risk and high profit margin
- GAAP reporting with profit focus
- Low expense ratios
- Ability to leverage success with sequence of acquisitions (Kyoei, Aoba, AIG Star, AIG Edison)

Japan Case Studies

What the winners did…

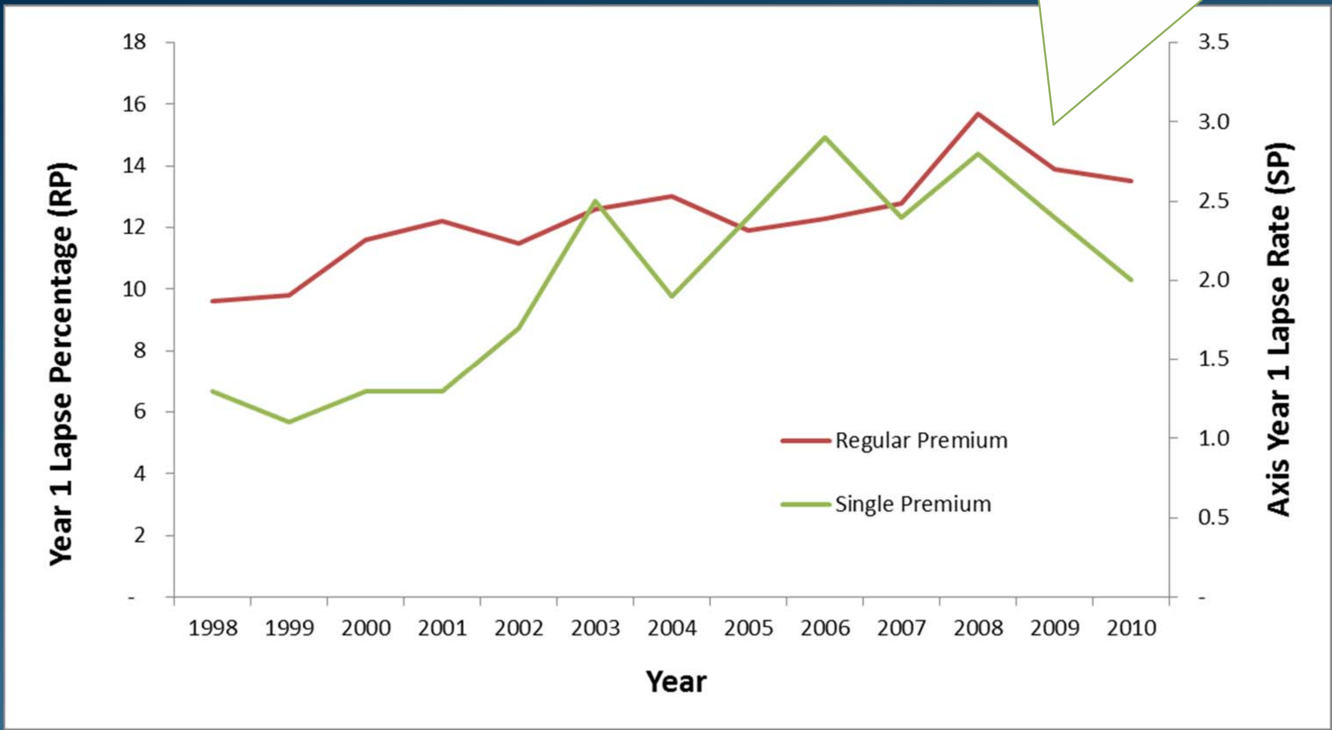
- Less burdened by bubble era mistakes
- Well defined product niches
- Leading edge of product innovation; leaders not followers
- Needs based sales; acute awareness of market, demographics
- Strong financial reporting and profit focus
- Relatively stronger risk management
- High investment in systems
- Internationally sophisticated investment departments
- Open to change (e.g. demutualization); opportunistic

Lessons for the UK

How do we in UK do on lapse?

Until the crisis lapse rates had been following an upward trend – but more recently the trend appears to be improving.

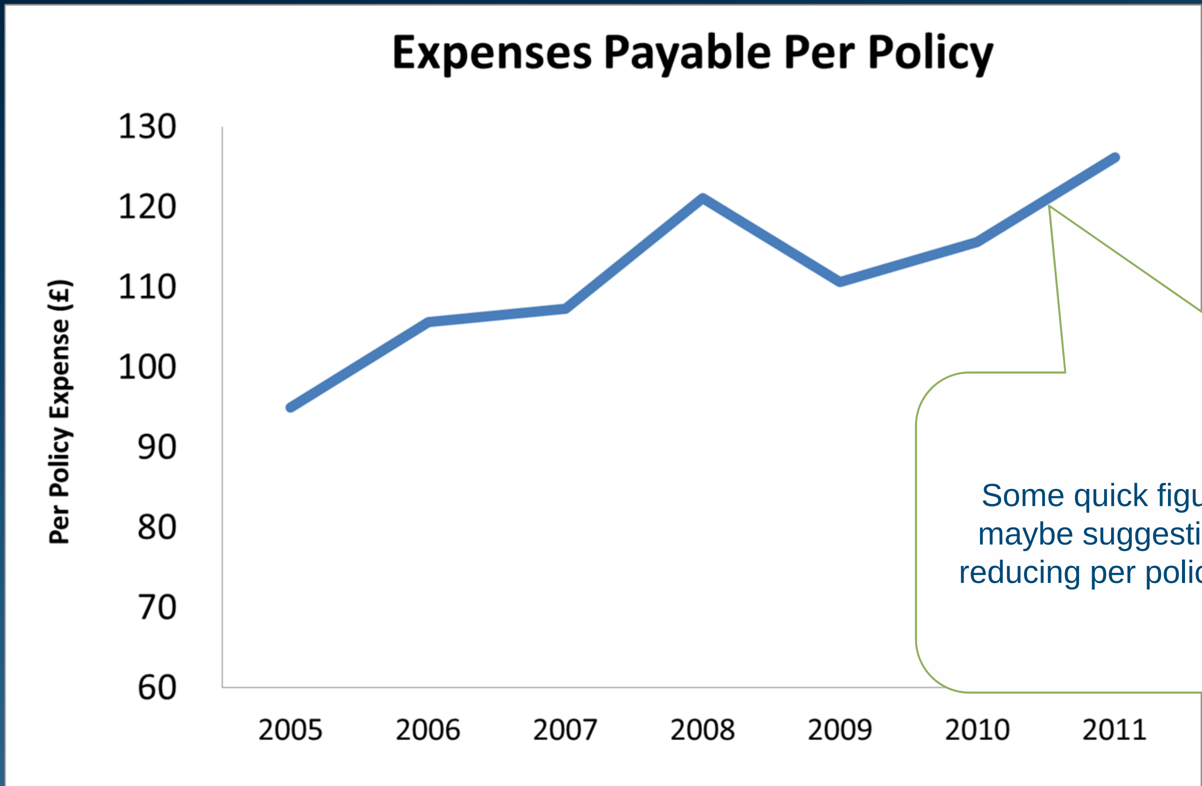
Maybe still a way to go to embed a downward trend like the Japanese have done.



Source : Milliman / FSA

Lessons for the UK

How do we in UK do on lapse?



Some quick figures derived from recent FSA Returns - maybe suggesting that the industry has a way to go on reducing per policy expenses in the way Japan has done.

Source : Milliman / FSA Returns

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Lessons for the UK

What the Japanese winners did…

- Less burdened by bubble era mistakes
- Well defined product niches
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There is always consumerism...

"I am tempted to say keep your money in the bank until the outlook is a bit clearer — but who wants money in a bank nowadays? So all I can think of is this: spend it. If you're having any trouble with that my wife would be happy to help. It's always good to get the experts involved in these troubled times."

Gary Jenkins writing in Credit Matters

Summary

- ZIRP (Zero Interest Rate Policy)
- European Insurance Impact
- Japanese Case Study
- Lessons for the UK?

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