P&C Insurers in the Low Interest Rate Environment

CAS Spring Meeting P-1

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Task

Low Interest Rate Environment Working Party (LIREWP) formed by the CAS Committee on Valuation Finance and Investment (VFIC) to research the issues related to the new environment of historically low interest rates.

Conclusions - 1

The low interest rate environment puts pressure on profitability. However, the industry's response through improved pricing and realigned investment strategies, along with the short term nature of policies has minimized issues with company solvency solely due to the sustained period of low interest rates.

Conclusions - 2

The lower interest rate environment creates challenges and risks for the sector should rates suddenly increase. If interest rates were to return suddenly to the higher historical levels, many companies could be negatively impacted by reduced market values of assets, coupled with higher expected claim costs.

Conclusions - 3

Most P&C insurance liabilities are affected to at least a degree by inflation. Duration matching approaches that only reflect expected payouts, but not inflation sensitivity, could prove inadequate to manage interest rate risk, depending on the degree of correlation between interest rates and inflation (i.e., *effective* duration of liabilities could be close to zero, leaving a highly leveraged asset position).

Conclusions - 4

In general, the U.S. P&C insurance sector appears to be reacting to the low interest environment in a rational manner, reducing the risk posed by the potential for a sudden rise in interest rates by shortening the duration of assets. Accordingly, the risk of widespread solvency problems due to a sudden rise of interest rates appears low.

Conclusions - 5

In general, larger companies are reacting more conservatively than small to medium sized companies. Some small to medium sized entities appear to be taking greater investment risk that could negatively impact these companies in the case of a sudden rise in interest rates/inflation.

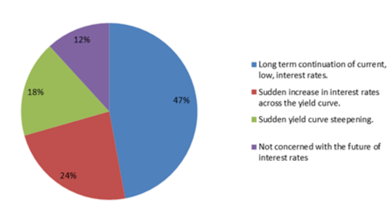
Towers Watson survey of CFOs

While all of the survey respondents indicated that they "expect low interest rates to be among their companies' biggest challenges, (…) half of respondents indicated that the risk of rapidly rising rates would also be one of their biggest challenges"

Property & Casualty Insurance CFO Survey #3 Investment Strategies- *Insights*, August 2012

LIREWP survey of CAS Membership

Figure 1. Which of the following is the most concerning to you, relative to your organization, with regard to future interest rates



Profitability & Pricing

Which of the following best matches your organization's approach to the use of interest rates when pricing property casualty insurance policies?

	Response Percent
We use new money (i.e. current) U.S. Treasury yields	60.0%
We use the yield on our current investment portfolio	26.7%
We use a long term expectation of yield (Treasury)	6.7%
We use a long term expectation of yield (other than U.S. Treasury)	6.7%

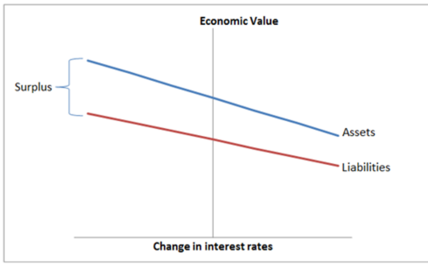
Profitability & Pricing

- New money yields are more appropriate – basic financial theory
- This disconnect could cause insurers relying on portfolio yields to underestimate premiums to meet profitability targets in the current low rate environment.
- While it is disappointing this issue gradually is dealt with over time as the portfolio yield decreases.
- Since property-casualty insurance contracts are short term contracts, generally with one year terms with the potential for re-pricing, this problem is generally foreseeable and manageable.
- The bigger potential risk is with regard to balance sheet strength, if interest rates rise suddenly.

Balance Sheet Risk – Impact of Inflation

- Risk of movements in interest rates are often considered through the concept of duration
- Question of inflation needs to be addressed because, in some models at lease, inflation and interest rates are expected to move together, and inflation is likely to impact P&C liabilities

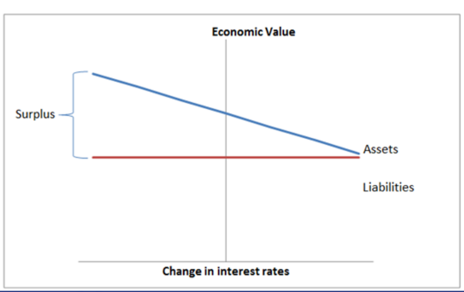
Classic Asset-Liability Management Theory



What if?

- Inflation and interest rates move perfectly together (i.e. interest rate up by 1 point means inflation up by 1 point), and….
- inflation operates on loss payments fully to the payment date?

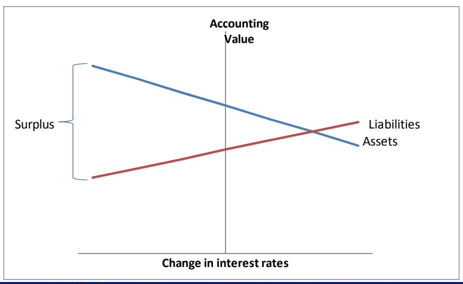
In that case…



What about Accounting Value?

- Let's suppose that companies understand the impact of the inflationary shock and book **nominal** (i.e. undiscounted) reserves appropriately.

In that case …



Considerations for Accounting Value

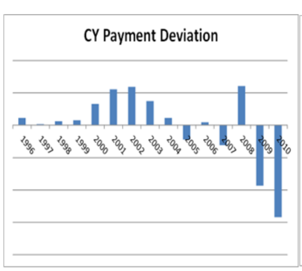
- Would companies actually recognize and book the new liability?
- "Held to Maturity" assets would dampen the interest rate impact on the asset side of the balance sheet.
- Regardless of book value, economic value still needs to be considered.

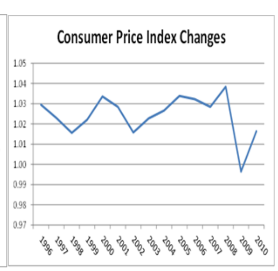
Are P&C Liabilities Inflation Sensitive?

- Hard to see it in financial statements
  - May not be recognized by the actuary
  - Profit/Reserve cycle influencing management
- Payments themselves should provide some information, and are less subject to manipulation.

Inflation Sensitivity Hypothesis

- Calendar periods with **higher inflation** => **higher** observed paid loss development factors
- Calendar periods with **lower inflation** => **lower** observed paid loss development factors
- Therefore, if we calculate long term average development factors, and "predict" the historical payments using these patterns, the **errors** of these predictions should coincide with inflation by calendar period.





Response by Companies?

- Take more risk?
- Towers Watson survey - 31% of CFOs expect that their companies' investment strategies to become "slightly more aggressive"
- LIREWP survey of actuaries- 41% of respondents indicated that their organization's risk management strategy or tactics changed as a result of the current low interest rate environment

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Review of Schedule D

- The percentage of invested assets in stocks decreased significantly in 2008 and, increased slightly in 2009, returned to the lower level in 2010.
- Because the market had made up a sizeable portion of the 2008/09 loss by 12/31/10, it appears the insurers have <u>not</u> moved to stocks in an effort to achieve higher total returns and may have, in fact, reduced their exposure to stocks in light of the very recent reminder of their volatility.

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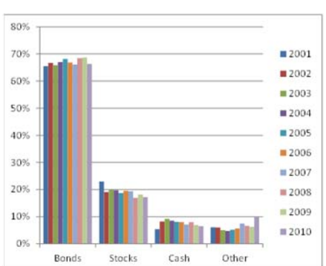
Review of Schedule D



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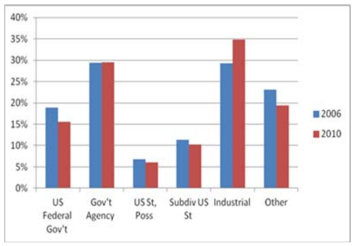
Review of Schedule D

Some shift from government to corporate bonds



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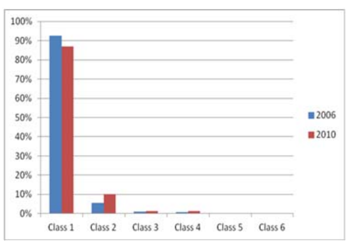
Review of Schedule D

Some shift in credit quality

Real, or a rose by any other name?



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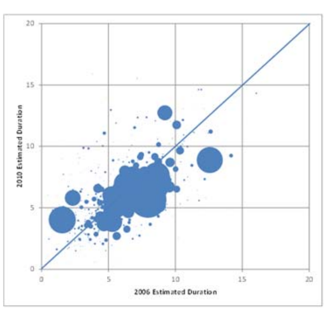
Shifting Duration of Assets

Duration the strong remaining lever to increase risk as an attempt to boost investment income

Generally <u>safer</u> behavior by the industry in 2010

Not all companies are the same



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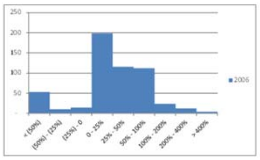
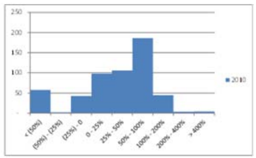
Loss Coverage Ratio

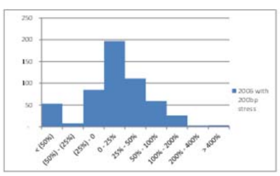
Defined:
(Carrying Value of Bonds – Loss Reserves) / Loss Reserves

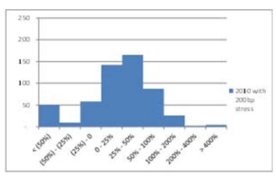




Most companies were generally more secure in 2010 by this measure

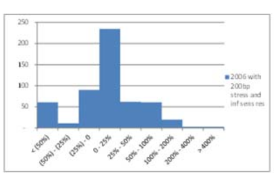
Stress Test- 200 bp Shock

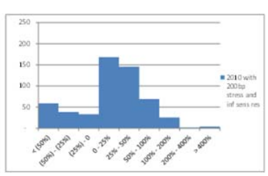




Including this stress test – the industry is still better in 2010 by this measure

Asset Shock with Inflation Sensitive Reserves





Adding inflation sensitivity, still shows general security, but perhaps issues for some companies.

Stress Testing Results

- The following table summarizes the percentage of total industry loss reserves with loss coverage ratios below 0% under each scenario

Scenario Description	2006	2010
Baseline	14%	19%
Interest Rates + 200 basis points	27%	22%
Interest Rates + 200 basis points and Inflationary Increase in Loss Reserves	30%	24%

Conclusions

- The low interest rate environment puts pressure on profitability, but companies are generally able to respond appropriately with regard to pricing of insurance products.
- P&C insurance liabilities give some evidence of inflation sensitivity, which is potentially an important consideration if interest rates and inflation move together.
- If interest rates were to return suddenly to the higher historical levels balance sheet problems could emerge for some companies.
- The risk of widespread solvency problems due to a sudden rise appears low.
- The largest companies appear to be behaving more conservatively compared to some smaller competitors.