

Session 7 PD Pricing Risk Management

RMTF Reflecting Risk in Pricing Survey

Todd Henderson

May 29, 2003



Western & Southern Financial Group

~~Reflecting Risk In Pricing Survey~~

- Fall 2002
- Determine Prevalence of Practices
 - Pricing Measures
 - Provisions for Risk
- Investment and ILA Product Development Sections
- Not yet published

Reflecting Risk In Pricing Survey

Survey Response

- 275 Responses
 - 235 US, 26 Canada
 - Australia, Asia, Europe, South America
- Broad Range of Employers and Practice Areas
 - Large, Medium and Small Companies
 - Mostly Life Insurers and Consultants
 - Mostly Individual Life, Health and Annuity
 - Mostly Pricing, Risk Management, Valuation

Reflecting Risk In Pricing Survey

Profit Measures

- Most use multiple profit measures
- Top responses were RO(I, E, C, A, etc) and Margin
 - Life – 35%, 20% (15% IRR)
 - Annuity – 50%, 15% (15% IRR)
 - A&H – 35%, 30% (15% Value Added)
 - Other – 45%, 25% (15% Value Added)
- Embedded Value
 - More important for Large Companies

Reflecting Risk In Pricing Survey

Reflecting Risk In General

- Capital Allocation
- Assumption Stress Testing
- Risk Adjusted Profit Target
- Stochastic Scenario Analysis
- Provision for Adverse Deviation

~~Reflecting Risk In Pricing Survey~~

Capital Allocation

- 55% use multiple of regulatory formula
- 25% use internal formula

Assumption Stress Testing

- 60% base stress testing parameters on judgment
- 20% develop confidence limits
- 20% look at historical worst case

Reflecting Risk In Pricing Survey

Risk Adjusted Profit Target

- 65% adjust target based on judgment
- 35% adjust target based on formula

Provisions for Adverse Deviation

- 50% base provision on recent historical experience
- 25% use an industry standard

~~Reflecting Risk In Pricing Survey~~

Stochastic Scenario Analysis

- 30% use percentiles
- 15% use mean-variance analysis
- 15% look at conditional tail expectation
- 15% analyze the problem scenarios

Reflecting Risk In Pricing Survey

Asset Default Risk

- 60% use a charge to yield
- 75% guided by investment area
- 50% use an internal model

Interest Rate and Equity Volatility Risk

- 30 % using stochastic scenario analysis
 - Historical, mean reversion
- 25 % stress test assumptions

Reflecting Risk In Pricing Survey

Adverse Claim Deviation Risk

- 40% stress test assumptions
- 25% use assumption PADs
- 10% use stochastic scenario analysis

Customer/Agent Behavior Risk

- 40% stress test assumptions
- 25% use a dynamic lapse formula

Reflecting Risk In Pricing Survey

Expense Risk

- 45% stress test assumptions
- 25% use assumption PADs
- 20% model inflation

Reflecting Risk In Pricing Survey

Risk Covariance

- 50% do no explicit additional work
- 15% have covariance component in capital formula
- 15% perform a multi-risk stochastic analysis
- 15% cited interest rate risk and dynamic lapses

Reflecting Risk In Pricing Survey

General Observation

- Asset related risks
 - default, volatility
 - have a higher tendency to be modeled
- Liability related risks
 - mortality, morbidity, lapse, expense
 - are more often stress tested or PADed
 - heavier reliance on judgment