Recent Developments in Transferring Risks

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Overview

- Financial Reinsurance
- Capital Markets to Insurance Markets
- Insurance Securitization
- Insurance Finance

Financial Reinsurance

- Aggregate stop loss
  - Design objectives
  - Accounting
  - Pricing
  - Examples
- Loss portfolio transfers
  - Accounting
  - Examples

Aggregate Stop Loss

- Design objectives
  - Earnings stability
  - Early recognition of investment income
  - Just-enough risk transfer
- Typical design
  - 40 points of protection attaching at a 60% loss ratio, additional premium (AP) of 45% of ceded losses, $? margin
  - Ceded premiums paid into a funds withheld account (FWA)
    - Interest credited annually to FWA
    - Additional premium deemed payable at inception

Aggregate Stop Loss

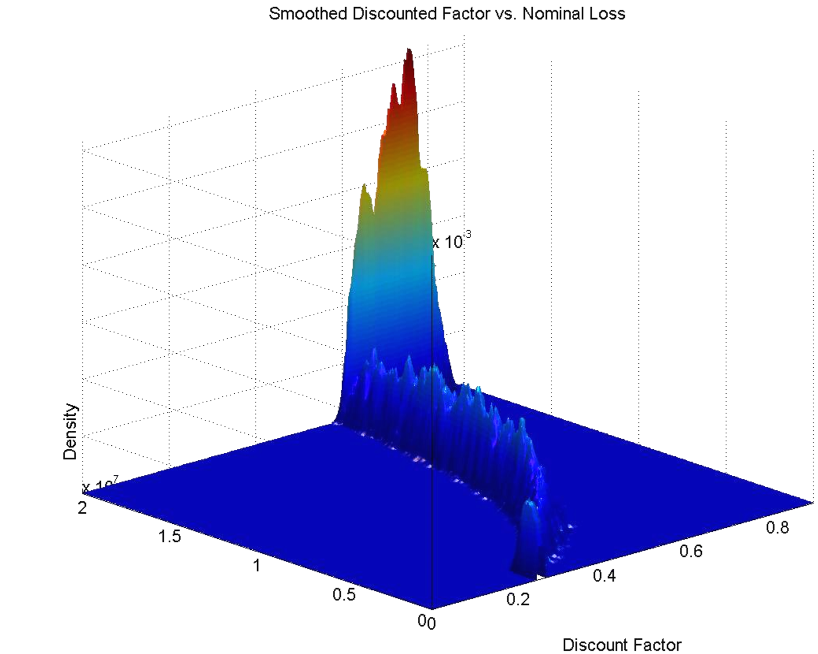
- Other features
  - Funds Transferred Account
    - Retro guarantees crediting rate
    - Retro earns spread: actual earnings over crediting rate
    - LOC issues for non-admitted paper
  - Variable AP for different layers of protection
  - Other features to encourage commutation
    - Further AP due if full limits ceded
    - Crediting rate increases with ceded loss (FWA)
    - Lower interest rate on returned funds

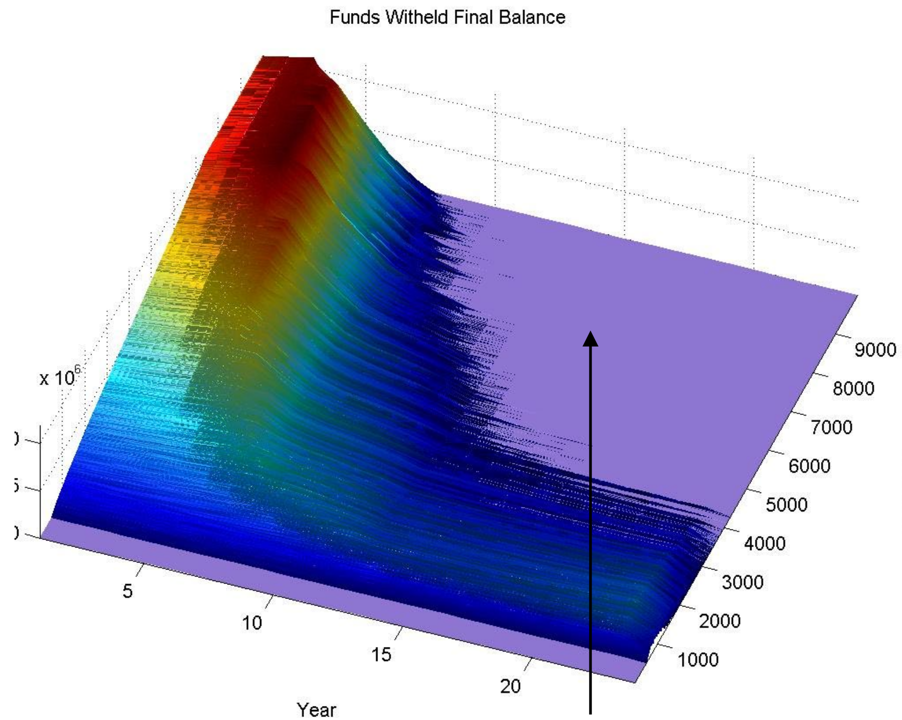
Aggregate Stop Loss

- Risk transfer (FASB 113)
  - Assume significant insurance risk
  - Reasonably possible that reinsurer may realize a significant loss from transaction
    - Loss determined using PV(cash flows)
    - 10% chance of 10% loss
- Reinsurance vs. Deposit accounting
  - Immediate recognition of income benefit vs. amortization of benefit

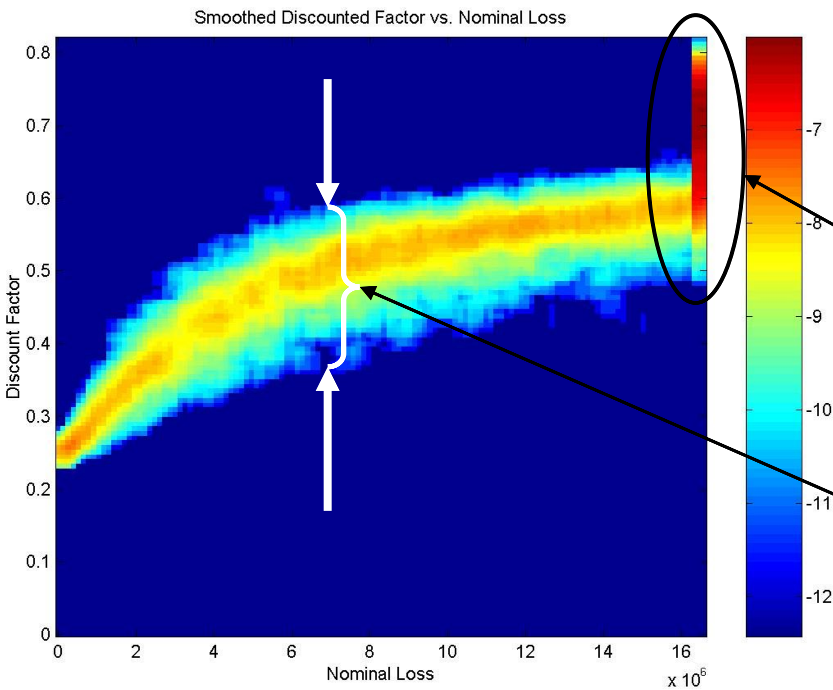
Aggregate Stop Loss

- Pricing
  - Variability in ultimate losses and pay out patterns
    - Multiple lines of business with different pay outs
    - Cat and liability
  - Simulate from multivariate aggregate loss distribution and combine with appropriate pay out pattern for each line
  - Three possible outcomes:
    - Cede nothing
    - Cede amount less than limit
    - Cede full limit





FWA depleted too frequently: restructure/bind!



Discount Factor increases quickly when policy hits limit

Range of discount factors driven by mix of business

Aggregate Stop Loss

- Win/win nature of deal
  - Cedent gets earlier recognition of income
  - Retrocedent gets additional income for relatively little risk
    - Protection through AP and other features
    - Wide range of reasonable values
  - Negotiations can be more fruitful than for LPTs

Aggregate Stop Loss

- St. Paul 1999 Annual Statement
  - Ceded $534M of losses for $273M premium
  - Implied discount 51%
    - Agg stop pays based on paid losses
  - Pre-tax benefit of $261M taken in 1999
  - Triggered in part by cat losses
  - Allows discount in longer tailed lines to pay for cat losses

Loss Portfolio Transfers

- Loss Portfolio Transfer covers many structures:
  - Traditional LPT
  - Adverse Loss Development Covers or Retrospective Aggregate XOL
- FASB 113: LPTs are retrospective
  - Deposit accounting
    - Amortize income benefit over remaining settlement period
    - Greatly reduces desirability of pure LPTs

Loss Portfolio Transfers

- EITF D54 Exception
  - FASB determined treatment of reserve guarantees obtained as part of acquisition should be consistent between insurance and non-insurance entities
  - Allows immediate recognition of benefits to acquiring company
  - Seller may obtain third-party reinsurance to secure guarantee
    - Arrangement contemporaneous and contingent on purchase

Loss Portfolio Transfers

- ACE/CIGNA and Berkshire
  - CIGNA arranged $2.5B aggregate cover for ACE as part of purchase
  - $1.25B assets transferred to National Indemnity to cover liabilities

Loss Portfolio Transfers

- Fairfax Holdings has arranged similar protection for its acquisitions
- Most recent deal: $1B adverse loss development cover
  - Protects against development and uncollectible reinsurance above 12/31/98 reserves
  - Ceded $251M to treaty at 12/31/99
    - Complex structure
    - Not pure risk transfer
    - AP due in future years if more losses ceded to contract
  - Canadian accounting rules

Loss Portfolio Transfers

- Pricing
  - Aggregate stop loss + more
  - Understanding existing liabilities
    - Asbestos, Pollution, Mass-Tort, claims reviews
    - Actuarial wrangling over ultimate and pay out
  - Interesting actuarial problem of determining pay out patterns conditional on observed loss to date
    - See 1999 DFA Presentation, Chicago
  - Discount greater than expected, since faster-paying initial years have less impact
  - More information can make it harder to agree terms

Miscellaneous

- Lloyds Central Fund
  - Reinsures all syndicate policies
  - Annual cover GBP350M xs GBP100M
    - Underlying fund previously GBP175M
    - Equitas available for older years
  - Five year aggregate limit of GBP500M
  - Premium 4.5% ROL ($23.35m) / year
  - Swiss Re, ERC, St Paul, Hannover Re, XL Mid Ocean Re, Chubb

Capital to Insurance Markets

“Insurer, reinsurer, guarantor, counter-party, investor—these terms can be used interchangeably to describe the ‘reinsurance’ company of today”

A.M. Best, Special Report on Reinsurance
September 1999

Capital to Insurance Markets

- Anything goes
  - Insurance markets willing to consider wide range of risks
  - Soft market? Buyer motivation?
- Common Feature: **Cash Flow Protection**
  - Credit enhancement, lower cost of capital
  - Greater leverage
  - Operational flexibility
  - Tax benefits (concave tax schedules)
  - Internal capital budgeting and project planning
  - Higher stock market valuation multiples
- Protection makes financing opportunity more palatable to capital market financiers

Capital to Insurance Markets

- Examples
  - Business Interruption coverage in property
  - Revenue from new construction project
  - Revenue from use of existing capital base
  - Residual value guarantees
  - Investment return guarantee
  - Foreign exchange and other pure financial risks
  - Contingent liability transfers / dual trigger
    - Embedded options accounting and FASB 133

Capital to Insurance Markets

- Revenue Guarantee for New Transportation Infrastructure Project
  - Ultimate "Big Tent" Actuarial Problem
    - Demographics, Econometrics, Stochastic Simulation
  - Pricing Considerations include:

Demographics: population growth	Operational Efficiency, Pricing, Advertising
Economic development: micro-regional and macro-regional differential growth rates	Reaction of existing modes: bus companies, employer sponsored modes
Consumer take up rates	Price Elasticity of Consumers
Growth of Private Transportation	

Capital to Insurance Markets

- Possible insurance structure: passenger guarantee
  - Multi-year, finite deal
    - Start-up protection, operational flexibility
  - Insured losses = Passenger shortfall x ($/passenger)
    - Objectively determined basis
  - Subject to annual and aggregate limits
  - Experience Account established with AP due if negative
  - Credit issue if future APs become due
  - AP = % of EAB shortfall

Capital to Insurance Markets

- Revenue Guarantee for Canadian Grain Handler
  - Insured has large, fixed capital base / infrastructure supporting grain handling
  - Grain production very variable
    - Weather, seeded acreage, events elsewhere in world
  - Puts on grain handling volumes
    - Objective index
    - More correlated to actual risk than weather derivatives, or agricultural derivatives
  - Integration with existing insurance programs
  - Derivative to insurance policy transformation

Capital to Insurance Markets

- Veal Calf Index Option
  - Veal producers wanted puts on veal calf index option
    - Financial type deal offered to insurers in finite package
  - Asian Option structure, put strike expressed as percentage of 52 week rolling average
  - Option-on-option: multi-year contract with specified rates
    - Weekly premium determined based on proximity to risk
  - Finite structure with Experience Account and commutation features
    - Credit risk concerns
    - Cancellation provisions introduced potential adverse selection

Capital to Insurance Markets

- Lease residual value
  - Offered through traditional insurance and capital markets securitization
    - Toyota Motor Credit / Gramercy Place
  - Puts on residual values
  - Many drivers of volatility in (auto) residual values
    - New Car prices drive second-hand prices
    - Fashions: sports cars to SUVs
    - Overall Economy: option package depreciation
    - Gas Prices: small or large large vehicles
  - RVI applied to many different assets