

# “Longevity Risk in the Life Settlement Market”

Actuaries’ Club of Hartford & Springfield  
(Spring 2009 Meeting)

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# Biography of Speaker

- 20+ Years Experience - Life, Accident & Health
- [www.aquariuscapital.com](http://www.aquariuscapital.com) & [www.aquariuslife.com](http://www.aquariuslife.com)
- Specialties – Insurance, Reinsurance & Employee Benefits
- Services – Actuarial, Brokering/Consulting, Reinsurance, U/Wing, Risk Mgmt
- Services in Life Settlements – Actuarial Services, Brokering, Intermediary Svcs.
- Actuarial Credentials: ASA, FCA, MAAA
- Actuarial Society of Greater NY, Appointed Chairperson for Continuing Education
- Society of Actuaries - Section Councils:
  - Reinsurance Section & Entrepreneurial Actuarial Section - Current
  - Actuary of the Future Section – Retired
  - Various NAIC/AAA Committees & Task Forces
- Other Credentials
  - Licensed life, accident and health broker (25+ states)
  - Licensed reinsurance intermediary & managing general underwriter
  - Licensed life settlement broker
  - Listed Arbitrator for Reinsurance Association of America (RAA)
  - Associate, American College of Healthcare Executives (ACHE)



# Overview

- What is a life settlement?
- Securitization
- Understanding the “Food Chain”
- Longevity Risk & Pricing Considerations
- Impact of the Subprime
- Specialty Products
  - Premium Financing
  - Beneficial Interest
  - Risk Transfer Products
  - Synthetics
- Transparency



# What is a life settlement?

- Transactions in which an insurance policyholder sells his/her insurance policy to a life settlement provider for cash compensation.
- What traditionally happens when policy is sold?
  - Policyowner is purchaser of policy - - pays premiums
  - Beneficiary is purchaser of policy - - received death benefits
  - Insured remains the same
  - Retail broker remains the same
  - **Policy could potentially be sold again**



# Mortality vs Longevity Risk

- Mortality Risk:
  - Premature deaths create unexpected liabilities.
- Longevity Risk:
  - Deviation of mortality (or life expectancy) results from the curves used for pricing purposes.



# What are non-mortality risk issues?

- Is Closing Document/Agreement appropriate?
- Mitigating third party exposures
  - Various parties in the food chain
- Believable life insurance illustrations
- Liquidity - - - Could be largest issue today?
- Compliance - Insurable interest, Contestability
- Reporting to validate/revalidate assumptions
- State regulations - - many variations
- Changes and application of tax rules



# Websites to Know

- Tip: See SOA Taxation Section Newsletter (Vol. 5, Issue 1, Feb. 2009, Deloitte Tax LLP) link for taxation information

<http://www.soa.org/library/newsletters/taxing-times/2009/february/tax-2009-vol5-iss1.pdf>

- Life Insurance Settlement Association (LISA)
  - 143 Member Companies (6/1/09)
  - [www.thevoiceoftheindustry.com](http://www.thevoiceoftheindustry.com)



# Managing Risk within “Food Chain”

- Client
  - Insured, Policyholder & Beneficiaries
- Life Insurance Company
- Referring Party(ies) – Broker/General Agent/Other
- Life Settlement Broker(s)
- Life Settlement Provider
- Life Settlement Funder(s)
- Funders’ Funders - Private Equity/Hedge Funds
- Reinsurers
- Medical Underwriting
- Other Parties
  - Premium Finance, Aggregators, Trusted Advisors
- And so on.....

# Baby Boomers

(Humana: Winter 2009 Newsletter)

- Start Collecting Social Security Benefits (SSB)– Feb 2008
- 2008 – 3.2 Million turn 62 (365 per hour)
  - Half Expected to retire early and draw 75% of SSB
- 80 Million to qualify for SS & Medicare over next 22 Yrs
- 2011: First group turn 65 and become Medicare Eligible
- 2012: Boomers that do not retire early turn 66 and become eligible for full benefits
- 2020: People ages 55-65 projected to increase 75%
- 2030: People  $\geq$  65 expected to double
- 2050: People  $\geq$  85 expected to grown by 382%



# Why new buyers entered market? ("Perceived" Opportunities)

- PERCEIVED High Returns (20+ % ROI)
- PERCEIVED Low Volatility
- PERCEIVED High Demand
  - Plenty of Unwanted Insurance Policies
- PERCEIVED Low Supply (Room for New Buyers)
  - Reputation Risk has reduced supply
- PERCEIVED Unique Distribution
- Increased Credibility in Market

➢ AM Best Debt Rating – Initially released 2004



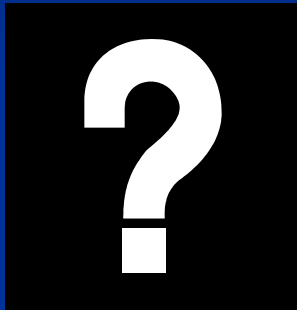
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# Life Settlement Securitization

- Type of Policies Permitted/Conditions
- Service Providers – **Medical UWriting**, Legal Review, Administration
- Medical Records
- Policy Tracking/Inforce
- Diversity
- **Longevity/Risk Mitigation/Liquidity Facility**
- Estimating Portfolio Residual Value
- Liquidity Risk Mitigation
- **Life Settlement Pricing**
- Acquisition Schedule
- Policy Optimization
- **Portfolio Liquidation Plan**
- Management Expertise
- Documentation



Tip: Visit AM Best & Company website link <http://www.ambest.com/debt/lifeselement.pdf> to learn more about life settlement securitization.



# Art vs Science

- Why Sellers Sell?                      Sale Price  $>$  Cash Value
- Why Buyers Buy?                      Sale Price  $<$  “Actuarial” Value

Question: Who calculated the “Actuarial” Value?

# Pricing Considerations

- The Providers determine policy value based on
  - Actuary tables
  - **Medical underwriting**
  - Administrative expenses – Commissions, internal costs, etc.
  - Funding Source Returns - ROI
- Purchase price will be based on above as well as:
  - Cash surrender value (defined by non-forfeiture laws)
  - Client's threshold
  - Other providers' offers (bidding process)



# Actuarial Formulas

- $Q_x$  - Mortality Tables
- $A_{x:n}$  - PV of Future Benefits ( $x$  = age;  $n$  = duration)
- $a_{x:n}$  - PV of Future Premium ( $x$  = age;  $n$  = duration)
- Commutation Functions
  - $N_x, M_x, C_x, D_x$
- $V_x$  - Reserves or PV Future Benefits less

- Cash Values (non-forfeiture laws)

How do we manage the “once & done” pricing? Do our rates have enough conservatism to meet ROIs?



# How do we meet ROIs “Mortality Arbitrage”

- Can Mortality Arbitrage cover the costs of the following:
  - Brokerage Commissions - - may be multiple brokers
  - Facility Overhead/Administrative Expenses
  - Borrowing Expenses
    - Initial Transaction Fees – Purchase Policy
    - Ongoing Costs – Ongoing Premium Payments & Facility Fees
  - Taxes
  - Create margin to continue future premium



# What Mortality Tables are being used?

- Types of Tables
  - SOA 1975-80 Basic Table (Later 1985-90, 1990-95)
  - 2001 VBT or 2008 VBT (Valuation Basic Table)
  - 1980 CSO or 2001 CSO (Commissioner Standard Ordinary)
  - RP2000 – Retirement Protection Act in 1994
  - 83 GAM or 94 GAM (Group Annuity Mortality)
  - US 91 Table
  - UP 84 Table (Uninsured Pension)
  - Others – Industry vs Homegrown



# Mortality Tables (Continued)

- Ultimate vs Select/Ultimate
- Smoker/Non-Smoker
- Gender vs Unisex
- Selection of Mortality
  - Date of Policy Issue
  - Date of Life Settlement Transaction
  - Date of Valuation

# Mortality Tables (Continued)

- Mortality Improvements
  - Duration
  - Age-Specific
  - Gender vs Unisex
  - Industry (e.g., Blue Collar vs White Collar)
  - Morbidity Class or Illness



# 2007 Report of SOA Mortality Table Survey Subcommittee

## 50 Direct Writers Surveyed for Pricing Tables

- SOA 1975-80 Basic Table 42%
- 2001 VBT 32%
- Own Experience 14%
- Remaining Tables 14%
- Subtotal 100%\*

*\*Note: Some carriers may use multiple tables.*



# 2007 Report of SOA Mortality Table Survey Subcommittee (continued)

## Top Reasons for Table Selection

- Best reflects their business
- Relationship of Select to Ultimate best reflects future experience
- Maintain continuity with prior pricing assumptions
- Consistent with ceding companies' experience

*Note: SOA Reinsurance Section Council Newsletter, November 2007*



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# Sample Loss of Life Expectancy Calculations (in Years)

| <u>Individual</u> | <u>Age</u> | <u>Ave. Life Expectancy</u> | <u>Mortality Load</u> | <u>Revised Life Expectancy</u> | <u>Reduction in Life Years</u> |
|-------------------|------------|-----------------------------|-----------------------|--------------------------------|--------------------------------|
| 1                 | 66         | 14.1                        | 175%                  | 10.2                           | 3.9                            |
| 2                 | 39         | 35.7                        | 200%                  | 28.4                           | 7.3                            |
| 3                 | 47         | 28.6                        | 250%                  | 19.8                           | 8.8                            |
| 4                 | 41         | 33.9                        | 325%                  | 22.0                           | 11.9                           |
| 5                 | 59         | 18.9                        | 450%                  | 7.9                            | 11.0                           |

# Sample Policy Valuation (Illustrative Purposes)

- Present Value of Future Claims less Future Premium (see next slide)
  - Mortality Table = RP 2000
  - Discount Rate = 5.5%
  - PV Scenarios: For simplicity, excludes admin expenses, profit margin/ROI, acquisition costs/commissions, taxes, and other facility expenses
- Sample Policy
  - Male
  - Policy Issue Age = 84
  - Policy Valuation Age = 86
  - Face Amount = \$5,000,000 (Assumed payable end of year)
  - Annual Premium = \$500,000 to age 100 (Assumed payable beginning of year)



# Sample Valuation - Age 86 (Scenarios of “Mortality Arbitrage”)

| Medical Underwriting<br>Mortality<br><u>Load %</u> | Life<br>Expectancy<br><u>in Months</u> | Present Value<br>Divided by<br><u>Face Amount</u> |
|--|--|---|
| 75%  | 83                                     | 16.7%   |
| 90%  | 73                                     | 24.4%   |
| 100%   | 67                                     | 28.8%   |
| 110%   | 63                                     | 32.6%   |
| 120%   | 59                                     | 36.1%   |
| 150%   | 50                                     | 44.5%   |
| 200%   | 40                                     | 54.2%   |
| 250%   | 33                                     | 60.9%   |
| 300%   | 29                                     | 65.8%   |

# Sample Third Party Underwriters

- 21<sup>st</sup> Services ([www.21stservices.com](http://www.21stservices.com))
- AVS
- Examination Management Services, Inc. ([www.emsinet.com](http://www.emsinet.com))
- Fasano Associates ([www.fasanoassociates.com](http://www.fasanoassociates.com))
- Global Life Underwriting ([www.globallifeunderwriting.com](http://www.globallifeunderwriting.com))
- Insurance Strategies Services dba ISC Services ([www.iscservices.com](http://www.iscservices.com))
- Other
  - Barry Reed
  - ARHart Consulting
  - Many others



# Portfolio Sale – Buyers Exit Market

- Litigious situation – Policies in receivership
- Change or “loss” of funding sources - - Liquidity  
Longevity!
  - Unanticipated Costs/Premium - Possible Ruin
- Change in business plan
  - ROIs need to be higher
  - Concern of Reputation Risk – Managing the “Google” Factor
- **Did not purchase enough policies (no critical mass)**
  - Unsuccessful in creating fund for debt rating
  - Administrative expenses for maintaining facility is too high



ROIs not being met  
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# Can “policy manufacturing” generate positive ROIs?

?



?



# Non-Recourse Premium Financing

- Non-recourse – Potentially free coverage for 2 to 4 years
- Perception: “Easy to Get”
  - Low or no down payments
  - No or minimal credit check
- Business popular in property & casualty insurance
- Insured Decision at Loan Repayment Date (Several Choices)
- Does it meet “insurable interest” requirements?
  - Managing Regulatory Longevity



# PFC - Debate of “Insurable Interest”

- NY Insurance Law Section 3205(b)
  - (A) “In the case of persons closely related by blood or by law, a substantial interest engendered by love and affection;”
  - (B) “In the case of other persons, a lawful and substantial interest in the continued life, health, bodily safety of the insured person, as distinguished from an interest which would arise only by, or would be enhanced in value by, the death, disability, or injury of the insured”
- Section 3205(b)(1) - Appears to permit insured to procure and immediately transfer a policy on his own life, irrespective of the existence of insurable interest in the assignee
- Challenges: Is the PFC a disinterested third party?

# Beneficial Interest Policies

- Reduces the level of paperwork with the insurance carrier
- Need to compress number of parties that were initial beneficiaries of the trust
  - Multiple beneficiaries means low transaction success rate
- Untested in the market
  - How will carriers react when policies mature (death claims)
  - How will regulators react?
  - **Importance of Good Paperwork & Pricing!**
  - Is there a mortality arbitrage?



# Risk Transfer or Leverage Deals

- Life Extension Risk Covers
- Reinsurance
- Residual Value Covers
- Options
- Contestability Covers
- Surety Bonds – Coupon or Mortality Bonds
- Synthetics

Do you know what you are purchasing?

Is the underwriter solvent?

Will underwriter pay the full amount

owe

?

?



# Where do the ROIs come from?

- Mortality Arbitrage – Life Settlements
- Tax Arbitrage – COLI/TOLI/VOLI
- Where do other products get their returns?
  - Pension Owned Life Insurance
  - Options
  - Synthetics

# Definitions

- Swap
  - Definition: An exchange of premiums over time according to specific terms
  - Policy vs Lives Based
- Other terms
  - Notes – Payout on occurrence or a pre-defined date
  - Index
    - Micro-longevity: Small number lives with medically UWing
    - Macro-longevity: 10,000 to 100,000 lives with no UWing



# Options

- Put Option – Price is pre-set with rights to exercise during a specific period
- “Look back” provision – Price not determined until option is exercised
- Pricing - In the “red” or in the “black” options?
- Option Guarantee
  - Special Purpose Vehicle (SPV)
  - NewCo

# Synthetics

- “Real” lives and “mock” policies
- Trading based on an index
- Longevity or Survivor Swaps
  - Based on survival of a pool of defined individuals
  - Low correlation to traditional assets
- Looks like a life settlement or IOLI or “pension scheme”
- May have redemption costs or redemption period to prevent early exit of investors

# Selection of Risk Classifications

- Age
- Gender
- Life Expectancy
- Geographic Region
- Impairment
  - Cancer
  - Cardiovascular
  - Diabetes

# Synthetics (Samples)

- Goldman Sachs (QxX Index)
- JP Morgan (Life Metrics)
- Deutsche Bank
- Credit Suisse
- Others

# Synthetics – What is appealing?

- Success Factors
  - Reduced the food chain and associated fees
  - No insurance companies or real policies involved
    - Removes risks of direct policy ownership (insurable interest and contestability)
    - No risk of policy lapsation
    - Reduces the due diligence process of paper files, etc.
  - Selection of Risk Classifications
  - Higher number of lives and perceived credibility
  - Involves financially strong companies?

# Synthetics – Challenges

- Failure
  - “House” sets the rules of engagement (e.g., pricing)
  - No true (or limited) mortality arbitrage
  - Purchases of synthetics do not quite know what they are purchasing?
  - Counterpart risk still exists
  - Major participants are hedge funds



# Transparency Issues

- Do investors know what they are investing in?
  - Reputation Risk: Making money on maturities (death claims)
  - Products in the Portfolio: Viaticals, STOLI, beneficial interest, contestable, premium finance, etc.
  - Understand the “mortality arbitrage”
  - Liquidity challenges
- What fees are involved and who is getting paid?
- What parties are participating? Any “skin in the game”?
- Is the policy a security?



# Thank you

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