

# Permanent Product Lapse Rates

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## Permanent Product Lapse Rates

- Producing a lapse study
- Lapse rate experience
- Setting lapse rate assumptions
- Financial impact of persistency
- Universal life persistency
- Secondary guarantee products

## Producing a Lapse Study

- Policy anniversary to anniversary study
- Most recent one-year experience where credible
  - Most recent 5-year otherwise
- Include total lapses and face amount reductions net of reinstatements
  - Should exclude not-taken policies
- Results by policy, face amount, and premium
  - Assumptions set by face amount

## Producing a Lapse Study

- Maintain detail by
  - Product/Market
  - Tobacco status
  - Classification
  - Policy size
  - Issue age
  - Duration
  - Gender
  - Premium mode
  - Type of underwriting
  - General agency
  - Agent
  - Agent's length of service

## Lapse Experience

- Block of Business
  - Large block of traditional permanent policies
    - Fixed and variable life
  - Very little universal life
  - Exposure
    - 2.8 million policies
    - \$228 billion of face amount

## Lapse Experience

- Product (or Market)
  - Defined as personal, estate, joint, variable, single premium, or corporate business
  - Lowest for single premium products
  - Estate and joint about 1.5% higher
  - Personal market (split by variable vs. fixed)
    - Fixed 2.0% higher
    - Variable about 2.5-3.0% higher (lower in very early durations)
    - Corporate 3.0%+ higher

## Lapse Experience

- Classification
  - Early duration rates increase by class
    - Additional 1.5% for each additional class
  - Rates in ultimate durations (16+) come together but still increase by class
  - Tobacco rates are 1.5 to 2.0 times the non-tobacco rates
    - Have similar increases by class

## Lapse Experience

- Issue Age
  - Significant differences by issue age
  - Highest for issue ages 20-29
  - Generally decrease with increasing age
    - Rates at ages 60+ are half the rates at 20-29
    - Juvenile rates are similar to the 60+ rates
  - Differences by age wear off in ultimate durations

## Lapse Experience

### ■ Duration

- Highest rates in first duration
- Generally decrease with increasing duration
  - Much different pattern for term
- Ultimate duration rates are about half of first duration rates
  - Steeper at younger ages
  - Flatter at older ages

## Lapse Experience

### ■ Policy Size

- 3 groups
  - \$0-\$100,000, \$100,001-\$300,000, and \$300,001+
- Rates are lowest for the highest sizes and flat by duration
- 1.5% higher for the middle sizes
- Another 2% higher for the smallest sizes
- Differences by size wear off by 10<sup>th</sup> duration

## Lapse Experience

- Gender
  - No significant differences
- Premium Mode
  - Increase by increasing payment frequency
  - Except for electronic funds transfers
- Type of Underwriting
  - Medical < Paramedical = Non-Medical
- Agents length of service
  - Experienced agents have significantly better lapse rates - even at very early durations

## Setting Lapse Assumptions

- Actual pricing assumptions vary by
  - Market, class, age, and duration only
- Use actual experience in each cell
  - One-year or five-year average depending on amount of data
  - Smooth for nice pattern
- Oversimplification can lead to significant mismatches

## Setting Lapse Assumptions

Experience Lapse Rates by Duration	
Duration	Lapse Rate
1	9.0%
2	7.5%
3	6.5%
4	5.5%
5	4.0%
Actual # of Lapses	975

## Setting Lapse Assumptions

Lapse Rates by Issue Age & Duration				
Duration	Age 25	Age 35	Age 45	All Ages
1	12.0%	10.0%	5.0%	9.0%
2	9.0%	9.0%	5.0%	7.5%
3	7.0%	8.0%	4.0%	6.5%
4	6.0%	7.0%	4.0%	5.5%
5	5.0%	4.0%	2.5%	4.0%
Actual #	390	380	205	975
Expected #	325	325	325	975
A/E	1.20	1.17	0.63	1.00

## Universal Life Persistency

- Policy Persistency
  - Same as previously discussed
  
- Premium Persistency
  - No required premium => model various on-going premium payment patterns
  - Premiums paid in duration<sub>t</sub> / duration<sub>t-1</sub> on policies remaining inforce

## Universal Life Persistency

- NM has very small block
  - All early duration
  - Mostly COLI; some joint life; very little personal
  - Exposure
    - 3,000 policies
    - \$134m total premiums paid to date
  
- Look at ratios by
  - Plan, 1<sup>st</sup> year premium, issue age, definition of life insurance test, and death benefit option

## Universal Life Persistency

- Plan
  - Steeper for single life than joint life (may be market driven)
- Total 1<sup>st</sup> year premiums paid
  - Lower ratios for higher 1<sup>st</sup> year premiums
- Issue age
  - No significant differences
- Definition of life insurance test
  - Flatter for CVA test than GLP test
- Death benefit option
  - No significant differences

## Secondary Guarantee Products

- Typically sold in estate market at older issue ages
  - Provides long term guaranteed death benefit without cash values
- Ultimate duration lapse rate is a key pricing assumption
  - 4-5% is common in industry
- Lapse rates on products with cash values??
  - Expect to be higher than SG product
- Lapse rates on products without cash values??
  - T100
  - Expect to be similar to SG product

## Financial Impact of Persistency

- Good persistency has positive impact in several areas
  - Investment Earnings
    - More premium to invest
    - Longer duration investments => higher return
  - Mortality
    - Improved mortality due to less anti-selection (healthy people more likely to lapse)
  - Expenses
    - Fixed costs spread over more policies

## Financial Impact of Persistency

- Promoting good persistency
  - Agent training
    - Explain advantage of good persistency
    - Better values => satisfied customer => repeat sales
  - Agent compensation
    - Higher renewal commissions
    - Persistency related bonuses
  - New features / pricing extended to existing policyowners where appropriate
    - No incentive to re-write the business