

# Commercial Lines Predictive Modeling – BOP



Mark Florenz  
CAS Predictive Modeling Seminar  
San Diego, CA  
Oct 6-7, 2008

# Agenda

---

- BOP - Unique Features
- BOP Modeling - Current Status
- Challenges for Predictive Modeling
- Considerations for Predictive Modeling
- Examples - Challenges and Considerations
- Conclusions

## BOP - What is BOP?

---

- The Businessowners policy (BOP) is a commercial package policy that provides Property and Liability insurance to certain types of small commercial businesses
- Covers small to medium sized businesses in limited occupancy classes

# BOP - Unique Features

---

- Started as an easy-to-business and expense saving product:
  - Property driven pricing
  - Composite rating for GL, and no collection of GL exposure
  - Less pricing options: IRPM is the major pricing option
  - Less options for coverage compared to package product
- Fairly uniform business
  - Stricter eligibility criteria than commercial package
  - Narrower range of policy sizes, types of businesses covered
- Independent product
  - Many insurance companies have developed their own independent business owners type policy
  - Companies may also develop their own class code system

# BOP - Unique Features

---

Between a personal and commercial risk

- Different from other commercial lines
  - Independent of Bureau
  - More uniform and less variation in exposure and coverage
  - Less pricing options (only IRPM, and no tiering, sometimes no company deviations, no experience rating, no dividend plan, etc)
  - Smaller size
  - Cleaner data
- Different from personal line HO
  - Commercial
  - Complex industry class code pricing
  - More contents only risks
  - Includes miscellaneous commercial coverages
  - Less data available

# BOP - Current Marketplace

---

- Fragmented industry
  - No dominant players in the industry
  - National players and regional players
  - Also offered by some traditional personal lines carriers
  - Focus of growth area for some personal carriers and many regional and national commercial carriers
- Products and pricing
  - Trend toward split rating
  - Expansion in coverage and classes
  - Spread into smaller middle market segment – less clear cut between middle market and small market

# BOP Modeling - Current Status

---

- A significant portion of BOP market is using predictive modeling
  - Because of its similarities to personal lines, BOP is one of the more advanced lines in terms of modeling usage and sophistication
  - More “competitive pressure” for carriers without models
- Typical applications for BOP:
  - Rating
    - Class plan optimization
    - Territory determination
  - Underwriting
    - Subjective credit / debit / IRPM
    - New business acceptance and underwriting
    - Non-renewal determination
  - Premium Optimization
    - Lifetime value
    - Retention / conversion

# Challenges for BOP Predictive Modeling

---

## Data challenges:

- Data quality
  - Generally good relative to commercial lines, bad relative to personal lines
- Data volume and credibility issue
  - Typically less than 100,000 BOP policies on their book
  - Most all companies will run into credibility issues for BOP
- Low hit rate for external data sources
- Multiple products over time - industry shift from composite rated to split rated
- Frequent change in book and coverage
  - Book underwritten
  - Class eligibility change
  - Coverage expansion
- Lack of “account view” for multi-line carriers



# Challenges for BOP Predictive Modeling

---

## Model design challenges:

- Exposure/pure premium modeling approach challenges:
  - Hundreds of industry class rates by state
  - Limited amount of data for modeling
- Policy level/loss ratio modeling approach challenges:
  - “Mixed” distribution for loss ratio - Tweedie distribution?
  - Actual premium vs. on-leveled premium
- Mixture of property and liability coverage
- Migration from composite rating to split rating
- Implementation challenges
  - Cannot support wide range of pricing points because typically only the IRPM option is available

# Challenges for Predictive Modeling

---

## Implementation challenges:

- Pricing implementation challenges:
  - How much can be accomplished within current rating plan structure?
  - What are the regulatory restraints?
- Underwriting implementation challenges:
  - How to interpret the models results?
  - How to implement the models through underwriting actions?
    - Credit/debits vs. Company Placement vs. Cancellation?
- System implementation challenges:
  - Challenges if models include “non-traditional” variables
- Business implementation challenges: operation, new business writing, renewal cycle, agency management, etc.

# Considerations for Predictive Modeling

---

- Carefully design the models:
  - Class plan optimization, pricing, or underwriting? Clearly define the goals of the models
  - Consider business and implementation needs
- Enrich the list of predictive variables:
  - External data sources such as business, crime, demographic, etc
  - Account variables (non BOP variables)
  - Non-traditional variables
- It is not just a statistical or technical exercise
  - Need to understand the business issue and the data issue
  - In-depth diagnostic check

# Conclusions

---

- BOP is a fairly unique line of business with similarities to both personal and commercial lines of business
- Cleaner data and more uniform exposures make BOP easier to model than other commercial lines
- Personal line modeling approach can be applied to BOP, but it also needs due consideration due to its commercial characteristics, especially data credibility issue
- Longer term impact of predictive modeling on BOP industry include:
  - Expansion in coverage and appetites
  - Expansion in pricing options, such as companies, pricing tiers, etc
  - More innovation in products and coverages
  - Underwriting cycle may be minimized - winners vs. losers
  - Enhanced data collection and more search for additional powerful variables to predict BOP loss