Credit-Based Tools in Commercial Lines

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Robert J. Walling, III, FCAS, MAAA

Discussion Topics

- Current state of the use of credit

- Approaches to incorporating credit data into commercial lines pricing

- Additional data sources for underwriting scores

- Implementation issues when using credit

Current State of the Use of Credit

Current State of the Use of Credit

- Most companies are using credit…for personal lines (commercial still lagging, esp. small insurers)
- All but the largest companies are using/starting from a commercially available score
- Many credit analyses have either relied on imperfect analyses
- No-hits/thin files still a material issue for small business insurance, but it's improving

Workers Compensation Tiering Example

3. Risk Acceptability/Company Selection Guidelines

Risk Characteristic	Tier 1- Surcharge	Tier 2- Standard	Tier 3- Preferred	Tier 4 Superior
Loss Ratio	4 year loss ratio or years in business loss ratio greater than 40% (Note 3)		4 year loss ratio less than or equal to 30% (Note 3)	4 year loss ratio less than 20% (Note 3)
Years In Business	In business for three years or less		In business for 5 years or more	In business for 10 or more years
Financial Condition of Account	Financial - No financial information due to new in business, inconsistent financial condition over time or poor financial condition, including but not limited to decreasing revenues, less than prompt bill payment, poor financial ratios, negative net worth *** (Refer to Note: 2 below)		Financial - Good financial condition, including but not limited to predominately increasing revenues over time, on time bill payment, positive key financial ratios, positive net worth or the equivalent. ***(Refer to Note: 2 below.)	Financial - Excellent and consistently stable financial condition, including but not limited to pattern of increasing revenues, on time bill payment, positive key financial ratios, positive net worth or the equivalent, ***(Refer to Note: 2 below)
Risk Grade	Risk Grade 1-6	Risk Grade 1-6	Risk Grade 1-5	Risk Grade 1-5

Commercial Auto Scorecard Example

Company Rates applicable to <u>Sentinel Insurance Company, LTD</u> only: ✓

Based on the following risk characteristics:

1. MVR Information
2. Average Driver Age
3. Youthful Composition
4. Length of Credit History✓
5. Total Number of Trades
6. Percentage of Balance Overdue of All Trades
7. Total Balance of Regular Trades
8. Number of Public Records / Collections
9. Amount of Judgment
10. Average Number of Days Balance Overdue in the Past 3 Months
11. Number of Inquiries in the Past 9 Months
12. Years in Business (when financial information is not available)
13. Industry Classification
14. Percentage of TTT Power Units
15. Prior 3-Year Loss Frequency by Size of Risks
16. Other risk-specific characteristics that are not contemplated above

use the applicable tier factor as a final step prior to rounding to determine the final rates.

BOP Example

Master Pac Tier Rating Factors

Pricing Track	Pricing Factor	Pricing Track	Pricing Factor
1	.52	21	1.14
2	.55	22	1.16
3	.58	23	1.20
4	.61	24	1.25
5	.64	25	1.30
6	.67	26	1.35
7	.70	27	1.40
8	.73	28	1.45
9	.76	29	1.50
10	.79	30	1.60
11	.82	31	1.70
12	.85	32	1.80
13	.88	33	1.90
14	.91	34	2.00
15	.94	35	2.10
16	.97	36	2.25
17	1.00	37	2.40
18	1.03	38	2.55
19	1.06	39	2.70
20	1.10	40	2.85

Sophisticated Model including:
- Claims History
- Years in Business
- Insured Values
- Credit Data
- Pay Plan/History
- Many Additional Factors

Approaches to Incorporating Credit Data Into Commercial Lines Pricing

Ways of Using Credit

- Rating
- **Tiering**
- **Underwriting Scoring**
- Schedule/Individual Risk Rating Plans
- Underwriting Eligibility
- Marketing
- Payment & Dividend Plans

Workers Compensation Tiering Example

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Workers Compensation Tiering Example

2.1 Tiers and Companies

Surcharge	Zurich American Insurance Company of Illinois
Standard	Zurich American Insurance Company
Preferred	American Guarantee and Liability Insurance Company
Superior	American Zurich Insurance Company

2.2 Qualifications for Each Tier

Surcharge	To qualify for the surcharged company, an account must meet the loss ratio requirement and at least two of the other criteria.
Standard	An account that does not qualify for any of the other companies
Preferred	To qualify for the preferred company, an account must meet the loss ratio requirement and at least two of the other criteria.
Superior	To qualify for the superior company, an account must meet the loss ratio requirement and at least two of the other criteria.

Underwriting Score

- Definition – A <u>scaling</u> of <u>multiple</u> predictive model factors into a <u>single metric</u> resulting in a single <u>premium modification</u> and/or an <u>eligibility threshold</u>.

Underwriting Scorecard - Farmers

Risk Characteristic Pricing Element	Response	Point Value
Years in Business at this Location	New in Business	5
	Less than 1 Year	4
	1-2 Years	3
	2-3 Years	1
	3-4 Years	0
	4-5 Years	-1
	5-6 Years	-2
	6 Years or More	-3
Responsible for Parking Lot	Yes	2
	No	0
Wiring Year	25 Years or More	4
	20-24 Years	0
	11-19 Years	-2
	10 Years or Less	-4

Underwriting Scorecard - Farmers

		10
Location of Business	Attached to Habitational Structure	10
	Stand-alone Building	3
	Strip Shopping Center	0
	Enclosed Mall	-3
Hours of Operation Open to Public	21-24 Hours	10
	16-20 Hours	5
	12-15 Hours	0
	Less than 12 Hours	-5
Percentage of Sales from Catering Services	Over 10%	10
	1-10%	5
	None	0
Total Percent of Sales from Liquor Sales	More than 20%	5
	1-20%	2
	None	0
Drive Thru	Yes	0
	No	0
Credit Score	All Responses	0

Underwriting Scorecard - Farmers

Debit or Credit Factors

Point Values				Debit or Credit Factors
Over		70	points	1.15
66	to	70	points	1.14
61	to	65	points	1.13
56	to	60	points	1.12
51	to	55	points	1.11
46	to	50	points	1.10
41	to	45	points	1.09
36	to	40	points	1.08
31	to	35	points	1.07

Scorecard Advantages

- Regulatory

- Preserve Competitive Advantage

- Small & Class Specific Factors

- Response to Counter-Intuitive Results

- Intuitive Look & Feel

- Ability for Underwriter/Agent Feedback

- Tracking of Exceptions from Pricing Guidance

Lots of Small Factors

Criteria and Point Allocation

For **ALL** Natures of Business, the following apply:

- Percent Building Occupied
  95-100% = 4 pts; 90-65% = 2 pts; all else = 0 pts.

- Years in Business
  Over 10 = 16 pts; 5 to 10 = 8 pts; all else = 0 pts.

- Age of Building
  Less than 10 = 16 pts; 10 to 25 = 10 pts; 26-50 = 2 pts; over 50 = 0 pts.

- Alarms
  Local = 4 pts; Central Station (U.L. Appd) = 16 pts;
  Central Station (Other) = 8 pts; None = 0 pts.

- Building Appraisal Received - owner occ. only
  Yes = 4 pts; No = 0 pts.

- EDP: Off-Site Backup
  Yes = 2 pts; No = 0 pts.

- Building Height (# stories) - owner occ. only
  Less than 3 = 8 pts; 3 to 6 = 4 pts; all else = 0 pts.

- Parking Lot or Garage at premises - owner occ. only
  Yes = 0 pts; No = 4 pts.

Class-Specific Scoring

In addition to the above, the following objective criteria are used, depending on the nature of business of the occupancy.

Habitational
- Owner/Manager on Premises
- Athletic Courts
- Clubhouse
- Exercise Room
- Playground
- Pool with Diving Board
- Woodstove
- Fireplace
- Restaurant on Premises

Office-All Other, Office-Medical
- Sole Occupancy
- Restaurant on Premises

Funeral Home
- Sole Occupancy

Retail/Service/Wholesale
- Sole Occupancy
- Closing Time Before 9pm
- Chain or Franchise
- Theft Monitoring Devices
- Restaurant on Premises
- Off-Premises Repair/Installation < 10%
- Delivery Operations
- Inventory Skidded

Restaurant
- Sole Occupancy
- Closing Time Before 9pm
- Chain or Franchise
- Delivery Operations
- Inventory Skidded

Intuitive Look & Feel

A Pricing Track Factor will then be assigned based on the total points as follows:

Point Range	Pricing Track Factor
0 - 99	1.00
100 - 199	.92
200 - 299	.84
300 - 399	.76
400 - 499	.68
500 - 599	.60
600 - 700	.52

Other intuitive scaling approaches are also quite common.

Additional Data Sources
for Underwriting Scores

Additional Data Sources for U/W Scores

- Internal Data
- Additional Credit Variables
- Modelers: AIR, RMS, EQECAT, Baseline
- Statistical Agents: NCCI, ISO
- Insurers (Competitive Intelligence):
  - Commercial Auto: Progressive, Hartford, Great West
  - Medical Malpractice: The Doctors Company, Medical Protective, ProAssurance, (also NCMIC, PICA in specialties)
  - Casualty & Package Programs: CNA, Zurich, Hartford, Farmers, Travelers
- Additional Data Collectors:
  - Commercial Auto: RL Polk, Central Analysis Bureau, MVRs
  - Property: MSB,
  - Medical Malpractice: PointRight, NPDB, State Closed Claims Databases
- Prior Claims Experience Databases

Internal Data

- Rating
- Underwriting
  - Cancellation
  - Reinstatement
  - Endorsements
- Agency
- Marketing
- Loss Prevention

- Multiline information (auto, WC, umbrella, broadening endorsements, etc.)
- Affiliations/Associations
- Claims
- Application Information
- Billing Plan
- Payment history

Loss Control Survey as Scorecard Input

Core Section	Questions	Points	# of N/A
1. Frequency and Severity Trends	3	10	0
2. Loss Prevention Direction	13	41	1
3. Substance Abuse	1	4	
4. Accident Investigation	2	6	0
5. Claims Management	3	12	0
6. Emergency Response	5	11	1
7. Regulatory Compliance	14	21	6
8. Liability	4	7	2
9. Motor Vehicle	4	14	0
10. Ergonomics	4	2	2
TOTALS	53	128	12

Supplemental Section	Applicable Sections	Questions	Points	# of N/A
A. Construction	☒	20	50	5
B. Distribution	☐	6		
C. Health Care	☐	6		
D. Quarries	☐	12		
E. Service Companies	☐	4		
F. Transportation	☐	7		
TOTALS		20	50	5

$$\left(\frac{73}{\substack{\text{Total Questions} \\ \text{(Core \& Supplemental)}}} - \frac{17}{\text{\# of N/A}} \right) \times 4 = \frac{224}{\substack{\text{Maximum} \\ \text{Points}}}$$

$$\frac{178}{\substack{\text{Total Points} \\ \text{(Core \& Supplemental)}}} \Big/ \frac{224}{\substack{\text{Maximum} \\ \text{Points}}} = \frac{79}{\text{Final Score}} \%$$

Internal Data – ACORD BOP Application

- Percent Occupied
- Years in Business
- Age of Building
- Alarms
- Computer Back Ups
- Building Height
- Swimming Pools
- Safety Program

- Elevators
- Years of Same Mgt.
- Updated Systems
- Sole Occupancy
- Hours of Operation
- Deliveries?
- Franchisee
- # of Employees/Leasing

When is Credit More than Credit?

- Years in Business
- Standard Industrial Classification codes
- Business Size
    - Revenues
    - Capital
    - Net Worth
    - Number of Employees
- Structure of the Business (e.g. LLC, C Corp.)

Publicly Available Rate Filings

C. TIERED RATING

1. Tier is determined at policy inception, renewal or anniversary based on the following characteristics. Number of "power units", length of time insured with company, accident history, age of driver(s), Motor Vehicle Record of driver(s), management safety ranking, and driver retention.

Tiered Rating Multipliers

TIERED RATING MULTIPLIERS									
Tier	Multiplier	Tier	Multiplier	Tier	Multiplier	Tier	Multiplier	Tier	Multiplier
1	0.401	10	0.557	19	0.774	28	1.076	37	1.495
2	0.416	11	0.578	20	0.803	29	1.116	38	1.551
3	0.431	12	0.599	21	0.833	30	1.158	39	1.609
4	0.447	13	0.622	22	0.864	31	1.201	40	1.669
5	0.464	14	0.645	23	0.896	32	1.245	41	1.731
6	0.481	15	0.669	24	0.929	33	1.292	42	1.795
7	0.499	16	0.694	25	0.964	34	1.340	43	1.862
8	0.518	17	0.719	26	1.000	35	1.390	44	1.932
9	0.537	18	0.746	27	1.037	36	1.442	45	2.004

Central Analysis Bureau (Part 1)

Out of Service (Interstate Only):	No	Out of Service Date:	None
Legal Name:		KA BULK TRANSPORT LLC	
DBA Name:		KLEMM TANK LINES	
Physical Address:		2204 PAMPERIN RD GREEN BAY, WI 54313-8931	
Phone:		(920) 434-6343	
Mailing Address:		P O BOX 11708 GREEN BAY, WI 54307-1798	
USDOT Number:	171830	State Carrier ID Number:	
MC or MX Number:	MC-147216	DUNS Number:	02-320-3300
Power Units:	547	Drivers:	**636**
MCS-150 Form Date:	10/14/2009	MCS-150 Mileage (Year):	**49,073,288 (2008)**

Central Analysis Bureau (Part 2)

Inspection results for 24 months prior to: 02/22/2010

Total inspections: 1105

Inspections:

Inspection Type	Vehicle	Driver	Hazmat
Inspections	859	1095	919
Out of Service	77	3	13
Out of Service %	9%	0.3%	1.4%
Nat'l Average % (2007- 2008)	22.27%	6.60%	5.02%

Crashes reported to FMCSA by states for 24 months prior to: 02/22/2010

Crashes:

Type	Fatal	Injury	Tow	Total
Crashes	1	20	28	49

The new SMS system from FMCSA offers even more data for analytics!

ZIP Code Level Demographics

- Data Available
  - Population Density
  - Traffic Density
  - Population Growth
  - Unemployment Rates
  - Building Vacancy Rates
  - Industry Mix
  - Prosperity Indices
  - Crime Statistics

- Sources
  - Publicly available from census sources
  - Useful for addressing location specific issues

Implementation Issues
# When Using Credit

Implementation Issues

- No-hits & thin files

- Interactions

- Renewal scoring

- Regulatory

A Hierarchical Approach to No-Hits

- Use a Commercial Score First
  - High hit rate for large, more established businesses
  - Not great on small, new businesses
- New, Small Businesses often have simple ownership structure
- Use Personal Credit Information on Principal Owner
  - Close proxy to financial resolve of a small business
  - Some programs focusing exclusively on small business skip commercial score
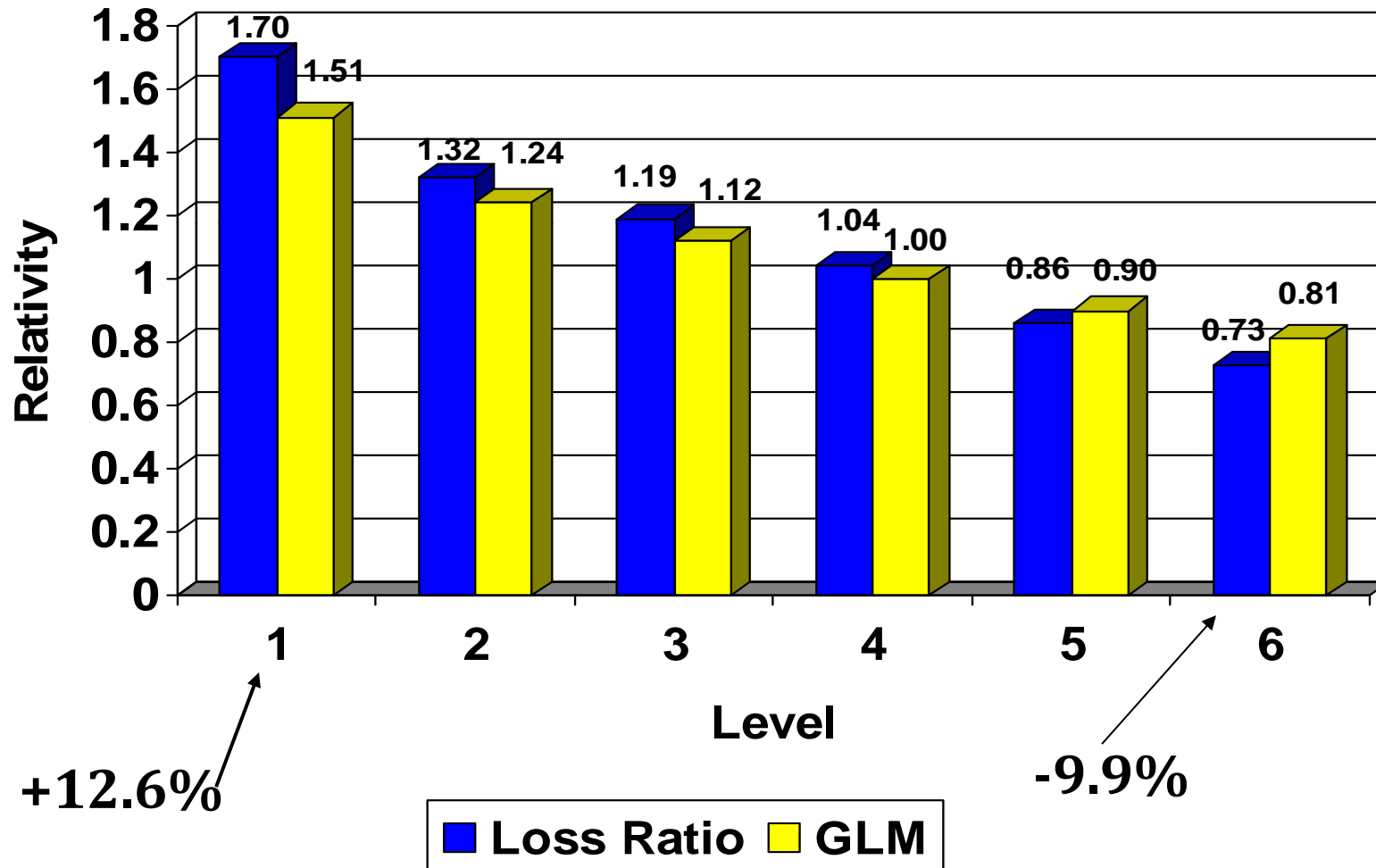
Range of Credit Relativities

	One-Way Analysis	GLM with Additional Elements
High Relativity	3.06	1.93
Low Relativity	.69	.76
Ratio	4.44	2.54

43% decrease in the range of credit score relativities

Scoring (or Non-Scoring) of Renewals

- Generates conditions for potential anti-selection
  - Incentive for risks with increasing insurance score to shop
  - Disincentives for risks with decreasing insurance score to shop
- Potential for "gaming" system
- Significant cost, especially on small business
  - Credit, MVRs, etc. add up
- Consider study to determine decision rules

Filing Alternatives

- Pricing "Guidance" - Use multiple statutory companies and IRPM/schedule rating to implement without filing
- Expert Model
- Introduce without Credit?

Thank You for Your Attention

Visit us at www.pinnacleactuaries.com

Robert J. Walling III, FCAS, MAAA

309.807.2320

rwalling@pinnacleactuaries.com