📀 ISO

Crime Data with Applications to Ratemaking

RPM 2018 - Chicago

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Overview of ISO Crime Program

The ISO commercial crime program provides insurance that enables businesses to protect themselves from a broad array of crime loss exposures not covered by most standard commercial property policies

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The ISO program includes crime coverage forms that can be added to a commercial package policy and crime policy forms that can be written as monoline crime policies

- The commercial crime program is unique in that jurisdiction is jointly shared by ISO and the Surety and Fidelity Association of America (SFAA) and SFAA and ISO forms may be attached to the same policy
- The commercial crime form and policy are self-contained forms that include seven insuring agreements (Employee Theft, Forgery or Alteration, Inside the Premises – Theft of Money and Securities, Inside the Premises – Arobbery or Safe Burglary of Other Property. Outside the Premises, Computer and Funds Transfer Fraud, Money Orders and Counterfeit Money)
- There are also fifteen additional insuring agreements available by Endorsement (i.e. Clients' Property, Extortion – Commercial Entities, Lessees of Safe Deposit Boxes, Fraudulent Impersonation, etc...) and well as other optional endorsements that can either increase or decrease the limit of insurance for specified periods and/or designated premises

ISO Crime Coverages

- The primary crime coverage is known as Fidelity (a.k.a. "Employee Theft") and covers employee theft, forgery or alteration and other related crimes committed exclusively by employees of the insured
- Fidelity policies represent the overwhelming majority of the crime exposure faced by insureds (approximately 85% of the premiums and a similar percentage of the insured losses)
- The other main crime coverage rated by ISO is Burglary & Theft (B&T), which provides coverage against loss of property by non-employee theft, robbery or larceny and is comprised of the following six main coverages (Inside the Premises Theft of Money and Securities, Inside the Premises Robbery or Safe Burglary of Other Property, Outside the Premises, Inside the Premises Theft of Other Property, Inside the Premises Robbery of a Watchperson or Burglary of Other Property, Inside the Premises Robbery of a Custodian or Safe Burglary of Money and Securities). All B&T coverage claimants must show evidence of forcible, unlawful entry as a prerequisite to establishing the validity of such claims.

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ISO Crime Coverage Form Options

ISO commercial crime coverage forms are designed for any type of nongovernmental commercial or not-for-profit entity other than financial institutions

- Coverage for Financial Institutions is available via a separate, dedicated ISO program
- Coverage forms can be attached to another commercial policy form such as a BPP Form; whereas, the policy forms stand alone
- Separate ISO government crime coverage/policy forms are used to insure government entities such as states, counties, public utilities, school districts, etc.
- ISO crime program also includes employee theft and forgery forms for insureds that wish to buy only employee theft coverage, or only forgery or alteration coverage, or both. Other coverage forms/policies available in the Crime & Fidelity program include Kidnap/Ransom and Extortion insurance
- Two versions, a discovery form and a loss sustained form, are available for each coverage form and policy form. The former covers losses discovered during the policy period even though they may have occurred before the policy period, while the latter covers losses actually sustained during the policy period and discovered no later than one year after policy expiration.

Actuarial & Rating Aspects

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ISO Crime Experience Reviews

>ISO performs crime experience reviews every two years (odd years)

> For the Fidelity review, there are 3 sources of data:

- Subline Solv, birching date and a solutions of usita.
 Subline Solv, which is data written under the ISO Crime and Fidelity Program
 Surety and Fidelity Association of America (SFAA) data, which is monoline Fidelity policies written according to the SFAA plan, reported to the SFAA, and then shared with ISO
- Subline 940, which is multiline data that includes a Fidelity portion written according to the SFAA plan

The Fidelity review is always done with an evaluation date of 12/31/xxxx as ISO receives data from the SFAA once per year, with this evaluation date

In addition, Fidelity is always reviewed on a policy year basis because the SFAA statistical plan does not provide loss occurrence date information necessary for an accident year review

For the Burglary & Theft review, there are 2 sources of data:
 Subline 960, which is the old Burglary & Theft program

Subline 965, which has both a Fidelity and Burglary & Theft component

> The B&T review is run on an accident year basis

ISO Crime Loss Costs

as per the experience reviews every two ye

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>ISO files revised class rated Multistate loss costs for Fidelity coverage (i.e. Employee Theft) In 2009, ISO revised the rating methodology for Burglary & Theft (B&T) and discontinued publishing separate B&T loss costs

- In place of loss costs, ISO files updated B&T rating factors every two years that vary by B&T insuring agreement and class and which are applied directly to the Fidelity loss costs when rating B&T coverage
- There are also a number of crime insuring agreements that use loss costs that do not vary by class (i.e. Money Orders and Counterfeit Money Insuring Agreements charges an annual loss cost of \$0.170 per \$1,000 of insurance regardless of class)
- ISO crime experience reviews have been consistently generating negative loss cost indications over the last several years
- The most recent 2017 experience review revises multistate advisory prospective loss costs for Fidelity coverages by -20.0% and Burglary and Theft coverages by -30.0% for an overall multistate advisory loss cost level change of -21.1% (with an effective date of 6/1/2018)

ISO Crime Rating Algorithm – Past versus Present

- > Under the prior rating methodology, Burglary and Theft coverages increased their loss costs as the limits increased and as location counts increased at a constant rate
- As a result, for risks with progressively higher limits and/or a progressively higher number of locations, the final algorithmically derived B&T loss costs, became quite high relative to the level of loss exposure
- This produced premiums for B&T coverages that would often exceed those for Employee Theft, creating a situation where the "minor" coverage (B&T) was driving the "major" coverage (Fidelity)
- Therefore in 2009, the prior B&T rating algorithm was replaced with one that uses the Employee Theft rated premium as the starting point, to which a multiplicative factor is applied to produce the premium for the respective B&T insuring agreement
- The benefit of using this algorithm is that the Employee Theft rating algorithm increases loss costs at a decreasing rate for increases in limit and increases in location counts (i.e. additional premises)
- Therefore using the Employee Theft algorithm as a proxy to rate B&T coverages helps ensure that B&T premiums are proportionately kept in line for the vast majority of businesses

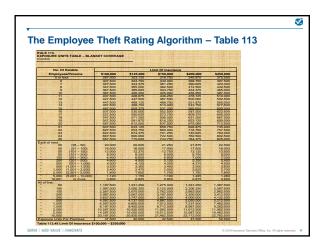
The Employee Theft Rating Algorithm - Overview

Exposure units are applied multiplicatively to the associated Employee Theft loss costs when rating such policies. Different exposure units tables are used by the algorithm depending upon whether coverage is being blanket rated versus schedule rated

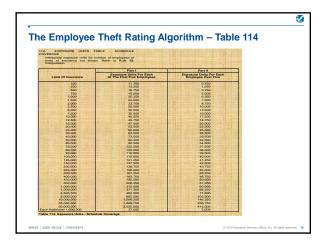
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The determination of exposure units is formulaic, and takes into account the number of ratable employees, the additional premises for an insured, the selected limit of insurance, and the selected deductible

- Ratable Employees include all of the following:
 All employees (including persons or entities construed to be employees by endorsement, other than agents, partners and members of a limited liability company) who handle, have custody of or maintain records of money, securities or other property;
 All directors, trustees, officers, employees, administrators and managers (other than independent contractors) not included in Paragraph (1) or (2), who handle funds or other property of employee benefit plans subject to the Employee Retirement Income Security Act (ERISA);
 All leased employees and former employees hired as consultants not included in Paragraphs (1) through (3); and
 One percent of all others not included in Paragraphs (1) through (4). Round to the nearest whole person; for example, 2.5 = 3.









| EMPLOYEE THEFT INSURING AGRE | EMENT |
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| Rating Data | |
| tisk: Bus Transportation Companies | and the second |
| | |
| Class Code (Transit and ground passenger transportation) | 4850 \$1.096 |
| ss Lost Imber of Ratable Employees | \$1.096 |
| umber of Additional Premises | 20 |
| mit of Insurance | \$145.000 |
| ductible Amount | \$5,000 |
| ductible Factor | 0.85 |
| Determination of Loss Cost Pren | |
| Sum the Limit of Insurance and the Deductible Amount | |
| \$150,000). | |
| a. Compute the Exposure Units for 20 Employees @ \$150,000. | 637.500 |
| Compute the Exposure Units for 5 Additional Premises @ | |
| 150,000. | 42.500 X 5 = 212.500 |
| . Sum the Exposure Units in a. and b. | 637.500 + 212.500 = 850.000 |
| . Determine the Exposure Units for the Deductible Amount | |
| \$5,000). a. Compute the Exposure Units for 20 Employees @ \$5.000. | 170.000 |
| a. Compute the Exposure Units for 5 Additional Premises @ b. Compute the Exposure Units for 5 Additional Premises @ | 170.000 |
| 5.000. | 9 000 X 5 = 45.000 |
| , Sum the Exposure Units in a, and b. Multiply by the | 9.000 × 3 = 43.000 |
| Deductible Factor. | (170.000 + 45.000) X 0.85 = 182.750 |
| Subtract the Exposure Units in 2, from the Exposure Units in 1, | 850.000 - 182.750 = 667.250 |
| Multiply the result in 3. by the Loss Cost to produce the | |
| emium (on a loss cost basis), which is rounded. | 667.250 X \$1.096 = \$731.00 |



| EMPLOYEE THEFT - NAME OR POSITION SCHEDULE INSURING AGREEMENT | | |
|---|-------------------------------------|--|
| Rating Data | | |
| Risk: Medical Supply manufacturer | International Contract Only | |
| Class Code (Other manufacturing industries NOC) | 3395 | |
| Loss Cost | \$1.064 | |
| Number of Ratable Employees | 12 | |
| Limit of Insurance | \$17,500 | |
| Deductible Amount | \$2,500 | |
| Deductible Factor | 0.85 | |
| Determination of Loss Cost Prem | ium | |
| Sum the Limit of Insurance and the Deductible Amount (\$20,000). | and the second second | |
| a. Compute the Exposure Units for first 5 Employees @ \$20,000. | 53.500 X 5 = 267.500 | |
| b. Compute the Exposure Units for Add'l 7 employees @ \$20,000. | 22.500 X 7 = 157.500 | |
| c. Sum the Exposure Units in a. and b. | 267.500 + 157.500 = 425.000 | |
| Determine the Exposure Units for the Deductible Amount (\$2.500). | | |
| a. Compute the Exposure Units for 5 Employees @ \$2,500. | 25 500 X 5 = 127.500 | |
| b. Compute the Exposure Units for Add'l 7 employees @ \$2,500. | 10.000 X 7 = 70.000 | |
| c. Sum the Exposure Units in a. and b. Multiply by the Deductible | | |
| Factor. | (127.500 + 70.000) X 0.85 = 167.875 | |
| 3. Subtract the Exposure Units in 2. from the Exposure Units in 1. | 425.000 - 167.875 = 257.125 | |
| 4. Multiply the result in 3. by the Loss Cost to produce the | | |
| premium (on a loss cost basis), which is rounded. | 257.125 X \$1.064 = \$274.00 | |



| ating Example - The Burglary & Th | neft Rating Algorithm |
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| Clear Earls (Report module, genery well assumbles a share) Learning. | |
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| DesirelitiesPeaker | 0.00 |
| Clear Infolding Peaker Determination of Street Code Press | LIFT |
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| MONEY ORDERS AND COUNTERFEIT MONEY INSURING AGREEMENT | | | | |
|--|-------------------------------|--|--|--|
| Rating Data | | | | |
| Risk: Bakery | | | | |
| | | | | |
| Class Code (Specialty food stores) | 4452 | | | |
| Loss Cost | \$0.170 | | | |
| limit of Insurance | \$75,000 | | | |
| Deductible Amount | \$1,000 | | | |
| Determination of Loss Cost Premiu | ım | | | |
| L. Divide the Limit of Insurance by \$1,000. | \$75,000 / \$1,000 = 75 | | | |
| 2. Multiply the result in 1. by the Loss Cost. | 75 X \$0.170 = \$12.75 | | | |
| 3. Determine Deductible Factor @ \$1,000 with LOI of \$75,000. | 0.87 | | | |
| Multiply the result in 2. by the Deductible Factor in 3. to produce the premium (on a loss cost basis), which is | | | | |
| ounded. | \$12.75 X 0.87 = \$11.00 | | | |



Potential Future Actuarial Enhancements

As opposed to some of the other larger ISO commercial lines such as GL and Property that utilize an extension of exposures technique to re-rate each exposure we are currently unable to do so for Crime due to a lack of sufficient exposure detail in our Statistical Plan data

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Future initiatives to improve upon the quality of carrier submitted exposure data could enable us to use to this technique in Crime as well, which is the most accurate method for adjusting premiums to current rate levels

As part of the 2009 changes to the B&T rating algorithm, ISO also removed territory tier group rating factors from the algorithm as they produced premium results that were inconsistent with the Fidelity coverage that is the main exposure written under the Crime and Fidelity program. For example for Fidelity, the insured's additional premises are not subject to a territory tier charge.

Advances in modeling techniques over the last several years (i.e. GLM, Clustering, etc..), coupled with rich, new repositories of detailed, location based data could allow us to better reflect territory and possibly even more reflned location differentials in our rating algorithm to further improve upon the level of risk segmentation available over the current ISO program

Contact Information

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