THE POWER TO KNOW®

# Plugging Premium Leakage

## Using Analytics to Prevent Underwriting Fraud

WHITE PAPER

## Table of Contents

## Introduction

Insurance fraud continues to be a major issue for all insurance companies. Statistical data published by the FBI estimates that insurance fraud costs an estimated $40 billion per year, which increases the average annual premium for consumers by an estimated $400 to $700. Similar figures are available across the globe. To combat this issue, the current focus of most insurance companies has been on detecting and preventing claims fraud. However, a significant amount of insurance fraud is associated with underwriting fraud.

Recent studies have shown that insurers lose approximately 10 percent of their total revenue to premium leakage and underwriting fraud. In 2010, rating errors reduced private passenger auto insurance premium revenue in the US by $15.4 billion. But underwriting fraud is not exclusive to personal auto insurance. It affects most lines of business, especially commercial auto insurance, workers' compensation and property insurance. According to Dennis Jay, Executive Director of the Coalition Against Insurance Fraud, "Application fraud traditionally has been the poor cousin of claims fraud, receiving little attention and not being fully understood. Forward-thinking insurers are developing new strategies and employing new tools to not only detect underwriting fraud, but to prevent it as well."

This white paper will cover the different types of underwriting fraud and how insurance companies are implementing technology and analytics to combat this growing issue.

## Types of Underwriting Fraud

Premium or underwriting fraud occurs when someone intentionally conceals or misrepresents information when obtaining insurance coverage at any stage in the policy life cycle. For example, a consumer might underestimate property value or front other drivers on an auto policy. A business owner might underreport payroll or misclassify the business in order to reduce workers' compensation premiums.

In addition, analysis has shown that a substantial proportion of claims fraud originated from a fraudulent application. Hence insurance companies that can reduce underwriting fraud can significantly decrease the exposure to certain types of claims fraud.

### Application Fraud/Rate Manipulation

According to a study by advisory firm Strategy Meets Action, growing the business remains the top priority for insurers. Mobility and "ease of doing business" initiatives have resulted in insurance companies implementing "straight through underwriting processing" projects. At a time when insurers are looking to cut expenses, this is often a recipe for disaster and has unfortunately resulted in increased fraud, especially application fraud. Fraudsters have become increasingly sophisticated in their methods. They are aware that insurance companies are under pressure to increase premium revenue and do not always check all the application details for completeness or accuracy.

Regulations state that insurance carriers must charge a reasonable premium based on the material facts of the risk. Unfortunately, some insured are known to provide incorrect data to lower the premium rates. Typical rate falsification techniques include:

- Fronting – where the parent becomes the main driver of the vehicle to reduce the premium.
- Garage Flipping – changing the address where the vehicle is kept, e.g., someone with two homes using a rural address instead of the city where the car is actually used.
- Manipulation – changing rating factors, such as miles driven, age and even education, to reduce the premium.

| Quote | Driver | Age | Claims | NCD | ZIP Code | Premium ($) | % |
|---|---|---|---|---|---|---|---|
| 1 | Insured Only Driver | 24 | 1 | 0 | 55425 | $3,425 | 100% |
| 2 | Insured Only Driver | 24 | 0 | 2 | 55425 | $2,168 | 63% |
| 3 | 2 named | 51/24 | 0 | 5 | 55425 | $1,026 | 30% |
| 4 | 2 named | 51/24 | 0 | 5 | 55424 | $435 | 13% |

*Figure 1. Example of rate manipulation.*

The above illustration represents an example of rate manipulation on a quote for an auto insurance policy for a 24-year-old driver. Let's consider each step in more detail:

- Quote 1 – Insured only driver, age 24, with one claim, resulting in a premium of $3,425.
- Quote 2 – Insured removes the claims and increases no claims discount (NCD) to two years, decreasing the rate to $2,168.
- Quote 3 – Insured now adds a parent (age 51) as the main driver, and increases the NCD to five years, lowering the rate even further to $1,026.
- Quote 4 – Finally the insured changes the ZIP code to an adjacent neighborhood, reducing the premium to just $435.

Hence by changing just a few rating variables on the application the premium was reduced by nearly $3,000, or 87 percent of the initial quote.

The idea that just a small percentage of applicants misrepresent details to reduce auto insurance rates was recently debunked by a 2010 survey by UK insurer Co-Operative Insurance, which found that 41 percent of policyholders deliberately lie when completing policy applications, and 61 percent would consider doing so in the future. “Consumers are becoming much savvier in their understanding of how to successfully cheat when applying for insurance. Many also have the means, such as desktop publishing and ID theft, to fool insurers,” says Jay.

To address the problems with application fraud insurance, carriers are using application pre-fill tools and analytics to model fraudulent behavior. Through application pre-fill technology, with as little information as a telephone number, policy-level data can be populated, including location, coverage limits and deductibles, current in-force details, and payment and lapse information. By integrating these pre-fill technologies with real-time anti-fraud analytical tools, insurers can track changes in online application data. If certain rules or combinations of rules are triggered, then the carriers can intervene immediately to potentially deny the policy.

## Rate Evasion/Data Misrepresentation

Rate evasion or data misrepresentation is probably the most widespread form of underwriting fraud. An undisclosed driver on an application is one of the most common forms of rate evasion; other examples are underreporting payrolls and misclassifying business operations for workers’ compensation insurance, or life underwriting fraud, where an insured may not report a history of smoking.

Rating errors can be introduced at all stages in the policy life cycle. While significant data misrepresentation occurs at initial application, analysis has shown that rate evasion also happens during policy changes and renewals. Data misrepresentations can be defined as deliberate hiding or falsification of a material fact, which, if known to the other party, could have terminated or significantly altered the basis of a contract, deal or transaction. Within the context of insurance, the purpose of misrepresentation is to obtain a new policy with reduced premium, or to avoid being declined. Rate evasion is normally committed by the policyholder, though there are some agents who know how to game the system and deliberately misrepresent facts to gain business. Not only does this affect honest agents by placing them at a competitive disadvantage, but it undermines the trust that customers have in insurance agents and brokers.

The majority of rate evasion goes undetected, and in many cases insurers will find a claim has occurred before they recognize underwriting fraud. Thus to deter rate evasion it is critical to address it in real time throughout the quotation process, or during changes to the data for policy endorsements. Insurers must ensure that information is correct at the point of sale and continue to update policy information through the life of the policy. Without adequate information, low-risk customers might be subsidizing high-risk customers, and insurance companies jeopardize losing their most profitable customers to their competitors.

Many insurance companies have implemented an enterprise data warehouse across all lines of business to help prevent rate evasion. Using a data warehouse, insurers can aggregate data and potentially find interrelated transactions, such as a 20-year-old student with a rental policy who is also named a driver on a parent's auto policy.

To combat rate evasion insurance companies are using advanced analytics to create a premium leakage predictive model that instantly scores applications for relative risk to predict the likelihood of fraud. These predictive models identify the lost premium due to misclassification of risk, which often results in additional revenue for the insured from undercalculation of the premium rate. For example, in workers' compensation insurance, carriers can use payroll comparisons with similar businesses to detect outliers in the data that might indicate rate evasion.

But predictive modeling should not be considered a one-time exercise. Insurers need to continually monitor and measure the effectiveness of such predictive models, as they can deteriorate over time due to changing fraudulent behavior.

The growth in usage-based insurance based on telematics devices is also reducing the amount of rate evasion in auto insurance. Data from these wireless devices can determine annual mileage and vehicle location, eliminating misrepresentation to the questions: "Where is the vehicle garaged?" and "What is the annual mileage driven?"

## Agency Fraud and Ghost Broking

The growth in online and direct insurance has created a lucrative market for an emerging trend known as "ghost broking." A ghost broker will offer significantly cheaper insurance than legitimate insurance agents by changing key details to ensure that the insured pays lower premiums. For instance, the insured individual's year of birth might be transposed and written as 1968 instead of 1986. Ghost brokers operate through websites or small ads offering cheap insurance. Often they target young motorists who face rocketing premiums and individuals who don't understand how the insurance industry works. These ghost brokers then charge the consumer a fee for their service. The unfortunate part of this scam is that the policies these unsuspecting victims purchase are essentially worthless. In the event of an accident they will not be covered.

Insurance companies have begun to implement analytics that can detect and prevent this type of fraudulent activity, such as deploying statistical analysis and cross-referencing information like date of birth and driver's license information with industry databases.

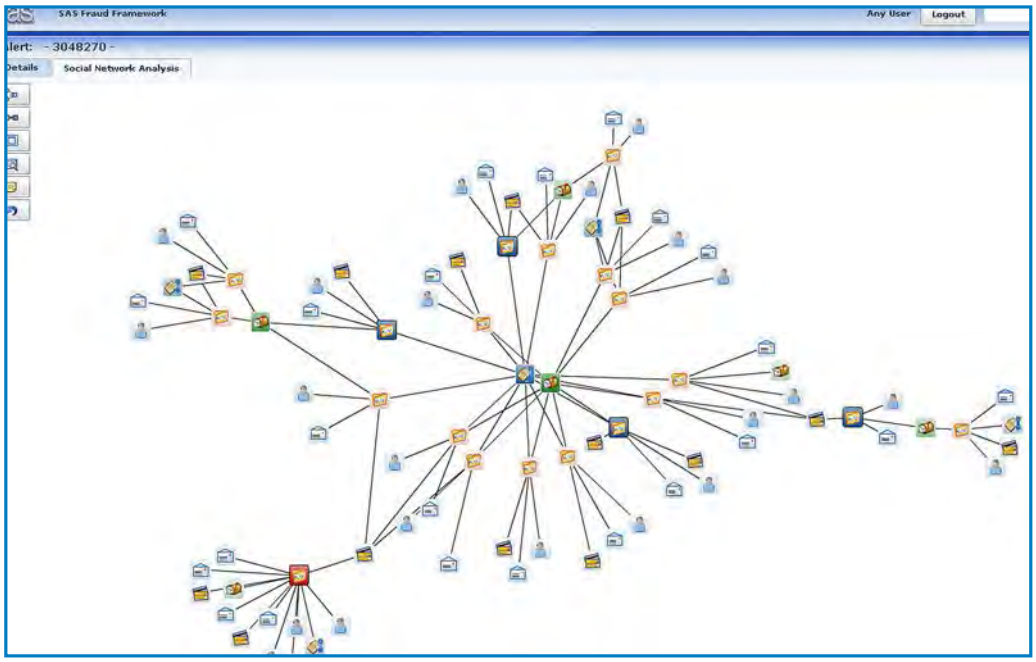


*Figure 2. Fraud rings.*

## How SAS® Can Help

Insurers need a better way to address premium leakage and fraud across the policy life cycle. Yet a 2012 study, *The State of Insurance Fraud Technology* by the Coalition Against Insurance Fraud, found that only 41 percent of insurance companies are currently using technology for detecting underwriting fraud. However, this study also found that 31 percent of insurers expected a budget increase for anti-fraud technology, and the increased investment being spent on predictive modeling, text mining and business rules technology.

SAS has worked with insurers across the globe to prevent millions of dollars in premium leakage at both the point of sale and renewal by leveraging new anti-fraud technologies. These technologies include analytical techniques like data management, predictive modeling and a sophisticated fraud framework application.

### Integrated Insurance Data Warehouse

To combat underwriting fraud, insurers must verify that information is complete and accurate at the point of sale and continues to be kept up to date throughout the life of the policy. Using SAS, insurance companies can easily integrate third-party data sources, such as Experian, Acxiom and Equifax, to validate and pre-fill application data based on certain data elements. In addition, SAS Data Quality ensures accurate and consistent information throughout the policy life cycle to not only help detect fraud, but also provide enhanced customer service and improve the decision-making process.

### Predictive Modeling

In recent years, many insurers have turned to predictive modeling processes as an anti-fraud technology. Quantitative analysts use data-mining tools to create analytical models that produce fraud propensity scores. Predictive modeling tends to be more accurate than other fraud detection methods. Information can be collected and cross-referenced from a variety of sources. This diversity of resources provides a better balance of data than the more labor-intensive red-flag system.

SAS® Enterprise Miner™ streamlines the data mining process to create highly accurate predictive and descriptive models based on large volumes of data from across the enterprise. It offers a rich, easy-to-use set of integrated capabilities for creating and sharing insights that can be used to drive better decisions.

SAS Model Manager provides a common framework to support full lifecycle management and model governance. It streamlines analytical modeling processes so you can quickly put the best models into production. The performance monitoring and retraining capabilities help users take quick actions if model performance is degrading, which could ultimately affect business outcomes.

### SAS® Fraud Framework for Insurance

SAS Fraud Framework for Insurance is an end-to-end solution for preventing, detecting and managing insurance fraud across the various lines of business within today's insurers. The solution includes a component to combat online application fraud and ghost broking. It captures customer behavior in real-time at a detailed level, combines that information with data from offline sources, and then feeds that information into a decision engine to determine if the insured is attempting premium fraud through rate manipulation.

## Conclusion

Insurance is fiercely competitive, with consumers' main criteria for choosing an insurer often based on price. Online or direct insurance is increasing globally and in many countries is the predominant distribution channel for personal lines insurance. This has resulted in more underwriting fraud, which today is one of the most costly types of insurance fraud. It spans all lines of business and customers – from individual policyholders to large global organizations. To ensure rating integrity and prevent billions of dollars in premium leakage, insurers need to implement analytical technologies and conduct sophisticated data analysis in real time. Together, these techniques are powerful deterrents for would-be fraudsters, both professional and opportunistic, who seek to profit at the expense of insurance companies and their honest policyholders.

## About SAS

SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions, SAS helps customers at more than 60,000 sites improve performance and deliver value by making better decisions faster. Since 1976 SAS has been giving customers around the world THE POWER TO KNOW®.

SAS Institute Inc. World Headquarters +1 919 677 8000
To contact your local SAS office, please visit: **sas.com/offices**