Table of Contents

Arguments for Credit-Based Insurance Scores (CBIS) in Ratemaking

An insurance score is a *numerical score* assigned to an insurance risk based on that risk's underlying characteristics. In Kucera's view:

- Credit-based insurance scores allow insurers to better segment risks for the purpose of charging appropriate rates
- The removal of insurance scores from insurance rating will not lower overall premiums. Instead, it will redistribute premiums, causing lower risks (i.e., risks with lowest expected costs) to pay more than their actuarially fair rates and higher risks (i.e., risks with higher expected costs) to pay less than their actuarially fair rates

Insurers Use of CBIS

Insurers used credit-based insurance scores in the following ways:

1) Determine whether prospective insureds qualify for insurance (i.e., underwriting)
2) Segment risks into different groups for rating

When using insurance scores to segment risks, the actuary should consider ASOP 12, *Risk Classification*. The ASOP specifies that the actuary should select risk characteristics that are related to expected outcomes. In addition, rates within a risk classification system are considered equitable if differences in rates reflect material differences in expected cost for risk characteristics.

Studies have shown credit scores reflect significant differences in expected loss costs, which aligns with ASOP 12.

How Economic Conditions Affect Premiums related to CBIS

Kucera analyzes the impact of an economic crisis on *aggregate* and *individual* premiums.

Aggregate

Insurers use insurance scores to establish rate relationships, not to determine overall premium need. If an economic crisis causes a widespread decline in insureds' insurance scores, the insurer should adjust overall premiums to reach the appropriate aggregate level while preserving the existing rate relationships.

Individual

Regulators may be concerned that a dramatic shift in credit scores could disrupt the current relativities among risks with insurance scores. Insurers adjust classification plans to revise differentials when these events occur.

Arguments Against Credit-Based Insurance Scores (CBIS) in Ratemaking

Rates should not be unfairly discriminatory, and critics argue that CBIS are discriminatory against lower income and other classes of people. While new sources of information (DNA testing, internet usage) exhibit mathematical correlations with insurance claims, this does not make them fair and valid criteria for insurance purposes. Regulators should be sensitive to rating factors that are highly correlated with race, ethnicity, religious background, or income level. Credit-scoring is not necessary for proper underwriting and rating since it indirectly measures socioeconomic status.

Criticisms of Credit Reporting System

Weaknesses in the credit reporting system present significant challenges. Even if the methodology is sound, inaccuracies in its application, such as in rating, can still occur.

Credit reports disproportionately impact specific classes:

- Recent divorcees
- Recently naturalized citizens
- Elderly (use less credit less often, resulting in lower credit scores)
- Disabled
- Certain religious backgrounds (may avoid credit due to religious beliefs, resulting in low or non-existent credit score)
- Younger individuals that have not established credit histories

While studies indicate that credit scores are associated with differences in claims frequency, they show no association with claims severity.

Insurer methods are not transparent to consumers and vary by company. Furthermore, insurance credit scores could be negatively impacted by prudent financial decisions that bear no relationship to personal insurance risks.

Disproportionate Impact of CBIS

From McCarty's perspective, the main problem with credit score is its relationship to race, ethnicity, and income status, which could lead to disparate impact on select groups. The 2007 FTC report demonstrated strong correlations between credit scoring and race/ethnicity. A Texas DOI report also showed that ethnicity is correlated with credit score.

Introduction

Price Optimization: Process of maximizing or minimizing a business metric (ex. profitability, marketing, retention) using sophisticated tools and models to quantify business considerations.

With the rise of big data and advanced statistical modeling methods, insurers have shifted the focus in rate setting toward objective and quantitative information, moving away from traditional reliance on judgment or anecdotal evidence.

Types of Price Optimization

There are three main types of price optimization:

1) **Ratebook Optimization**: Uses cost and demand models to adjust factors in existing rating structure
2) **Individual Price Optimization**: Uses cost and demand models to build a price at the individual policy level
3) **Hybrid Optimization**: Creates a new rating factor based on a demand model

Constrained optimization refers to setting maximum and minimum limits on the optimization model's output. **Unconstrained** optimization has no limits.

Differences between Traditional Ratemaking and Price Optimization

Key differences between traditional ratemaking and price optimized ratemaking are as follows:

1) With optimization, market demand and customer behavior are quantified instead of subjectively determined
2) With optimization, the effect of deviation from cost-based rates on business metrics is mathematically measured

Benefits & Drawbacks of Price Optimization

Potential **benefits** of price optimization are as follows:

- **Improved Precision**: Use more granular data to make more precise rate adjustments
- **Rate Stability**: May reduce policyholder disruption and stabilize rates over time
- **Modernization**: Represents an improvement in rate-setting practices

Potential **drawbacks** of price optimization are as follows:

- **Unfair Discrimination**: May result in rates that differ for consumers with identical risk profiles
- **Regulatory Concerns**: Might conflict with state law or ASOPs

- **Low-Income Impact**: May disproportionately affect low-income consumers by raising premiums for those less likely to shop for better rates (although others have argued low-income consumers actually shop more)
- **Lack of Transparency**: Difficult to assess if selected rates are influenced by optimization

Regulatory Response

The Task Force proposes the following options for regulatory responses to price optimization:

1) Determine which price optimization practices are allowed
2) Define any constraints on the price optimization process and outcomes
3) Develop regulatory guidance on the meaning of statutory rate requirements so that rates are not excessive, inadequate, or unfairly discriminatory
4) Enhance filing requirements using a specific definition of actuarial indication
5) Require specific explanation or reasoning to support any proposed or selected rate that deviates from the actuarially indicated rate
6) Change filing requirements to require more transparency
7) Ensure all rating factors and adjustments to indicated rates be disclosed

Recommendations for Regulators

The Task Force recommends **rating plans** should be derived:

- From sound actuarial analysis
- Be cost-based
- Comply with state laws
- Be consistent with ASOPs
- Be consistent with actuarial principles from a professional actuarial body

The Task Force recommends that two **customers with the same risk profile** should be charged the same premium for the same coverage. There could be temporary deviations in premiums between new and renewal customers with the same risk profile as a result of capping or premium transition rules.

The Task Force believes the following practices are **inconsistent with statutory requirements** that rates shall not be unfairly discriminatory:

- Price elasticity of demand
- Propensity to shop for insurance
- Retention adjustment at individual level
- Policyholder propensity to ask questions or file complaints

Importance of Best Practices for Reviewing Predictive Models

There are significant benefits for both consumers and insurers when insurers responsibly use predictive analytics along with big data. Predictive analytics can reveal insights into the relationship between consumer behavior and the cost of insurance, helping to lower insurance premiums while incentivizing consumers to better manage and mitigate potential losses.

Every state may have a need to review predictive models, whether that occurs during the approval process of a rating plan or during a market conduct exam. Best practices in the review of predictive models provide value by:

1) Raising model understanding
2) Providing review guidance
3) Aiding collaboration between states
4) Improving regulatory quality
5) Providing training
6) Identifying resources to review models

Best Practices for Reviewing Predictive Models

Review of predictive models by regulators should include these *four elements*:

1) Ensure that the selected rating factors produce rates that are not excessive, inadequate, or unfairly discriminatory
2) Clearly understand the data used to build and validate the model, along with its assumptions, adjustments, variables, sub-models, and output
3) Evaluate how the model interacts with and improves the rating plan
4) Enable competition and innovation to promote the growth, financial stability, and efficiency of the insurance marketplace

Porter 3

Federal & Other Influences

Introduction

The McCarran-Ferguson Act granted regulatory control of insurance to the states, with *three key exceptions*:

1) The Sherman Anti-Trust Act prohibited boycott, coercion, and intimidation
2) Federal antitrust laws apply when state laws do not regulate those activities
3) Federal laws enacted specifically to regulate the business of insurance supersede any state laws applying to the same activities

Business of Insurance

Several Supreme Court cases have been influential in defining the "business of insurance." Initially, court decisions defined specific activities as part of the "business of insurance." The Supreme Court moved away from this beginning with *SEC v. National Securities, Inc. (1969)*.

SEC v. National Securities, Inc. (1969)

In this case, the SEC challenged misleading information distributed by an insurance company to its shareholders. Three *key features* of the "business of insurance" were defined from this case:

1) The insurer-insured relationship
2) The type of policy issued
3) The policy's reliability, interpretation, and enforcement

Since the insurer's relationship with its shareholders did not fall within the "business of insurance," the Court ruled that the SEC had the authority to regulate insurer-shareholder relations.

Group Life & Health Insurance Co. v. Royal Drug Co. (1979)

In this case, a health insurer and participating pharmacies were accused of violating the Sherman Antitrust Act by fixing pharmaceutical prices through a prepaid prescription plan and boycotting non-participating pharmacies. Ultimately, the Supreme Court ruled in favor of the plaintiffs.

Based on the outcome of this case, the "business of insurance" is defined as any activity that has one or more of the following characteristics:

1) The insurer spreads or underwrites the policyholder's risk
2) The insurer and insured have a direct contractual relationship
3) The activity is unique to entities within the insurance industry

Federal Regulation of the Insurance Industry

Securities Act of 1933

Established a market system providing investors with ready access to material information on publicly traded securities.

Securities Exchange Act of 1934

Established the Securities and Exchange Commission (SEC) to regulate the U.S. securities market. Insurers issuing securities must fulfill reporting and disclosure requirements.

Employee Retirement Income Security Act (ERISA) of 1974

Enacted to address abuses in the private pension system and employee benefit plans. ERISA **achieved** the following:

- Ensured adequate benefit information was available to plan participants
- Set higher standards for "tax qualified" benefit plans
- Established proper funding levels for benefit plans
- Provided financial protection to plan participants whose plans terminated or who had met minimum service requirements

ERISA affected the insurance industry in the following ways:

- Insurers administering an ERISA-covered employee benefit plan must act prudently
- Insurers offering employee welfare plans to employers must ensure that the plans comply with ERISA

Other Federal Regulations Affecting the Insurance Industry

Other regulations are as follows:

- **Occupational Safety & Health Act (OSHA)** – requires employees and employers to comply with safety and health standards within the workplace
- **Civil Rights Act** – prohibits employers from discriminating based on race and ethnicity
- **Age Discrimination in Employment Act (ADEA)** – prohibits employers from discriminating based on age (if employee at least 40)
- **Americans with Disabilities Act (ADA)** – prohibits employers from discriminating based on physical or mental disabilities (if employee able to perform job)
- **Environmental Laws** – owners of underground oil storage tanks must purchase an insurance policy to cover potential environmental cleanup

Influences on Insurance Regulation: Courts

Court decisions may:

- Change established insurance regulations
- Determine whether an insurer has settled a claim in compliance with a policy

- Determine if a DOI's regulations are constitutional
- Require changes to claim settlement practices

Influences on Insurance Regulation: Insurance Industry Trade Associations

Trade associations provide the following benefits:

- Fee-paying members gain access to legislative developments and personnel for lobbying to the NAIC, state and federal government, and state insurance regulators
- Members influence new and pending insurance legislation
- Participation enables insurers to exert influence without hiring staff for these roles
- Trade associations offer education to legislators and regulators on critical issues

Influences on Insurance Regulation: Insurance Advisory Organizations

Insurance advisory organizations (ex. ISO, NCCI) focus their efforts on the filing of rates, prospective loss costs, and forms. They also develop rating systems, collect statistics, research topics, and provide a forum for discussion.

Influences on Insurance Regulation: Insurers

Insurers and producers shape legislation in the following ways:

- Provide technical expertise on certain subjects to the NAIC
- Lobby state legislators and DOIs
- Testify about issues within the industry

Influences on Insurance Regulation: Consumer Groups

Influence on DOIs

Consumer complaints to DOIs alert regulators to potential problems and may trigger market conduct and financial examinations.

The *political theory of regulation* suggests that regulators prioritize matters with the greatest public appeal. These include coverages impacting individual consumers and regulatory issues with immediate effects on consumers. Hence, the **price of private passenger auto** holds the highest regulatory importance.

Influence on State Legislators

Consumer complaints may also lead to major legislation initiatives, such as prohibitions against redlining, unfair claims practices laws, compulsory insurance laws, and high-risk driver pools.

Influence on the NAIC

Consumers and consumer groups may appear before NAIC committees to discuss perceived problems in the industry (may lead to the development of model laws).

Influence on Congress

Consumer groups may approach Congress when state legislators fail to act on industry issues (flood insurance).

Influence on Insurance Consumers

Consumer groups may motivate the public to vote on industry issues (CA's Prop 103).

Porter 4

State Regulation & the NAIC

Three Branches of State Government

State governments contain three branches:

1) Legislative – state legislature enacts statutory laws
2) Executive – state DOI and AG office enforces statutory laws
    - State DOI – administers the state insurance code
    - AG Office – enforces the state's criminal laws and provides legal advice
3) Judicial – court system applies and interprets the statutory law

State Insurance Regulatory Systems

In general, state insurance regulatory systems contain *four features*:

1) **Licensing Requirements** – insurers and producers must have license to conduct business in state
2) **Reporting & Filing Requirements** – licensed insurers must file Annual Statement
3) **Periodic Examinations** – DOIs can periodically examine insurer financial health
4) **Power to Impose Sanctions** – state commissioners can impose sanctions on insurers and producers who fail to comply with regulatory requirements

Role of State Legislators as Insurance Regulators

State legislatures control DOI budgets and pass insurance, tax, and corporate laws. They exert regulatory influence in other ways as well:

- Direct Legislative Oversight
    - State legislators control how insurance commissioners perform their duties through annual reports, performance reviews, and audits
- Legislative Influence Through Non-Insurance Laws
    - Non-insurance laws include contract laws, premium laws, fraud laws, investment laws, and lobbying laws

Role of the NAIC in Insurance Regulation

NAIC was formed in order to coordinate the regulation of insurers operating in multiple jurisdictions. Its **mission statement** can be summarized in the following four items:

1) Protect public interest
2) Promote competitive markets
3) Facilitate the fair and equitable treatment of consumers
4) Promote the reliability, solvency, and financial solidity of insurance institutions

The NAIC assists state insurance regulators in several ways. Three examples include:

- Maintain computerized databases to track solvency
- Value insurers' securities
- Track insurance issues at the federal level while working with state regulators to express their concerns to the federal government

NAIC Model Laws

NAIC model laws:

- Streamline the lawmaking process
- Enable states to adopt consistent laws
- Reduce the cost of compliance for multistate insurers

Model laws may ***not be adopted*** for the following reasons:

- The model law is unnecessary because existing state laws already address the issue
- The model law needs to be modified to meet the state's particular needs or align better with existing laws
- The model law may be low priority compared to other state matters

Granting Financial Accreditation to DOIs

The steps for accreditation are as follows:

1) State insurance commissioner submits request for review to the NAIC
2) The NAIC chooses a review team and pays for its visit to the DOI
3) The review team conducts its review, including interviewing department personnel, reviewing laws and regulations, reviewing prior examinations, and reviewing organizational policies
4) Based on the review, the NAIC either grants accreditation or suggests changes to the DOI along with a follow-up review

To receive accreditation, DOIs must meet NAIC standards in three areas:

1) State Laws and Regulations
2) Regulatory Methods
3) DOI Practices

Concerns with the accreditation program include the following:

- Legislators may view the program requirements as an infringement on legislative authority
- Some feel that accreditation is proof that federal oversight of insurance is needed

Functions of State Departments of Insurance (DOIs)

Licensing Insurers

All DOIs license insurers (domestic, foreign, or alien) that conduct business within their borders. They also administer licensing regulations.

Regulating Coverage and Pricing

DOI staff review insurers' filings related to new or revised prices and coverages. There are ***a variety*** of filing laws:

1) **Prior-Approval** – rates and coverages must be approved by DOI before used
2) **File-and-Use** – rates and coverages must be filed with DOI before used
3) **Use-and-File** – rates and coverages can be used immediately, but must be filed in certain time frame
4) **No-File** – no filing required to use rates and coverages
5) **State-Mandated Rates** – some states mandate the rates insurers use
6) **Flex Rating** – rates must be approved before use only if the new rates exceed a certain percentage above (and sometimes below) the rates previously filed

DOIs may disapprove filings for a variety of reasons:

- Contrary to public interest
- Illegal
- Excessive or inadequate rates
- Unfairly discriminatory

Conducting Examinations

Regulators have authority and duty to periodically examine insurers regarding their finances and market conduct.

Financial exams are the primary tool states use to regulate an insurer's financial condition with the purpose to detect financial trouble as early as possible, while also developing information for timely regulatory action.

Market conduct exams reveal how insurers do business, including marketing, advertising, soliciting, policy issuing, and claim handling.

Licensing Producers

DOIs regulate insurance producers like agents, brokers, and solicitors. Producers may have to pass exams, pay fees to obtain licenses, and meet continuing education requirements.

Regulating Claim Adjusters

Market conduct exams look into insurers' claims handling practices to ensure fair treatment of consumers. States also require claims adjusters to pass tests for licensing and maintain these licenses with continuing education.

Preventing Fraud

Historically, fraud prevention received little emphasis, but there has been a recent trend toward increased resource allocation to combat fraud.

Determining Need for Insurer Receivership

DOIs determine the need for receivership, rehabilitation, and liquidation. More details can be found in Porter Chapter 12.

Providing Consumer Services

Regulators help consumers in the following ways:

- Assisting the general public with claims complaints and inquiries
- Offering educational programs about loss prevention and loss reduction
- Publishing guides for purchasing insurance

Monitoring the Sale of Insurance Securities

Regulators oversee insurance securities sales to ensure that insurers' overall financial condition remains sound. Insurers that fail to invest prudently may lack the assets needed to continue operating.

Minimum Capital and Surplus Requirements

Regulators set minimum capital and surplus requirements to protect insureds. In general, minimum capital requirements are stated separately from minimum surplus requirements (and both must be separately met). In addition, capital/surplus requirements differ between new and existing insurers:

- **Minimum required capital stock** is the amount of capital a *stock insurer* must hold to at formation
- **Minimum required basic surplus** is the amount of basic surplus an **existing** insurer must hold to continue operating
    - The minimum required capital stock and minimum required basic surplus at formation are the same for mutual insurers and stock insurers
- **Initial free surplus requirement** is the surplus a **new** insurer must provide above the minimum capital stock or basic surplus requirement

Line Authority Differences

In some states, minimum capital/surplus requirements differ by line of business. In general, more hazardous lines demand more capital/surplus. For multi-line insurers, the line requirements are typically added together to determine the final minimum capital/surplus requirement.

Ownership Form Differences

An insurer's capitalization structure depends on the corporate ownership:

- **Stock Insurers**
    - The stated capital is based on the par value of the shares issued
    - The amount paid for the shares above the par value is allocated to the surplus account
- **Reciprocal Insurers (or Insurance Exchanges)**
    - Groups of individuals, corporations, or other entities that agree to indemnify one another for certain kinds of losses by way of the exchange of insurance contracts
    - These groups have no traditional stock or capital
- **Captive Insurers**
    - Insurers formed by a parent company to primarily provide insurance coverage for their own risks
    - May have lower capitalization requirements than other types of insurers

Licensing Regulation

Domestic Licensing

Domestic insurers are insurers incorporated in the state. Applicants seeking a domestic license must address the following:

- **Location of Books and Records** – insurer will retain books and records in the state
- **Principal Office** – insurer is required to maintain an office in the state

Before issuing the license, state regulators may also perform an organizational examination to verify that minimum capital requirements are deposited, that the management team is in place, and that corporate records are in good order.

Foreign Licensing

Foreign insurers are licensed to operate in one state but incorporated in another state. There are *two advantages* for a licensed insurer seeking to expand operations into other states when obtaining a foreign license:

1) Strong performance and financial records provide justification for approval by the new state's regulatory body
2) Prior experience with the domestic application process streamlines and strengthens future applications

The following foreign application requirements exist in most states:

- Provide copies of charter and bylaws
- Provide recent Annual Statements and financial statements (statutory and GAAP)
- Provide recent examination report (or CPA audited report if no recent examinations)
- Submit a certificate of compliance
- Submit a holding insurer registration statement (if part of a holding company)

DOIs may also impose a *seasoning requirement*, allowing only experienced insurers (2 to 5 years) to apply.

Alien Licensing

Alien insurers are licensed to operate in a U.S. state but incorporated in another country. When alien insurers seek their first license in the U.S., they must select a state to act as its port of entry. The alien applicants must submit the data required for foreign licensing, as well as the following documentation:

- Appointment of U.S. manager
- Trust agreement
- Certificate of alien funds on deposit

Rate Regulation

Insurance ratemaking is unique due to the following characteristics:

1) Rates determined prior to the determination of insurance costs
2) Multiple regulatory environments
3) Information-sharing & joint product-development mechanisms

Regulation Varies by Line

Regulatory scrutiny varies significantly by line of business and state. Examples are as follows:

Line of Business	Level of Regulation	Reason
Ocean Marine	Low	Risks are highly individualized, statistical information is limited to justify rates, and buyers are knowledgeable
Workers' Compensation	High	Mandatory coverage with a complex rating system
Private Passenger Auto	High	Mandatory coverage (i.e., liability) with a complex rating system and uninformed consumers
Title Insurance	Low	Specialized risk with low public visibility

Statistical Agents and Rating Bureaus

Statistical agents are advisory organizations that collect and report loss experience for the P&C insurance industry.

Rating bureaus are organizations that prepare all or parts of rate filings and submit them to regulators on behalf of their members.

Anti-Trust Concerns

Since rating bureaus have faced regulatory scrutiny for their rating setting practices, they no longer produce final rates. Instead, they produce loss costs.

Reasons Insurers are Allowed to Share Information Through Statistical Agents

Although statistical agents appear to be a violation of the anti-trust portion of the Sherman Act, the McCarran-Ferguson Act exempts insurers for the following reasons:

1) A single insurer may not have enough data to accurately price a coverage
2) By using industry data, pricing may be more accurate. This increases availability of insurance while reducing insurer solvency concerns

Services Provided by Rating Bureaus

In addition to providing loss costs, rating bureaus provide the following actuarial services:

- Develop classification systems and class relativities for rates
- Establish rate rules

Recipes for Calculation Problems

- Minimum & Capital Surplus Requirements

Insolvency Regulation

Reasons for Insurer Insolvency

Common contributors to insolvency are as follows:

- Rapid premium growth
- Inadequate rates and reserves
- Unusual expenses (ex. unexpected catastrophic losses)
- Uncollectible Reinsurance
- Fraud

Two Steps for Regulatory Intervention

1) Fact finding
2) Implementation of regulatory action (i.e., mandatory action, administrative supervision, and receiverships, rehabilitation, and liquidation)

Fact Finding

Fact finding involves gathering information at the insurer's office or through written reports during an audit. Regulators from multiple states examine financially troubled insurers, with the NAIC playing a central role in coordinating data and serving as an additional resource.

Implementation of Regulatory Action

Regulators have *three levels* of regulatory action to control financial problems:

1) **Mandatory Corrective Action** – the commissioner orders the insurer to take certain actions (ex. perform actions to reduce liabilities, limit new or renewal business)
2) **Administrative Supervision** – if corrective action doesn't help, regulatory seek court authority to take control of the insurer's management
    - Insurer must obtain permission prior to taking actions such as selling assets, investing funds, incurring debt, accepting new premiums, etc.
3) **Receiverships, Rehabilitation, and Liquidation** – if more serious action than supervision is needed, the commissioner will place an insurer into receivership
    - The commissioner becomes the receiver and formulates a plan to distribute the insurer's assets and ensure the insurer's obligations are met to the highest extent possible
    - *Two possible outcomes* of a receivership are rehabilitation and liquidation

Since the primary focus of statutory accounting is to highlight potential solvency issues, the ***most important aspect*** of an insurer's financial statements ***to a regulator*** is the strength of its balance sheet.

Assets

The statutory balance sheet makes two broad distinctions regarding assets held by insurers:

1) Cash and Invested Assets vs. Non-Invested Assets
    - Intended to identify the proportion of an insurer's assets that is readily convertible to cash
    - The "cash and invested assets" can be readily sold in the near term to meet the insurer's liabilities (ex. bonds, real estate)
    - The "non-invested assets" are less liquid and cannot be readily sold (ex. uncollected premiums and agents' balances, amounts recoverable from reinsurers)
2) Admitted vs. Non-Admitted Assets
    a. Non-admitted assets are ***not recognized*** by state insurance departments when evaluating the solvency of an insurer since they are not readily convertible for use to meet liabilities

Bonds

SAP records bonds at one of the following two bases based on the NAIC rating:

1) NAIC 1 & 2 – recorded at amortized cost
2) NAIC 3 & above – recorded at the lower of amortized cost and fair value

These recorded amounts are known as the adjusted carrying value of the bond.

Stocks

The valuation of stocks is as follows:

- **At purchase**, stocks are valued at cost plus any brokerage or related fees
- **After purchase**, common stocks are recorded at fair value (i.e. market value)
    - If a stock is not publicly traded or a market price is not available, then the NAIC will determine a fair value
    - Preferred stocks are recorded at cost, amortized cost or fair value based on an NAIC rating

Net Deferred Tax Assets

Deferred tax assets (DTAs) represent future tax benefits related to amounts previously recorded in the statutory financial statements that are not expected to be reflected in the tax return as of the reporting date.

Two sources of DTAs are as follows:

1) The difference in tax accounting and statutory accounting for loss reserves
2) The carryforward of net operating losses from previous years

For any DTA or DTL, an insurer can only record the portion of the asset or liability expected to be realized. In addition, the insurer must perform an admissibility test to determine the amount of a DTA that can be considered as an *admitted asset*.

Liabilities and Surplus

On the statutory balance sheet:

$$\boxed{Admitted\ Assets\ -\ Liabilities\ =\ Surplus}$$

Examples of liabilities relevant to an actuary are as follows:

- Losses and loss adjustment expense reserves
- Reinsurance payable on losses and loss adjustment expenses
- Other expenses (excluding taxes, licenses and fees)
- Unearned premiums
- Ceded reinsurance premiums payable
- Funds held under reinsurance treaties
- Provision for reinsurance

Examples of surplus accounts relevant to an actuary are as follows:

- Common and preferred capital stock
- Gross paid in and contributed surplus
- Unassigned funds

Unearned Premiums

Unearned premium is broken down into four categories in the Underwriting and Investment Exhibit of the Annual Statement:

1) Amount unearned (running one year or less from date of policy)
2) Amount unearned (running more than one year from date of policy)
3) Earned but unbilled premiums (related to premium adjustments on audit-type policies)
4) Reserve for rate credits and retrospective adjustments based on experience (related to premium adjustments on retrospectively rated policies)

The UEPR *shown in the balance sheet* is the **sum of categories 1 and 2 above**.

Provision for Reinsurance

This is a liability unique to SAP that represents reinsurance recoverables that may not be collectible. Any change in this provision is recorded directly to surplus and does not affect the company's income.

Recipes for Calculation Problems

- Surplus (Direct Method)

Summary

Schedule F details an insurer's reinsurance transactions on prospective contracts (retroactive contracts are excluded from Schedule F).

Schedule F is comprised of *six parts*:

1) Part 1 – Assumed Reinsurance
2) Part 2 – Premium Portfolio Reinsurance Effected or Canceled during Current Year
3) Part 3 – Ceded Reinsurance
4) Part 4 – Issuing or Confirming Banks for Letters of Credit from Schedule F, Part 3
5) Part 5 – Interrogatories for Schedule F, Part 3
6) Part 6 – Restatement of Balance Sheet to Identify Net Credit for Reinsurance

Part 1 – Assumed Reinsurance

Part 1 provides the total amount of the insurer's assumed reinsurance balances by reinsured.

Key items detailed in Part 1 include the following:

- Premiums
- Loss & LAE Liabilities
- Contingent Commissions
- Forms of Security

Loss & LAE Liabilities

These liabilities represent recoverables on paid losses & LAE and reinsurance on known case losses & LAE.

There are *no IBNR reserves* reported in Part 1 because it only considers reinsurance contracts where the reporting entity is the assuming company. Assuming companies are responsible for determining their own IBNR reserves. In other words, they do not report IBNR reserves assumed from a ceding company.

Contingent Commissions

These are profit commissions from assumed contracts that have yet to be paid since they are "contingent" on the profitability of the contract. It is *important to note* that this is an additional or return commission contingent upon a contract's profitability.

Forms of Security

Cedants require forms of security from their reinsurers to avoid credit risk. Forms of security include the following:

- **Funds held by reinsured companies** – represents a portion of the premium due to the reinsurer that is withheld by the cedant to pay claims
- **Letters of credit** – represents credit issued by a bank in favor of the reinsured to ensure payment if the reinsurer defaults
- **Amount of assets pledged or collateral held in trust** – assets or collateral amounts under the control of the reinsurer

Part 3 – Ceded Reinsurance

Part 3 provides a listing of the company's *ceded reinsurance balances* by reinsurer. It also provides the information needed for the user to identify amounts recoverable from each reinsurer and assess *credit risk*.

Part 3 is separated into 5 sections:

- Columns 1 – 20 detail the ceded reinsurance balances
- Columns 21 – 36 calculate credit risk on ceded reinsurance
- Columns 37 – 53 provide the aging of ceded reinsurance
- Columns 54 – 69 provide the calculation of the Provision for Reinsurance for Certified Reinsurance
- Columns 70 – 78 provide the Total Provision for Reinsurance (authorized, unauthorized and total)

Special Code (Column 5)

- **Special code "2"** – identifies any reinsurance contract where 75% or more of the subject premium is ceded
- **Special code "3"** – identifies those reinsurers that have been aggregated into one line in Schedule F as part of the counterparty reporting exception for asbestos and pollution contracts under SSAP 62R
- **Special code "4"** – identifies IBNR losses on contracts in force prior to July 1, 1984 and not subsequently renewed (these are exempt from the provision for unauthorized reinsurance)

Credit Risk Charge

Credit Risk on Ceded Reinsurance (Columns 21 – 36)

Columns 21 through 36 have *two purposes*:

- Provide information needed to calculate the provision for reinsurance
- Provide information needed to calculate the credit risk charge for reinsurance recoverables for RBC purposes

The amount of the credit risk charge is dependent on *two things*:

1) Whether or not the insurance recoverables are collateralized
2) The financial strength of the reinsurers (based on the current rating received from an approved rating agency)

Each reinsurer rating is mapped to a designation category (1 through 7), each with its own credit risk charge. The factors for each rating are as follows:

Rating	1	2	3	4	5	6	7
Collateralized Charge	3.6%	4.1%	4.8%	5.0%	5.0%	5.0%	5.0%
Uncollateralized Charge	3.6%	4.1%	4.8%	5.3%	7.1%	14.0%	10.0%

Credit Risk Charge on Collateralized Recoverables

The credit risk charge on collateralized recoverables is calculated as follows:

$$\boxed{min(Total\ Collateral, Stressed\ Net\ Recoverable) \times Collateralized\ Factor}$$

Total Collateral

Total collateral includes the following items:

- Multiple beneficiary trusts (Column 21)
- Letters of credit (Column 22)
- Single beneficiary trusts & other allowable collateral (Column 24)

Stressed Net Recoverable

The stressed net recoverable is defined as follows:

$$\boxed{120\% \times (Recoverables_{Total} - Prov.\ for\ Reins._{Total}) - Reins.Payable - Funds\ Held}$$

where the calculation above has a **floor of zero** and:

- $Recoverables_{Total}$ = all reinsurance recoverables (Columns 7 – 14)
- $Prov.\ for\ Reins._{Total}$ = provision for reinsurance for the reinsurer (Column 78)
- $Reins.Payable$ = ceded balances payable + other amounts due to reinsurers (Columns 17 – 18)
- $Funds\ Held$ = liability for funds held by the company under reinsurance treaties (Column 20)

Credit Risk Charge on Uncollateralized Recoverables

The credit risk charge on uncollateralized recoverables is calculated as follows:

$$\boxed{max(Stressed\ Net\ Recoverable - Total\ Collateral, 0) \times Uncollateralized\ Factor}$$

Aging of Ceded Reinsurance

The *aging of each recoverable* begins on one of the following dates:

- The date in which claims are to be paid by the reinsurer (if specified in the contract)
- The date in which claims are to be reported to the reinsurer (if specified in the contract)
- The date in which the recoverable exceeds $50,000 and is entered into the insurer's ledger as a paid recoverable (if no payment or reporting date is specified in the contract)