

Basic Insurance Accounting – Selected Topics

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1 July 2008

CAS Study Note

AUTHOR'S CHANGE TO THIS EDITION

This edition of the study note is the same as the June 2007 edition except for the following change to the third paragraph of section 8 on page 23:

“Under GAAP all the newly purchased and identified assets and liabilities are to be valued at their “fair value”, with goodwill equal to the difference between the fair value of identified acquired assets and the fair value of identified acquired liabilities”

has been changed to

“Under GAAP all the newly purchased and identified assets and liabilities are to be valued at their “fair value”, with goodwill equal to the difference between the purchase price and the fair value of identified acquired assets less the fair value of identified acquired liabilities.”

Basic Insurance Accounting – Selected Topics

The purpose of this study note is to educate actuaries on certain basic insurance accounting topics that may be omitted in other syllabus readings. These topics include:

- Loss and loss adjustment expense accounting basics
- Reinsurance accounting basics
- Examples of how ceded reinsurance impacts an insurers financial statements
- Deposit accounting basics

In addition, the following two fundamental accounting equations are provided, representing basic equations that may no longer be found in the other syllabus articles but that all actuaries should know.

- **Assets – Liabilities = Equity** (sometimes labeled “net assets” or “surplus”)
- **Revenue – Expense = Income** (with expense including incurred losses and underwriting expenses for an insurance company).

(Note: Most accounting systems rely on some form of double-entry bookkeeping, under which all transactions result in debit and credit entries that have to balance. This study note assumes that the study of debits and credits is not necessary for most actuaries. Those interested in such knowledge are hereby referred to a basic accounting text, possibly supplemented by the relevant chapters for their area of interest in the IASA’s text of Property-Casualty Insurance Accounting.

This study note also assumes a basic understanding of bookkeeping terminology, such as “ledger”, “account” and “closing the books”,)

I. Loss and loss adjustment expense accounting

(learning objective B.2 for losses. Premiums already covered by other study note.)

(Note: the following uses the terms “loss” and “claim” interchangeably, and “liability” and “reserve” interchangeably. The author is aware that terminology varies by jurisdiction, sometimes by company within a jurisdiction, or even within the same company. Hence the student is advised to confirm the usage of these terms within their business environment. This discussion also discusses losses exclusively, rather than loss and loss adjustment expense, although most of this is also applicable to loss adjustment expenses.)

Loss accounts

The basic accounting transactions involving losses are

- Paying claims
- Increasing or decreasing claim reserves

These two items affect the income statement through incurred losses, which equals paid claims (or “losses”) plus the change in loss reserves, or

$$\text{Incurred losses} = \text{paid losses} + (\text{ending loss reserves} - \text{beginning loss reserves})$$

There may be several loss reserve accounts in a company’s ledger. All companies’ ledgers will generally have the categories of case reserve (the estimate of unpaid claims established by a claim adjuster or the claim system¹) and IBNR (the reserve for “Incurred But Not Reported” claims), as several jurisdictions require that these amounts be disclosed separately in annual financial reports. Other accounts that may be set up include:

¹ Note that some claim departments define the case reserve as their estimate of the ultimate value for the claim, including amounts paid-to-date. This can occur even when the term is used to represent unpaid amounts only among the actuaries in the same company.

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- *Bulk reserve* – This reserve represents the estimated deficiency in the aggregate of case reserves for known claims. If forced to assign it to either case reserves or IBNR reserves, some will assign it to case reserves, as it represents reserves for claims that have already been reported. Others will assign it to IBNR, as it represents an aggregate calculation above claim adjuster estimates not reliably assignable to an individual claim.
- *Additional Case Reserve* – This represents an additional reserve for an individual claim, above the level set up by the claim adjuster. It is most common for claims under assumed reinsurance contracts, where the case reserve comes directly from the ceding company, as it allows the assuming company to record a different estimate for the value of a claim than the ceding company.

Companies may or may not also set up loss reserve accounts for reopened claims, anticipated subrogation or salvage recoveries, deductible recoveries (where the full loss is paid by the insurer who then bills the insured for the deductible), expected legal defense costs, etc..

Note that the above amounts may be positive or negative. For example, bulk reserves could be negative if it is assumed that case reserves will be redundant in the aggregate. Case reserves for a claim could be negative if it is assumed that amounts paid-to-date on a claim are greater than the ultimate value, and that some future recovery of paid amounts is expected.

Loss cycle

Incurred losses reported in financial statements are typically broken out into two pieces, the initial estimate of incurred losses for the most recent exposure period, and changes in the estimate of incurred losses for prior periods. This can frequently be translated in summary form into:

- Incurred losses for the current accident year
- Changes in incurred loss estimates for prior accident years

There are also two general approaches to the initial recognition of losses for the current accident year – those based on actual claim activity and those based on accrual of estimated incurred losses based on the level of earned exposure. The following tracks the life-cycle of incurred claims for each of these approaches, first when initial reserves are based on actual claim activity, and then when initial reserves are estimated based on the estimated earned exposure.

Actual claim activity

Under this approach, the incurred losses for the most recent exposure period are initially set based on the actual claim activity, with possible additional loss reserves established to allow for IBNR claims or any expected deficiency/redundancy in claim adjuster reserves. For subsequent valuations of the same group of claims, changes in claim adjuster estimates directly impact incurred losses, and aggregate reserves such as bulk and IBNR reserves are run off over time based on studies of historical data or other actuarial studies.

The following tracks the accounting entries resulting from claims for accident month January 2006 for a hypothetical company/line of business, from initial valuation to the final payment for the accident month.

The following (simplifying) assumptions were made in the following example:

- All claims are reported within 4 months of the loss event.
- Earned premium for the month is \$100.
- Each claim is worth \$10, half paid in the month of reporting, half in the subsequent month.
- The initial IBNR is set based on 30% of earned premium, run off evenly over the following three months.
- No bulk reserve is necessary (beyond that which may be implicit in the IBNR calculation).

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Example 1 - where reserving is based at inception on actual claim activity

Assume

- All claims are reported within 4 months of the loss event.
- Earned premium for the month is \$100.
- Each claim is worth \$10, half paid in the month of reporting, half in the subsequent month.
- Case reserves are established at \$10 once the claim is reported
- The initial IBNR is set based on 30% of earned premium, run off evenly over the following three months.
- No bulk reserve is necessary (beyond that which may be implicit in the IBNR calculation).

| <u>Accident Month</u> a | <u>Accounting Month</u> b | <u>Reported Claims</u> c | <u>Paid</u> d | <u>Case Reserves</u> e | <u>IBNR</u> f | <u>Ending Reserves</u> g (g) = (e) + (f) | <u>Beginning Reserves</u> h | <u>Incurred Losses</u> i (i) = (d) + (g) - (h) |
|----------------------------|------------------------------|-----------------------------|-----------------------|---------------------------|------------------|------------------------------------------------|--------------------------------|------------------------------------------------------|
| Jan. 06 | Jan. 06 | 3 | 15 | 15 | 30 | 45 | 0 | 60 |
| Jan. 06 | Feb. 06 | 2 | 25 | 10 | 20 | 30 | 45 | 10 |
| Jan. 06 | Mar. 06 | 0 | 10 | 0 | 10 | 10 | 30 | -10 |
| Jan. 06 | Apr. 06 | 1 | 5 | 5 | | 5 | 10 | 0 |
| Jan. 06 | May 06 | | <u>5</u> 60 | 0 | | 0 | 5 | <u>0</u> 60 |

The above displays the life-cycle for a particular accident month. The financials for a particular accounting month will reflect various accident months with transactions or outstanding reserves during that month.

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The establishment of the initial reserves for an exposure period based on actual activity is most typical where most of the claims are reported relatively quickly and settled quickly, such as for certain property lines in many jurisdictions. Such an approach is not possible if claims are reported slowly and/or where the initial claim adjuster estimates are not sufficiently reliable indicators of ultimate payout.

For product lines with slower reporting and/or payment patterns or where the initial case reserves are less reliable at initial valuation, it is common to set the initial incurred loss estimate based on an “a priori” estimate of loss exposure for the period. The following is an example of such an approach where the initial estimate of incurred losses is based on an expected loss ratio times earned premium.

Accrual of estimated incurred losses based on the level of earned exposure

The following (simplifying) assumptions were made in the following example:

- Claim activity is tracked and reserves set by accident year.
- Earned premium for the 2006 calendar year is running \$1,000 a month.
- Based on an analysis of pricing and loss trends and expected underwriting, management expects a 60% loss ratio for the 2006 accident year.
- Only two loss reserve accounts are maintained, case and IBNR.
- These two reserve accounts are further split in two AY buckets, the current AY (which is 2006 in this example) and all prior

In this illustration, management determines the incurred losses for the current AY based on earned premium for the period, and performs regular reserve reviews to determine if prior accident year estimates should be changed. The illustration shown has such a change in estimate for prior years.

| Example 2 - June 2006 reserve setting | | | | |
|------------------------------------------------------|----------------|------------------|---------------|-------------------|
| <u>Step 1 - Determine Incurred Losses</u> | | | | |
| <u>AY 2006</u> | | | | |
| June 2006 earned premium | 1,000 | | | a |
| Expected loss ratio | 60% | | | b |
| Incurred losses | 600 | | | c |
| <u>All prior years</u> | | | | |
| Change in prior estimate of ultimate incurred losses | 500 | | | d |
| <u>Step 2 - Determine IBNR reserves</u> | | | | |
| | <u>AY 2006</u> | <u>all prior</u> | <u>total</u> | <u>Source</u> |
| May 31, 2006 case reserves | 500 | 4,800 | 5,300 | e ledger |
| <u>May 31, 2006 IBNR</u> | <u>900</u> | 5,300 | 6,200 | f ledger |
| May 31, 2006 total reserves | 1,400 | 10,100 | 11,500 | g (e) + (f) |
| - paid losses in June 2006 | 100 | 400 | 500 | h ledger |
| + incurred losses in June 2006 | 600 | 500 | 1,100 | i (c) and (d) |
| <u>June 30, 2006 total reserves</u> | <u>1,900</u> | <u>10,200</u> | <u>12,100</u> | j (g) - (h) + (i) |
| June 30, 2006 case reserves | 700 | 4,750 | 5,450 | k ledger |
| June 30, 2006 IBNR reserves | 1,200 | 5,450 | 6,650 | l (j) - (k) |

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It is possible for an insurer to use one of the above approaches for some of its lines and the other approach for its other lines. It may use both approaches on the same line, basing the reserves early in an accident year on a loss ratio times earned premium and then moving to reserving based on actual claim experience once the actual claim data becomes more credible. It may also choose to use one method for some loss types and the other method for other loss types for the same product line. The choice is generally up to the insurer, unless the applicable accounting rules and/or insurance laws/regulations dictate a particular reserve estimation method.

Paid losses versus cash payment

The above accounting illustrations include entries for paid losses. Non-accountants may believe that “paid losses” means the same thing as cash paid to claimants. In most cases, it does, but there may be lags and estimates involved.

When a claim adjuster writes a check to a claimant, this may not result in a simultaneous paid loss transaction in the accounting system. For example, if an adjuster is writing checks to policyholders in the middle of a catastrophe zone, there may not be the ability to instantly record the payment in the claim accounting ledger. Instead, the necessary detail to record the payment in an accounting ledger may not be entered until days later.

When a payment is made but the corresponding entry (e.g., “paid losses”) has not yet been made, the payment is registered to a “suspense” account. Growth in the claim suspense account would normally signify some backlog in the clearing of records in the claim system, or an influx of claim activity that has yet to be recorded as paid losses due to the need to incorporate additional details (such as including all the requisite claim coding fields).

Booking lags can also generate differences between what is recorded in paid losses and true cash transactions. For example, a company that closes one of its subsidiary ledgers prior to the actual calendar year closing date (such as a November 30st closing of a claim ledger for December 31st reporting) may be required by their accounting rules to estimate the paid amounts that occurred between the subsidiary ledger closing and the accounting “as of” date. These estimated paid amounts would be trueed up once the actual values are known.

Recoverable amounts

Many insurance operations have various types of recoverables or cash offsets to paid claims. These recoverables can vary by jurisdiction and product. Some common types of recoverables or offsets include:

- Salvage & subrogation
- Ceded reinsurance
- Deductibles (*Note that this refers to deductibles under which the insurer pays the entire claim and then seeks reimbursement from the insured for the amount of deductible. It does not refer to deductibles where the insurer only pays the portion of the claim above the deductible*)

These items are generally recorded as negative paid losses. But the timing of the negative paid entry may not match the actual cash transaction. For example, items that require billing someone for the recoverable amount may be recorded as “negative paid” when the bill is sent. The following illustrates such a transaction:

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Example 3 – Ceded reinsurance

Assume paid direct losses in May 2006 of \$100, subject to a 50% cession.

Assume the reinsurance billing was lagged one month (June 2006), with collection lagged an additional month (July 2006)

(Note that this ignores any loss reserve or underwriting income statement entries that may result)

May 2006 (selected) accounting entries

| | |
|-------------|-------|
| Paid losses | \$100 |
|-------------|-------|

June 2006 (selected) accounting entries/balances

| | |
|---------------------------------|-------|
| Paid losses | \$-50 |
| Reinsurance recoverable (asset) | \$ 50 |

July 2006 (selected) accounting entries/balances

| | |
|---------------------------------|------|
| Reinsurance recoverable (asset) | \$ 0 |
| Cash | \$50 |

There are several possible approaches for an accounting system if the billed amounts are later determined to be unrecoverable. The accounting may require a reversal of the original recoverable entries (such as is required in U.S. statutory reporting for ceded reinsurance). The accounting may also require a write-off of the recoverable balance in a different income statement account (such as “other income”, such as currently occurs for U.S. statutory reporting as of 2007 for billed deductible recoverable amounts).

Accounting for discounted reserves

The use of discounted reserves creates its own issues in designing an accounting system, in that the ultimate paid losses will be recorded at nominal value, more than the recorded discounted loss reserves. The accounting system must therefore determine how to treat the increase in the reserve due to the amortization of discount.

The current approach used in many jurisdictions for this situation is to record the increase due to discount amortization as incurred losses. This may show up as reserve strengthening in certain reports, unless accompanied by adequate disclosure.

An alternative approach (not yet widely used for insurance loss accounting) is to record the income statement impact of increasing loss reserves due to discount amortization as interest expense. Where interest expense is reported together with interest income, this would result in incurred losses staying at the initial discounted value, unless incurred loss estimates change. It would also result in lower investment income than occurs in many current insurance accounting systems.

Self-insurer issues

Current insurance accounting systems do not cover the liability for events that are self-insured. Instead, the liability for these items may fall under more generic accounting requirements that apply to all businesses. For example, the liability for many of these items in the U.S. would be covered by FAS 5, and for those following IASB standards the applicable accounting rule is IAS 37. These rules generally require amounts to be reliably estimable before they are booked, and a self-insurer may or may not have sufficient volume to allow for reliable estimation of their aggregate self-insured liabilities. It may also occur that reported claims can be estimated reliably enough to meet the accounting recognition requirements, but IBNR claims cannot.

Where the self-insured liabilities are related to employees, such as workers compensation or self-insured employee health insurance, special accounting rules designed for employee benefits may apply. This is the case under FASB and IASB rules currently. Further discussion of such rules is beyond the scope of this study note.

II. Reinsurance Accounting Basics

(Learning objective B.2, B.4)

Assumed Reinsurance accounting

In general, the accounting rules applicable to insurers writing direct insurance contracts also apply to those writing assumed reinsurance contracts. That said, there may occasionally be differences, such as different risk transfer rules and different definitions of loss versus loss expense.

Risk transfer rules

Currently in the U.S., certain rules exist regarding the amount of risk transfer required for a contract to be coded as reinsurance (as opposed to being accounted for as a deposit – note that *deposit accounting* is discussed later in this study note). The risk transfer rules may apply to all reinsurance contracts, or only to the ceded reinsurance accounting (and not the assumed reinsurance accounting for the same contract). The same risk transfer rules may or may not apply with regard to insurance contracts. Complications can also exist where one contract “reinsures” a portfolio of contracts which include both insurance and non-insurance contracts. (This issue is discussed more in FAS 113.)

Loss adjustment expense

It is common for reinsurance contracts covering tort liability insurance risks to include coverage for legal defense costs. These are frequently coded as loss adjustment expenses and are frequently reported separately from losses by the ceding company. But the assuming company may record such costs as assumed losses on their books. Hence, the categorization of defense costs (and other such expenses) may shift between loss expense and loss when going from the ceding company to the assuming company. This will distort analyses of loss versus loss expense on a combined direct writer plus reinsurer basis.

Ceded reinsurance accounting

There are two general approaches to ceded reinsurance accounting currently in existence:

- 1) Treating the ceded reinsurance entries as negatives of the direct or assumed reinsurance entries, or
- 2) Treating the purchase of reinsurance as the purchase of an asset.

These approaches may sometimes be combined in a single accounting system. For example, U.S. GAAP treats ceded reinsurance premiums and losses as negative premiums and negative losses for income statement purposes, but ceded loss reserves as an asset rather than as an offset to a liability for balance sheet purposes.

*(Note: The following example assumes that the relative entries in an account are added together to get a total. For example, if a company writes \$100 in direct premium and then cedes \$10 in premium, it assumes that the premium entries are +\$100 and -\$10. These values are then **ADDED** to get the net of \$90. There are some accounting systems that record ceded entries as positive values, and that always subtract ceded values in calculating totals for an account. In such a system the premium entries would be +\$100 and +\$10, and the user of the information would have to know to **SUBTRACT** ceded amounts from direct and assumed amounts.)*

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Example 4 – Ceded reinsurance impact on income statement, assuming treatment as negative insurance.

Assume the company has (and has historically maintained) a 20% quota share ceded reinsurance contract for all direct insurance, with a ceding commission of 30%.

Assume the loss ratio on direct business is 65%, and the only direct expense is a 30% commission.

Assume the direct earned premium for the year is \$100 and the direct loss reserve at year-end is \$200

Income Statement

| | |
|-----------------------------|------------|
| Direct Earned Premium | \$100 |
| <u>Ceded Earned Premium</u> | <u>-20</u> |
| Net Earned Premium | 80 |

| | |
|------------------------------|------------|
| Direct Incurred Losses | \$ 65 |
| <u>Ceded Incurred Losses</u> | <u>-13</u> |
| Net Incurred Losses | \$ 52 |

| | |
|--------------------------|-----------|
| Direct Commissions | \$ 30 |
| <u>Ceded Commissions</u> | <u>-6</u> |
| Net Commissions | 24 |

Net underwriting income \$ 4

Balance Sheet

| | |
|---------------------------|------------|
| Direct Loss Reserve | \$200 |
| <u>Ceded Loss Reserve</u> | <u>-40</u> |
| Net Loss Reserve | 160 |

If the accounting instead required segregated reporting of the impact of ceded reinsurance, it may require that it be treated as a net expense in the calculation of underwriting income. In the above example, the net cost of ceded reinsurance would be \$1 (equal to an earned premium cost of \$20, less recoveries of \$13 for losses and \$6 for expenses).

Example 5 – Treatment of Ceded Reinsurance as purchase of an asset for balance sheet purposes (such as under U.S. GAAP)

Assume the same facts as in example 4, but with different balance sheet treatment

Balance Sheet

| | |
|----------------------------------------------|------------------------------------------------|
| <u>Assets</u> | <u>Liabilities</u> |
| Ceded Loss Reserve \$40 | Direct Loss Reserve \$200 |

Commutation accounting – ceded and assumed.

The commutation of a reinsurance agreement ends the remaining obligations of either party to the other under the agreement. It can occur either due to a commutation clause written into the original contract, or through negotiation between the parties in executing and/or resolving disputes under the contract, but the accounting is typically the same.

A commutation does not negate the original contract. Instead, it finalizes obligations under the contract, generally via a fixed payment or series of fixed payments from the reinsurer to the reinsured.

The final payment (or series of payments) is typically accounted for as a paid loss. Consistent with the finalization of all remaining obligations, all other balance sheet entries are removed. As the final payment

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is typically based on the economic value remaining in the contract, it generally reflects the time value of money, hence it would normally be less than a full undiscounted loss reserve².

For example, assume that ceding company A and assuming company B entered into a commutation that finalizes their obligations/rights under a contract, in return for a final payment from B to A of \$100. Assume that prior to the commutation, A had recorded a ceded loss reserve under the contract (accounted for as a negative loss reserve) of -\$150, and that B had recorded an assumed loss reserve of +\$110. (The final value of \$100 reflects both the time value of money and a compromise as to expected future payments.) The income statement impact of the commutation for the two companies would be the following:

| | |
|--------------------------------|-------------|
| Ceding Company (A) | |
| Paid losses | -100 |
| <u>Change in loss reserves</u> | <u>+150</u> |
| Incurring losses | 50 |

| | |
|--------------------------------|-------------|
| Assuming Company (B) | |
| Paid losses | +100 |
| <u>Change in loss reserves</u> | <u>-110</u> |
| Incurring losses | -10 |

Reinsurance reporting lags

Reinsurance contracts include language regarding reporting requirements of the ceding company to the assuming company. These reports serve multiple purposes. One is to effect the necessary paid transactions under the contract, including ceded premiums and losses according to the policy terms. Another is to enable the assuming company sufficient data to perform its own reserve analysis (either for the particular contract or contract claims, or for the assuming company's portfolio of contracts or claims). A third is to enable the assuming company to meet its own accounting requirements.

There can be significant lags in the filing and receiving of these reinsurance reports. The lags can be the result of time necessary for the ceding company to accumulate the data required to be reported. They may also be due to the need to coordinate input from multiple parties, such as where the ceding entity is a pool and the pool administrators must first collect the relevant data from all the pool members before submitting reports to the pool reinsurers. Delays can also be caused by multiple handoffs and consolidations, such as occurs for some retrocession contracts where first the ceding companies must report to their reinsurers, who then must process the data before submitting their report to retrocessionaires (with multiple layers of retrocessionaires possible). Delays of several years have been observed for higher level retrocession contracts involving parties from multiple countries and/or continents.

Some accounting paradigms require the assuming company to record estimated transactions where the lags and the dollars involved are material. This may involve recording estimated premiums, losses and expenses (including estimated "paid" losses) based on anticipated or historical experience. These estimates could be trued up once the actual values are known or improved estimates are available.

Bordereau reporting

For certain reinsurance contracts, such as many facultative or individual claim excess of loss contracts, the ceding companies report includes individual claim (and possibly premium) transaction detail. But for

² This may not always be the case. Where the commutation reflects the economic value of the future payments otherwise due under the reinsurance contract, the economic value would also include an adjustment for risk. This risk adjustment would increase the economic value, offsetting the reduction for the time value of money, in some cases resulting in a value greater than the expected undiscounted recoveries.

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certain contracts, the reporting is done in summarized form instead. Such summarized reports are called “bordereaus”.

Bordereau reports may or may not include product line detail or type of loss detail. Some only include high level summary data of subject losses and premiums, with additional detail only available through special request or inspection (with the ability or inability to do so depending on the contract terms). The level of detail in the bordereau reports can directly impact the level of detail in the assumed company’s accounting records. For example, if no line-of-business splits are available in the bordereau, the assuming company cannot report its assumed share except on a highly summarized line of business basis. It also will be unable to split the subject losses into various categories unless the detail in the bordereau supports such reporting.

Retroactive versus Prospective Reinsurance

Some reinsurance paradigms distinguish between reinsurance bought to cede future losses (“prospective reinsurance”) and reinsurance bought to cede past losses (“retroactive reinsurance”). The accounting described above represents the typical accounting rules for prospective reinsurance.

One example of a retroactive reinsurance contract is a loss portfolio transfer, whereby an insurer cedes all the loss reserves from an existing portfolio of claim liabilities to a reinsurer. Another example is an adverse development cover, whereby an insurer buys reinsurance to protect it in case an existing portfolio of claim liabilities develops adversely beyond a certain level.

Historically, different rules for retroactive reinsurance were put in place where the main insurance accounting paradigm did not allow discounting. Prior to these special retroactive reinsurance rules, some companies were reportedly using retroactive reinsurance to generate earnings, as they would be able to cede existing loss reserves (held at undiscounted values) for a ceded premium that reflected the time value of money. Hence, special rules were implemented for retroactive reinsurance to prevent or limit such potential for abuse.

Retroactive reinsurance accounting generally requires that the recoveries under the contract be held on a present value basis, with exceptions. They may also require separate disclosure of the benefits or impact of such contracts, so that any distortion of these contracts on the ceding company’s financial statements can be isolated.

Where such rules exist, exceptions are sometimes incorporated into the rule whereby certain contracts are excluded from the present value or special disclosure requirements. When this occurs, it is typically said that “prospective accounting applies” to the retroactive reinsurance contract.

III. Examples of Ceded Reinsurance Impact on Financial Statements

(learning objective B.4)

“Reinsurance Principles and Practices” by Harrison lists the following six principal functions of reinsurance.

1. Increase large line capacity
2. Provide catastrophe protection
3. Stabilize loss experience
4. Provide surplus relief
5. Facilitate withdrawal from a market segment
6. Provide underwriting guidance

The following gives a brief example of these with regard to the following financial statement components of a ceding company.

- Surplus
- Loss reserves
- Unearned Premiums

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- Leverage ratios
- Income statement

1. Increase large line capacity

This reinsurance deals with the situation where the company is only willing to expose itself to a certain amount of potential loss per policy or risk, but portions of its potential market demands greater amounts of coverage.

Assume:

- XYZ insurance company is unable or unwilling to write homeowners contracts for homes with insured values over \$500,000 without a suitable reinsurance program.
- XYZ buys a “surplus share” pro rata reinsurance treaty that cedes premiums and losses for such higher valued homes, with the ceding percentage for each policy equal to the excess of the home value over \$500,000 divided by the total home value. (E.g., for a home worth \$625,000, the quota share ceding percentage would be $125/625$, or 20%.)
- This is the only reinsurance purchased by XYZ.
- As a result of this treaty, XYZ writes 10% more on a net basis, but 40% more on a gross basis. (Note that alternatively XYZ could have chosen to keep its net premiums the same as before, replacing more of its low valued home business with high valued home business.)
- Loss reserves are also 10% more on a net basis, but 50% more on a gross basis (assuming that claims on larger valued homes are more complex and take longer to settle).
- Assume that the only change to surplus is from the change in earnings during the year shown.
- Due to collection lags, agents balances are generally 10% of annual gross written premium.
- XYZ maintains investments in cash equal to 10% of gross loss reserves.
- No income taxes
- The only expenses are a 20% commission
- Level premium volumes, and steady state situations
- Investment income is 5% of cash plus bonds.

Analysis of impact (from Exhibit 6)

- Surplus – There is little direct impact of the agreement in this example on the value of surplus, other than earnings on any additional business opportunities. Given the additional premium, reserves, and additional reinsurance collectibility risk, the ceding company may desire (or be forced to) hold more surplus to support these greater risks. Alternatively, it could decide to reduce volume to retain the same level of surplus relative to risk.
- Loss reserves – Net reserves may be little changed depending on whether this additional capacity changes the business model. But gross reserves may have a bigger impact, as the business with larger lines may be more complicated to settle, and hence gross payment patterns may lengthen and become more volatile.
- Unearned Premiums – Little changed
- Leverage ratios – Net leverage ratios are not as much impacted by this reinsurance as they are by the possible change in business model. The gross leverage ratios may begin to differ materially from the net leverage ratios, and reinsurance leverage becomes more important than previously (due to greater reliance on reinsurance).
- Income statement – Little changed on a net basis, although the gross of reinsurance results and the “cost of reinsurance” may be more volatile than a book that focuses on only smaller accounts.

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2. Provide Catastrophe Protection

This reinsurance deals with the situation where the company desires to reduce its potential loss from a catastrophic event.

Assume:

- ABC insurance company is in the same situation as XYZ insurance company in Exhibit 6, prior to the purchase of large line capacity insurance. Hence, the “without” column in Exhibit 6 also applies to Exhibit 7, unless a catastrophe event occurs.
- ABC buys a catastrophe treaty on January 1st for 5% of gross premium that pays for losses from a single event in excess of 10% of premium. This premium is payable at the start of the year. (*Note that this assumption would result in zero ceded unearned at December 31st. Ceded unearned would be greater than zero if the ceded reinsurance policy term had not yet expired.*)
- This is the only reinsurance purchased by ABC.
- Under the “No Cat Event” scenario, there is no cat.
- Under the “Yes Cat Event” scenario, there is a cat generating gross losses equal to 50% of gross earned premium. It is assumed that non-cat loss levels are unaffected by this event.
- Only 10% of the cat losses are paid by year-end, with the rest paid the following year.
- The cat treaty has a mandatory reinstatement premium provision, with the reinstatement premium due once the cat treaty attachment is reached on a paid basis. This reinstatement premium charge is 2% of gross premium.
- The only surplus change is due to the change in underwriting results. (In other words, any possible change in investment income is ignored.)

Analysis of impact (from Exhibit 7)

- Surplus – Buying the cat reinsurance decreases surplus if no cat event occurs, due to the cost of reinsurance. But it can substantially mitigate the risk of significant drops in surplus if large cats occur. Note that the cost of the reinsurance in the event of a cat includes both the original premium and the reinstatement premium.
- Loss reserves – Net reserves are not impacted unless a covered cat event occurs. In that case, gross loss reserves can increase significantly for a relatively short period of time (i.e., the length of the cat payout pattern). Note that as long as the size of cat losses are within the reinsurance limit, net reserves will return to normal levels sooner than gross reserves, as the retained portion of the cat is generally paid first before the ceded portion of the cat.
- Unearned Premiums – Little to no change (depending on the cat reinsurance policy term and accounting date), as cat reinsurance is normally a limited portion of total premium.
- Leverage ratios – If no cat event occurs, the biggest impact may be from reduced surplus in the denominator of many leverage ratios. If a cat does occur, then gross ratios and net ratios are significantly impacted without the reinsurance, while only the gross ratios are significantly impacted with the reinsurance (with the exception of ceded reinsurance leverage ratios). In general, ceded reinsurance leverage (i.e., ceded balances³ as a percent of surplus) can be significantly impacted in the period after a major cat, prior to the runoff of the resulting cat loss reserves.
- Income statement – Investment income is reduced in any event by purchasing this reinsurance. But underwriting income is substantially protected, with the loss limited to the original ceded premium, plus the retention and reinstatement premium if a covered cat occurs. (This assumes that the cat stays within the maximum limit of the cat reinsurance program.)

³ Ceded balances are those balance sheet values arising from ceded reinsurance. In the above examples, they include ceded loss reserves and ceded unearned premiums. In a real-life example, they would also include reinsurance recoverables from amounts billed but not yet collected.

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3. Stabilize loss experience

This reinsurance deals with the situation where loss experience may fluctuate more from year to year than management desires. Management desires may be driven by capital provider demands, or their own desire to simplify the capital management process (including the determination of shareholder dividends).

A numeric example of this is given in Harrison⁴. Hence, this study note only discusses the benefits relative to the same metrics discussed for the other examples.

- Surplus – The expected value of surplus is lower than without this reinsurance, but with less period-to-period variation. The reduction is caused by the expected net cost of reinsurance. Note that while the *expected* impact of surplus is a reduction, the impact from year to year may vary between reductions and increases as gross losses are lower or higher than expected.
- Loss reserves – Stabilizing loss experience net of reinsurance generally translates into stabilizing net of reinsurance loss reserves. Gross reserves reflect the full volatility of year-to-year results, but net reserves should be smaller and more stable. (They may also be easier to estimate, as the situations that cause loss experience to fluctuate may also cause claim liability estimation to be more difficult.)
- Unearned Premiums – Reduced due to the purchase of this reinsurance, unless the reinsurance is purchased with a single effective date and the accounting date being used is the reinsurance expiration date.
- Leverage ratios – These ratios on a net basis should be more stable but slightly higher (due to reduced surplus), assuming there is a positive net cost of the reinsurance.
- Income statement – Underwriting results over time would be expected to be lower, due to the net cost of the reinsurance, and investment income would be lower. But the underwriting results from year-to-year should be more stable.

4. Provide surplus relief

This reinsurance deals with the situation where leverage ratios are higher than desired. Reinsurance is therefore purchased with the intent of reducing net of reinsurance leverage ratios.

Assume:

- XYZ insurance company here is in the same situation as XYZ insurance company in Exhibit 6 prior to the purchase of reinsurance, except that it only has \$500 in surplus.
- The “With” scenario assumes that XYZ buys 50% quota share, in order to reduce its net premium to surplus and net reserves to surplus leverage ratios. This is a straight quota share, with 50% of premiums and losses ceded, with a ceding commission of 20% (consistent with the gross expense ratio).
- This is the only reinsurance purchased by XYZ.
- The only surplus change is due to the change in underwriting and investment income during the year.

Analysis of impact (from Exhibit 8)

- Surplus – Surplus is reduced by the net underwriting cost of the reinsurance and the lower investment income. This quota share reinsurance would only be a benefit if the business was being written at a loss.
- Loss reserves – Net reserves are a fixed percentage of gross reserves.
- Unearned Premiums – Net reserves are a fixed percentage of gross reserves.
- Leverage ratios – Net leverage ratios are significantly improved, although ceded reinsurance leverage ratios are significantly increased. Hence, the insurer’s solvency becomes more reliant on its reinsurers’ solvency. Note that ceding half the gross business does not halve the net leverage ratios, due to the impact of the cession on surplus. While premiums and loss reserves drop in half, surplus does not stay constant. Hence, a cession of more than 50% would be required to obtain a 50% reduction in net premium and reserve ratios to surplus.

⁴ Harrison, Connor M., Reinsurance Principles and Practices, 1st edition, page 1.7.

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- Income statement – Underwriting income is cut in half, and investment income is significantly reduced.

5. Facilitate withdrawal from a market segment

This reinsurance deals with the situation where management wants to exit a market, and is not willing to wait until the runoff of existing obligations.

Assume:

- XYZ insurance company here is in the same situation as XYZ insurance company in Exhibit 6 except that it stopped writing new business in the prior year. The beginning balances come from Exhibit 6, “without” column.
- The “With” scenario assumes that XYZ stops writing business and buys reinsurance on January 1st to cede 100% of the remaining unearned premium and loss reserves. The ceded premium equals the 98% of the beginning unearned premium and loss reserves. A ceding commission is included to cover the commission portion of the unearned premium.
- Direct Written premium for the year is zero.
- A Deferred Acquisition Cost asset exists under the current accounting paradigm. (The runoff of this asset to zero is the source of the expenses in the “Without” column of Exhibit 9.)
- Investment is 5% of beginning surplus plus the average of liabilities less non-invested assets over the year.
- The only surplus change is due to the change in underwriting and investment income during the year.

Note: This example assumes withdrawal from all business. These results would need to be combined with results from ongoing businesses to see the combined balance sheet and income statement impact.

Analysis of impact (from Exhibit 9)

- Surplus – Expected surplus is reduced due to the reduction in assets, but surplus should no longer be susceptible to volatility in the runoff results.
- Loss reserves – Gross reserves are unchanged, but net reserves disappear, hence exposure to the volatility of net reserve estimates disappears.
- Unearned Premiums – Gross reserves are unchanged, but net reserves disappear.
- Leverage ratios – Net leverage ratios are zero, hence the only remaining insurance risk is reinsurance collectibility risk. Hence, surplus that was supporting the runoff business should now be free to support existing or new business, subject to supporting the residual reinsurance collectibility risk.
- Income statement – Consistent with the elimination of reserves, underwriting results are now zero. Investment income is reduced. But the risk in the results is now greatly reduced (and limited to the risk in reinsurance collectibility and in investment results).

6. Provide underwriting guidance

This reinsurance deals with the situation where management wants to enter a new market, or believes that it must be in one market to support another of its markets, but does not feel comfortable with its expertise in that new market. It therefore heavily reinsures its writings in that new market, relying on the reinsurer’s expertise in pricing and underwriting that market correctly.

No numeric example was provided for this situation. Of the previous examples, it is closest to Exhibit 6 where the reinsurance creates new business opportunities for the insurer. The impact on surplus and income is dependent on the profitability and volume (after reinsurance cessions) of the new business.

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Exhibit 6

**XYZ Insurance Company
Impact of Large Line Capacity Treaty**

| <u>Balance Sheet</u> | | <u>Without</u> | <u>With</u> |
|-----------------------------------------------------|-------------|----------------|-------------|
| <u>Assets</u> | | | |
| Bonds | | 2,575 | 2,663 |
| Cash | | 75 | 113 |
| Agents Balances | | 100 | 140 |
| Total | | 2,750 | 2,915 |
| <u>Liabilities</u> | | | |
| Loss Reserves | Gross | 750 | 1,125 |
| | <u>Cede</u> | <u>0</u> | <u>300</u> |
| | Net | 750 | 825 |
| Unearned Premium | Gross | 500 | 700 |
| | <u>Cede</u> | <u>0</u> | <u>150</u> |
| | Net | 500 | 550 |
| Ceded Agts. Balances | | 0 | 30 |
| Total | | 1,250 | 1,405 |
| Surplus | | 1,500 | 1,510 |
| <u>Income Statement (net of reinsurance)</u> | | | |
| Earned Premium | | 1,000 | 1,100 |
| Incurred Losses | | 750 | 825 |
| Expenses | | 200 | 220 |
| Underwriting Income | | 50 | 55 |
| Investment Income | | 133 | 139 |
| Total income | | 183 | 194 |
| <u>Other Financial Statistics</u> | | | |
| Written Premium | Gross | 1,000 | 1,400 |
| | <u>Cede</u> | <u>0</u> | <u>300</u> |
| | Net | 1,000 | 1,100 |
| Gross WP/Surplus | | 67% | 93% |
| Net WP/Surplus | | 67% | 73% |
| Gross Loss Res./Surpl. | | 50% | 75% |
| Net Loss Res./Surpl. | | 50% | 55% |
| Ceded balances/Surplus | | 0% | 30% |

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Exhibit 7

**ABC Insurance Company
Impact of Catastrophe Protection Treaty**

| Balance Sheet | <u>No Cat event</u> | | <u>Yes Cat Event</u> | | |
|-----------------------------------------------------|---------------------|-------------|----------------------|-------------|-------|
| | <u>Without</u> | <u>With</u> | <u>Without</u> | <u>With</u> | |
| <u>Assets</u> | | | | | |
| Bonds | 2,575 | 2,525 | 2,480 | 2,430 | |
| Cash | 75 | 75 | 120 | 120 | |
| Agents Balances | 100 | 100 | 100 | 100 | |
| Total | 2,750 | 2,700 | 2,700 | 2,650 | |
| <u>Liabilities</u> | | | | | |
| Loss Reserves | Gross | 750 | 750 | 1,200 | 1,200 |
| | <u>Cede</u> | 0 | 0 | 0 | 400 |
| | Net | 750 | 750 | 1,200 | 800 |
| Unearned Premium | Gross | 500 | 500 | 500 | 500 |
| | <u>Cede</u> | 0 | 0 | 0 | 0 |
| | Net | 500 | 500 | 500 | 500 |
| Ceded Agts. Balances | 0 | 0 | 0 | 20 | |
| Total | 1,250 | 1,250 | 1,700 | 1,320 | |
| Surplus | 1,500 | 1,450 | 1,000 | 1,330 | |
| <u>Income Statement (net of reinsurance)</u> | | | | | |
| Earned Premium | 1,000 | 950 | 1,000 | 930 | |
| Incurred Losses | 750 | 750 | 1,250 | 850 | |
| Expenses | 200 | 200 | 200 | 200 | |
| Underwriting Income | 50 | 0 | -450 | -120 | |
| Investment Income | 133 | 130 | 130 | 128 | |
| Total income | 183 | 130 | -320 | 8 | |
| <u>Other Financial Statistics</u> | | | | | |
| Written Premium | Gross | 1,000 | 1,000 | 1,000 | 1,000 |
| | <u>Cede</u> | 0 | 50 | 0 | 70 |
| | Net | 1,000 | 950 | 1,000 | 930 |
| Gross WP/Surplus | 67% | 69% | 100% | 75% | |
| Net WP/Surplus | 67% | 66% | 100% | 70% | |
| Gross Loss Res./Surpl. | 50% | 52% | 120% | 90% | |
| Net Loss Res./Surpl. | 50% | 52% | 120% | 60% | |
| Ceded balances/Surplus | 0% | 0% | 0% | 30% | |

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Exhibit 8

XYZ Insurance Company Impact of Surplus Relief (via 50% quota share)

| <u>Balance Sheet</u> | | <u>Without</u> | <u>With</u> |
|-----------------------------------------------------|-------------|----------------|-------------|
| <u>Assets</u> | | | |
| Bonds | | 1,575 | 943 |
| Cash | | 75 | 75 |
| Agents Balances | | 100 | 100 |
| Total | | 1,750 | 1,118 |
| <u>Liabilities</u> | | | |
| Loss Reserves | Gross | 750 | 750 |
| | <u>Cede</u> | <u>0</u> | <u>375</u> |
| | Net | 750 | 375 |
| Unearned Premium | Gross | 500 | 500 |
| | <u>Cede</u> | <u>0</u> | <u>250</u> |
| | Net | 500 | 250 |
| Ceded Agts. Balances | | 0 | 50 |
| Total | | 1,250 | 675 |
| Surplus | | 500 | 443 |
| <u>Income Statement (net of reinsurance)</u> | | | |
| Earned Premium | | 1,000 | 500 |
| Incurred Losses | | 750 | 375 |
| Expenses | | 200 | 100 |
| Underwriting Income | | 50 | 25 |
| Investment Income | | 83 | 51 |
| Total income | | 133 | 76 |
| <u>Other Financial Statistics</u> | | | |
| Written Premium | Gross | 1,000 | 1,000 |
| | <u>Cede</u> | <u>0</u> | <u>500</u> |
| | Net | 1,000 | 500 |
| Gross WP/Surplus | | 200% | 226% |
| Net WP/Surplus | | 200% | 113% |
| Gross Loss Res./Surpl. | | 150% | 169% |
| Net Loss Res./Surpl. | | 150% | 85% |
| Ceded balances/Surplus | | 0% | 141% |

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Exhibit 9

**XYZ Insurance Company
Impact of Reinsurance to exit a market**

| Balance Sheet | | beginning balances | ending balances | |
|-----------------------------------------------------|-------------|-----------------------|-----------------|--------------|
| | | | Without | With |
| <u>Assets</u> | | | | |
| Bonds | | 2,575 | 1,976 | 1,566 |
| Cash | | 75 | 38 | 38 |
| Agents Balances | | <u>100</u> | <u>0</u> | <u>0</u> |
| Total | | 2,750 | 2,013 | 1,604 |
| <u>Liabilities</u> | | | | |
| Loss Reserves | Gross | 750 | 375 | 375 |
| | <u>Cede</u> | <u>0</u> | <u>0</u> | <u>375</u> |
| | Net | 750 | 375 | 0 |
| Unearned Premium | Gross | 500 | 0 | 0 |
| | <u>Cede</u> | <u>0</u> | <u>0</u> | <u>0</u> |
| | Net | 500 | 0 | 0 |
| Ceded Agts. Balances | | <u>0</u> | <u>0</u> | <u>0</u> |
| Total | | 1,250 | 375 | 0 |
| Surplus | | 1,500 | 1,638 | 1,604 |
| <u>Income Statement (net of reinsurance)</u> | | | | |
| Earned Premium | | | 500 | 0 |
| Incurred Losses | | | 375 | 0 |
| Expenses | | | 100 | 0 |
| Underwriting Income | | | 25 | 0 |
| Investment Income | | | 113 | 104 |
| Total income | | | 138 | 104 |
| <u>Other Financial Statistics</u> | | | | |
| Written Premium | Gross | | 0 | 0 |
| | <u>Cede</u> | | <u>0</u> | <u>1,250</u> |
| | Net | | 0 | -1,250 |
| Gross WP/Surplus | | | 0% | 0% |
| Net WP/Surplus | | | 0% | -78% |
| Gross Loss Res./Surpl. | | | 23% | 23% |
| Net Loss Res./Surpl. | | | 23% | 0% |
| Ceded balances/Surplus | | | 0% | 23% |

IV. Deposit Accounting

(learning objective B.4 – knowledge statement (a))

Deposit accounting for a contract generally observes the following rules:

- The accounting is done on an individual contract-by-contract basis, and not on a portfolio basis, even if the resulting contract-by-contract amounts are reported on a summary basis in financial reports.
- The amount(s) received for a contract is recorded as a deposit liability, with no revenue or expense impact (and therefore no impact on income).
- The deposit liability is increased due to additional receipts, and usually investment income credits of some sort, and decreased due to payments.
- As such, the deposit generally represents a present value of future payment obligations.

Deposit accounting may be required by accounting paradigm for what might otherwise be an insurance (or reinsurance) contract under the following conditions. (*Note that whether a particular accounting paradigm requires deposit accounting under these conditions can vary significantly from one accounting paradigm to another.*)

- No risk transfer.
- Timing risk transfer only, but no transfer of amount risk – i.e., where the amount to be paid until the contract is considered fixed or subject to minimal uncertainty, but uncertainty exists as to the timing of the payment.
- Retroactive reinsurance, subject to exceptions.

Three general forms of deposit accounting currently observable are bank deposit approaches, prospective approaches and retrospective approaches

Bank deposit approach

This is the simplest of the three deposit accounting approaches to be discussed. Under this approach, the initial deposit grows with credited interest at a rate whose calculation is determined in advance (and with possible additional deposits depending on the contract terms) and declines with withdrawals. The defining characteristic is that the ending deposit for a reporting period is dependent solely on the beginning balance, the credited rate for the period, and any deposits or withdrawals during the period. The credited rate may be fixed or variable, dependent on market rates or based on non-market events or rates, but the method of its calculation is generally set in advance.

Prospective approach

The defining characteristic of this approach is that the current value of the deposit is set equal to the present value of future payments, irrespective of the initial deposit or past payments. The interest rate is generally a market rate, which may be based on risk-free rates and may be locked-in at inception such that it does not change over time. (Conceptually, it is also possible for a prospective method to use a market rate that is updated for each reporting period.)

Under this approach, the deposit value will change with the amortization of interest, and with a change in projected future losses (and with a change in the discount rate, if the rate is not locked-in by the accounting paradigm).

Retrospective approach

The defining characteristic of this approach is that the deposit is a function of the initial deposit, all past payments, and the current estimate of all future payments. Under this method the interest rate is the rate for which the discounted value of past payments and estimated future payments would equal the initial deposit. The interest rate can change whenever the estimated cash flows under the contract change. This method could also conceivably generate a negative rate if applied to a contract where the projected outflows no longer exceed the initial inflows. Whereas the prospective approach only cares about future (except possibly for an interest rate locked-in in the past), the retrospective approach cares about all the flows since inception, past and future.

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Under this approach, the deposit value and discount rate are subject to change whenever the projected cash flows since inception are changed.

References

- IASA chapters on losses and reinsurance
- Introduction to Accounting, Edwards, Hermanson, Salmonson and Kensicki, American Institute for Property and Liability Underwriters, 1991,
- Harrison
- AICPA Statement of Position 98-7 *Deposit Accounting: Accounting for Insurance and Reinsurance Contracts That Do Not Transfer Insurance Risk*

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Exam 7 – U.S. GAAP vs. Statutory Differences

The following lists and explains the primary sources of GAAP versus statutory accounting differences for U.S. insurance companies. The source of the U.S. statutory rules is the NAIC, subject to state modification via law or regulation, although current statutory reporting requirements require the public disclosure of any such state-mandated or permitted variances from NAIC statutory rules. The overall determinant of GAAP in the U.S. is the SEC for public companies, although the SEC delegates most of this rule setting to the FASB, and the FASB for privately held companies.

List of principal GAAP vs. statutory differences

1. Deferred Acquisition Costs (“DAC”, also known as “prepaid expenses”)
2. Non-admitted assets
3. Deferred tax asset
4. Invested Assets
5. Losses – retroactive reinsurance
6. Losses – structured settlements
7. Ceded Reinsurance
8. Acquisition accounting, including “goodwill”

1. Deferred Acquisition Costs

Under current U.S. GAAP accounting, insurance companies defer recognition of acquisition expenses related to the unearned portion of written premiums. Assuming that such expenses that are paid up front are X% of the written premium, the deferred acquisition cost (or “DAC”) asset is set equal to X% times the unearned premium reserve.

Some companies include all acquisition related expenses in calculating this asset. Others include only premium taxes and commissions.

This DAC asset is subject to an impairment test, via the premium deficiency reserve test. (See FAS 60.)

2. Non-admitted Assets

U.S. statutory accounting generally follows a liquidation value concept, focusing on the value that can be expected in a liquidation rather than as a going concern. Consistent with that concept, statutory accounting requires a reduced value (and sometimes a zero value) for certain assets that will be less liquid or have a smaller realizable value in a liquidation. The amount of that reduction or disallowance is called the amount of “non-admitted asset”.

Note that this item is generally small relative to total assets for most U.S. property/casualty companies, except possibly for deferred tax assets (explained below), as companies generally avoid the creation of assets that will be reduced in value under statutory accounting rules.

3. Deferred Tax Assets (DTAs)

When an existing liability will eventually create a greater income tax deduction than currently reflected to-date in tax returns, the resulting future tax benefit is called a “deferred tax asset”. U.S. GAAP generally allows a full deferred tax asset for these ultimate tax-return-deduction versus current tax-return-deduction issues. The full GAAP deferred tax asset is only reduced if its “more likely than not” that a portion of the deferred tax asset cannot be realized in the future.

The allowance for statutory deferred tax assets is more restricted, and is focused on the amount of deferred tax assets that are more certain or more immediately recoverable (consistent with the statutory accounting focus on conservatism and liquidation value). Statutory accounting limits the amount of deferred tax asset to the following:

- (a) Federal income taxes paid in prior years that can be recovered through loss carrybacks from DTAs expected to reverse in the coming year, plus

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- (b) The amount of deferred tax assets expected to reverse (and be deductible) in the coming year (beyond the amount in (a) above), capped at 10% of surplus, plus
- (c) The amount of remaining DTAs after (a) and (b) above that can be offset against existing deferred tax liabilities.

Note that the surplus value used in the above calculation is before any benefit from DTAs, admitted assets due to computer equipment or software, and any “goodwill” (discussed below).

4. Invested Assets

U.S. GAAP rules value assets at either market value or amortized cost, depending mostly on whether they are held in trading portfolios, treated as “available for sale”, or intended to be held to maturity.

U.S. statutory rules instead require that all investment grade bonds be held at amortized cost, and all non-investment grade bonds be held at the lower of amortized cost or market. There are also differences in the valuation of preferred stocks and potentially other investments.⁵

Note that the statutory rules here for investment grade bonds seem to contradict the focus on liquidation accounting, as they ignore the change in market value due to interest rate movements. One rationale generally given for the use of amortized cost rather than market value for such bonds is that companies generally hold most of such bonds to maturity, hence any fluctuation in market value due to interest rate movements is only temporary.

5.6. Loss Reserves

There is generally no difference between U.S. statutory and GAAP rules for property/casualty loss reserves⁶, with a few exceptions. Two of these exceptions are noted below.

5. Retroactive reinsurance

The accounting rules for retroactive reinsurance ceded loss reserves are very different for statutory vs. GAAP.

- **Statutory accounting** allows recognition of the undiscounted recoveries under these contracts, but the recoveries show up as a negative write-in liability and not as ceded loss reserves⁷.
- **GAAP accounting** only recognizes the present value of these recoveries, but does record them as ceded loss reserves.

In short, statutory allows for a surplus benefit for such ceded reinsurance, but no reduction in loss reserves (hence Schedule P is unaffected by the purchase of this reinsurance), while GAAP does not allow any equity benefit from the purchase, but does allow for a reduction in loss reserves.

Note that the statutory surplus benefit from such contracts is identified separately as “special surplus funds”, limiting its availability for the payment of shareholder dividends until the benefits are realized as cash.

6. Structured Settlements

Liability claims are sometimes settled in the U.S. by the purchase of an annuity by the insurer with the claimant as the beneficiary. Payments are made directly to the claimant by the annuity company. Under statutory accounting, the annuity purchase price is recorded as a paid loss by the liability insurer and the claim is closed. Where an appropriate release is signed by the claimant, the obligation of the insurer to the

⁵ Note that U.S. statutory accounting rules for investments differ for property/casualty versus life companies, with life companies retaining amortized cost for lower bond investment ratings, among other differences.

⁶ This situation is different for life insurance policy reserves, where the U.S. statutory and GAAP reserves can vary significantly based on the current rule-based accounting systems for life insurance. There may also be exceptions for health insurance.

⁷ Also, the statutory surplus benefit from recording undiscounted recoveries is separately disclosed, leading to certain restrictions on this portion of surplus.

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claimant has ceased, and GAAP accounting for the annuity purchase is the same as the statutory accounting (i.e., paid loss, closed claim).

But where the insurer remains contingently liable to the claimant (e.g., if the annuity company stops paying due to insolvency), the GAAP accounting is different. In that case, GAAP accounting treats the annuity purchase as if it is reinsurance. The insurer sets up a loss reserve equal to the annuity value, and records an offsetting reinsurance recoverable for the same amount. Statutory still records the annuity purchase as a paid loss and closed claim, but requires disclosure of the contingent liability in the Notes to Financial Statements. These contingent liabilities can be over a billion dollars for the largest U.S. p/c insurers.

7. Ceded Reinsurance

Under U.S. statutory accounting, ceded reinsurance is treated as negative insurance for accounting purposes. Ceded premium reduces net premium, ceded losses reduce net losses, ceded reserves reduce net reserves, etc.. Under U.S. GAAP accounting, however, ceded recoverables show up as assets for balance sheet purposes rather than negative liabilities. This difference only impacts the balance sheet geography of the ceded balances, however, and does not impact the income statement or the total value of equity.

8. Acquisition Accounting, including “goodwill”

Accounting paradigms generally have special rules for the situation where one company acquires or merges with another. These rules are generally labeled “business combination” rules.

When one company purchases another, the difference between the purchase price and the value of all identified (and separately valued) assets less liabilities is called “goodwill”. Conceptually, this represents the value of the underlying franchise of the purchased company, including that represented by a trained workforce, brand name recognition, in-place distribution system, etc. It also explains why the market value of a stock is generally greater than the accounting equity under GAAP or statutory accounting rules, as these intangibles are not normally valued under GAAP or statutory accounting rules.

The initial value of goodwill can vary drastically between GAAP and statutory accounting. Under GAAP all the newly purchased and identified assets and liabilities are to be valued at their “fair value”, with goodwill equal to the difference between the purchase price and the fair value of identified acquired assets less the fair value of identified acquired liabilities. Under statutory accounting, the acquired assets and liabilities are valued using normal statutory accounting rules, not fair value rules, hence goodwill equals the difference between the purchase price and the statutory surplus of the acquired entity.

GAAP and statutory accounting treat the future value of this goodwill very differently. GAAP currently freezes the initial goodwill value created at the time of acquisition, with the only change over time due to periodic impairment testing. U.S. statutory accounting instead amortizes this goodwill value over 20 years.

Additional points

Temporary vs. permanent differences

Note that most Statutory/GAAP differences are only timing differences, as most statutory and GAAP assets and liabilities eventually are translated into cash inflows and outflows. The only permanent Statutory/GAAP difference mentioned above are those assets and liabilities created by acquisition accounting that GAAP does not amortize, such as goodwill.

Permanent temporary differences

While most of the above differences are temporary, many of them can be thought of as being permanent temporary differences for financial analysis purposes. This is because old temporary differences (caused by old transactions) that are running off are being continually replenished by new temporary differences created by new transactions. DAC is one example of a “permanent” temporary difference, as it will exist as long as an insurance company keeps writing business.

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Balance sheet versus income statement differences

Some of these Statutory/GAAP differences affect both income statement and balance sheet, and some only affect the balance sheet. For example, DAC affects both income and equity, while changes in non-admitted assets affect equity without going through the income statement.