Insurer Statutory Annual Statement Analysis

**Part 1 - Insurer Annual Statement Analysis Concepts**

**Liquidity:** The ease at which an asset can be converted to cash with little or no loss of value

**Capacity**: The amount of business an insurer is able to write, usually based on comparison of the insurer’s written premiums to its policyholder’s surplus.

**Written premiums**: The total premium on all policies written (put into effect) during a particular period

**Unearned premium reserve**: An insurer liability representing the amount of premiums received from policyholders that are not yet earned.

**Earned premiums**: The portion of written premiums that corresponds to coverage that has already been provided.

The long-term financial health of an insurer depends on its capacity to supply insurance, the liquidity of the invested assets it uses to meet payment obligations to policyholders, and its long-term profitability. An analyst evaluates an insurer’s financial strength by measuring these factors using data from the insurer’s financial statements.

**Three key financial concepts must be understood to analyze an insurer’s financial statement: capacity, liquidity and profitability.** While profitability is universally applicable across all industries, capacity and liquidity have specific application to the property-casualty insurance business.

**Capacity**

***Question: Explain capacity and how analysts measure whether an insurer is operating at a prudent capacity level. Written premiums to Assets***

**An insurer’s capacity is primarily determined by the amount of capital that it can commit to underwriting a portfolio of loss exposures. Capacity is therefore considered a function of policyholders’ surplus.**

**Written premiums, net of reinsurance, indicate an insurer’s exposure to potential losses as it renews policies or underwrites new business. Analysts relate an insurer’s net written premiums to its policyholders’ surplus to measure whether the insurer is operating at a prudent capacity. This level is important for evaluating both operating results and solvency**.

Growth places strain on an insurer’s policyholders’ surplus, and therefore its capacity, for two primary reasons. First, **the larger an insurer’s written premium, the greater the amount of policyholders’ surplus regulators require as a cushion against adverse operating results**. Second, in the short term, statutory accounting requires the immediate recognition of policy acquisition expenses, but deferred recognition of the associated premium revenue. The mismatch of revenues and expenses creates a temporary drain on policyholders’ surplus. So you want to be sure they are not writing too much business.

An insurer’s investment results also affect the policyholders’ surplus and therefore its capacity. Realized capital gains and losses from the sale of securities directly affect policyholders’ surplus.

**Liquidity**

***Question: One way to measure an insurer’s liquidity is to compare its highly liquid assets with its obligations to its policyholders. Explain this method and its two possible outcomes with reference to the components of an insurer’s assets and liabilities***

**Liquidity refers to a firm’s ability to raise cash to meet financial obligations when they are due. An insurer’s liquidity depends on its cash inflows and outflows, the relationship between its assets and liabilities, and the type and amount of assets it has available to meet obligations to policyholders and creditors.**

One way to measure an insurer’s liquidity is to compare its highly liquid assets and its obligations to policyholders. **An insurer’s high-grade marketable securities and its cash, by definition, are highly liquid assets. Its unearned premium reserve and loss reserve are estimates of current obligations to policyholders. If the combined value of an insurer’s high-grade marketable securities and cash equals or exceeds its unearned premium reserve and loss reserve, the insurer’s liquidity position is satisfactory**. However, if the insurer would need relatively illiquid assets to satisfy its obligations to policyholders, it lacks sufficient liquidity. Poor liquidity exposes the insurer to investment losses if assets must be sold at a price below market value.

**Liquidity can also be measured by analyzing cash flows. Underwriting and investment operations provide cash inflows through premiums, interest, dividends, rents proceeds from the sale and maturity of investments**, and other transactions such as the recapture of previously paid income taxes. **Cash outflows arise from loss and loss adjustment expense payments, investment purchases and dividends to policyholders and shareholders**. For a Growing insurer, underwriting operations should be continually contributing to its cash balance, making it easier for the insurer to manage its liquidity position. **Negative net cash flows are a sign that an insurer’s liquidity may be decreasing**.

**Profitability**

***Question: Explain two comparisons analysts perform to determine an insurer’s profitability***

Profitability is essential to an insurer’s survival and growth. It provides surplus to support additional sales and growth in premium. **Past earning retained by an insurer usually make up the largest portion of its policyholders’ surplus.**

**An insurer’s profitability is based primarily on its underwriting and investment results. To evaluate underwriting profitability, an analyst compares losses, loss adjustment expenses, and other expenses to premiums. The analyst usually compares losses and loss adjustment expense amounts to earned premiums, while other expenses, because many are incurred up front at the time associated premium is written, are compared to written premiums**.

**Part 2 – Ratios Applied to Insurer Annual Statement Case Study**

**Benchmarking**: The process of comparing results to industry standards or best practices

**Capacity Ratios**

**The premium-to-surplus and the reserves-to-surplus are capacity ratios that measure an insurer’s exposure to potential losses and indicate whether the insurer is operating at a prudent capacity level.**

**Premium-to-surplus ratio, or capacity** **ratio**: **A capacity ratio that indicates an insurer’s financial strength by relating net written premiums to policyholders’ surplus. The premium to surplus ratio is the written premiums net of reinsurance (net written premium) divided by policyholders’ surplus. The higher an insurer’s premium-to-surplus ratio, the more aggressive the insurer is in terms of using its surplus to leverage premium writings and the lower its additional capacity to write business. Ratios over 3 to 1 are considered problematic to NAIC.**

**Ceding Commission**: An amount paid by reinsurer to the primary insurer to cover part of all of the primary insurer’s policy acquisition expense

If losses and loss adjustment expenses exceed earned premiums, the insurer must draw on its policyholders’ surplus to meet its obligations, which increases the ratio by lowering the denominator, the latter due to the statutory accounting principles (SAP) requirement that policy acquisition expenses be immediately recognized and the associated premium revenue be deferred. Ceded reinsurance lowers the ratio because it lowers net written premiums and therefore the numerator, while the ceding commission helps offset the lower surplus due to the mismatch in recognizing policy acquisition expenses and the associated premium revenues.

**Reserves-to-surplus ratio**: A financial ratio that provides a measure of the ability of an insurer’s surplus to absorb increases in reserves. **An insurer’s reserves-to-surplus ratio measures insurance leverage**. Even though the reserves-to-surplus ratio is technically a leverage ratio, it also indicates insurer capacity because it shows the dollar amount of reserves that must be supported by each dollar of policyholder’s surplus. It uses outstanding loss and loss adjustment expense (LAE) reserves, which are based on outstanding losses covering more than just the most recent year. **It also uses unearned premium reserves.** An insurer’s reserve-to-surplus ratio should be evaluated in conjunction with its premium-to-surplus ratio.

**Liquidity Ratio**

**Insurance leverage**: An indication of the extent to which policyholders’ surplus can support a given level of reserves.

**Liquidity ratio: A ratio that measures the extent to which an insurer can meet its obligations as they come due and is the sum of cash plus invested assets (market value) divided by unearned premium reserve plus loss and loss adjustment expenses. A value of 1.0 or greater is desirable because it indicates that the insurer could immediately liquidate its investment portfolio and have sufficient cash to pay all its obligations. If an insurer is too aggressive (optimistic) in valuing its reserves for losses and LAE, its actual liquidity may be very different from that indicated by the ratio’s value**.

**Profitability Ratios**

**Combined ratio**: A profitability ratio that indicates whether an insurer has made an underwriting loss or gain. The combined ratio measures an insurer’s underwriting profit**.  It is called the combined ratio because if combines two other ratios:  The loss ratio and the expense ratio**. **If total losses and expenses exceed premium, the combined ratio will be over 100 percent, signifying an underwriting loss.  A combined ratio under 100 percent signifies an underwriting gain.**  Combined ratios in excess of 100 percent are common, especially in the long-tailed lines such as workers compensation, where the insurer has years to earn offsetting investment income.  Loss Ratio + Expense Ratio

**Loss ratio**: **A ratio that measures losses and loss adjustment expenses against earned premiums and that reflects the percentage of premiums being consumed by losses. The Loss ratio gives a general indication of the quality of business the insurer writes and might also provide insight into the adequacy of the insurer’s rates.**

**Expense ratio**: An insurer’s incurred underwriting expenses for a given period divided by its written premiums for the same period. Comparing the expense ratios for successive time periods indicates overall expense trends with an increasing expense ratio potentially highlighting need for more effective expense controls.

**Investment income ratio**: **Net investment income divided by earned premiums for a given period**.

**Operating ratio**: A ratio that measures an insurer’s overall pretax operational profitability from underwriting and investment activities and is calculated by subtracting the investment income ratio from the combined ratio. The operating ratio is the combined ratio minus the investment income ratio.

**Investment yield ratio**: A profitability ratio that indicates the total return on investments for an insurer’s investment operations. Unlike the investment income ratio, the investment yield ratio measures investment returns relative to the invested assets that actually generate the investment income. With a low investment yield, the analyst should examine specific investments. Perhaps it has a large portion of its investments in stocks that pay no dividend and short-term bonds with a relatively low yield

**Return on Policyholder’s surplus: A profitability ratio that shows the rate of return an insurer is earning on its resources.** The return on policyholders’ surplus ratio facilitates comparisons between insurers because it eliminates problems caused by differences in premium volume, underwriting results, and investment gains by summarizing overall after tax operating success relative to the insurer’s net resources (assets minus liabilities).

|  |  |  |
| --- | --- | --- |
| **Insurer Ratios** |  |  |
| **Capacity** | Ratios | (Exposure to Loss) |
| higher ratio more aggressive | **Premium -to-surplus *over 3 to 1 is problematic*** | **Net Written premiums ÷ Policyholder's surplus** |
| *The higher the ratio less impact on policy holder Surplus* | **Reserves-to-Surplus *the ability to handle upward revisions to reserve estimates*** | **Unearned premium reserve + Loss and LAE reserves ÷ Policyholder Surplus** |
|  |  |  |
| ***Liquidity Ratio*** | ***1.0 or greater is desirable (ability to raise cash)*** | ***Cash + Invested assets(market value) ÷ Unearned premium + Loss and LAE*** |
|  |  |  |
| **Profitability** | Ratio | (Underwriting & Investment results) |
|  | ***Loss Ratio*** | ***Incurred Losses ÷ Loss Adjustment Expenses ÷ Earned premium*** |
|  | ***Expense Ratio*** | ***Underwriting expenses ÷ Written premiums*** |
| ***100 or less gain/100 or more loss*** | ***Combined Ratio*** | ***Loss ratio + Expense ratio*** |
|  | *Investment Income Ratio* | *Net investment Income ÷ Earned premiums* |
| *< 100 profit* | *Operating Ratio* | *Combined ratio - Investment income ratio* |
| *< 100* | ***Investment Yield Ratio*** | ***Net Investment gain (loss) ÷ Total cash + Invested assets*** |
|  | **Return on Policyholder's surplus** | **Net income ÷ Policyholders' surplus** |

**Part 3 – A.M. Best Financial Strength Ratings**

Insurance brokers, agents, insureds, reinsurers, and investors rely on credit ratings published by A.M. Best.

A.M. Best prepares Insurer Credit Ratings (ICR), and Debt Ratings, as well as two measures that relate directly to an insurer’s policyholder obligations:

\* The Financial Strength Rating (FSR), typically referred to as the “Best’s Rating”, is an independent opinion of an insurer’s financial strength and its ability to meet ongoing insurance policy and contract obligations.

\* The Financial Size Category (FSC) complements the other ratings and is based on the policyholders’ surplus of the insurer, adjusted to reflect various reserve amounts and contingency funds.

**Financial Strength Rating**

AM Best’s Financial Strength Rating (FSR) is based on a series of quantitative tests that evaluate an insurer’s balance sheet strength, operating performance, and business profile.

**Quantitative Tests**

**AM Best uses more than 100 quantitative tests to rate insurers. An insurers ratio results are evaluated by comparing them to ratio results for its peer group, as established by AM Best.** The peer group standards are based on an analysis of the peer group’s reported data for the past twenty years.

**Best’s Key Rating Guide provides five years of history on nineteen ratios in four areas**:

* Profitability
* Liquidity
* Capital and leverage
* Loss reserves

**Profitability tests indicate management’s ability to generate or attract sufficient profit and capital to support the insurer’s future operations and growth**.

**Liquidity tests measure an insurer’s ability to meet claim obligations without selling long term investments or fixed assets that might be saleable only at a substantial loss during unfavorable market conditions**.

Insurer’s operating stability - that is, its ability to withstand losses from unfavorable underwriting results, catastrophes, poor management decisions, industry trends, and adverse economic developments – depends on its capital and leverage.

**Leverage gained from loss reserves, unearned premium reserves, or other insurance operations is common and likely to be substantial, especially for an insurer that writes a great deal of liability insurance**.

AM Best uses a proprietary model to measure the adequacy or inadequacy of the reserves. The needed reserves, as calculated by the model are discounted for anticipated investment income to obtain an economic loss reserve figure. If the insurer’s reported reserves are less than the calculated economic loss reserve, a deficiency in reserves is presumed to exist. If the reported reserves are greater than the economic reserve, a redundancy is presumed to exist.

***Question: Explain Best’s Capital Adequacy Ratio (BCAR) and what it measures***

Any deficiency or redundancy is incorporated into the Best’s Capital Adequacy Ratio (BCAR) model. **BCAR measures the adequacy of the insurer’s capital relative to the risk it assumes in its operations. The BCAR test compares adjuster surplus to a hypothetical required amount of capital computed by the BCAR model**. The BCAR model has some similarities to the National Association of Insurance Commissioners’ (NAIC) risk based capital formula, but there are a number of differences because of the different purposes of the models. The NAIC risk based capital model establishes a regulatory minimum, but BCAR is used to develop a measure of the relative financial strength of the insurer and its used to evaluate an insurer’s capital strength above and beyond the minimum requirement.

**Qualitative Tests**

AM Best uses a series of qualitative tests to supplement the quantitative tests of capital adequacy, loss reserve adequacy and investment risk, both the insurer itself and its holding company. The qualitative review includes examination and evaluation of these elements:

**Capital Structure of the insurer holding company – The capital structure of the insurer and its holding company, if any, is analyzed to ensure that the capital structure is sound and the insurance subsidiary can meet its financial obligations.** When a holding company exists, the associated capital structure can substantially influence the overall financial strength of an insurance company subsidiary.

**Reinsurance and other risk mitigation programs – Reinsurance agreements are reviewed for appropriateness in relation to the insurer’s underwriting practices, the type of insurance written, the amount of coverage provided, territorial spread of risk, and catastrophe loss exposures. Reinsurance agreements are reviewed to see whether they provide true risk financing or serve merely as loans or extensions of time for loss payments.**

**Question: What do AM Bests qualitative tests measure with regard to loss reserve adequacy, and what types of claim exposures get special attention**

**Loss reserve adequacy and accuracy** – Although loss reserve adequacy depends primarily on the results of the quantitative tests, the **qualitative tests also include an estimate of the uncertainty associated with the reserve estimates. Particular attention is paid to those insurers with exposure to asbestos, environmental, or other mass tort claims. Stress tests are applied to measure the adequacy of surplus to absorb adverse events. Internal controls and monitoring systems are evaluated as well**.

Spread of risk - Liquidity of investments and concentration of exposure is evaluated, along with diversity and geographic concentration. Review exposure to systemic risks, such as interest rate fluctuations or stock market swings.

**Management – The experience, capabilities, and integrity of management are assessed based partly on the insurer’s past performance if the present management has been in place for several years.** Otherwise, based on past experience of the managers in other positions and on the raters’ opinions of the managers, developed through periodic meetings with them.

**Market position – depends on its ability to maintain or increase its market share**. The insurer’s market position depends on its ability to maintain or increase its market share. Maintaining and increasing market share, in turn, depends on having a low expense ratio, superior service, strong recognition by buyers and producers in the insurer’s selected market, access to plentiful and affordable capital and control over distribution channels.

Surplus adequacy – surplus is a proxy for its financial strength. **Surplus serves as a cushion should unexpected events occur.** The adequacy of any insurer’s surplus must be evaluated relative to other qualitative factors specific to that insurer, such as its investment portfolio, reinsurance program, uncertainty in loss reserve estimates and the underwriting book of business.

Exposure to event risk – include legislative or regulatory developments, changes in insurer management, significant litigation, adverse economic conditions, financial market disruptions, terrorism, or other catastrophic losses.

**Best’s Rating Scale**

***Question: describe the three categories in AM best’s Financial Strength Ratings (FSRs)***

Financial Strength Ratings FSR’s fall into two broad categories: secure and vulnerable. The FSRs are further measured by a scale that ranges from A to F with “++”, “+”, and “-“, modifiers to further differentiate insurers within those broad ranges. **Secure ratings range from A++ down to B+, while vulnerable ratings range from B to F. A special category, “S” is used to identify insurers whose FSR has been suspended** because of sudden and significant events that have not been fully evaluated.

**Financial Size Category**

***Question: AM Best’s Financial Size Category (FSC) is not a measure of insurer’s financial performance or financial strength. What does the FSC measure***

**AM Best’s financial size category (FSC) indicates and insurer’s size as measured by its adjusted surplus.** Adjusted surplus is calculated by modifying statutory surplus to recognize the impact of statutory accounting practices on the unearned premium reserves, loss reserves, investment values, and off-balance sheet exposures. The 15 financial size categories are indicated by Roman numbers I to XV, with Class I being the smallest. **The FSC is not a measure of the insurer’s financial performance or financial strength, but a measure of the insurer’s capacity to handle large loss exposures in its insurance operation or large risks in its investment operations**.

**Part 4 – IRIS Ratios**

***Question: Describe the purpose of the NAICs Insurance Regulatory Information System (IRIS)***

**To identify insurers that may be financially impaired and direct appropriate regulatory resources to where they are most needed, state regulators and the NAIC have developed the Insurance Regulatory Information System (IRIS). Originally developed in the 1970’s as an early warning system of financial impairment,** IRIS has two phases: a statistical phase and an analytical phase.

During the statistical phase, financial ratios are calculated from annual statement data and compared to benchmarks established by the NAIC. These benchmarks are reviewed annually and updated when necessary. **There are 13 IRIS ratios, which can be grouped into four general areas**

* **Overall tests**
* **Profitability tests**
* **Liquidity tests**
* **Reserve tests**

During the analytical phase, a team of experienced state financial examiners from each of NAIC’s four zones meets to review the ratios and other financial information. This review places each insurer into one of three levels that prioritize each insurer’s financial statements for review:

* Level A – the insurer should be given the highest priority for comprehensive review so state regulators can ascertain the reasons for the adverse results observed during the statistical phase.
* Level B – the insurer has some adverse results but does not require the same type of immediate response as Level A.
* Reviewed – No level

**Overall Tests**

The first four ratios are overall tests that measure the insurer’s exposure to adverse underwriting results***.***

***Question: Identify and briefly describe what is measured and the acceptable value for each of the four overall test ratios developed for IRIS***

**Ratio 1 - Gross Premiums Written to Policyholders’ Surplus Ratio** – **This ratio measures an insurer’s total insurance exposure before recognizing the effect of reinsurance cessions. An acceptable value is 900 percent or less. Gross premiums include direct premiums written plus reinsurance assumed from non-affiliates plus reinsurance assumed from affiliates. Inter-company pooling arrangements may distort the ratio results because gross premiums are overstated.**

**Ratio 2 - Net Premiums Written to Policyholder’s Surplus Ratio** – **This ratio is a gauge of the insurer’s retained insurance exposure after reinsurance transactions. An acceptable value is less than 300 percent.** *A large difference between this ratio and the gross Premiums Written to Policyholders’ surplus ratio may indicate an over-reliance on reinsurance.* The primary insurer is still obligated to the policyholder, even if the reinsurer cannot meet its obligation. The analyst should evaluate the quality of the reinsurers used and whether there is adequate security for the reinsurance recoverables. Insurers writing predominantly liability insurance lines should maintain a lower premium to surplus ratio relative to insurers concentrated in property insurance lines because of the greater degree of uncertainty associated with projecting future losses for liability lines of insurance.

**Ratio 3 - Change in Net Writings Ratio** **– is the percentage change in the insurer’s net written premiums during the most recent year. An increase or a decrease of 33 percent or less is considered acceptable for this ratio**. *While insurers should generally show growth in written premiums, excessive growth is often a result of inadequate pricing or relaxed underwriting standards*. Wide variations between increases and decreases in written premiums indicate instability. Also, a sudden drop in written premiums could indicate that the insurer has withdrawn from a type of insurance or is facing substantial competition and losing market share. End – beginning divided by net written premium

**Ratio 4 - Surplus Aid to Policyholder’s Surplus Ratio** - *Surplus aid consists of commissions on reinsurance ceded to non-affiliated companies. An acceptable value for the Surplus Aid to Policyholder’s Surplus ratio is below 15 percent*. Many types of reinsurance treaties provide surplus aid by allowing the primary insurer to transfer all or a portion of its unearned premium reserve requirement to the reinsurance company. *Exceptionally large amounts of surplus aid indicate that the capitalization is not sufficient for the amount of direct insurance being written*. Regulators would be concerned about the quality of the insurer’s reinsurance treaties and the threat to solvency if treaties are canceled.

**Profitability Tests**

***Question: Identify and briefly describe what is measured and acceptable for each of the four profitability test ratios developed for IRIS***

**Ratio 5 - Two-Year Overall Operating Ratio** – **This ratio is the insurer’s combined ratio minus its investment income ratio measured over the past two years. An acceptable value for this ratio is less than 100 percent. Used to mitigate year-to-year fluctuations in the results.** The combined ratio is the sum of the loss ratio and the expense ratio. The loss ratio is the ratio of incurred losses, loss adjustment expense, and policyholder dividends divided by net earned premiums. The expense ratio is calculated by dividing underwriting expenses net of other income by net written premiums. The investment income ratio is net investment income divided by net earned premiums.

**Ratio 6 - Investment Yield Ratio** **– The ratio divides net investment income earned for the year by the average cash and invested assets for the year. An acceptable value for this test ranges from 3.0 percent to 6.5 percent.** A low ratio value for this test may indicate that an insurer has made speculative investments intended to produce large capital gains over the long run, but those investments are providing little income in the short term. It may also indicate that a substantial amount of insurer’s funds is invested in low-yield liquid securities. A low ratio may also mean that the insurer is paying unusually high investment expenses that reduce the overall net investment yield. A high ratio may indicate investment in high-risk instruments or extraordinary dividend payments from subsidiaries to the parent company.

**Ratio 7 - Gross Change in Policyholder’s Surplus Ratio** **– This ratio measures the percentage change in policyholder’s surplus over the past year. An acceptable value for this ratio is between -10 percent and 50 percent.** *Causes for large decreases in surplus include poor underwriting or investment results, increases in non-admitted assets, dividends to shareholders or share repurchases, and changes in reinsurance arrangements*.

While declines in surplus are naturally a concern, large increases also trigger regulatory scrutiny. Large increases in policyholder’s’ surplus may result from temporary situations, such as an increase in unrealized capital gains. Large increases could also result from the issuance and sale of additional capital stock or surplus notes, but could also arise from less favorable situations, such as surplus aid from reinsurance, manipulation of loss reserves development or other undesirable accounting.

**Ratio 8 - Change in Adjusted Policyholder’s Surplus Ratio** - This ratios measures changes in surplus from an insurer’s core operations. Surplus changes related to surplus notes, capital changes, and surplus adjustments are omitted. An acceptable value for this ratio is between -10 and 25 percent.

**Liquidity Tests**

Two of the IRIS ratios measure liquidity

* Ratio 9 – Adjusted Liabilities to Liquid Assets ratio
* Ratio 10 – Gross Agents’ Balances to Policyholders’ Surplus ratio

**Ratio 9 - Adjusted Liabilities to Liquid Assets Ratio** **- *measures an insurer’s ability to meet its obligations with its most liquid assets. Liquid assets are limited to bonds, common and preferred stock, cash and short-term investments, receivables for securities, and accrued investment income. Adjusted liabilities are defined as total liabilities minus the statement value of agents’ balances deferred and not yet due from the asset side of the balance sheet. An acceptable value for this ratio is less than 100 percen*t.** If the ratio is over 100 percent, it could indicate that the insurer could face liquidity problems and an examiner would then focus attention on reserve adequacy, investment mix and asset valuation. Bonds are carried at amortized value, so the liquidity of bonds could be overstated if market values have declined. A regulatory examiner should look for trends in the value of this ratio as well.

**Ratio 10 -Gross Agents’ Balances to Policyholder’s Surplus Ratio** – divides agents’ balances in the course of collection by policyholders’ surplus. *The ratio indicates how dependent surplus is on an assets of questionable liquidity, as agents’ balances may be uncollectible if an insurer has to be liquidated*. The usual value is less than 40 percent.

**Reserve Tests**

**Question: The IRIS reserve test ratios One-Year and Two-Year development to Policyholder’s Surplus measure reserve accuracy and adequacy. What might financial regulators determine if the two-year ratio is consistently worse than the one-year ratio**

Three IRIS ratios measure the accuracy and adequacy of an insurer’s reserves:

* Ratio 11 – One-Year Reserve Development to Policyholders’ Surplus ratio
* Ratio 12 – Two-Year Reserve development to Policyholders’ Surplus ratio
* Ratio 13 – Estimated Current Reserve Deficiency to Policyholders’ Surplus ratio

**Ratio 11 - *One-Year Reserve Development to Policyholder’s Surplus Ratio*** *-* ***tests measures the percentage of change in the current year’s policyholders’ surplus attributable to loss developments of prior accident year reserves. A acceptable value for this ratio is 20 percent*.** The loss development figure, which I reported in Schedule P Part 2 of the Annual Statement, is the current year’s change in outstanding unpaid loss and loss adjustment expense reserves from all prior accident years. The reserve development is divided by the policyholder’s surplus at the beginning of the year to determine the effect that the reserve development has on surplus over the course of the year.

An acceptable value for this ratio is 20 percent or less. A high value on this test may indicate that the insurer’s loss reserves are inadequate, or it could indicate that the insurer is deliberately strengthening loss reserves. Analysts should evaluate the individual lines of business as well as the individual accident years to identify the primary source of the reserving errors.

**Ratio 12 - Two-Year Reserve Development to Policyholder’s Surplus Ratio** – is calculated in the same manner as the One-Year Reserve development to Policyholders’ Surplus ratio, except the loss reserves and policyholder’s surplus for the second prior year are used instead of those for the prior year. A ratio of less than 20 percent is considered to be in the acceptable range.

***The one and two-year development to policyholder’s surplus tests can be used to determine whether loss reserves have been intentionally understated to inflate surplus. The values should be reviewed over time to identify any trends or systematic estimation errors. If the two-year ratio is consistently worse than the one-year ratio, the insurer may be intentionally under reserving*,** which would require a closer examination of loss development patterns reported in Schedule P.

**Ratio 13 - Estimated Current Reserve Deficiency to Policyholder’s Surplus Ratio** – divides the estimated current loss reserve deficiency by policyholder’s surplus. The estimated reserve deficiency (or redundancy) is calculated using a complex formula based on the insurer’s historical ratio of loss reserves to earned premiums. Consequently, the results of this test may be adversely affected by significant changes in premium volume or by shifts in product mix between short-tailed lines and long-tailed lines. This ratio is considered to be in an acceptable range if it is less than 25 percent.

|  |  |  |
| --- | --- | --- |
| ***IRIS Ratios*** |  |  |
| **Overall Tests** |  |  |
| **Ratio1** | **Gross premium written to PHS 900 % or <** | **Insurer's total exposure before reinsurance/distorted = Premium overstated** |
| **Ratio 2** | **Net Premiums written to PHS 300% or <** | Gauge of the insurer's retained insurance exposure after reinsurance. This & #1 reliance on Reinsurance |
| **Ratio 3** | **Change in Net Writings ratio 33% or <** | The percentage of change in the insurer's net written premium recent yr. Pricing or relaxed underwriting? |
| Ratio 4 | Surplus Aid to PHS 15% or < | commissions on reinsurance ceded to non affilliated companies. Concern if Reinsurance treaty fails |
| **Profitability Tests** |  |  |
| **Ratio 5** | **Two Year overall operating ratio 100 or <** | Insurer's combined ratio - investment income ratio over last 2 years. Sum of Loss & Exp ratio |
| **Ratio 6** | **Investment Yield Ratio 3.0% - 6.5%** | Net investment income earned ÷ cash invested in assets Low speculative Inv. High risky inv. |
| **Ratio 7** | **Gross Change in PHS -10% to 50%** | measures percentage change in PHS over past year  Large increases?? Surplus aid from reinsurance? |
| Ratio 8 | Change in Adjusted PHS  -10% and 25% | measures changes in surplus from insurer's core operations |
| **Liquidity Tests** |  |  |
| **Ratio 9** | **Adjusted liabilities to liquid assets ratio** | **< 100% Adjusted liabilities to liquid assets/assets are limited** |
| Ratio 10 | Gross Agents' balance to PHS < 40% | Agents's balances ÷ PHS |
| **Reserve Tests** | measures ----------------- > | under reserving? |
| **Ratio 11** | **One year reserve dev to PHS < 20%** | Percentage change in current years PHS to loss development Sched. P |
| **Ratio 12** | **Two year reserve dev to PHS < 20%** | Same as above but use second year prior loss reserves from Sched P – Under reserving? |
| Ratio 13 | Estimated Current reserve def to PHS <25% | Reserve deficiency ÷ PHS |