Insurance Regulatory Information System (IRIS)

Edgar P Balbin
Senior Manager, BearingPoint

EISA, Cairo, Egypt
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Agenda

- **Overview of IRIS**
- **Explanation and calculation of IRIS ratios**
- **IRIS ratio ranges and implications**
- **Comparison of IRIS with EISA Early Warning Ratios**

Overview of IRIS

- ***Help regulators target resources on more risky companies***
- ***To be supplemented by in-depth financial analysis and/or on-site examinations***
- ***12 ratios: each with "usual range"***
- ***Falling outside usual range: requires attention***
- ***On the average 11% of companies (US) have 4 or more ratios falling outside the usual range***
- ***Three possible levels of attention***
  - ***Level A: high priority for review***
  - ***Level B: may require review, but not immediate***
  - ***Reviewed: no level***

IRIS Ratios

- ***There are 12 IRIS ratios***
- ***These are grouped into four areas***
  - ***Overall ratios***
  - ***Profitability ratios***
  - ***Liquidity ratios***
  - ***Reserve ratios***

Overall Ratios

- ***Ratio 1 – Gross premium written to policyholders' surplus***
- ***Ratio 2 – Net premium written to policyholders' surplus***
- ***Ratio 3 – Change in net premium written***
- ***Ratio 4 – Surplus aid to policyholders' surplus***

Profitability Ratios

- ***Ratio 5 – Two-year overall operating***
- ***Ratio 6 – Investment yield***
- ***Ratio 7 – Change in policyholders’ surplus***

Liquidity Ratios

- ***Ratio 8 - Liabilities to liquid assets***
- ***Ratio 9 - Gross agent' balance to policyholders' surplus***

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Reserve Ratios

- ***Ratio 10 - One-year reserve development to policyholders' surplus***
- ***Ratio 11 - Two-year reserve development to policyholders' surplus***
- ***Ratio 12 – Estimated current reserve deficiency to policyholders' surplus***

Ratio 1 – Gross Premium Written to Policyholders' Surplus

- ***Policyholders' surplus is surplus and capital of the insurance company***
  - ***It is comparable to the total equity of a company***
- ***Gross and net premium written: measures of the sales of the insurance company***
- ***Ratios: measures of asset turnover***
  - ***Reflects on management effectiveness in using the capital***
  - ***Also reflects on the risk management is willing to take***

Calculation of Ratio 1

- ***A = Direct Premiums Written***
- ***B = Reinsurance (Indirect) Premium – Affiliate***
- ***C = Reinsurance (Indirect) Premium – Non-affiliate***
- ***D = Capital and Surplus***
- ***E = Gross Premium = A+B+C***
- ***F = Gross Premium to Policyholders' Surplus = 100 (E/D)***

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Ratio 2 – Net Premium Written to Policyholders’ Surplus

- ***Net premium written =***

  gross premium written – reinsurance ceded
- ***Ratio 2 also reflects on management’s willingness to leverage its equity (capital) for sales***
- ***It is important that Ratio 1 does not exceed Ratio 2 by a wide margin***
  - ***This would indicate that much of the policyholders’ surplus comes from reinsurance***

Calculation: 100 (A/B), where:

A = Net premiums written

B = Policyholders’ Surplus

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Ratio 3 – Change in Net Premium Written Calculation of Ratio 2

- ***The change is expressed as a percentage of net premium written in the prior year***
- ***It is a measure of sales variability***
- ***For an insurance company, there is usually a deficit in the first few years of sale of introducing and marketing products***
- ***Such deficits must be covered by surplus of the company***
- ***Too much (rapid) increase in sales will cause severe surplus strain to the company***
- ***Calculation: 100 (A-B)/B, where:***
  - ***A = Net Premium, Current Year***
  - ***B = Net Premium, Previous Year***

Ratio 4 – Surplus Aid to Policyholders' Surplus

- ***Surplus aid is an estimate of commissions on unearned ceded reinsurance premiums***
- ***This should belong to the reinsurer***
  - ***By treaty, it may be retained by primary insurer***
- ***If a large portion of policyholders' surplus depend on surplus aid***
  - ***Continued solvency of primary insurer depends on the continued co-operation of the reinsurer***

Calculation: 100 (E/D) where:

A = Reinsurance Ceded Commission

B = Ceded Premiums Written

C = Total Unearned Ceded Premium

D = Policyholders' Surplus

E = Surplus Aid = A (C/B)

F = Surplus Aid to Policyholders' Surplus = 100 (E/D)

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Ratio 5 - Two-Year Overall Operating

- ***This is a measure of the profitability of the insurer on a longer term basis: over two years***
- ***Negative profit % = loss ratio + expense ratio - investment return ratio***
- ***Loss ratio = (losses + expenses + dividends paid) / net premiums earned***
- ***Net premiums earned = net premiums written – increase in unearned premium reserve***
- ***Expense ratio = underwriting expenses / net premiums written***
- ***Investment return ratio = investment income / net premiums earned***

Calculation of Ratio 5

- ***A = Losses and LAE Incurred; B = Prior Year's***
- ***C = Dividend Paid to Policyholders; D Prior Year's***
- ***E = Premium Earned; F = Prior Year's***
- ***G = Other Underwriting Expense; H = Prior Year's***
- ***I = Total Other Income; J = Prior Year's***
- ***K =Net Premium Written; L = Prior Year's***
- ***M = Net Investment Income; N = Prior Year's***
- ***O = Loss Ratio = 100 (A+B+C)/(E+F)***
- ***P = Expense Ratio = 100 (G+H+I+J)/(K+L)***
- ***Q = Investment Ratio = 100 (M+N)/(E+F)***
- ***Ratio 5, Overall 2 year operating ratio = O+P+Q***

Ratio 6 – Investment Yield

- ***Investment yield is a major component of income for an insurance company***
- ***It also indicates the general quality of company's investment portfolio***
- ***It is the ratio of net investment income to average cash and invested assets for the current and the prior years***

Calculation of Ratio 6

- ***A = Cash and Invested Assets; B = Prior Year's***
- ***C = Interest, dividend, real estate income, due and accrued; D = Prior Year's***
- ***E = Borrowed Money; F = Prior Year's***
- ***G = Interest on Borrowed Money; H = Prior Year's***
- ***I = Net Investment Income***
- ***J = Investment Yield = 100 I/[(A+B+C+D-E-F-G-H)/2]***

Ratio 7 – Change in Policyholders' Surplus

- ***This is the ultimate measure of financial condition of the company***
- ***A negative change shows deterioration: bad***
- ***Drastic increase shows instability***
  - ***It is sometimes related to a change of ownership***
  - ***Many insolvent companies have high surplus increases prior to insolvency of the company***

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Calculation of Ratio 7

Change in Policyholder's Surplus

- ***A = Total underwriting expense incurred; G= Prior year's***
- ***B= Net commission and brokerage expense; H = Prior year's***
- ***C = Total taxes, licenses and fees; I = Prior year's***
- ***D = Net premium written; J = Prior year's***
- ***E = Unearned Premium, K = Prior Year's***
- ***F = Deferred Acquisition Expense = [(A+B+C)/2D]xE***
- ***L = Deferred Acquisition Expense Prior Year's = [(G+H+I)/2J]xK***
- ***M = Policyholders' Surplus; N = Prior Year's***
- ***O = Change in Policyholders' Surplus = 100 (F+M-L-N)/(L+N)***

Ratio 8 – Liability to Liquid Assets

- ***Liquid assets for IRIS includes R.E. up to 5% of total liability***
  - ***It also includes mortgages***
- ***This is different from the treatment in FAST***
- ***This is a measure of the company's ability to meet the financial demands using liquid assets***
- ***This is different from financial analysis of industrial companies***
  - ***Current ratio = current assets / current liabilities***
  - ***Current means less than 1 year***

Calculation of Ratio 8

- ***A = Total liabilities***
- ***B = Real estate, property occupied by company***
- ***C = Real estate, other properties***
- ***D = Excess real estate = (B+C)-(A/20)***
- ***E = Government Bonds***
- ***F = Preferred and Common Stock***
- ***G = Mortgage Loans***
- ***H = Real estate held for investment***
- ***I = Cash and short term investment***
- ***J = Other Invested assets***
- ***K = Receivables for securities***
- ***L = Installment premiums booked but due***
- ***M = Interest income accrued***
- ***N = Investments in parents, subsidiaries and affiliates***
- ***O = Liquid assets = (E+F+G+H+I+J+K+L+M) – (D+N)***
- ***P = Liability to liquid assets = 100 (A/O)***

Ratio 9 – Gross Agents' Balances to Policyholders' Surplus

- ***Agents' balances are often not easily converted to cash in time of liquidation***
- ***Too much reliance on that may spell liquidity problem***
- ***Calculation = 100 (A/B), where:***
  - ***A = Agents' balances (in course of collection)***
  - ***B = Policyholders' surplus***

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Ratio 10 – One-year Reserve Development To Policyholders' Surplus

- *Losses outstanding a year prior and up to the current statement date is the sum of*
  - *Current reserves for those losses outstanding*
  - *Loss payments made during last year*
- *One-year reserve development is the difference*
  - *Updated loss estimate above, minus*
  - *Reserve at the end of prior year*
- *If the above one-year reserve development is*
  - *Positive: reserves were deficient*
  - *Negative: reserves were redundant*

Calculation: 100 (A/B); where:

A = One year reserve development

B = Policyholders' surplus

Ratio 11 – Two-year Reserve Development to Policyholders' Surplus

- ***Reserve deficiency and redundancy are very serious matters***
  - ***That is why we study both such ratio on one-year and two-year bases***
- ***This ratio is comparable to Ratio 10 on a two-year basis***
- ***Calculation: 100 (A/B), where:***
  - ***A = 2 year reserve development***
  - ***B = Prior Year, 2 - Policyholders' surplus***

Ratio 12 – Est. Current Reserve Deficiency to Policyholders' Surplus

- ***This is a very important ratio***
  - ***It measures whether the current reserve is enough to cover expected losses or not***
- ***Expected losses = net premiums earned x average ratio of loss reserves to premium***
- ***This is compared to the stated reserves for the current year***
- ***Calculation: = 100 (E/F); where:***
- ***A = Prior year 2 losses and LAE to Net Premium***
- ***B = Prior year 1 losses and LAE to Net Premium***
- ***C = Net Premium earned***
- ***D = Loss and LAE***
- ***E = Reserve Deficiency = [(A+B)/200 x (C-D)]***
- ***F = Policyholders' surplus***

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IRIS Summary

		Usual Range	
		Minimum	Maximum
Ratio 1	Gross Premiums Written / Policyholders' Surplus	0	900
Ratio 2	Net Premiums Written to Policyholders' Surplus	0	300
Ratio 3	Change in Net Preiums Written	(33)	33
Ratio 4	Surplus Aid to Policyholders' Surplus	0	15
Ratio 5	Two-Year Overall Operating Ratio	0	100
Ratio 6	Investment Yield	5	10.0
Ratio 7	Change in Policyholders' Surplus	(10)	50
Ratio 8	Liabilities to Liquid Assets	0	105
Ratio 9	Gross Agents' Balances to Policyholders' Surplus	0	40
Ratio 10	One-Year Reserve Development to Policyholders' Surplus	0	20
Ratio 11	Two-Year Reserve Development to Policyholders' Surplus	0	20
Ratio 12	Estimated Current Reserve Deficiency to Policyholders' Surplus	0	25

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IRIS Score

- ***1 point is given for every ratio going outside the usual range***
- ***Total score of 4 or more indicates Level A***
- ***Total score of 2 or 3 indicates Level B***

Thank You

Exercises & Discussions

Appendix 6

Exit Report of Edgar P Balbin

TAPR II Project – Component B, Insurance

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