RLS YARDSTICKS TO IDENTIFY FINANCIAL WEAKNESS

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Abstract

At the present time the regulators have two early warning systems to assist in identifying financially troubled insurers. These are the NAIC IRIS ratios[1] and the AIA Index of Financial Strength.[2] This paper recommends a third.

The goal of each of these systems is to identify the financially troubled company that can be helped to regain an acceptable financial footing. To identify financially strong companies serves little constructive purpose. The primary need is to identify those companies that can be salvaged. Quantitative yardsticks are never conclusive in themselves, nor will they uncover intentionally dishonest or fraudulent managements in sufficient time. The benefit, if there is to be any, will be in identifying potential insolvencies that can be prevented or in identifying insolvencies so as to minimize further loss.

There are perhaps seven areas of critical financial significance: reserve level, surplus level, liquidity, quality of assets, operating results, excessive growth, and reinsurance protection. The RLS yardsticks place primary emphasis on evaluations of reserve, liquidity, and surplus levels. These evaluations, all of which use data presented in the Annual Statement, are set forth in three exhibits producing two yardsticks. The exhibits at the end of this paper detail the arithmetic; the following comments explain the basis and rationale of those calculations.

[1] National Association of Insurance Commissioners, "Using the NAIC Insurance Regulatory Information System, Property and Liability Edition," published annually.

[2] Aetna Life and Casualty, "American Insurance Association, Property–Liability, Early Warning System Proposal," July 1978.

EXHIBIT R

Exhibit R evaluates reserve levels and provides input for Exhibits S and L. The calculation of reserve developments in Section I of Exhibit R is the same as the calculation of reserve developments in IRIS ratios 9 and 10 except that:

1. Reserve developments are compiled for the prior eight accounting dates[3] rather than for only the prior two accounting dates in IRIS ratios 9 and 10.
2. A reconciliation of Schedules O and P data is required before advancing in the calculation. This step is important to insure the integrity of subsequent calculations. From my experience, errors in accumulations of data in Schedules O and P are too frequent to omit such a check.

Once the reserve developments are calculated for prior accounting dates, an evaluation of current reserve levels can be made therefrom. Section II of Exhibit R is included for that purpose. This evaluation borrows from a prior paper of mine, "Schedule P on a Calendar/Accident Year Basis."[4] It was this paper that gave birth to the present Schedule P - Part 3 format. Schedule P - Part 3 sets forth data in a manner that assists in the evaluation of reported reserves as of the current accounting date. Such an evaluation is based on comparisons of current unpaid levels with restated unpaid levels of prior accident years at the same stage of development. These comparisons are detailed by coverage by accident year.

Exhibit R, like Schedule P - Part 3, provides data for comparisons of current unpaid levels with restated unpaid levels of prior reserve dates at the same stage of development. There are these two differences:

1. Schedule P - Part 3 sets forth data by coverage; Exhibit R, for all lines combined.
2. Both exhibits set forth paid and restated unpaid detail by age of development. Schedule P - Part 3 shows this detail for each accident year (n) with developments beginning $1/1/n$. Exhibit R shows this detail for each reserve date ($12/31/n$) with developments beginning $1/1/n+1$.

[3] The maximum runoff period in Schedules O and P is eight years. Because Schedule O - Part 3 was not introduced until 1976, the maximum period of eight years will not become a reality for all lines until 12/31/83.

[4] Ruth E. Salzmann, "Schedule P on a Calendar/Accident Year Basis," *PCAS* LIV (1967), p. 120.

Exhibit R - Section II and Schedule P - Part 3 both provide data to assist in a prospective evaluation of current reserve levels. IRIS ratio 11 is also a calculation of current reserve sufficiency. Section II of Exhibit R differs from this latter yardstick as follows:

1. Developed reserves for the prior eight reserve dates[5] are available in Exhibit R; only two prior reserve dates are available in IRIS ratio 11.
2. Paid and restated unpaid components of developed reserves are set forth in Exhibit R, thus enabling a more critical comparison with prior years at the same stage of development.
3. The acceptable current reserve level in IRIS ratio 11 is the average of the ratios of developed reserves to premiums earned for the two prior reserve dates. The determination of an acceptable reserve level in Exhibit R is not a precise calculation; it is derived after a progressive review process, starting with an evaluation of the current unpaid level in the oldest reserve date and proceeding to each subsequent reserve date in order (see Exhibit R-1).

Thus Exhibit R, as proposed, combines the best concepts in both Schedule P - Part 3 and IRIS ratio 11.

Exhibit R makes it possible to determine an acceptable reserve level by making comparisons in one or more of the following ways:

1. By comparing the variation or trend in ratios of developed reserves to calendar-year premiums earned for each of the eight prior reserve dates. This type of comparison is the common feature in Exhibit R and IRIS ratio 11.
2. By comparing current unpaid levels in developed reserves with restated unpaid levels at the same stage of development for prior reserve dates. This type of comparison is the common feature in Schedule P - Part 3 and Exhibit R. Though the format is common to both, there is an important distinction in the content. Exhibit R sets forth unpaid levels in developed reserve data, and Part 3 of Schedule P sets forth unpaid levels in developed accident year data.
3. By comparing unpaid increment levels (for the additional accident year) with restated unpaid increment levels at the same stage of development for prior reserve dates. A further explanation of this approach is in order. In the evaluation of reserve levels in Section II of Exhibit R, one readily realizes that the unpaid amount in current developments for reserve date

[5] As noted above, eight years will not become a reality until 12/31/83.

12/31/n is the sum of the unpaid amount in current developments for reserve date 12/31/$n-1$ plus the increment for accident year n. Paid dollars can also be sorted into accident year n and accident years $n-1$ and prior. Thus, the format of Section II makes it possible to compare the unpaid level for each accident year increment with the respective increments for prior accident years at the same stage of development. (Exhibit R-1 sets forth a strictly arithmetic procedure to illustrate this approach.)

When any of the above comparisons give cause to make an adjustment, such an adjustment can be entered on the additional line provided for that purpose in Exhibit R Section II. The analyst can use this space to override any current unpaid amount he deems necessary.

The review of reserve levels starts with the oldest reserve date and proceeds to each subsequent reserve date in order. Each review evaluates the current unpaid level in the developed reserves for that reserve date. Adjustments, or overriding of current data, can be made at any step in the review process. Such adjustments will then require recalculations of unpaid entries for earlier development dates before advancing to the next reserve date. This review process continues until reserve levels (line 24) for the current and immediately prior reserve dates can be accepted or adjusted for use in Exhibits S and L.

Although any of the three methods named above can be used to evaluate reserve levels in Section II of Exhibit R, the author prefers method 3. Method 1 is used in IRIS ratio 11, but calendar year premiums earned is a very crude yardstick for reserve levels; it is appropriate only when there is a consistent earned premium growth. Method 2 is an improvement on method 1 because it eliminates the calendar year premiums earned base and substitutes the "paid/unpaid status" as the basis for evaluation. Method 3 also uses paid/unpaid comparisons, but it adds a refinement to reflect changes in the age-of-claim mix due to variations in the impact of the latest accident year involved.

Method 3 is particularly helpful when material changes occur in the growth rates of calendar year premiums earned. This is because premiums earned affect new claim levels but not prior claim levels. In method 3, this impact can be quantified by an arithmetic approach which averages the respective unpaid levels of the prior two accident years (see Exhibit R-1); or one can use an arithmetic approach which trends such levels; or one can select values on the basis of judgment. Selecting values need not be based solely on a review of comparable unpaid levels; comparable paid activity levels for the added accident year also

can be reviewed and used in the evaluation process. On whatever basis the analysis is made, Exhibit R provides an excellent format for evaluating and developing the reserve amounts needed for Exhibits S and L.

The above commentary sets forth the use of Exhibit R in the RLS System. A further use of Exhibit R becomes readily apparent. Section II, which sets forth the pay-out patterns of total reserves over subsequent calendar years, could serve as the basis for estimating future investment income attributable to such reserves. In my Presidential Address,[6] I suggested an accounting alternative to "discounted loss reserves" in fire/casualty financial reporting. This alternative would report the loss and loss expense reserves in ultimate dollars and then establish an asset or contra account for the investment income offset. The pay-out pattern in Section II of Exhibit R would provide the data necessary to quantify such an account.

EXHIBIT S

Exhibit S calculates the Index of the Surplus Position. The composition of this index is based on several considerations:

1. If loss and loss expense reserves can be combined with reported surplus in any analysis, one need not concern oneself with the level of current reserves.
2. If the level of current reserves is not a factor, then the Excess Statutory Reserves on page 3, line 16, can be added to surplus.
3. Traditionally, premium/surplus rules-of-thumb have been higher for casualty companies than those for fire companies. And Group A&H premium/surplus ratios, when addressed, generally have been higher than casualty. Thus, to the extent that the mix of business affects the volatility of results, such mix should be addressed in measuring the adequacy of a surplus position.
4. A surplus-aid reinsurance treaty is a useful and legitimate tool in the management of an insurance company; however, it is generally a recognition by management that the reported surplus would otherwise be at an undesirable level. Thus, any measurement of the adequacy of the surplus position should override this "managed" result.

[6] Ruth E. Salzmann, "Accountability: The Actuarial Imperative," *PCAS* LXVI (1979), p. 74.

Reflecting on these four matters, the author constructed the following formula:

$$\text{Index of Surplus Position} = \frac{\text{Pure Premium} - K + \text{Surplus}}{\text{Premiums Earned}}$$

$$= \frac{\text{O/S}_{12/31/n} + \text{Pd}_n - \text{Restated O/S}_{12/31/n-1} - K + \text{Restated Surplus}_{12/31/n}}{\text{P.E.}_n}$$

Where: P.E._n is subject to a maximum pure premium of 79%, and K is an additional risk provision for the more volatile exposures.

The formula does these things:

1. The formula establishes the inherent expense loading as a crude measurement of the surplus protection needed. The assumption underlying this premise is that the variation in the expense loading is a rough approximation of the variation in the volatility of underwriting results by major coverage grouping. The author makes this assumption, not because of any specific proof, but because the assumption is generally consistent with the traditional premium/surplus rules-of-thumb in current use. Criticisms of a strict adherence to the expense loading assumption can be accommodated by refinements as deemed necessary. The author recommends these two:

   a. The formula establishes a minimum level for premiums earned to protect against the extreme case where an excessive loss and loss expense ratio would otherwise allow a low or even negative surplus position. This minimum level was set at an estimated pure premium of 79%. (Step 10 in Exhibit S makes this calculation.) The 79% was derived by working backwards from a surplus-index floor of .957 and a 6-to-1 premium/surplus relationship. This calculation and the surplus-index floor are discussed in more detail later in the paper.

   b. The formula incorporates an adjustment for the more volatile exposures. This adjustment (K) increases the needed surplus level to the degree that such exposures are involved. The calculation of the current K factors is set forth in Exhibit S-1. Because the K factors compensate for the expected greater volatility in these lines, these factors are derived from respective standard deviations (σ's) of the loss and loss adjustment expense ratios. The K adjustment is the difference in percentage points that the number of σ's *needed* for each K exposure exceeds its respective expense loading percentage.

The number of σ's *needed* for each *K* line is set to be equivalent to the σ multiple in the expense loading for the total of "other" fire/casualty lines. (Footnote (c) in Exhibit S-1 details the lines included in "other.") Industry loss and loss expense ratios[7] for the last eight years were used in the calculations. (When more industry history becomes available, the number of years perhaps should be increased to ten or twelve.)

The industry expense-loading percentage for "other" lines is the complement of the average loss and loss expense ratio for the past eight years; it equates to 8.36 σ's of that loss and loss expense ratio history (see Exhibit S-1). To the extent that the expense loadings for Allied Lines, Farmowners, Homeowners, Reinsurance and International lines fall short of 8.36 σ's of their respective loss and loss expense ratio histories, the surplus level needed is increased by these *K* percentages of respective premiums earned.

The Reinsurance and International line was included as a *K* line even though the *K* factor in Exhibit S-1 is only 4.1 percentage points. When a longer base period becomes available, this line will undoubtedly show greater volatility and will require a higher *K* adjustment.

The *K* adjustments are made by line rather than as a group for two reasons. The first is that all four lines, albeit in varying degrees, are covers for catastrophe perils. For this reason, combining the coverages is not likely to reduce volatility or materially affect the total adjustment needed. The second reason is that the surplus needed by an individual insurer is more appropriately reflected by using separate *K* factors by line because the *K* adjustments vary by line and because the mix of these four lines varies by insurer.

2. The formula also modifies reported surplus to adjust for excess statutory reserves and surplus aid (as defined and quantified in Step D of IRIS ratio 3). The reasons for these adjustments were noted previously.

3. The formula, by using the modified expense loading assumption, makes it possible to combine current reserves and adjusted surplus in the numerator. (Only reserves as of the prior year-end, already one year developed, need further review and adjustment.) Thus, the Index of Surplus

[7] A. M. Best Company, "Aggregates & Averages, Property Casualty," 1978–1981.

Position neatly requires more reported surplus if current reserves are understated, and less reported surplus if current reserves are overstated.

This Index of Surplus Position combines the purposes of IRIS ratios 1, 3, 9, 10, and 11. The author suggests that a desirable index be greater than or equal to 1.04, with a suggested floor of .957. The calculation of the 1.04 equates to the 3-to-1 premium/surplus yardstick in IRIS ratio 1 except that earned rather than written premiums are used as a base (see Exhibit S-2). The .957 index floor equates to a 4-to-1 premium/surplus level, or 75% of the surplus level inherent in the 1.04 index. The .957 floor is then used to establish the maximum pure premium percentage included in the formula. This maximum should be at a level appropriate for traditionally high loss ratio lines such as Standard Group A&H insurance, where surplus requirements are generally lower. Assuming a 6-to-1 premium/surplus requirement, the maximum pure premium percentage becomes 79% (.957 − .167).

As of 12/31/80, the industry's premium written/surplus multiple, using Best's consolidated data,[8] was 1.83. The Index of Surplus Position calculated for the industry as of that date (assuming a modest 12/31/79 reserve inadequacy) was 1.28. This comparison does not mean that a 1.83 premium/surplus multiple is equivalent to an index of 1.28; it merely presents the relationship between the two yardsticks as of 12/31/80 given the formula components existing at that time.

EXHIBIT L

Exhibit L calculates the Index of Liquidity Position. Whereas the Index of Surplus Position measures the resources an insurer has to absorb above-average underwriting and investment losses, the Index of Liquidity Position measures the financial flexibility an insurer has to withstand unexpected changes in operational demands. Liquidity is the measurement of the nearness to cash of assets and liabilities. An insurer is exposed to insolvency hazards because of both insufficient surplus and insufficient financial flexibility levels.

The Index of Liquidity Position calculated in Exhibit L is a much-needed refinement of IRIS ratio 7. The proposed index matches the assets at the reporting date that will be available in the next year against the liabilities at the reporting date that will be due in the next year. Thus, assets are adjusted to include only those assets marketable or maturing in the subsequent year, and liabilities are adjusted to include only those liabilities which are due or are to be met in the subsequent year. This matching of maturities and obligations up

[8] *Ibid.*

to and including one year produces the Liquidity Index. As one can see, the new index falls between IRIS ratio 7 and the "acid test," or "quick-ratio test," in commercial accounting. As a result, the new index produces a much more sensitive measurement of liquidity than the measurement supplied by IRIS ratio 7.

To reduce liabilities to only those obligations in the forthcoming year, only the portion of the loss and loss expense reserves that will be paid within that next year need be included. Exhibit R, line 27, column 21[9] can be used to enter that estimated percentage. The amount of the adjusted reserves to be included in Exhibit L then becomes the product of that estimated percentage times the Analyst's Estimate of current reserves (Exhibit R, line 24, column 20).[10]

To determine the assets available in the forthcoming year, three adjustments are made:

1. Only bonds maturing in the next year are included. This amount can be obtained from Schedule D - Part 1A.
2. Only mortgage loans, collateral loans, and other invested assets stipulated as maturing in the next year are included. These amounts, if any, can be obtained from a review of Schedules B, BA - Part 1, and C - Part 1.
3. One year's investment income on "deferred" reserves is added. This treatment considers such income as an addition to accrued investment income.

Two further adjustments to assets are appropriate but have not been included in Exhibit L at this time due to inadequate financial reporting disclosures. These two items and the changes necessary for inclusion are described below:

1. An increase in assets for additional premiums on exposures already provided, but not yet booked. Some companies currently accrue such "receivables" even though there is no financial reporting standard for doing so. If a separate line (perhaps 8.3) were added on pages 2 and 12 for "premiums earned but not yet billed," this receivable could be entered and appropriately disclosed for all companies. (If line 8.3 is added, instructions for Exhibit L require no change.)
2. An adjustment in assets for the difference between the statement value and the market value of sinking fund preferred stocks. For purposes of

[9] Column 21 in the 12/31/81 exhibit; Column 23 in the 12/31/82 exhibit; Column 25 thereafter.

[10] Column 20 in the 12/31/81 exhibit; Column 22 in the 12/31/82 exhibit; Column 24 thereafter.

measuring liquidity, the market value is the more appropriate value. As market value is not currently reported for these stocks, a revision in the Schedule D Summary (page 29) is needed to provide this data. Exhibit L-1 illustrates such a format. (If Exhibit L-1 is adopted, the instructions for Exhibit L require no change.)

The above discussion describes how December 31 assets and liabilities can be adjusted so that maturities and obligations in the subsequent year can be matched. The ratio of the maturities to the obligations during this period produces the Index of Liquidity Position. The desirable level for this index is clearly greater than or equal to 1.00. An index of less than 1.00 indicates a lack of financial flexibility but does not necessarily indicate serious financial trouble. It means that an insurer must borrow cash flow from future business or create cash flow from liquidations of bond holdings with maturities beyond one year. Because of the availability of both of these options and because the index is an independent measurement at the present time, the author suggests an index floor of .8, with the expectation that this level be subject to change as experience dictates.

The Index of Surplus Position, described earlier, is a tool to measure the surplus level needed for domestic fire/casualty exposures. (As noted on Exhibit S, the data of a fire/casualty parent should include the data of its fire/casualty subsidiaries.) Surplus needs for exposures in life and international subsidiaries were not addressed. Although there may be substantive merit in recognizing such exposures, an adjustment was not included for two reasons: (1) the Consolidated Statement does not include such data at the present time and (2) audited data for the detail needed are not easily available. In Exhibit L bonds and stocks of parents, subsidiaries, and affiliates are excluded from "Assets Available." Thus life and international insurance subsidiaries, for the purposes of these measurements, are combined with non-insurance subsidiaries as restrictions on the insurer's liquidity position. For this and other reasons, the two yardsticks interact and both are relevant in determining the financial posture of an insurer.

COMBINED INDEX — A FUTURE POSSIBILITY

The foregoing section described the rationale for accepting an Index of Liquidity Position of less than 1.00 for regulatory action purposes. As indicated, some tolerance had to be allowed if the index were to stand alone.

It would be preferable, however, if the degree of tolerance in the Liquidity Index could be quantified. The tolerance level should not exceed the financial

ability of the insurer to withstand the potential surplus impairment that would result from bond liquidations necessary to fund "unmatched" liabilities. In other words, the tolerance should not exceed the cushion in the insurer's Index of Surplus Position.

To provide for this interaction, a combined RLS index would be the ideal solution. The immediate problem, however, is that the measurement of the potential surplus penalty requires the availability of actual market value information on bond holdings. The market value data currently reported in the annual statement are neither complete nor suitable for this purpose.

Although the market value of the total bond portfolio could be approximated from a schedule setting forth yield/maturity combinations, the author is satisfied that the actual market value data currently reported, though incomplete, could be organized and used to approximate the surplus penalty. This could be done by constructing a new Schedule D - Part 1B. Using the same maturity year categories as in Part 1A, Part 1B would summarize and compare statement values with market values for those bonds with market values published in the NAIC Valuation of Securities Manual. Exhibit RLS-1 illustrates such a format.

From this comparative partial data, the amount of the surplus impairment could then be approximated. The amount of surplus impairment would equal the unrealized losses (excess of statement over market) beginning with maturities in the 1 year through 3 year category (lines 21/22 in Part 1B) and continuing through lines 31/32, 41/42, and 51/52[11] as necessary to reach the aggregate market value equivalent to the insufficiency of assets available in Exhibit L (line 4–line 13). Exhibit RLS-2 illustrates the format that could be used for such a calculation. The surplus penalty,[12] thus calculated, would then be subtracted from the numerator in the calculation of the Index of Surplus Position. With this modification, the Index of Surplus Position would become a combined RLS index, and the Liquidity Index calculation (line 14) would be omitted from Exhibit L, as Exhibit L would serve only as an input source for Exhibit RLS.

[11] If and when the maturity categories in Part 1A are extended, both Exhibits RLS-1 and RLS-2 also should be extended at that time to be consistent with the revised maturity categories.

[12] The surplus penalty is measured on a pre-tax basis. The underlying assumption is that the federal tax effect of any necessary liquidations will be reflected in the accrued tax liability of the liquidating year, not in that year's cash flow.

The yardstick levels for the combined RLS index could be the same as those previously described for the Index of Surplus Position. However, due to the fact that the RLS index reflects the impact of all three critical factors, a lower "Suggested Floor" certainly would be appropriate.

The single index, as noted, awaits future action and interest. Only when the necessary market value data are available in summarized form will a combined RLS index be feasible.

SUMMARY

This paper proposes an analytical technique composed of two indexes (at present) to aid in identifying financially weak property/casualty insurers. The new breed of insurance regulators wants more and more analyses up front with computer assistance, and less dependence on on-site triennial examinations. The goal, of course, is to make the regulatory examination process more cost effective. It is hoped that this paper will contribute to that evolution.

Exhibit R
(Section I)

_____ Company

CALCULATION OF LOSS AND L. E. RESERVE DEVELOPMENTS - ALL LINES*
As of 12/31/81
(000 omitted)

Acc. Yrs.	-1- ΣPd 12/31/80 (col. 2 last yr)	-2- ΣPd 12/31/81 (a)	-3- Reserve 12/31/81 (b)	-4- 1981 Cal. Yr. Pd (2 - 1)	-5- Paid Developments 12/31/80 (col. 6 last yr)	-6- Paid Developments 12/31/81 (4 + 5)	-7- Developed Reserve (3 + 6)	User Cols. 6 & 7 to Sch. II, Col:
1. ≤ 1975								8
2. 1976					--	--	--	
3. ≤ 1976 (1+2)								10
4. 1977					--	--	--	
5. ≤ 1977 (3+4)								12
6. 1978					--	--	--	
7. ≤ 1978 (5+6)								14
8. 1979					--	--	--	
9. ≤ 1979 (7+8)								16
10. 1980					--	--	--	
11. ≤ 1980 (9+10)					--	--	--	18
12. 1981	--							
13. Total								

Reconciliation

18.	From Und. Exhs. (Parts 3, 3A, & 4)	(+)	
19.	F&S INR (Part 3A, Col. 4a & b, Lines 23 & 24)	(+)	
20.	Prop. D - prior to 1971 Acc. Yr.	(-)	
21.	Total		

Footnotes:

(a) Source: Schedule P - Part 1, Col. 6, plus Schedule O - Part 2, Cols. 6-3a.

(b) Source: Schedule P - Part 1, Cols. 9+10, plus Schedule O - Part 3, Cols. 9+10.

*Note: 1. This exhibit can be completed on an individual company, consolidated or pooled basis as deemed the most appropriate for evaluating reserve levels.

2. Sources, unless otherwise noted, are from the 1981 Annual Statement.

3. If this exhibit is completed for the first time as of 12/31/81, the historical paid data in Col. 5 must be derived from compilations of Col. 4 for each calendar year, 1976 through 1980. In the 1976 compilation, the entry in Line 1, Col. 4, is also entered in Col. 6. This same entry becomes the only entry in Col. 5 for the 1977 calculation. The 1977 calendar year compilation produces two entries (Lines 1 and 3) in Col. 6 to be carried forward to the 1978 calculation, etc.

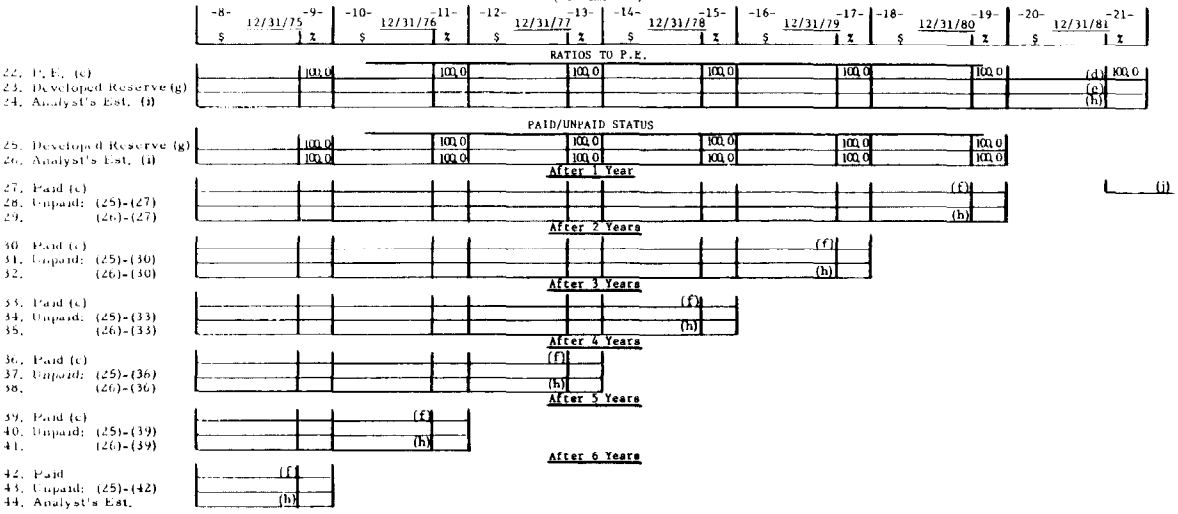
Company

LOSS AND L.E. RESERVE LEVEL EVALUATION - ALL LINES*

As of 12/31/81

(000 omitted)

Exhibit R
(Section II)



Footnotes:

(c) Except for (d) and (f) entries, even-numbered columns are same as last year.

(d) Source: Page 4, Line 1, Col. 1.

(e) From Line 13, Col. 3, Section 1.

(f) From Col. 6, Section 1.

(g) From Col. 7, Section 1, except for (e) entry.

(h) Analyst's Estimate after all other data company data has been posted and calculated.

(i) Complete by column after each (h) entry is made, equalling the sum of the (h) entry plus the respective paid $.

(j) Estimated.

*Note: 1. This exhibit can be completed on an individual company, consolidated or pooled basis as deemed the most appropriate for evaluating reserve levels.

2. Sources, unless otherwise noted, are from the 1981 Annual Statement.

3. If this exhibit is completed for the first time as of 12/31/81, the historical paid data referred to in Footnote (c) must be posted from the calculations of Col. 6 described in Footnote 3 of Section 1.

Exhibit R-1

_____ Company

An Arithmetic Assist for "Analyst's Est." in Exhibit R, Section II

12/31/n (n = 1981)

1. Line 44, Col. 8: Enter Line 43 or $0, whichever greater

2. Line 41, Col. 10:
   a. If Line 40, Col. 11 equals or exceeds Line 41, Col. 9:
      Line 41, Col. 10 = Line 40, Col. 10
   b. If Line 40, Col. 11 is less than Line 41, Col. 9:
      Line 41, Col. 10 = Line 39, Col. 10 + (100.0% - Line 41, Col. 9)

3. Line 38, Col. 12:
   c. Calc. ratio: (Line 38, Col. 10 - Line 41, Col. 8) ÷ Line 22, Col. 10
   d. Line 38, Col. 12 = Line 41, Col. 10 + (Step c X Line 22, Col. 12)

4. Line 35, Col. 14:
   a. Calc. ratio: (Line 35, Col. 12 - Line 38, Col. 10) ÷ Line 22, Col. 12
   b. Calc. ratio: (Line 35, Col. 10 - Line 38, Col. 8) ÷ Line 22, Col. 10
   c. 1/2 (a + b)
   d. Line 35, Col. 14 = Line 38, Col. 12 + (Step c X Line 22, Col. 14)

5. Line 32, Col. 16:
   a. Calc. ratio: (Line 32, Col. 14 - Line 35, Col. 12) ÷ Line 22, Col. 14
   b. Calc. ratio: (Line 32, Col. 12 - Line 35, Col. 10) ÷ Line 22, Col. 12
   c. 1/2 (a + b)
   d. Line 32, Col. 16 = Line 35, Col. 14 + (Step c X Line 22, Col. 16)

6. Line 29, Col. 18:
   a. Calc. ratio: (Line 29, Col. 16 - Line 32, Col. 14) ÷ Line 22, Col. 16
   b. Calc. ratio: (Line 29, Col. 14 - Line 32, Col. 12) ÷ Line 22, Col. 14
   c. 1/2 (a + b)
   d. Line 29, Col. 18 = Line 32, Col. 16 + (Step c X Line 22, Col. 18)

7. Line 24, Col. 20:
   a. Calc. ratio: (Line 24, Col. 18 - Line 29, Col. 16) ÷ Line 22, Col. 18
   b. Calc. ratio: (Line 24, Col. 16 - Line 29, Col. 14) ÷ Line 22, Col. 16
   c. 1/2 (a + b)
   d. Line 24, Col. 20 = Line 29, Col. 18 + (Step c X Line 22, Col. 20)

Exhibit S

_____ Company

INDEX OF SURPLUS POSITION*
12/31/n (n = 1981)

Formula:

$$\frac{\text{Pure Premium} - K + \text{Surplus}}{\text{Premiums Earned}} = \frac{O/S_{12/31/n} + Pd_n - \text{Restated } O/S_{12/31/n-1} - K + \text{Restated Surplus}_{12/31/n}}{P.E._n}$$

Where:

K is an additional risk provision for the more volatile exposures
$P.E._n$ is subject to a maximum pure premium of 79%

Calculation

		Numerator
1.	O/S Loss and L. E. (Page 3, Lines 1 + 2)	
2.	Loss and Loss Expense Paid:	
	a. Loss (Page 9, Col. 4, Line 31)	
	b. Loss Expense (Page 11, Col. 1, Line 25)	
	c. Total: a + b	
3.	Restated 12/31/n-1 O/S:**	
	a. Line 24, Col. 18 : 12/31/n Exh. R	
	b. Lines 19 + 20, Col. 3: 12/31/n-1 Exh. R	
	c. Total: a + b	
4.	Premiums Earned (Page 7, Col. 4):	
	a. All Lines (Line 31)	
	b. Allied Lines (Line 2)	
	c. Farmowners (Line 3)	
	d. Homeowners (Line 4)	
	e. Int'l & Reins (Lines 29 + 30)	
5.	Calculation of K:	
	a. .324 X 4b, or $0 whichever greater	
	b. .35 X 4c, or $0 whichever greater	
	c. .141 X 4d, or $0 whichever greater	
	d. .041 X 4e, or $0 whichever greater	
	e. a + b + c + d	
6.	Excess statutory reserves (Page 3, Line 16)	
7.	Surplus (Page 3, Line 27)	
8.	Surplus Aid (Step D, IRIS Ratio 3)	
9.	Numerator: 1 + 2c - 3c - 5e + 6 + 7 - 8	
		Denominator
10.	Calculation of minimum P. E.:	
	a. From 12/31/n Exh. R: Line 24, Col. 20	
	b. Lines 19 + 20, Col. 3	
	c. Pure Premium: 10a + 10b + 2c - 3c	
	d. Minimum P. E.: 10c ÷ .79	
11.	Denominator: 4a or 10d, whichever greater	
		Index
12.	Index of Surplus Position: 9 ÷ 11	
	Desired	≧ 1.04
	Suggested Floor	.957

*Note: 1. This exhibit should be completed on a consolidated basis for insurers with domestic fire/casualty subsidiaries.
2. Sources, unless otherwise noted, are from the 1981 Annual Statement.

**If Exhibit R is completed on a pooled basis and Exhibit S is not pooled, the appropriate pooled percentage should be applied to the a. and b. entries in Line 3.

Exhibit S-1

CALCULATION OF K FACTORS
(for use as of 12/31/81)

Industry Loss and L. E. Ratios
Source: "Best's Aggregates & Averages
Property-Casualty"
1978-1981

	Calendar Year	Allied Lines	Farm Owners	Home Owners	Reins. & Int'l.	All Lines Excluding[c]
	1973	45.5[a]	68.2	59.6	72.5[b]	70.3
	1974	64.0[a]	84.2	72.0	82.1[b]	75.3
	1975	59.4[a]	82.0	73.3	82.0[b]	80.1
	1976	52.6[a]	72.3	65.4	75.8[b]	76.7
	1977	48.1	67.5	60.3	76.9	71.6
	1978	57.5	66.5	60.2	74.7	70.7
	1979	69.0	64.2	67.6	74.4	73.0
	1980	71.6	80.6	73.9	76.1	74.1
1.	Avg.	58.46	73.19	66.54	76.81	73.98
2.	σ	8.845	7.394	5.694	3.265	3.113
3.	Expense Loading: 100.00 - (1)	41.54	26.81	33.46	23.19	26.02
4.	σ s in (3)	-	-	-	-	8.36
5.	8.36 x (2)	73.94	61.81	47.60	27.30	-
6.	(5) - (3)	32.40	35.00	14.14	4.11	
7.	rounded	32.4	35.0	14.1	4.1	

[a]Including Earthquake.
[b]Including Credit and Misc.
[c]All lines excluding those identified above and Group A&H and Factory Mutuals.

Exhibit S-2

CALCULATION OF YARDSTICKS
FOR INDEX OF SURPLUS POSITION
(for use as of 12/31/81)

A. Industry Data (from "Best's Aggregates and Averages, Property-Casualty"):

1.	a.	1980 Premiums Earned: All Lines*	$90,815,455
	b.	Allied Lines	1,516,847
	c.	Farmowners	530,107
	d.	Homeowners	9,276,151
	e.	Reins. & Other	3,379,827
2.		1973 - 1980 Avg. Loss & L.E. Ratio*	73.0%
3.		K adjustments (Exhibit S-1 factors)	$2,123,506
4.		(3) ÷ (1a)	2.34%

*excluding Factory Mutuals and Group A&H

B. Index of Surplus Position - Using a 3 to 1 Relationship of Premiums Earned to Surplus:

$$\frac{73.0 - 2.34 + 33.33}{100.0} = 1.04$$

C. Index of Surplus Position - Using a 4 to 1 Relationship of Premiums Earned to Surplus:

$$\frac{73.0 - 2.34 + 25.0}{100.0} = .957$$

D. Calculation of Maximum Pure Premium Percentage - Using a 6 to 1 Relationship:

$$.957 = \frac{X + 16.7}{100.0}; \quad X = .79$$

No K factor was included because this calculation was based upon traditionally high loss ratio lines such as Standard Group A&H insurance which coverage was not included in the K adjustments.

Exhibit L

Company

INDEX OF LIQUIDITY POSITION*

12/31/n (n = 1981)

Formula:

$$\frac{\text{12/31/n Assets Available Next Year}}{\text{12/31/n Liabilities Due Next Year}}$$

Calculation

	Denominator		
1.	Loss and L. E. Reserve Payout next year:**		
	a. From 12/31/n Exh. R: Line 24, Col. 20		
	b. Line 27, Col. 21		
	c. a X b		
2.	Unearned Premiums (Page 3, Line 10)		
3.	Misc. Liabilities (Page 3, Lines 3-9, 11, 17-22)[a]		
4.	Denominator: 1 through 3		
	Numerator		
5.	Bonds Maturing next year (Page 30, Line 1, Cols. 2 + 3 + 4)		
6.	Stocks excl. Affiliates:		
	a. Preferred:		
	i. Page 29, Line 48, Col. 3	(+)	
	ii. Page 29, Line 47, Col. 3	(-)	
	iii. Total		
	b. Common:		
	i. Page 29, Line 66, Col. 3	(+)	
	ii. Page 29, Line 65, Col. 3	(-)	
	iii. Total		
7.	Cash (Page 2, Line 6)		
8.	Qualifying[b] items, if any.		
9.	Uncollected Premiums Due (Page 2, Line 8)		
10.	Funds:		
	a. Page 2, Line 9	(+)	
	b. Page 3, Line 12	(-)	
	c. Page 3, Line 13	(-)	
	d. Total		
11.	Misc. Assets (Page 2, Lines 10-12 and 14-16)		
12.	Investment Income on L. &L. E. Reserve Funds held:		
	a. Yield on one year paper (2/28/n+1)[c]		
	b. 1a - 1c		
	c. 12a X 12b		
13.	Numerator: 5 through 12		
	Index		
14.	Index of Liquidity Position: 13 ÷ 4		
	Desired		≥ 1.00
	Suggested Floor		.80

[a] Any liability with an offsetting write-in asset should be netted.

[b] Any invested assets stipulated as maturing next year in Schedules B, BA-Part 1, or C-Part 1. (Summarize individual company entries if on a consolidated basis.)

[c] Rate as of 2/27/81 for the 1980 calculation was .145.

*Note: 1. This exhibit should be completed on a consolidated basis for insurers with domestic fire/casualty subsidiaries.

2. Sources, unless otherwise noted, are from the 1981 Annual Statement.

**If Exhibit R is completed on a pooled basis and Exhibit L is not pooled, the appropriate pooled percentage should be applied to the a. and b. entries in Line 1.

Exhibit L-1

Form 2 **ANNUAL STATEMENT FOR THE YEAR 1981 OF THE** (Name) 29

SCHEDULE D—SUMMARY BY COUNTRY

Bonds and Stocks **OWNED** December 31 of Current Year

1 Description		2 Book Value	3 †Market Value (Excluding accrued interest)	4 Actual Cost (Excluding accrued interest)	5 Par Value of Bonds	6 *Amortized or Investment Value
BONDS						
Governments (Including all obligations guaranteed by governments)	1 United States					
	2 Canada					
	3 Other Countries					
	4 Totals					
States, Territories and Possessions (Direct and guaranteed)	5 United States					
	6 Canada					
	7 Other Countries					
	8 Totals					
Political Subdivisions of States, Territories and Possessions (Direct and guaranteed)	9 United States					
	10 Canada					
	11 Other Countries					
	12 Totals					
Special revenue and special assessment obligations and all non guaranteed obligations of agencies and authorities of governments and their political subdivisions	13 United States					
	14 Canada					
	15 Other Countries					
	16 Totals					
Railroads (unaffiliated)	17 United States					
	18 Canada					
	19 Other Countries					
	20 Totals					
Public Utilities (unaffiliated)	21 United States					
	22 Canada					
	23 Other Countries					
	24 Totals					
Industrial and Miscellaneous (unaffiliated)	25 United States					
	26 Canada					
	27 Other Countries					
	28 Totals					
Parents, Subsidiaries, and Affiliates	29 Totals					
	30. Total Bonds					
PREFERRED STOCKS						
Railroads (unaffiliated)	31 United States					
	32 Canada					
	33 Other Countries					
	34 Totals					
Public Utilities (unaffiliated)	35 United States					
	36 Canada					
	37 Other Countries					
	38 Totals					
Banks, Trust and Insurance Companies (unaffiliated)	39 United States					
	40 Canada					
	41 Other Countries					
	42 Totals					
Industrial and Miscellaneous (unaffiliated)	43 United States					
	44 Canada					
	45 Other Countries					
	46 Totals					
Parents, Subsidiaries, and Affiliates	47 Totals					
	48. Total Preferred Stocks					
COMMON STOCKS						
Railroads (unaffiliated)	49 United States					
	50 Canada					
	51 Other Countries					
	52 Totals					
Public Utilities (unaffiliated)	53 United States					
	54 Canada					
	55 Other Countries					
	56 Totals					
Banks, Trust and Insurance Companies (unaffiliated)	57 United States					
	58 Canada					
	59 Other Countries					
	60 Totals					
Industrial and Miscellaneous (unaffiliated)	61 United States					
	62 Canada					
	63 Other Countries					
	64 Totals					
Parents, Subsidiaries, and Affiliates	65 Totals					
	66. Total Common Stocks					
	67 Total Stocks					
	68 Total Bonds and Stocks					

†Statement value for preferred stocks. For certain bonds, values other than actual market may appear in this column (See Schedule D, Part 1, for details)

The aggregate value of bonds which are valued at other than actual market is $ _____

*Companies, societies, and associations which do not amortize their bonds should leave this column blank

SCHEDULE D—VERIFICATION BETWEEN YEARS

1. Book value of bonds and stocks, per Items 1 and 2, Col. 1, Exhibit 1, previous year _____
2. Cost of bonds and stocks acquired, Col. 5, Part 3 _____
3. Increase by adjustment in book value
   (a) Col. 10, Part 1 _____
   (b) Col. 9, Part 2, Sec. 1 _____
   (c) Col. 8, Part 2, Sec. 2 _____
   (d) Col. 9, Part 4 _____
4. Profit on disposal of bonds and stocks, Col. 11, Part 4 _____
5. Total _____
6. Deduct consideration for bonds and stocks disposed of, Col. 5, Part 4 _____
7. Decrease by adjustment in book value
   (a) Col. 11, Part 1 _____
   (b) Col. 10, Part 2, Sec. 1 _____
   (c) Col. 9, Part 2, Sec. 2 _____
   (d) Col. 10, Part 4 _____
8. Loss on disposal of bonds and stocks, Col. 12, Part 4 _____
9. Book value of bonds and stocks, per Items 1 and 2, Col. 1, Exhibit 1, current year _____

Exhibit RLS

_____ Company

INDEX OF SURPLUS POSITION*
12/31/n (n = 1981)

Formula:

$$\frac{\text{Pure Premium - K - SP + Surplus}}{\text{Premiums Earned}} = \frac{O/S_{12/31/n} + Pd_n - \text{Restated } O/S_{12/31/n-1} - K - SP + \text{Restated Surplus}_{12/31/n}}{P.E._n}$$

Where:

K is an additional risk provision for the more volatile exposures,
$P.E._n$ is subject to a maximum pure premium of 79%, and
SP is a provision for the potential surplus penalty due to the insufficiency of assets available.

Calculation

		Numerator	
1.	O/S Loss and L. E. (Page 3, Lines 1 + 2)		
2.	Loss and Loss Expense Paid:		
	a. Loss (Page 9, Col. 4, Line 31)		
	b. Loss Expense (Page 11, Col. 1, Line 25)		
	c. Total: a + b		
3.	Restated 12/31/n-1 O/S:**		
	a. Line 24, Col. 18 : 12/31/n Exh. R		
	b. Lines 19 + 20, Col. 3: 12/31/n-1 Exh. R		
	c. Total: a + b		
4.	Premiums Earned (Page 7, Col. 4):		
	a. All Lines (Line 31)		
	b. Allied Lines (Line 2)		
	c. Farmowners (Line 3)		
	d. Homeowners (Line 4)		
	e. Int'l & Reins (Lines 29 + 30)		
5.	Calculation of K:		
	a. .324 X 4b, or $0 whichever greater		
	b. .35 X 4c, or $0 whichever greater		
	c. .141 X 4d, or $0 whichever greater		
	d. .041 X 4e, or $0 whichever greater		
	e. a + b + c + d		
6.	Surplus Penalty, if any (Line 5f, Exh. RLS-2)		
7.	Excess statutory reserves (Page 3, Line 16)		
8.	Surplus (Page 3, Line 27)		
9.	Surplus Aid (Step D, IRIS Ratio 3)		
10.	Numerator: 1 + 2c - 3c - 5e - 6 + 7 + 8 - 9		
		Denominator	
11.	Calculation of minimum P. E.:		
	a. From 12/31/n Exh. R: Line 24, Col. 20		
	b. Lines 19 + 20, Col. 3		
	c. Pure Premium: 11a + 11b + 2c - 3c		
	d. Minimum P. E.: 11c ÷ .79		
12.	Denominator: 4a or 11d, whichever greater		
		Index	
13.	Index of Surplus Position: 10 ÷ 12		
	Desired		≥ 1.04
	Suggested Floor		.957

*Note: 1. This exhibit should be completed on a consolidated basis for insurers with domestic fire/casualty subsidiaries.
2. Sources, unless otherwise noted, are from the 1981 Annual Statement.

**If Exhibit R is completed on a pooled basis and Exhibit RLS is not pooled, the appropriate pooled percentage should be applied to the a. and b. entries in Line 3.

ANNUAL STATEMENT FOR THE YEAR 198_ OF THE .....
(Name)

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1 Maturity *	2 Government Schedule D (Group 1)	3 Political Subdivisions, Governmental Agencies and Authorities (Groups 2, 3 & 4)	4 Other (Unaffiliated) (Groups 5, 6 & 7)	5 Parents, Subsidiaries and Affiliates (Group 8)	6 Total Bonds

SCHEDULE D - PART 1A
Maturity Distribution of Bonds Owned December 31, Current Year at Statement Values

(1981 schedule - no changes)

SCHEDULE D - PART 1B
Comparison of Market/Statement Values
by Maturity-Date Category in Part 1A
of Those Bonds with Market Values Published in the NAIC Valuation of Securities Manual

11. 1 year or less:	Market Value					
12.	Statement Value					
21. >1 yr; ≤3:	Market Value					
22.	Statement Value					
31. >3 yrs; ≤5:	Market Value					
32.	Statement Value					
41. >5 yrs; ≤10:	Market Value					
42.	Statement Value					
51. >10 yrs:	Market Value					
52.	Statement Value					
61. Total:	Market Value					
62.	Statement Value					

*If and when the maturity categories in Part 1A are extended, this exhibit should be extended at that time to be consistent with the revised maturity categories.

Exhibit RLS-2

_____ Company

CALCULATION OF SURPLUS PENALTY (SP)

(to be completed only when Line 14, Exhibit L, is < 1.00)

From Schedule D - Part 1B, Col. 6:

1. Enter amounts:
   a. Line 21 . . . . . _____
   b. Line 31 . . . . . _____
   c. Line 41 . . . . . _____
   d. Line 51 . . . . . _____

2. Enter ratios:
   a. Line 22 ÷ Line 21, less 1.00 . . . . . _____
   b. Line 32 ÷ Line 31, less 1.00 . . . . . _____
   c. Line 42 ÷ Line 41, less 1.00 . . . . . _____
   d. Line 52 ÷ Line 51, less 1.00 . . . . . _____
   e. Enter the highest of a, b, c, or d . . . . . _____

From Exhibit L:

3. Line 4 less Line 13 . . . . . _____ *

Calculations:

4. Allocation of Line 3 to:
   a. Line 1a penalty . . . . . _____ **
   b. Line 1b penalty . . . . . _____ **
   c. Line 1c penalty . . . . . _____ **
   d. Line 1d penalty . . . . . _____ **
   e. Remainder . . . . . _____ **

5. Calculation of Surplus Penalty:
   a. 2a X 4a . . . . . _____
   b. 2b X 4b (if necessary) . . . . . _____
   c. 2c X 4c (if necessary) . . . . . _____
   d. 2d X 4d (if necessary) . . . . . _____
   e. 2e X 4e (if necessary) . . . . . _____
   f. Total Penalty (5a thru 5e) . . . . . _____

*Must be a positive entry.

**If Line 3 is less than Line 1a, enter Line 3 in Line 4a and proceed to Line 5. If Line 3 is greater than Line 1a, enter the latter in Line 4a, and carry over the remainder to Line 4b. If the remainder is less than Line 1b, enter the remainder in Line 4b and proceed to Line 5. If the remainder is greater than Line 1b, enter the latter in Line 4b, and carry over the new remainder to Line 4c, etc.

Note: See footnote on Exhibit RLS-1. This exhibit should also be extended to be consistent with the revised maturity categories.