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CRA/04 RATING METHODOLOGY FOR INSURERS

Practical guide to understanding the concepts and evaluation techniques

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BACKGROUND

This Rating Methodology is what Credit Rating Agency Limited (CRA) applies to the rating of the credit worthiness of insurers including composite insurers. The methodology explains the approach to the assignment of Insurance Financial Strength (IFS) ratings on a standard alone basis and how stand alone ratings could be modified in the light of support from affiliates so as to assign the final published insurance financial strength rating and any related debt ratings. This methodology applies to the rating of both general and life insurers because of the greater similarity in the key credit risk characteristics between the two sub-sectors of insurance. Similarly the methodology may also be applied to rating of Insurance Composites as well as Re-insurance Companies. That said, the methodology recognises that certain areas require greater differentiation of credit risk characteristics either by the weights assigned or identification of additional sub-factors and in very few instances, the score band applied.

We believe that the methodology provides sufficient guidance to our rating analysts in its application to Insurers Companies generally as to the formulation for metrics (calculation) and their interpretation and the assessment of non-qualitative considerations.

Our ratings focus on both qualitative and quantitative characteristics in relation to the company's business and financial profile and the operating environment in which it conducts its business. In addition to long-term IFS ratings, CRA's assigns short-term IFS ratings to provide our opinions about the rated companies' ability to meet short-term policy claims. Short-term IFS ratings cover senior policyholder obligations that mature or are payable in one year or less.

FRAMEWORK FOR RATING INSURERS

Insurer Ratings reflect CRA's opinion on both the medium and long-term relative risk and are therefore forward-looking in nature because they apply to liabilities that may pay out over long periods of time. CRA's approach includes significant quantitative analysis and also qualitative, and may incorporate the opinions and judgments of industry experts.

We have selected certain factors upon which the initial indicative ratings are based. We evaluate these factors because we view them as underlying an insurer's business and financial profile. In addition, we evaluate the operating environment which includes the overall country risk and characteristics of the local insurance operating environment.

Other factors such as management effectiveness, corporate governance, accounting policies and disclosures are also evaluated when assigning ratings to insurers. CRA analysts also review how the business and financial profile of an insurer is affected or is likely to be affected in the medium-long-term by the current or developments in the local political, social and economic climate, taxation, accounting rules and public reporting requirements, and relevant laws and the litigation environment.

Stress Testing and Scenario Analysis for Insurers

CRA ratings are forward-looking, although past performance provides a major input in the ratings. Therefore developing a forward-looking assessment of an insurer's financial performance under an expected case and stress case are important to CRA's assessment of insurer's business and financial profile. The expected case scenario attempts to project an insurer's results over the medium-term, reflecting our opinion of current and projected market conditions. Because challenging economic and financial, as well as natural catastrophe events do occur – with potentially adverse effects on the financial and business profiles of both life and property and casualty insurers – we include stress testing as a fundamental part of our rating methodology. CRA believes that stress testing is one of the most intuitive forms of risk assessment and a useful part of a comprehensive plan to assess risk.

RATING SCORECARD

The methodology uses the scorecard approach in the three key rating factors and their respective sub factors as follows:

1) Business Profile. The Business profile is evaluated based on the three sub factors as follows (a) Market Position and Brand (b) Distribution and (c) Product Focus and Diversification
2) Financial Profile. The Financial Profile is evaluated based on five sub factor as follows (a) Asset Quality (b) Capital Adequacy (c) Profitability (d) Liquidity and Asset/Liability Management and (e) Financial Flexibility
3) Operating Environment. The Operating Environment is evaluated based on the two sub factors as follows (a) Insurance Systemic Risk, which itself is analysed based on (i) Economic Strength(ii) Institutional Strength and (iii) Susceptibility to Event Risk (b) Insurance Market Development which itself analysed based on two factors namely (i) Insurance Penetration and (ii) Insurance Density

The Business profile factors represent 35% of the overall rating determination with the financial profile factors representing 65%. The operating environment component completes the Scorecard, but only to the extent that it has a neutral to negative impact on the rating i.e. the operating environment rating is factored into the overall rating if it exerts downward pressure to the overall rating in which case the Grid-Indicated Rating is adjusted as follows 20% of Operating Environment is rated BBB, 40% if rated BB, 60% if rated B and 80% if rated CCC and below.

Adjusted Score

The Scorecard details a "Score" and an "Adjusted Score", both of which are given in a range from AAA (highest) through CCC (lowest). Whilst the "Score" is derived from the "raw" metrics (see Appendix 1) the "Adjusted Score" is based on analyst judgement, both of which may also subjected to our severe stress case scenario.

Next, in order to arrive at the recommended stand-alone credit profile for the analytic unit, an assessment is made of the company's management, governance, risk management, accounting policy and disclosure, as well as any special rating situations. Finally, to move from the stand-alone credit profile to the public rating recommendation, analysts consider any explicit or implicit support from affiliates.

PRIVELEDGES OF RATING COMMITTEE

While the formal weights remain fixed, the Scorecard acts as a guide for analysts and does not limit the Rating Committees from using their discretion when determining the appropriate ratings.

SUMMARY RATING PROCESS

The evaluation of the various rating factors culminates into deriving a score for each sub-factor and ultimately the main (key) rating factor. The scoring of the factors is guided by the predetermined grid provided in Appendix 1.

The final rating reflects two important attributes. The first attribute is the significance of each main/key rating factor in the context the rating process as determined by the rating methodology and is reflected by the differentiated predetermined main/key and sub factor 'weights. This attribute often exhibit stability overtime, unless circumstances warrant the revision of the rating methodology.

The second attribute is the 'quality' of the main/key rating factor, which is assessed during the rating exercise. The assessed quality of any main/key rating factor may reflect variability over time as it is affected by changes in the factor both in the short- and long- term. The interaction of the significance and quality of rating factors may mean that although a factor may be assigned a higher weight in the methodology its impact on the final rating may be significantly reduced if its quality is found to be much lower.

Estimating the factor score

The rating process starts with the evaluation or assessment of the sub factors which culminates into the rating of the main/key factor. The results of the assessment are then applied according Appendix 1 and may fall into one of the factor scores AAA, AA, A, BBB, BB, B and CCC.

Estimating the weighted factor score

The analyst must now estimate the weighted score for each main/key factor, which requires deriving the numeric value of the factor score, according to the table below. For example if a factor score is AAA, its numeric value will be 1 whereas if the factor score is CCC, the associated numeric value will be 18. It should be noted that the numeric values are lower for better factor scores than for lower factor score.

This procedure in necessary to ensure that better scores features more prominently (than adverse scores) in the final rating.

Broad Rating Factor Score	AAA	AA	A	BBB	BB	B	CCC
Numeric Value	1	3	6	9	12	15	18

Weighted Factor Scores

The next stage is to calculate the weighted factor score, by multiplying the numeric value of factor score by the applicable weight for the factor.

Numeric Value (a)	Factor Weight (b)	Weighted Factor Score (c)

Weighted Factor Score (c) = (a) * (b)

Estimating the Final Rating

The third stage is to estimate the final rating by aggregating the weighted factor score. The aggregated weighted factor score is then mapped back to rating scale to derive the final rating in accordance with the table below.

Factor Score	AAA	AA+	AA	AA-	A+	A	A-	B	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-
Aggregated weighted Factor Score	≤1.5	1.5-2.5	2.5-3.5	3.5-4.5	4.5-5.5	5.5-6.5	6.5-7.5	7.5-8.5	8.5-9.5	9.5-10.5	10.5-11.5	11.5-12.5	12.5-13.5	13.5-14.5	14.5-15.5	15.5-16.5	16.5-17.5	17.5-18.5	18.5-19.5

DETAILED CREDIT RATING CONSIDERATIONS

Key Factor 1- Business Profile

Sub-Factor 1: Market Position, Brand and Distribution

Market position, brand, and franchise strength are key factors that represent a company's ability to develop and sustain competitive advantages in its chosen markets. We look into the company's sustainable advantages in its key lines of business, its market share; barriers to entry; scale advantages and their translation into expenses; control over pricing; and control of distribution, its brand encompassing a company's image and reputation in the market, brand recognition and perception by distributors and end-consumers, and customer loyalty as demonstrated by retention rates, distribution costs, and customer purchases of multiple products.

CRA considers a company's consistent competitive advantages an important element its prospects for organic growth and has a direct bearing on its future profitability and ability to generate capital internally and to be well positioned to withstand prolonged difficult market conditions and be better able to capitalize on new, potentially profitable opportunities that may develop in the future. We believe such companies are more likely to meet their obligations through varied economic periods, thus suggesting higher ratings. However a weak business franchise can indicate financial stress for a company if it generates low or erratic core profitability, and may tempt management to enter unfamiliar businesses, take on new and unfamiliar risks, or leverage the company to a greater extent.

Therefore our conclusion on the business profile key factor is informed by results of our review of several but related factors that we consider cardinal in the determination of the insurer's business profile. The factors are

(i) Market Share which is measured by relative market share, which we measure as the GWP as a % of 90% of total GWP and deposits divided by number of insurance companies making up the 90% threshold.

(ii) Market superiority, which we measure by operating expenses as a % of Net Written Premiums (NWP)

(iii) The Product Risk profile under which we consider several dependence factors such as (i) certain economic sectors for long-term sustainability (ii) specific products for long-terms sustainability(iii) Product specific claims experience over the last 3 years

Sub-Factor 2 - Distribution

The insurance sector in Zambia is marred by limited distribution channels or mode of business. Principally there are 3 modes of business namely direct, tied agents and brokered business. Brokered business accounted for 40% of GWP in 2010, 31% in 2011 rising to 52% in 2012 further to ...in 2013. The brokered business is very fragmented with two brokers accounting for close 70% of insurance brokers GWP, leaving the 42 other brokers in cut throat completion for remaining 30%.

CRA considers the number of channels through which an insurance company delivers its products as an essential contributor to company's business and credit profile. Equally important is the insurer's ability to control those channels and its relationship with its producers relates directly to a company's creditworthiness and standing in the market, as well as its ability to grow revenues, retains business, align its distribution with specific product/customer segments, and control its costs.

Relevant Metrics –
For non-life : Underwriting Expenses as a % of Net Premiums Written (NPW)
For life-factors: Number of distribution channel with >10% of GWP
: Influence upon/control of number of distribution channels

In general, efficient cost structures indicate overall management discipline. A below-peer expense ratio is likely to reflect tight control over underwriting discipline, a high level of management focus, and may be a result of superior technology and systems that allow for greater automation. We also consider the diversity in a company's distribution channels which can mitigate its dependence on specific channels and its vulnerability to sales disruption. The evaluation of a company's distribution effectiveness examines the various distribution channels and assesses the suitability of each to the products being sold in specific customer segments. The costs involved in developing and maintaining a specific distribution channel, as well as the retention and productivity of distributors, and its ultimate customers (particularly in times of stress), are key considerations in the evaluation of the channel's success.

In some cases distribution may actually be controlled by third-party insurance brokers, which could limit an insurers' ability to conduct business on its own terms. The use of exclusive agents for the distribution system may be the insurance company's defining competitive advantage. Further, distribution channels flexibility in terms of cost and business volume management may be very important for the company's business and financial strength profile.

Sub-Factor 3: Product Focus, Risk and Diversification

Zambia's **insurance** sector is small, accounting for only 4% of GDP. Although the sector is developing, the observed slowdown in the rate of growth is worrying. We note that in the general insurance sector, four insurers accounted for 73.2% of the GWP market, thus leaving the 11other general insurers competing for the 26.8% of the industry GWP. As for the life insurance sector which comprises 8 insurers, 90.8% of GWP in this sub-segment was accounted by four life insurers. Therefore the positioning of the company in this highly competitive market is as critical as its choices of product mix and its emphasis of the economic sector to operate from. Different products have their own risk characteristics as are the economic sectors that maybe affected differently by developments in both the global and domestic economies.

A company's chosen lines of business are a major influence on its risk profile and creditworthiness because individual product segments and classes of business exhibit different volatility and competitive attributes. Product risk appears in many forms and can have significant adverse effects on a company's earnings and capital adequacy.

We therefore analyze the risk inherent in the company's particular business mix. We consider the type of business written as certain lines exhibit lower volatility and risk than others. Therefore a concentration in more volatile lines of business/products would be viewed as a risk to policyholders/creditors and is credit negative. Further, we also consider how effectively an insurer responds to macroeconomic changes, industry/market conditions, regulatory issues, and competitive pressures with respect to its chosen products and markets as this is also likely to influence its credit profile.

Our in-depth analysis cover the profile (and trends) of product (mix) and the economic sectors in terms of their contribution to n insurers Gross Written Premiums (GWP).Thus an insurer with a larger number of products or economic sector contributing materially (i.e. >10%) to overall revenues (premiums and deposits) on a sustainable basis is better placed to wither unfavourable developments in the economy or those related to the products than the insurer with a limited products range or high concentration in few economic sectors turning in >10 % of GWP. The larger the number the better the risk positioning as concentration risk (product or economic sector) is low and conversely the lower the number the more adverse the risk position. The insurer's loss experience can also provide further insights into the insurer's product risk profile. Where a larger number of product lines contribute >10% to new claims for the 3 years the company is considered to be in a worse risk exposure than where the number of such product lines is lower.

We note that diversification, both by product and by market segments such as economic sector, is generally a characteristic of highly rated companies. We also note that although diversification in earnings, product and economic sector can reduce the volatility of a firm's earnings, capital, and cash flow, promoting more efficient use of capital resources, this may not be the case where an insurer enters a new line of business without the appropriate underwriting expertise.

Key Factor 2- Financial Profile

Sub-Factor 1: Asset Quality

Insurance companies' core assets should be and are typically concentrated in high quality liquid (i.e. typically low risk) assets in recognition of the uncertainty of their liability payout stream, both as to timing and amount. However due the desire to increase earnings, in many cases, insurance companies do allocate a portion of their investment portfolios to higher risk assets. It therefore becomes important to monitor risky asset exposures on an ongoing basis, because changes in the market environment, especially during periods of stress, can depress asset values, earnings, and ultimately, the company's capital base.

We note that generally higher-rated companies have lower exposure to high-risk assets although companies that have strong and stable operational performance (solid capital, stable earnings) will be able to tolerate a higher proportion of these assets in their investment portfolios.

Relevant Metric - High Risk Assets: High risk assets as % of Shareholders' Equity

CRA considers the following as High Risk Assets:

(i) all investments other than investment grade bonds and mortgage loans and include below-investment-grade and unrated bonds/loans, common and preferred stock equities, "alternative investments" such as private equity and hedge fund holdings, real estate assets, and other investments which are not classified on the balance sheet.

Beyond the above high-risk asset ratio, we also consider investment portfolio composition including the proportion of high risk assets in relation to total invested assets, and investment concentration risk. Excessive concentrations in a single name or sector raise questions about market and credit risk, liquidity, and the sustainability of historical investment returns. We also consider the liquidity and volatility of the investment portfolio and the strategy employed by the company, as well as assets that are higher-risk or less liquid due to features specific to a particular market.

Furthermore, analysts will stress the investment risk of insurers, as part of CRA ratings monitoring process. The stress tests, which vary by asset type, are typically conducted on holdings in equities, alternative investments, real estate, mortgage loans, sovereign/sub-sovereign bonds, corporate bonds, and structured securities.

Sub-Factor 2: Reinsurance Recoverable

This factor is mostly relevant for the rating of general insurers. We have noted that a significant asset of uncertain value on the balance sheet of general insurers is recoverables/receivables from reinsurers. The extent to which insurers use reinsurance and are dependent on it varies significantly by the economic sector and by line of business. Some insurers are "gross line" underwriters, placing little reliance on reinsurance parties; while others manage their risk exposure through the extensive use of reinsurance.

The analysis of the amount of a company's reinsurance recoverables, its concentration or reliance on a few reinsurers, and the credit quality of the individual reinsurers is important because write-offs of the recoverables as uncollectible could impact the insurer's income and capital, and because the loss of reinsurance capacity could require the insurer to modify its market/product focus.

Relevant Metric - Reinsurance recoverables as % of shareholders' equity

Higher-rated companies tend to have lower amounts due from reinsurers, although the company's choice of market/product focus significantly influences its use of reinsurance. For example due to different exposure profiles, personal lines carriers generally use significantly less reinsurance (except for their catastrophe covers) than do commercial lines carriers. In addition to evaluating a company's reinsurance exposure ratio, CRA reviews a company's reinsurance program including coverage placed, terms and conditions, and the credit quality and collateral of its reinsurance counterparties. Our analysis focuses on the most significant reinsurance collectibles as well as to those reinsurers where significant future exposure may arise. CRA evaluates the creditworthiness of reinsurers by: 1) considering their insurance financial strength ratings; 2) evaluating the ceding company's reinsurance surveillance practices; 3) considering prior payment experience and 4) evaluating offsets, letters of credit, trust funds, and other features that improve the ceding insurer's position.

Sub-Factor 3: Goodwill, Deferred Acquisition Cost (DAC) and other intangibles

Goodwill and intangible assets are derived from acquisitions and new business production. The economic value of these assets is often uncertain and may not be realizable to the extent expected at time of acquisition and in many cases acquisitions of commercial insurance and reinsurance firms have generally met with limited success.

Write-downs of intangible assets are typically an indication that the potential profits of a business or a subsidiary are lower than what had originally been contemplated by management. Furthermore, although charges related to intangible assets are non-cash in nature, they signal reduced future earnings and capital generation, potentially hurting investor confidence and reducing financial flexibility.

Relevant Metric: (Goodwill + DAC + Other Intangibles) as % of Shareholders' Equity.

This measure provides an indication of the strength and quality of a company's equity capital base. Higher rated companies tend to have lower amounts of goodwill and intangible assets relative to their equity base compared to lower rated companies. Extensive growth through acquisitions usually elevates the credit risk of a group because of the integration challenges and the uncertainty about the ultimate costs and benefits, as well as incremental earnings, to be realized from the acquisition in the context of the purchase price and financing.

We consider the implications of acquisitions to the company's market position and overall diversification. However, where acquisitions have often been problematic for issuers, we tend to have a negative view given that a number of failures have been caused by acquisitions.

We also analyze other assets such fixed assets and deferred tax assets for reasonableness. As such assets have less liquidity than investments and other financial assets, significant levels of these assets relative to total assets may be discounted when assessing asset quality.

Sub-Factor 4: Capital Adequacy

CRA evaluate an insurer's creditworthiness and expresses an opinion about the company's economic capital and its capital adequacy (e.g. solvency) or operational leverage. We view economic capital as the cushion available to the insurer to absorb unfavourable deviations in its results and capital adequacy as measures a company's leverage in terms of business volume generated and its risks relative to the company's capital. Capital adequacy is critically important for an insurer because it provides a signal of financial capacity to customers and because insurance regulators require minimum capital levels or ratios in order for the company to continue to operate. Further, capital constraints can also negatively impact a company's ability to grow its business.

Relevant Metrics:

Gross Underwriting Leverage: GWP/ (Shareholders' Equity minus 10% of High Risk Assets)

In general, the higher a company's gross underwriting leverage, the more risk it is assuming and the greater the impact on its capital position from variations in actual performance. Higher rated insurers tend to have lower gross underwriting leverage than lower rated companies. We adjust this ratio by subtracting from the denominator a percentage (i.e. 10% of high-risk assets) which, in a stress scenario, are illiquid, and/or likely to be impaired or sold for a loss, and should no longer be included among a company's assets or capital.

However, in the case of Life Insurers the formula used is

Relevant Metric: Capital-10% of HRA as % of Total Assets-10% of HRA.

We have observed that higher rated insurers tend to have high Capital/ Total Assets ratios than lower rated insurers.

We also note that insurance regulators have developed more refined measures of capital adequacy/solvency by evaluating the available capital relative to the risk-adjusted exposures of the company. These additional metrics are particularly key to our analysis when they are determinants of a company's solvency and its ability to continue to operate.

Sub-Factor 5: Profitability

An insurer's earnings capacity – both quality and sustainability – is a critical component of its creditworthiness because earnings are a primary determinant of the insurer's ability to meet its policy and financial obligations, the primary source of internal capital generation to assure capital adequacy, and a key determinant of access to the capital markets on favourable terms. Diversification across multiple product lines and markets can result in more stable levels of earnings, increasing the predictability of internal capital growth and strengthening claims/debt paying ability.

Relevant Metrics**: Return on Capital (ROC): Net income before non-controlling interest expense as a % of average financial debt + shareholders' equity +non-controlling interest (3 year average)**

Sharpe Ratio of Return on Capital: the mean of the company's annual return on capital divided by the standard deviation of return on capital (3 year period)

In general, higher rated companies tend to report higher profitability as measured by ROC and have less earnings volatility (i.e. Sharpe Ratio of Return on Capital) than lower rated companies.

The ROC ratio is a good measure of how well the insurer is utilizing its capital funds. ROC also equalizes any benefits to earnings from leverage, because the ratio considers both financial debt and equity in its denominator. For this reason, ROC must be viewed in concert with a company's financial leverage, since this will indicate the level of borrowed funds (if any) required to generate the corresponding ROC, as well as the sustainability and volatility of its profits over time. Knowing a company's legal structure can also provide information about its likely use of debt and its ROC risk profile over time. For example, mutually-owned companies tend to be less focused on short-term profitability and are lower users of debt than shareholder-owned companies such as most insurers in Zambia.

Return on Equity (ROE) is another good measure of profitability as one cannot ignore the impact of shareholder pressure on management to generate sufficient returns on shareholders' funds. This ratio must be viewed in concert with both a company's financial leverage and organizational/legal structure. The relationship to financial leverage is important because companies utilizing higher amounts of leverage may exhibit more favourable ROE, as a smaller equity base tends to improve this measure, all else being equal.

We also consider an adjusted ROC metric including total debt (not just financial debt) in the denominator to assess the impact of operating debt deployed on profitability.

Return on Revenue (ROR) can be another useful comparative measure of profitability, as it is less influenced by a company's financial leverage policy or its capital adequacy. The ROR metric over time is generally a good indicator of an insurer's underwriting skill and pricing discipline relative to its peers while also capturing investment performance.

We also consider that net income can be meaningfully influenced by non-recurring favourable/unfavourable items, most notably realized gains/losses. For analytic units with meaningful investment-related gains/losses, we also consider these metrics excluding such gains/losses. The impact on these ratios for entities that record all investments at fair value through the income statement when comparing against most insurers who recognize the change in value of investments directly to equity is also analysed. The effects of hedging may also significantly impact the net income metric and, as such, must be considered in interpreting profitability metrics.

The Sharpe ratio calculated on return on capital gauges the inherent volatility in a company's returns in relation to average profitability and helps us to formulate an opinion about the predictability and sustainability of a company's earnings. The ratio considers net income since a company's capital generation is driven by its net income but we recognize that some capital gains/losses and taxes can at times be somewhat volatile and unpredictable or at other times used to reduce underlying operational volatility. However, the volatility metric is most useful in comparing companies' earnings volatility to each other and in identifying trends relative to business mix. We consider three years worth of data in these ratios to attempt to "see through" the strategic planning cycles mostly used in Zambia.

Sub-Factor 6: Unearned Premium Reserve Adequacy

The Zambian Insurance Act obliges insurers transacting general insurance business to set aside reserves for unearned premium (UPR) to meet liabilities on the unexpired risk as at the end of the financial year, using either -

(a) The 24th method or 50% of the Net Premium Income in respect of all classes of business, whichever is higher;

(b) The Total Uncollected Premium in addition to 40% the Premium Income Received in respect of policies or renewals issued during the year; or

(c) Any other method approved in writing by the Registrar.

The movement in the UPR account in the balance sheet is passed through the Income Statement immediately after the Net Premium line. In passing the movements through the income statement, we note that an insurer's capacity to make the required amount of reserves is affected by its current financial metrics such as; earnings performance and state of its cash flows and liquidity level of uncollected premium income visa-vis premium income received during the year, outlay on claims made etc.

In scoring the Reserve Adequacy factor CRA is mindful that Reserve Adequacy ratio remains a differentiator between higher rated insurers and lower rated insurers.

Globally it has been noted inadequate UPR contributing cause of most insurance company failures when insurance losses finally crystalize. CRA considers that the broad accounting latitude endemic to the insurance business, impacts the credibility of estimates of loss reserves and generally the analysis of its reported earnings and the assessment of its capital adequacy. Further when insurers' loss reserves develop unfavourably, the impact on the company's financial profile and flexibility can be material as it leads to the decrease in capital, increased operating and financial leverage ratios, and reduced dividend-paying capacity to the holding company or shareholders.

Relevant Metric: Loss Reserve Development: 1-year loss reserve development as % of UPR (3 year weighted average)

Given that insurers do not know the cost of their product until after it has been sold - often long after it has been sold - strong underwriting skills and a stable track record is a significant differentiator between highly-rated and lower-rated companies. Consequently, the premium rate monitoring, underwriting, and claims handling processes are critical areas to be reviewed and evaluated. CRA evaluates these areas, first, by reviewing past underwriting results (usually in connection with reserve adequacy analysis) and, second, by reviewing current underwriting practices that will impact future profitability levels.

We also review third-party reserve analysis, disclosures regarding carried reserves for reasonableness, past year's loss reserve development as a percentage of prior year reserves, shareholders' equity or premiums. For trend purposes, the metric is based on an average of reserve development over the last 3 years with greater weight given to the most recent years in the calculation. We note that highly-rated companies tend to have less adverse reserve development than lower-rated companies.

Sub-Factor 7: Financial Flexibility

Analysing financial flexibility is important because we want gain a clear understanding of whether a company is able not only to fund its business growth via internal capital generation, but also to demonstrate the ability to service its obligations when they fall due without stress. Insurers benefit from having the capacity to raise capital externally for additional growth or acquisitions, and to meet unexpected financial demands whether those come from an unusually negative credit/market environment, earnings volatility, or other planned or unplanned capital needs. Financial flexibility is a key determinant of the insurer's credit profile.

We also consider, as discussed at the end of this section, the depth of the capital markets of a company's domicile, which if thin, can lead to limited financial flexibility despite what may appear to be strong capital and income metrics.

We measure financial flexibility or lack of it as the overall net effect of the current position of the various metrics as indicated below:

Adjusted Financial Leverage: Adjusted debt (Financial debt (including preferred stock) + CRA pension, hybrid, and operating lease adjustments) divided by (adjusted debt + shareholders' equity)

Total Leverage: [Financial debt (including preferred stock) + operating debt + CRA pension and operating lease adjustments] divided by [financial debt + operating debt + CRA pension and operating lease adjustments + shareholders' equity (adjusted for any non-debt items)]

Earnings Coverage: Adjusted Earnings before interest and taxes divided by interest expense and preferred dividends (3 year average)

Cash Flow Coverage: Dividend capacity from subsidiaries divided by interest expense and preferred dividends (3 year average)

Financial leverage measures the amount of a company's capital base that is financed through borrowed money, typically short and long-term debt and hybrid capital securities, which can be issued at the level of an operating company or a holding company. Leverage may also be adjusted by considering considers all forms of debt including off-balance sheet liabilities. Further, shareholders' equity in the adjusted financial leverage calculation includes other comprehensive income as we believe reported equity and the impact of changes in other comprehensive income, primarily from changes in value of investment securities, impact the markets' perception of insurers' ability to access capital markets at attractive funding costs.

Consideration is also given to leverage metrics calculated using shareholders' equity without other comprehensive income, especially during periods of volatile interest rate changes or where assets are reported at fair value but liabilities are reported at book value. In general, higher-rated insurers tend to have lower levels of financial leverage than their lower-rated peers.

Other considerations incorporated into our opinions about financial leverage include a company's double leverage (i.e. investments in subsidiaries is funded by parent company debt or a stacked ownership structure), historic trends, management's target level for leverage relative to current position, and maturity profile, as well as the complexity of the capital structure itself. The debt capacity of an insurer is also implied by its earnings capacity and dividend capacity relative to interest expense and preferred dividends. We note that higher-rated insurers tend to have better earnings and cash flow coverage metrics than lower-rated companies.

The earnings coverage ratio considers consolidated earnings (pre-tax, pre-interest expense and preferred dividend coverage of consolidated interest expense and preferred dividends). The focus is on coverage of interest expense and preferred dividends although the numerator and denominator may also be adjusted for pensions and leases. Because there can be regulatory restrictions on dividend capacity from an operating company to its holding company, the earnings coverage ratio must be evaluated in the context of the insurer's actual flexibility in terms of cash available to be sent up to the holding company.

The cash flow coverage ratio relates the recurring sources of cash to the company to its uses of cash. For cash sources, we include the maximum allowable dividend (unrestricted) from regulated subsidiaries, if any subject to the condition that capital adequacy is maintained at the operating company. For cash uses, we include interest expense and any preferred dividends.

When analyzing the coverage ratios, we generally consider any differences that may exist between interest expense and the cash payments associated with interest. We also assess the interrelationship between cash flow coverage and earnings coverage by considering the relative levels of dividend capacity compared to earning capacity.

Analysts also consider the company's liquidity, measuring the extent to which financial debt obligations, covering near-term debt maturities, interest expense and preferred and common stock dividends, are covered by readily realizable assets (i.e., cash, treasury bonds, investment-grade bonds, and all publicly-traded equities).

CRA also recognizes that it is important for a company to maintain capital market confidence because it is frequently observed that ready-access to the capital markets is necessary for many insurers in the case of needing to raise capital after a severe unexpected event, to fund an acquisition, or simply to expand internal growth plans. As a result, we assess access to the capital markets - which can be limited by ***outsized*** financial leverage or poor coverage - as important given the inherent volatility of the business. We also consider stock exchange listing and favourable credit rating or other indications of financial strength credit positive.

In addition, standby arrangements such as back-up lending facilities, letters of credit arrangements and the conservatism of covenants, if any, embedded in borrowing arrangements are also evaluated and considered credit positive where strong back-up facilities exist with limited restrictive covenants and therefore enhance financial flexibility for a company, particularly in times of stress.

The final criteria when assessing financial flexibility is the country in which a company is domiciled. We believe that the ability to raise debt and equity as governed by the scale and sophistication of a country's capital markets is an important adjunct to the level of debt and its debt servicing capability. As a result, all of our financial flexibility scores, subject to analyst adjustment, are capped by the local currency bond rating of the country in which it operates. This cap applies as well to the local subsidiaries of foreign insurance groups, even if the foreign insurance group has strong financial flexibility.

Sub-Factor 8: Liquidity and Assets/Liability Management

Key Factor 3: Operating Environment

Our credit ratings focus predominantly on company-specific characteristics and on business and financial parameters in the context of an insurer's operations within its industry sector. However, an important component of our analysis is the extent to which external conditions, which we call the Operating Environment, can exert a meaningful influence on insurers' credit profiles. The analysis of the Operating Environment serves to capture relevant economic, social, judicial, institutional and general business conditions in a particular country as regards the sector. Furthermore, country-specific trends and developments can over time have as much of a bearing on insurers' long- term viability and the intrinsic strength of their own operations. Considerations can include such matters as the trajectory of economic development, major social or political developments, and the degree of utilization, recognition and acceptance of insurance as a legitimate vehicle for asset accumulation and wealth-protection.

Relevant Metrics: The Operating Environment incorporates scores for multiple factors in two categories (a) Insurance Systemic Risk and (b) Insurance Market Development based on the country in which an insurer operates.

(a) Insurance Systemic Risk

(a) 1 Economic Strength: This factor addresses the strength of a country's economic structure and considers measures such as GDP per capita, GDP growth and volatility, diversification/size, and long-term trends. The range of possible factor scores is as follows: Very High, High, Moderate, Low and Very Low. Each factor score can include a + or – modifier.

(a)2 Institutional Strength: This factor addresses the robustness of a country's institutions and the predictability of its policies and considers matters such as the rule of law, governance, inflation performance and transparency. The range of possible factor scores is as follows: Very High, High, Moderate, Low and Very Low. Each factor score can include a + or – modifier.

(a)3 Susceptibility to Event Risk:

This factor addresses the risk of a direct and sudden threat to a country's credit profile and considers exposures to financial, environmental, economic and political stress. The range of possible factor scores is as follows: Very High, High, Moderate, Low and Very Low. Each factor score can include a + or – modifier.

(b) Insurance Market Development:

The two sub factors considered under Insurance Market Development are (a) Insurance Penetration and (b) Insurance Density.

(b)1 Insurance penetration –This addresses the significance of a country's insurance market in the national economy.Insurance Penetration is measured as Total (life and non-life) industry-wide insurance premiums (excluding cross- border business) as a percentage (%) of GDP.

(b)2 Insurance Density (percentile-rank): This addresses the extent of utilization of insurance protection in a given country. Percentile-rank, worldwide, of total (life and non-life) industry- wide insurance premiums (excluding cross-border business) per capita.

Interpreting the Operating Environment Metrics:

In CRA's view, the better the operating environment, the less it impinges on the intrinsic strength of an insurer's or any business 'credit profile. To the extent the operating environment is deemed to be more favourable than the insurer's own intrinsic credit profile, it is not a material consideration in the rating analysis. Furthermore, operating environments at the A or better rating levels are considered to be sufficiently strong so as to be neutral with respect to insurers' credit profiles, and are therefore not considered. Consequently, operating environments have only a neutral-to-negative impact on our ratings for insurers. Additionally, CRA believes that the weaker the operating environment is the greater influence it has on an insurer's overall credit profile, as the structural strength of the insurance industry and contractual agreements increasingly come into question.

Insurance Systemic Risk Economic Strength – The intrinsic strength of an economy – focusing on growth potential, diversification, competitiveness, wealth and scale – is important in determining a country's resilience or shock-absorption capacity. The capacity of the sovereign to generate revenue and service debt over the medium term relies on fostering economic growth and prosperity.

Institutional Strength –Whether a country's institutional features are conducive to supporting a country's ability and willingness to repay its debt is also a critical factor to assessing a sovereign's credit profile. A related aspect of Institutional Strength is the capacity of the government to conduct sound economic policies that foster economic growth and prosperity.

Susceptibility to Event Risk – Susceptibility to event risk considers the risk that sudden events may severely strain public finances. The four focus areas of event risk are political risk, government liquidity risk, banking sector risk and external vulnerability risk. We believe such events could pose a "direct and immediate threat" with possibly significant negative implications for important financial institutions such as insurance companies.

Insurance Market Development – Insurance markets around the world vary significantly in their degree of development with respect to range of product offerings, utilization, and the significance of insurance as a means of risk mitigation and asset protection. Whereas *Insurance Penetration* measures the importance of the insurance industry relative to the overall national economy, *Insurance Density* measures its importance relative to the population base of a country, thereby providing a helpful demographic perspective. Taken

together, these two measures offer a more balanced perspective than either one taken in isolation. Broadly speaking, and all other things being equal, the higher the penetration and density levels, the more highly developed the insurance market, including the scope of coverages provided, and the greater the perceived utility of the product. We also note that the particularities of different countries' insurance market structure and insurance accounting can significantly influence their penetration and density levels.

Calculating the Operating Environment Score

The Operating Environment score is derived by the combination of separate scores for Insurance Systemic Risk and Insurance Market Development.

The Insurance Systemic Risk indicator is comprised of three sub-factors – Economic Strength, Institutional Strength, and Susceptibility to Event Risk – which we accord relative weights of 25%, 50% and 25%, respectively. Each of these indicators is expressed in one of 5 categories, as published by CRA Sovereign Ratings Group: Very High, High, Moderate, Low, and Very Low. Sovereign indicators for Economic Strength and Institutional Strength are linearly mapped to a numerical scale from very high + (2) to very low - (-2). Susceptibility to Event Risk is similarly mapped to a numerical scale from very low - (2) to very high + (-2).

After applying the above-mentioned relative sub-factor weighting for Insurance Systemic Risk, we map the result to our global rating scale as specified in the table below.

The Insurance Market Development factor is derived by a simple averaging of separate indicators for Insurance Penetration (total premiums – life and non-life – as a percentage of GDP) and Insurance Density (total premiums – life and non-life – per capita). Insurance Market Penetration is mapped to the rating scale directly as indicated in the table below. Insurance Density is determined by country, and then measured on a worldwide percentile-rank basis, with premiums denominated in US$.

The Insurance Market Development factor is calculated using 3 year averages. These results are then mapped to our rating scale as specified in the table below.

Rating modifiers (1, 2, 3) for rating ranges from Aa-Caa are determined by interpolating the numerical result to the upper, middle and lower tercile of each factor range as indicated in the following table.

Having calculated the Insurance Systemic Risk and Insurance Market Development indicators, and mapping each to our rating scale, these two factors are, in turn mapped to the Aaa-Caa3 (1-19) numerical scale shown in Appendix 1. The final Operating Environment score is then determined by averaging these numerical scores with a 2/3 weight for Insurance Systemic Risk and a 1/3 weight for Insurance Market Development, and then mapping the result (rounded to the nearest whole number) to the Aaa-Caa3 (1-19) table.

Absent extraordinary systemic (e.g. economic, social, institutional, political, and judicial) or market development considerations that may not be adequately reflected in these metrics, CRA generally expects to apply the Operating Environment factor result without further modification.

Other Considerations in Determining Stand-Alone Credit Profile

Management, Governance, Risk Management, and Special Rating Situations

The evaluation of management, governance, and risk management processes is part of CRA's credit profile assessment. However, we believe management, governance, and risk management rarely move the financial strength rating derived from the key factors discussed above, although in some limited instance further assessment of management, governance, or risk management or a special situation is necessary and is typically a NEGATIVE adjustment to the overall credit assessment.

CRA also evaluates management characteristics as management quality can significantly influence corporate success or failure. We assess management's credibility, experience, and reliability. Management's ability to develop a strategic vision and its ability to execute that vision are critical factors for a company's success in a competitive industry where the status quo is changing rapidly. A review of the insurer's strategy includes the firm's long-term vision, risk-return appetite, attitude towards financial and operating leverage, strategies and timing for raising capital, and view of shareholder value creation. Growth strategies – whether externally driven in the form of acquisitions/divestitures, joint ventures/strategic alliances, as well as internal growth strategies - can also impact its risk profile.

The overall risk culture that management has built will strongly affect the company's tolerance and appetite for and management of risk and leverage. As a result, management's strength, its discipline in financial planning and risk management, and its ability to execute are vital elements in our evaluation of credit risk.

Assessing management quality involves examining the experience, track record, and success of management, demonstrated by its ability to sustain a company's franchise, earnings, and capital position, by the absence of recurring material "one-time" financial events, by the avoidance of frequent changes in strategy, and by the organization's financial and business flexibility.

We consider management depth as well as financial track record in such areas as reserves, investments, profitability, and risk management. Management's strategy, as measured by overall growth or new business development, also plays an important role in our opinion of an insurer's credit profile. Throughout the rating process, CRA forms an opinion of a management team's likely response to challenges in the firm's economic, competitive and regulatory environment given their goals and motivations.

Corporate Governance

Corporate governance as promoted by the board of directors, as the natural counterpart to management, is important for the financial health and credit profile of the company. Depth of corporate governance is evaluated by the corporate board's independence, expertise, and involvement, as well as its ability to align governance practices with proper oversight of the management team and corporate strategy. Independent review of the key financial reporting and risk management processes is important, as is oversight of compliance and regulatory issues. The board plays a central role in ensuring management sets the appropriate ethical tone within the company. Compensation strategy and the board's oversight of compensation practices are also considered for their potential impact on management's motivations. Plans that reward management and employees for building long-term value in the company tend to be viewed positively from a credit perspective.

CRA also contemplates the interests, intentions, motivations, track-record, and resources of large shareholders in order to anticipate how they may be expected to behave and respond with regards to their investment, both in the normal course of events and in times of stress. The often conflicting interests of shareholders and policyholders are also taken into account when considering an insurer's governance, in terms of how the board and management team balances these demands.

In this regard, CRA believes that there is a natural and effective alignment between the interests of managers and directors with policyholders and creditors at a mutual insurer, compared to a public- stock company, where shareholders can pressure the managers for payouts and shorter-term results. However, drawbacks associated with the mutual structure often include less management accountability and transparency. The latter concern becomes significant when a mutual has adopted an aggressive strategy that is more characteristic of a stock company.

Risk Management Assessment of risk management begins with analysis of risk appetite, particularly internal risk tolerance limits. Management's and the board's ability to identify, monitor, manage, and mitigate its risks goes to the heart of a company's success in minimizing unexpected events and volatility and in protecting the interests of its policyholders and other stakeholders. Taking risks, whether in underwriting, investments, sales practices, acquisitions, or other areas, is a necessary activity for an insurance company.

However, it is vitally important that both business line and executive management (and the board of directors) understand the risks assumed and engage in active measures to manage those risks in order for the company to maintain its financial performance and flexibility, reputation, market position, and confidence within the capital markets. The risk management discipline at an insurer is an essential part of its overall governance and management.

Special Rating Situations

In a few, very special – and typically adverse – situations, a single rating factor or sub-factor may be so important to a company's financial health and solvency, that it overrides all of the others, despite its nominal weighting in the scorecard. This would typically occur in highly adverse situations, where a company's solvency or liquidity is at stake. Examples of this would include the breach of local capital- solvency or risk-based capital thresholds that precede regulatory intervention, or concerns of a looming liquidity crisis – e.g. a material holding company debt maturity with highly uncertain source of repayment. If a rated entity has cliff-like rating triggers, its susceptibility to events may be exacerbated and must be considered in the analysis. For this reason, analysts monitor - and stress – critical solvency ratios and liquidity needs on an on-going basis, to identify – and factor into the scorecard – any potentially severe pressure points.

CRA has a general presumption that management is competent and governance and risk management protocol and procedures are appropriately designed and working. Generally, we meet regularly with members of management, and at times board members, in order to test this working assumption. In the area of risk management, CRA considers catastrophe risk management - both natural and man-made - to be the most significant and volatile risk to capital over the short term. Our analysis assesses a company's risk appetite and its ability to monitor and manage its risk exposures and also considers its reliance on reinsurance as a risk management tool. We evaluate catastrophe risk, both gross and net, relative to earnings and capitalization. We incorporate the views of the company's third-party vendor models, internal surveys, relative market share analysis, and stress case scenarios.

Special Rating Situations deal with information that is not necessarily captured by point-in-time ratios, or annual / quarterly regulatory or reporting requirements.

Accounting Policy & Disclosure

Relevant and timely financial information is a critical part of any financial analysis. Many insurers prepare financial information under generally accepted accounting principles either developed by their home country or based on international standards. Financial information is also generally prepared on a regulatory basis of accounting which may differ from generally accepted accounting principles. The presence of a strong government/independent body for financial standards is considered a positive factor when evaluating an accounting regime. Disclosure of financial information varies widely on a global basis and within regions. In certain locations, regulatory bodies provide access to financial information, although the depth of that information also varies. Some companies have chosen to provide easy access to their own financial data which CRA view favourably.

The consistent application of financial information is a fundamental presumption of financial analysis. When evaluating accounting principles, we consider how well financial reporting mirrors economic reality. Where we believe the economics of a transaction are not consistent with financial reporting, we make analytic adjustments to financial statement derived metrics to facilitate our analysis.

How Sovereign Credit Quality May Affect Insurance Financial Strength Rating

Deterioration in sovereign credit quality can directly affect the credit standing of insurers domiciled within the sovereign, and, more generally, tends to be associated with macroeconomic and financial market trends that are unfavourable for all. All issuers in the same sovereign environment are exposed to some degree to the transmission of shocks across sectors in the economy and the domestic banking system. In addition, they are subject to defensive sovereign actions that can include austerity measures, changes in tax or regulatory policies, and interference during a crisis.

Given this linkage, sovereign credit quality can place a ceiling on the insurance financial strength rating of an insurer. When assessing the level of correlation to sovereign credit quality, we typically consider the insurer's geographic diversification, direct exposure to government debt and product characteristics. Those insurers with high geographic diversification, low direct exposure to government debt and product characteristic less sensitive to sovereign risks can have an IFS rating above the sovereign rating, but generally no more than two notches above.

Moving From Stand-Alone Credit Profile to Published Insurance Financial Strength Rating - Evaluating Support

While the above factors are critical in order to determine the stand-alone credit profile of insurers, the analytic consideration of support - explicit or implicit - from a parent company or affiliate is necessary to determine the published rating, which can be higher than the company's stand-alone credit profile. It is important to note, however, that a well-capitalized, profitable insurance operating company with a highly leveraged parent or a weak affiliate will often have a lower IFS rating than it would have were it a free-standing company because of the pressure those factors can place on its earnings and capital.

Support from a Parent Company or Affiliate

The credit rating of an insurer can ultimately be affected by its relationship to its parent, to a subsidiary, or to affiliate companies through either explicit or implicit support. Support, once determined, is then generally "added to" the rating by narrowing the spread (expressed in number of rating "notches") between the stand-alone credit profile of the entity/security and the rating of the entity providing the support.

Ultimately, the extent to which the affiliation benefits the rating is a matter of judgment, not convention, owing to the large number of variables that must be considered, including the supporting company's level of commitment to the country / region of the affiliate, brand name sharing, our assessment of how important this entity is to the overall enterprise business model, its size relative to the whole, its geographic proximity to the supporting entity, existence of shared regulatory oversight, full or partial ownership, and its integration with the rest of the organization from a management, distribution, and operating perspective, as well as our view of the company's ability and willingness to support that entity.

Support is evaluated incorporating past actions of the provider of support, current public statements of support and our assessment of the outlook for future support.

In all cases, CRA judgment about how the prospective supporting entity is likely to behave in the future is strongly influenced by our assessment of its prospective economic motivations. Accordingly, strong public statements of support would not be persuasive in raising the rating of a weaker subsidiary if a sound economic rationale for doing so seems lacking. Although support may provide ‘uplift’ to a company’s rating, it may not necessarily raise it to the same level or above as that of the supporting entity.

While, in most instances, support is incrementally positive, there are instances where group affiliation may constrain the public rating of an entity/security relative to its stand-alone level. For example, if the insurer is affiliated with weak or highly-leveraged entities, such associations usually, in turn, weaken the insurer. History has shown that capital often flows from stronger to weaker companies within a controlled group, and frequently before regulatory action can occur.

Explicit support is usually intended to transfer the credit of the supporting entity to the supported affiliate or obligation. Explicit support is generally in the form of a capital maintenance agreement, minimum net worth agreement, or some type of direct guarantee. It can also take the form of management contracts, marketing arrangements, reinsurance agreements, or tax-sharing agreements.

In analyzing explicit support, we examine the specific legal nature and enforceability of the support, as well as its possible termination. Explicit support, properly structured, can achieve credit transference and bring the affiliate’s rating up to that of the supporting entity. However, it is also necessary to make an assessment as to whether the extension of this support (as well as with implicit support) will weaken the credit profile of the parent or affiliate and result in a downgrade of the supporting entity.

In practice, the IFS rating typically will receive one or two notches of uplift from the stand-alone credit profile. Although rare, three or more notches of uplift are possible although typically only when strong explicit support is provided. In addition, uplift whereby the supported entity’s rating is equal to the supporter’s rating is rare without meaningful explicit support. CRA believes these practices are appropriate, even where the company’s management contends the subsidiary is “core” to its ongoing strategy and operation, primarily due to the risk that the supporter changes its strategy or the supporter’s regulator may constrain support in times of stress, particularly if support is to be provided outside of their own jurisdiction.

Factoring in Support from Other-Than-Related Entities

Insurance companies may receive financial support from unrelated parties. For example the support may be provided by the authorities. However, CRA does not believe government support to the industry to be sufficiently reliable or predictable to be widely incorporated into our insurance ratings. In the limited cases where such support is received, we will consider

its credit implications on a case-by-case basis. If we believe government support is long-term in nature, or, if the insurer were directly owned by the government, CRA may also apply the rating methodology for Government-Related Institutions when evaluating the credit profile of the insurer.

Finally, if the insurer is part of a bancassurance group, and there is clear evidence that failure of the insurer will have negative implications on the creditworthiness of banking operations, the likelihood of support by the government may increase. However, we expect such support to be rarely applied and focused on limiting any damage to the bank franchise.