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Quantitative Capital Requirement for Life Insurers Under C-ROSS

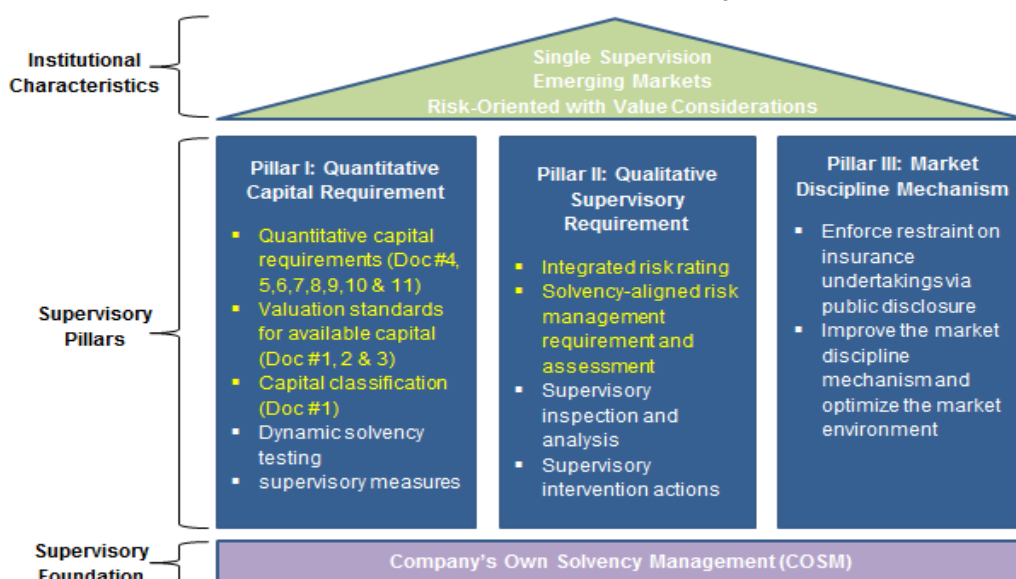


On 25 July 2014, the China Insurance Regulatory Commission (CIRC) released a set of consultation papers on quantitative capital requirement for life insurers under the China Risk Oriented Solvency System (C-ROSS). Life insurers were requested to conduct quantitative tests and submit the results by 11 August 2014.

This version of consultation papers for life business contains 13 documents, covering available capital, minimum capital requirements for insurance risk, market risk and credit risk, risk correlation matrix, and loss absorbing ability for participating and universal life (UL) business. The Pillar I capital requirements for insurance, market and credit risk are quantified using a prescribed method and aggregated together, allowing for diversification effects.

The consultation papers are listed in Chart I, where documents released so far are highlighted.

Chart I: Pillars of C-ROSS with Consultation Papers Released



Insurers are required to test their solvency adequacy ratio under three proposed approaches, with various combinations, which are summarised in Table I.

Table I Summary of Test Proposals

Proposals	Admitted Asset	Best Estimate Reserve	Risk Margin	Interest Risk
1	Scenario 1 in Document 2	Scenario 1 of discount rate in Document 3	Method 2 of risk margin in Document 3	Method 1 in Document 4
2	Scenario 2 in Document 2	Scenario 2 of discount rate in Document 3	Method 1 of risk margin in Document 3	Method 2 in Document 4
3	Scenario 1 in Document 2	Scenario 3 of discount rate in Document 3	Method 2 of risk margin in Document 3	Method 3 in Document 4

Background

Currently, CIRC adopts a factor-based solvency system similar to Europe's Solvency I regime, which does not explicitly link solvency capital with insurers' specific risks. For long-term life insurance, the required capital is the sum of statutory reserve and net amount at risk, multiplied with certain factors separately. The reserve factor is 1% for unit reserve of unit-linked business and 4% for other reserves. For short-term life insurance, the required capital is the maximum of a percentage of net written premiums and a percentage of the three-year average claim amount. The factors on net written premium are 18% on amounts under RMB 100 million and 16% on amounts above RMB 100 million.

This system generally worked well in the early stage of China's life insurance market. However, with subsequent growth of the market and increasing complexity, the current regime falls short in reflecting the actual risks being undertaken by insurers. C-ROSS represents a move forward into a risk-based capital regime.

Summary of Consultation Papers

Document 1: Available capital. This equals admitted asset minus admitted liability.

Document 2: Asset valuation. This is the same as China GAAP accounting value basis in Scenario 1. For Scenario 2, market value principles are used. Market values are calculated for assets categorised as held-to-maturity, which differ from amortised cost basis under China GAAP.

Document 3: Liability valuation. Life insurance liabilities include policyholder reserve and outstanding claims reserve. Outstanding claims reserve follows the accounting basis. Policyholder reserve combines *best estimate reserve (BER)* and *risk margin*.

Best estimate reserve is based on the present value of future estimated cash flows. Time value of options and guarantees (TVOG) is calculated explicitly as part of BER. Insurers can use their own experience or industry experience in estimating cash flows under generally accepted actuarial principles and relevant regulatory requirements. The consultation paper prescribes the test plans with regards to cash flows, discount rate, expenses, lapse, incidence rates, dividend scale, UL crediting rate, and time value of options and guarantees. For discount rates, four scenarios are prescribed as set out in Table II, although Scenario 4 is not in the scope for the current test.

Table II Scenarios of Discount Rate

Scenarios	Discount Rate
1	4.5% for participating, universal and unit-linked business; and 3.5% for others
2	Government bond yield curve with risk margin at the valuation date (31 Dec 2013)
3	Same as scenario 2, but 750-day moving average yield curve is used (i.e., China GAAP rule for traditional business).
4	Replicating portfolio approach

Under Scenario 2 and Scenario 3, a set of "realistic" interest rates and a set of "low" interest rates are to be tested.

There are two methods for the determination of risk margin:

- i) Cost of capital method. Under this method, the risk margin is the present value of future costs of carrying the minimum required capital. The rate of capital cost is set as 6%. The simplifications that insurers can use within testing include:
 - a. The BER is used as the amortisation basis for future required capital and TVOG can be ignored in the BER.
 - b. Minimum required capital can include capital for insurance risk only.
- ii) Scenario comparison method. Risk margin is the difference between BER under adverse scenario and the BER under the best estimate scenario.

Document 4: Minimum capital requirement for interest rate risk. A scenario comparison method is used. Capital required is the comparison of difference between admitted asset and BER under the adverse scenario and the best estimate scenario. Three methods required to test are set out in Table III:

Table III Methods for Calculating Capital Requirement for Interest Rate Risk

Method	Admitted Asset		Best Estimate Reserve	
	Base	Adverse	Base	Adverse
1	China GAAP basis	Revalue fixed income asset categorised as trading or AFS with risk-free rate shocked. No value change for other assets. Assume no change of credit spread and shock risk-free rate as prescribed.	Scenario 1 of discount rate in Document 3 (i.e., fixed rate)	Scenario 1 of discount rate in Document 3 with shocks

Method	Admitted Asset		Best Estimate Reserve	
	Base	Adverse	Base	Adverse
2	Market value	Market value change is applied to all fixed income assets with risk-free rate shocked. Assume no change of interest spread and shock risk-free rate as prescribed.	Scenario 2 of discount rate in Document 3 (i.e., risk free rate plus spread)	Scenario 2 of discount rate in Document 3 with shocks
3	Same as method 1	Same as method 1	Scenario 3 of discount rate in Document 3 (i.e., China GAAP approach)	Scenario 3 of discount rate in Document 3 with shocks

Under each adverse scenario, upward and downward shocks are provided. Interest rate shocks are applied to both asset and BER. The required capital is the change in admitted asset minus BER between the base and adverse scenarios.

Chart II shows the type of risks considered in the Pillar I calculations.

Document 5: Minimum capital requirement for market risk. Market risk contains interest rate risk, equity risk, real estate risk, overseas asset risk, and currency risk. The method is prescribed factor approach, which is same as the approach for property and casualty (P&C) business.

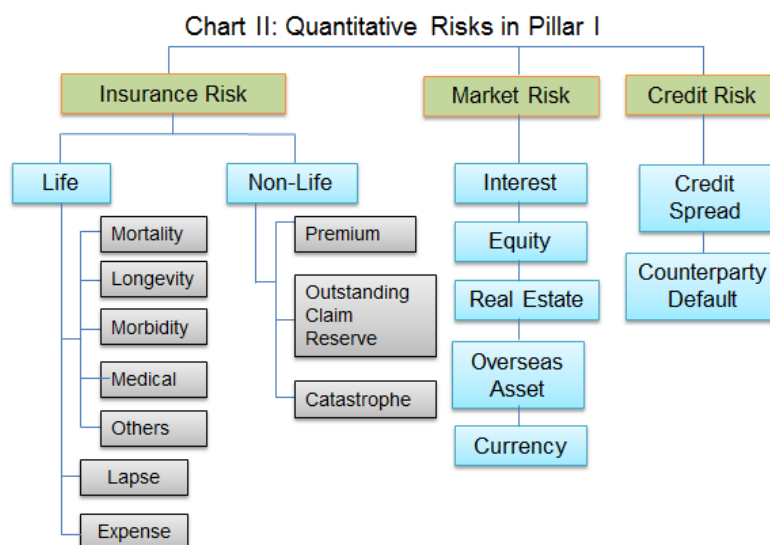
Document 6: Minimum capital requirement for credit risk. This includes credit spread risk and counterparty default risk. The method is prescribed factor approach, which is same as the approach for P&C business.

Document 7: Minimum capital requirement for insurance risk (short-term accident and health). This is applicable for non-life business written by life insurers, which is mainly short-term accident and health business. The capital requirement covers premium risk and outstanding claims reserve risk. The method adopted is a prescribed factor approach, which is the same as the one used for P&C business.

Document 8: Minimum capital requirement for insurance risks (life business). Insurance risks of life business measure the loss caused by adverse deviation between assumptions and actual experience. A scenario comparison method is used. The capital requirement is the change of BER between the adverse scenario and the base scenario. The assumptions under the adverse scenario are defined as the assumptions under the base scenario multiplied by certain shock factors. There are additional assumptions for certain specific cases (i.e., catastrophe and mass lapse). The document includes detailed methods for incidence rate risks (mortality, catastrophe, longevity, morbidity, medical and health loss ratio), lapse risks (assumption deviation and mass lapse cases), and expense risk. For lapses, a product level test is required to decide whether a lapse rate increase or decrease should be determined as the adverse scenario. Diversification is applied not only between incidence rate risk, lapse risk and expense risk, but also between sub risks within incidence rate risks and lapse risks.

Document 9 and Document 10: Minimum quantitative capital requirement and risk correlation matrix. A correlation matrix between life insurance risk, non-life insurance risk, market risk and credit risk is provided to calculate the total quantitative capital requirement.

Document 11: Loss-absorbing ability of participating and UL business. When unexpected losses happen, insurers can adjust non-guaranteed benefit cash flows for participating and UL business based on management actions to absorb all or partial losses, which reduces the capital requirement. The loss-absorbing adjustment amount is the difference between the minimum capital requirement before and after loss-absorbing impact considerations. The loss-absorbing adjustment is capped by a regulatory limit, which is defined as the difference in the BER under the base scenario and the adverse scenario. Under the adverse scenario, the dividend and crediting rate floored at the level defined by the regulator. To simplify the calculations for this testing, insurers can measure the loss-absorbing impact only due to market risk and credit risk, or to further simplify, due to some particular market risk



or credit risk only (e.g., only equity risk) where the insurers anticipate the major source of capital requirement come from. Insurers are free to use other simplified methods or can choose to ignore loss-absorbing impact altogether in the current test.

Document 12 and Document 13: Report templates for test results and questionnaire.

Observations and Impacts

There are still many uncertainties both in terms of valuation bases and shock parameters, as this is the first industry-wide field test conducted for life business.

The business impact for insurers is likely to be far reaching. It is expected that the new rules with increase capital requirements at an industry level, although the impact will be different between individual insurers, depending on the product mix and asset mix of the company. In addition, the impact on different product lines will vary, although in general we may expect savings-oriented products may become more capital intensive whilst protection-oriented products may obtain some capital relief.

Although it is too early to make definitive conclusions, changes in various aspects of the life insurance industry are to be expected.

- Volatility in solvency ratio. Mainly due to market risk and interest rate risk, solvency ratios will be difficult to predict and manage since both sides of the balance sheet are subject to market forces. Skills in investment strategy and asset liability management will need to be greatly enhanced. The need for hedging or reinsurance solutions will increase while the market for financial derivatives is still in its infancy. Companies will need to better establish their risk appetite frameworks and set sufficient buffers in their capital management for adverse scenarios to protect their solvency ratios, as companies in Europe are doing in preparation for Solvency II. Many insurers will need to make significant investments in enhancing these capabilities.
- On the products front, given the lack of long term fixed income assets in China, the asset/liability mismatch should make traditional savings products capital intensive. We may expect a shift in strategy toward more protection and unit-linked products, although this may be challenging in practice. We expect greater focus on rationalisation between product lines for capital efficiency. C-ROSS should give companies more incentive for product innovation.
- Insurers will also need to improve their modelling tools to meet the demands of C-ROSS. Capital planning, embedded value (EV) calculation, and business planning will require the projection of the new capital standard, which will be challenging for many companies given their existing platforms. For example, assets will need to be explicitly modelled, which is not common currently. Companies will also need to increase their efforts to either train or acquire technicians with suitable expertise for such tasks.
- It is difficult to estimate the impact on EV and value of new business (VNB) at this stage. There are competing forces at work here. On one hand, the statutory (or solvency) reserves may reduce, which should results in an acceleration of statutory profits. On the other hand, capital requirements may increase, leading to higher cost of capital. The precise impact on EV and VNB will depend upon the company's product and asset portfolios.
- With respect to reinsurance, the domestics (e.g., China Re) will have a capital advantage under the proposed C-ROSS regime because of significantly higher risk charge factors imposed on offshore reinsurers. The capital advantage currently enjoyed by international reinsurers with affiliates in China will be eliminated under the new regime, perhaps resulting in these reinsurers having to increase onshore capital. In the past, international reinsurers with affiliates in China were able to meet the local solvency requirements using the solvency ratios of their parents.
- The change in the capital requirements combined with increased volatility in solvency adequacy ratio and modified profitability profiles is one of the major challenges in moving to a risk based capital regime. Senior management must understand and integrate these new hurdles in the daily management of the business.
- C-ROSS may also drive industry consolidation as it could materially change the risk and reward equation for some owners of the insurance companies. Companies may also divest capital-intensive blocks of business as they seek capital optimisation.

Conclusion

The release of the quantitative capital requirement consultation papers for life insurers is the first industry-wide quantitative impact study. A great deal of debate and discussion is expected. With a fair amount of uncertainty on the quantification of asset, liability and capital requirements, the final rules are unlikely to be published before several rounds of tests are completed. In the end, we expect the new capital regime will bring about far reaching changes to the life insurance industry in China.

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