Report of IRDAI Committee on Risk Based Capital (RBC) Approach and Market Consistent Valuation of Liabilities (MCVL) of Indian Insurance Business

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Part II

On RBC Approach

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IRDAI Committee of RBC Approach and MCVL

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Contents:

Section I

Gist of IRDAI office order dated 10 June 2016 on RBC Approach

1) To study the Pros and Cons of current Solvency Regime and RBC Regime in the Insurance Sector (Life, Non-life, standalone Health and Reinsurance)

2) To review the recommendations of the committee on RBC under the chairmanship of Mr. P A Balasubramanian (dated 22 April 2014)

3) To recommend a suitable Approach in the current Indian Context. The recommended Approach should at least cover the following outputs:

* Recommend Broad Time Frame for Completion of entire exercise under the recommended approach.

* Recommendation on whether IRDAI will require help of Professional Actuarial Consultants on Paid Basis during the exercise. If yes, what should be the terms of reference for the Consultants.

Section 2: Introduction and Background: Part 2

1. IRDAI office order dated 10th June 2016 asks our committee to study pros and cons of Current Solvency Regime and the Risk Based Capital Regime (RBC) and recommend an approach in the current Indian context. Our task is therefore not only a theoretical comparison of the two approaches, our actual recommendation is to take into account the current Indian context.

2. In developed countries like Western Europe, UK USA, Canada, Australia or Japan, the Insurance companies are all in Private Sector (with no government ownership). Till a few decades back, Life Insurance industry was dominated by Mutual Companies. Now the mutual companies have mostly disappeared; almost all are limited liability shareholder companies. Obviously the Prudential Regulation regime in these countries is focused on such ownership structure. Same is the case even in many Asia-Pacific countries like Singapore, Hong Kong etc.

3. 3(a). However, the picture is different in India. Almost 15 years after introduction of private sector promoter-run insurance companies (almost all Joint Ventures with foreign companies), Insurance industry is still dominated by government owned public sector companies. These public sector companies have long established diverse range of business. LIC was created by an Act of Parliament and is a "too big to fail" systemic Risk for Indian Financial system. But it is owned by Government of India and is likely to remain so in foreseeable future. In view of this, does it need prudential regulation in the form of solvency margin and RBC? It has very little foreign business and almost none (except a tiny branch in UK) in western countries. Four public sector non-life companies, limited liability companies and with some foreign operation, probably require prudential solvency regulation, though it is hardly imaginable that the Government of India will allow any of these companies to go bankrupt and jeopardize policyholders' security. GIC – govt. owned Reinsurance company falls under the same category but it has more exposure in the International Reinsurance market. There are talks of the Government disinvesting some of the shares of Public Sector GI companies. If this happens, these companies will certainly require prudential regulation identical to those of private sector companies.

   3(b). There are hardly any Insurance Groups, though many insurance companies are part of wider financial or other conglomerates – mainly due to Regulatory restrictions. Some Insurance Companies are having majority shareholding by Banks – including Public Sector Banks. Our committee has not dealt with Financial Conglomerate supervision of Insurance companies.

3(c). Our committee has refrained from dealing with Solvency requirements of Systematically Important Insurers (SII). LICI is clearly a SII; so possibly is GIC and New India Assurance Co. Ltd. We are aware that IRDAI is participating in RBI's International Supervisory Colleges for Banks designated as Domestic systematically important Banks (SBI and ICICI), both of which have Insurance companies in the group.

4. Quantitative Aspects of RBC Solvency Regime will pose complex issues of Risk identification and quantification for long-established public sector companies. IRDAI should keep special circumstance of public sector insurers in view while framing RBC regulations based on "one size fits all" standard models. Qualitative Aspects like Corporate Governance will also pose challenges. The government nominated Boards of these public sector companies, in reality do not function in the way private sector company Boards do. Important Cultural changes will be necessary to make those public sector Insurance company Boards to fall in line with Solvency II type Corporate Governance framework.

5. Insurance Act, 1938, prior to IRDAI Act did not stipulate any specific solvency regulation. However, the Act required the assets to be more than the liability and other restrictions, such as, certain assets were disallowed, periodical valuation of liabilities etc. Same was the position in pre-nationalization days – prior to 1956 for Life and 1972 for Non-Life Insurance. In fact, most western countries too did not have explicit Solvency Requirements prior to 1970. There were stringent regulations on investment of assets, on expenses, on liability valuations etc. to ensure prudential management of insurance business. Mutual insurers did not hold capital but had Estates (Free Surplus) to back continued operations. Shareholder companies had of course capital like any other company.

6. The Current Regulatory Regime introduced in India by IRDAI from 2000 onwards was based on Solvency I models, with changes to incorporate best practices in countries like Canada, Australia and after considering the circumstances of the Indian Market. We have now 23 life insurance and 25 Non-life insurance companies in private sector including stand-alone health insurance companies. Many of these are now 15-year-old, but others are relatively new. A few have become significant players in the market, but many are still relatively small in size. For private sector companies, distribution is a major challenge. Over reliance on one or two bancassurance partners – particularly the promoter banks – is a major risk that is difficult to quantify. Traditional Agency distribution channel, besides being expensive, has its own risks. Can these be capture adequately by any RBC regime?

7. As the current regulations were introduced only 15 years back and subsequently fine-tuned based on the changing supervisory requirement but

without resulting in significant change. The most important general argument in favour of no change is that the current set of solvency and other prudential regulation have worked. Why try to fix something which is not broken. No amount of solvency capital – risk based or not – could have prevented the sudden and extraordinary collapse of the largest insurance company in the world (AIG) in 2008. And this is unlikely to be the last insurance failure – whether the regime is based on RBC or not. IRDAI cannot afford to give any impression that changes made in anyway dilutes policyholder protection. Will RBC regime enhance the same?

8. 8(a). There seems to be two major arguments in favour of change to RBC solvency regime (like Solvency II). Globally most countries with significant Insurance industry are moving to RBC Regime. Near home, China, Singapore and even UAE and Sri Lanka are moving to RBC regime. India is now a major outlier, in Asia and internationally. Should we not follow the global trend and ditch Solvency I Regime? RBC Approach is thought to be superior and more scientific, International Association of Insurance Supervisor (IAIS) advocates such change to a Global Standard. However, USA – the biggest insurance market in the world – is going against the trend. The second driver of change in the development is International Accounting Standards. International Financial Reporting Standards (IFRS) are driving insurance industry to a set of Market Consistent Valuation Regulation. The Govt. of India intends to move to IFRS as adopted by Ind-AS for insurance industry (please refer to Part I of our Report). RBC Regime fits into a MCV Regime envisaged by IFRS and Ind-AS.

   8(b). IRDAI in recent past significantly strengthened corporate governance and Disclosure Requirements – mostly in line with Solvency II type arrangements. The 2016 Corporate Governance guidelines of IRDAI is a significant step forward towards RBC regime. IRDAI has also been taking a more risk-based approach to regulations and supervision in areas like Intermediary Regulations, Reinsurance Regulations, Panel Actuary System for Actuarial Audit/Valuation etc. All these issues may have to be reviewed and enhanced for implementing a comprehensive RBC regime.

9. In order to capture the mood of the insurance industry in India, our committee requested IRDAI to send two separate Questionnaires to Life and Non-life insurance companies. We have examined the response and factored opinion and suggestions made.

10. Almost all life Insurance companies recommended change over to RBC regime. P A Balasubramanian Committee Report (April 2014) contains recommendations on RBC Solvency Regime for Life Insurance business. The Report did not contain any recommendations on Non-life business RBC Regime. Though our Non-life subcommittee examines RBC approach and give

recommendation (Section 7 of our Report). I will take the liberty of highlighting a few themes that emerge from the response of Non-Life Insurance industry. The rest of my note will deal with Non-Life Insurance only.

11. Majority of Non-life companies recommend shift to RBC regime – some say immediately; others want gradually over a longer period of transition. However, a few companies – new and smaller ones – prefer continuation of current regime with some improvement, at least in near future. Why did some companies found the existing Regime adequate and preferable?

The main reasons in favour of Current Regime, with some improvements are:

- Standardizes and applicable to all Insurers; level playing field for all.
- Simple to calculate, administer and validate
- Objective and not subjective; hence results are comparable across companies in Industry; hard to manipulate (e.g. by companies in solvency difficulty).
- Easier to communicate results to non-technical audience e.g. Board, Auditors
- Has worked so far
- Strong, conservative, based on liability.
- Resource Efficient – relatively quick to calculate and validate without requiring highly skilled scarce resources.
- Easier for Regulators (IRDAI) to assess compliance.
- It is too early to move to RBC. Currently scarce experienced GI actuaries and other specialist resources would be better utilized if they focus on premium rating, Reserving, Capital Management and Risk Management. We do not have enough technical / actuarial resources – within Industry as well as in IRDAI – to efficiently administer RBC regime.
- Valuation of assets: The method of valuation of fixed income security and Real Estate at Cost and Equity at Market Value has lent stability to the Balance Sheet and P&L A/c.
- Valuation of Liability: The present method of claim reserving including IBNR and IBNER, is straight forward as far as Computation is concerned and lends itself to Simple Tests of Adequacy.
- Solvency Calculation: The factor based method of determining Required Solvency Margin (RSM) has helped the industry through the growth phase.
- A few modifications/ improvements on Current Regime (without moving to RBC Regime) were suggested.
- Reinsurance factor (A&B) should be made company specific to reflect actual retention.
- RMS 2 calculation is based on GIC/NIC (average of 3 years) which includes paid claim. This should be based on o/s claims which represents the liability of the company.

- Liability calculations consider average of past 3 years; instead it should be done prospectively – based on current year and next year's projected business plan.

Many of these reasons apply to Life Insurance Sector as well.

12. 12(a). Lack of Actuarial and Technical Expertise in GI industry is a good argument against quick transitions to RBC Regime. An interesting question is: should or could we have 2 regimes for Life and Non-life insurance – RBC based for Life and Current Regime (with some modification) for Non-life? Or at the least two Timelines for implementation of RBC Regime? After deliberations, our committee decided in favour of one single Approach and Timeframe.

12(b). While moving to RBC regime, we must try to preserve many, if not all, of these positive aspects of current Solvency I regime. We must not adopt EU solvency II regime, without proper scrutiny and modification to suit Indian Market conditions.

13. The areas in which current regime is inadequate for Non-life business and also worth mentioning here:

- Too generic and factor based
- Risk management is completely ignored; little incentive to companies to practice better risk management
- Qualitative consideration like good corporate governance are ignored.
- Only based on premium (pricing) and claim (reserving) risks. Liability calculation ignores underlying strength of UPR and PDR.
- Does not distinguish between good line and bad line of business. That is prescribed RSM calculation does not take into account profitability of the line of business.
- With Incurred claim on RSM calculation basis, company keeping adequate or higher (more conservative) reserve is required to keep higher solvency margin. It should be just the other way round.
- Actual Reinsurance and credit worthiness of the reinsurer should be taken into account in solvency calculation.
- Other risks like operational risks are ignored.
- Riskiness of investment portfolio not given due consideration.
- A company writing bigger volume may be able to diversify across LOB which is not considered; portfolio size should be taken into account.
- RSM appears to be excessive for a standalone Health insurance company writing only Retail Health Insurance business.

The expectation is that RBC approach will take care of all these shortcomings.

14. Companies both life and Non-life are currently required by IRDAI to submit Economic Capital (Risk-based Solvency II Type) calculation. Strangely, most

companies do not use EC calculation for any meaningful management purpose. As these calculations are of no use to companies, just because they are not the basis of regulatory solvency? We expected the companies to make use of Risk Assessment of EC for day-to-day running of their business.

15. We asked the Non-life companies to identify the 5 most risky and 5 least risky lines of business. There is a degree of agreement amongst Companies on this question.

Riskiest lines of business identified by the companies with reasons are:

- Motor TP (inadequate premium set by external Authority; uncertainty in claim reporting time and amount, court awards; mandatory interest payout; uncertain long term inflation)
- Group Health Insurance, particularly Govt. Sponsor schemes (inadequate premium, cutthroat competition, fraud, adverse claim expense)
- Crop Insurance, particularly yield based one (inadequate premium, fraud, difficult to assess claim, heavy CAT exposure)
- Aviation (accumulation risk)
- Liability (lack of exposure to determine price in India, lack of business spread, moral hazard, information asymmetry)
- Marine Hull (accumulation risk)
- Health Insurance – Products with premium guarantee (pricing risk) over 3 years' term (including multiyear single premium products) and with portability (anti-selection)
- Fire and Engineering (due to CAT and geographical concentration)

The list of least Risky LOB include:

- Individual PA (Benefit policy; so one level of uncertainty is removed)
- Misc. Retail Package policy (Homogeneous class and hence predictable loss)
- Motor OD (Homogeneous class and hence predictable loss)
- Marine cargo (Homogeneous class and hence predictable loss)
- Fire SME (Homogeneous class and hence predictable loss)
- Retail Health (Individual) (Homogeneous class and hence predictable loss)
- Retail Travel (Homogeneous class and hence predictable loss)

This survey results will be useful for determining Risk based Capital by line of business.

16. The Non-Life Questionnaire gave a list of nine risks, asked companies to rate those by order of riskiness/importance, and to give a weightage (out of 100) for each risk. There is a consensus on top two risks – Reserve Risk and Premium risk which together got 60%-70% weightage. CAT Risks, Market Risks, Credit Risks and Operational Risks were rate similarly and together

had weights of (25% - 30%). Reinsurance Risks, Renewal Risks and Liquidity Risks are not significant (not more than 10% - 12% combined).

Again the survey results will help us to know important risks that affect Non-life insurance business in India.

17. I will conclude by thanking members of our Committee and two Sub-Committees for sparing their time and energy voluntarily in spite of heavy pressure of their day jobs. I hope our Report will help to provide IRDAI necessary input to proceed to the next step; that is implementation of our Recommendations.

D. C. Chakraborty

Dilip C Chakraborty

Chairman

IRDAI Committee of RBC Approach and MCVL

Section 3: Executive Summary of the Report (Part 2):

1. The Committee and two sub-committees reviewed the pros and cons of current Solvency Regime based on Solvency 1 Approach and the RBC Regime in the Insurance Sector (Life, Non-Life, Stand Alone Health Insurance and Reinsurance). Two Questionnaires were sent to all Insurance Companies in India asking them to comment on these matters. The Subcommittees reviewed these responses.

   There was significant support for the Current Solvency Regime. It has quite a few positive features. However, there is a broad support for transition to a RBC Regime by an early date. Main drivers for change are the global trend, recommendation of IAIS and other international bodies, movement to Market Consistent Valuation (IFRS 4/IndAS 104, IFRS 17 etc.) and need to capture all risks affecting Insurance Business.

   Our Committee as a result recommends introduction of a RBC Regime.

2. Our Committee and the Sub-Committee on Life Insurance reviewed the Report of Mr. P A Balasubramanian Committee Report (April 2014). We agree with its main recommendations of moving to a RBC Regime. The said Report dealt with Life Insurance Business only for detailed recommendations. We agreed with many of their recommendations (see Section 4 of our Report on Life Insurance), and suggested a few changes & updates. Mr. P A Balasubramanian Committee suggested quite a few market research and studies; most of these will form a part of deliverables during implementation phase of RBC Regime.

3. The recommended RBC Approach: We reviewed EU Solvency 2 Regime, IAA 2009 monogram on measurement of Liability, RBC Regime of Singapore, UAE and a few other jurisdictions. We reviewed the responses to our questionnaires to Indian Insurance Companies. We also consider developments on IFRS and Indian Accounting Standards.

   Our recommended Approach can be summarized as below:

   (i) Factor-based Standard Model; We do not recommend Internal Model

   (ii) QIS and market research in order to determine detailed Approach and Parameters.

   Please see Section 4 and Section 5 for details.

4. Broad Time Frame: 3 years; with completion by March 2021 to coincide with IFRS17 implementation. There will be a parallel run for two regimes; current Solvency Regime will continue till switch over in March 2021.

5. The Committee and Sub-committees considered whether IRDAI will require help of Professional Actuarial Consultants on Paid Basis during the exercise and concluded that it will.

   Two subcommittees considered the terms of reference to consultants and gave recommendations in their respective reports.

6. To implement the RBC Regime, our Committee recommended to IRDAI to constitute a Steering Committee with Member-Actuary as Sponsor and Chair. The Convener should be an Executive of IRDAI who is currently engaged with the process. Besides members from within IRDAI, Senior Actuarial Experts may be inducted in the Steering Committee or as Advisor to the same.

7. IAI will remain engaged with the implementation of RBC Regime. Two Subcommittees may be retained to support IRDAI Steering Committee during the implementation phase.

8. I, as Chairperson of the Committee, thank its members and two Subcommittee members for good work done over a period of one year on voluntary basis. On behalf of the Committee, I thank Sri. T.S. Vijayan, Chairman and Smt. Pournima Gupte, Member (Actuary) for their support. I must record my special appreciation to Mr. Sudipta Bhattacharya, Mr. B. Rangarajan and Mr. Mehul Shah for their contribution.

Date: 17th July 2017

Dilip C. Chakraborty

Chairman

RBC Approach and MCVL Committee of IRDAI

Subcommittee Report on RBC Approach for Life Insurance

INDEX

1. Background

1.1. To study the pros and cons of current solvency margin and Risk Based Capital regime in the insurance sector.

1.2. Review the recommendations of the committee on Risk Based Capital under the Chairmanship of Mr. P.A. Balasubramanian and to recommend a suitable approach in the current Indian context.

1.3. The recommended approach should at least cover the following aspects:

- Recommend broad time frame for completion of entire exercise under the recommended approach.

- Recommendation on whether IRDAI will require help of professional Actuarial Consultants on paid basis during the exercise. If yes, what should be the terms of reference for the Consultants?

2. Executive Summary

2.1. The sub-committee deliberated on pros and cons of current solvency regime vis-à-vis Risk Based Capital.

2.2. The current regime has its advantages in ease of calculation but it can be seen as less revealing on whether the capital held is adequate for the risks inherent in the business.

2.3. Globally the insurance industry has moved to Risk Based Capital and the committee is of the view that it is time for the Indian Industry to move in this direction.

2.4. Before coming to this conclusion a survey covering Life Insurance Companies was also conducted to see if industry is receptive for this change. The survey reveals that the majority of them believe that though the current regime has its benefits in easy of understanding and calculation but has its weaknesses in not taking all inherent risks, do not encourage risk management and counter intuitive where higher prudence in liabilities leads to higher capital. Hence it appears that the life insurance industry is prepared to make this transition. Survey Results are provided as an Annexure1 to this document.

2.5. It is recommended that IRDAI should move ahead with implementation of Risk Based Capital where ensures that the capital held takes in to account the overall risk profile of the company. Moving to RBC would also lead to enhanced protection to policyholders where it becomes possible to understand the level of confidence provided by the capital for a given level of risks.

2.6. The Committee also reviewed the report prepared on Risk Based Capital under the chairmanship of Mr. P.A. Balasubramanian and deliberated on various aspects that are to be considered in implementation.

2.7. There are high level recommendations on methods / approaches and also risk level recommendations made by this committee [Details of these recommendations are discussed in Section 5].

2.8. This committee agrees with the recommendations made with respect to adoption of Market Consistent model for valuation and Value at Risk approach for capital requirements.

2.9. The PAB committee recommended adoption of "Twin Peak" approach where by the current reporting structure would continue with new structure would operate in parallel. "Twin Peak" approach might give an impression of holding the higher of the capital emerging from these two regimes. However, it may not be feasible for sudden changes and hence it is recommended that there will be a parallel reporting during the period of implementation. This also is in line with the requirement of the companies where, as part of the survey, the companies expressed that there should be a parallel run for at least two years.

2.10. To elaborate further on this point, during the period of implementation both reports are to be submitted on full-fledged basis so that the companies and the regulator are aware of the positions. On the transition date, say March 2021, the reporting should be on the basis of new regime. For smooth transition and to avoid any repercussions a transition period could be provided by the regulator to the companies so that they can implement their plan of action for alignment in to the new regime.

2.11. On qualitative recommendation, it is agreed that enterprise risk management should be implemented in parallel.

2.12. On specific recommendation related to market risks and default risks the committee agrees with the approach. However, it is felt that there is a need for assessment of materiality of risks and to decide which of these risks will be incorporated in the initial phase and which ones will be taken up later. This is dependent on the QIS and can be determined after first set of study. However, the market risks that can be included in the first phase are interest rate risk, equity risk and property risk.

2.13. It is also recommended that the regulator should specify certain assumptions or parameters, for example, risk-free rates or future inflation assumption etc. It is also felt that instead of regulator specifying these assumptions, regulator can ask IAI to come up with suitable standards in concurrence with the regulator which can then be followed by actuaries setting these assumptions.

2.14. The time frame required to implement this was deliberated and while doing so the time that is taken in other countries was also studied. It is our opinion that it requires a minimum of 3 years for full implementation of RBC in insurance industry. It requires at least 3 QIS, the same is also recommended by PAB committee. It is also to be noted that, as part of the survey, most of the life insurers also opined that they would require 2 or 4 years to transit from current regime to new regime. Hence the regulator

could look at 3 years for full implementation of RBC with additional one year for aligning the capital with the new regime.

2.15. The detailed plan and milestones are provided in Section 6 of this report along with next steps in Section 7. The immediate step the regulator would require to take up is the formation of Project Steering Committee which could look in to hiring the consultants so that the work can commence.

2.16. The committee deliberated on the need for hiring the consultants and if so what should be the Terms of Reference for engaging with consultants. The various sources or approaches that could be adopted were discussed and on the basis of pros and cons it is recommended to hire external consultants for implementation or roll out of RBC, continue to engage with IAI, through the 2 Sub-committees that are currently supporting IRDAI committee for RBC and MCVL for bringing out various standards and provide technical expertise to the Project Steering Committee ,that require to support the implementation of RBC with an oversight on implementation by a regulatory committee (Project Steering Committee).

2.17. Broad terms of reference are provided in Section 6 and where it starts from conducting gap study, finalization of approach or method, Quantitative Impact Studies, finalization of parameters or factors, engaging with the industry, designing templates and review mechanism, conducting training to regulatory staff as well as workshops for companies, complete documentation, hand holding in reviewing the reports by IRDAI, gap analysis with global standards, if any, such as IAIS, IFRS, Solvency II and suggesting next steps including frequency of review of risks and associated risk margins.

2.18. Next steps are to decide on moving to RBC and forming a Project Steering Committee to take it further in the journey of implementation.

2.19. The Committee in its earlier report on MCVL had recommended to continue with current way of valuation till implementation of RBC. Now, the committee also considered IFRS 17 which has been issued by IASB that sets the accounting standards specific to insurance contracts. Though from an approach perspective this standard also recommends Best Estimate plus Risk margin approach, but the underlying principle is to look at fulfilment of liabilities than the exchange between two willing parties. The impact and changes that IFRS 17 will bring in to the Solvency Capital calculations shall emerge only over a period of time. Hence the committee recommends any adjustments with regard to IFRS 17 can be made as we move closer to implementation.

3. Approach taken by the committee

3.1. Reference to various reports / material that are available on the subject, in particular where RBC is implemented in other countries in the recent past.

3.2. Discussions with Actuaries and other professionals who were involved in such implementation.

3.3. Survey to cover the views and preparedness of the Indian Industry and conclusions drawn from the same.

3.4. Deliberations in the sub-committee on various aspects leading to conclusions on RBC and its implementation.

4. Why RBC?

4.1. Currently, Solvency Capital for life insurance companies is held as per the IRDAI ALSM Regulations, 2016. The current regime is a 2 factor based where the first factor is on the basis of Mathematical Reserves and Second Factor is on the basis of Sum at Risk for life insurance business. This methodology of calculating Solvency requirement and the factors followed Solvency regime that existed in UK, namely Solvency I regime.

4.2. In contrast, Risk Based Capital (RBC) is a method of measuring the minimum amount of capital appropriate for a reporting entity to support its overall business operations in consideration of its size and risk profile. It requires a company with a higher amount of risk to hold a higher amount of capital.

4.3. The differences between these 2 regimes are discussed as below:

- Degree of Protection:

  The strength of a capital requirement can be thought of in terms of the probability that a company's assets backing liabilities, together with the required capital, will be sufficient to satisfy all its obligations to its policyholders. This probability represents a confidence level. It is desirable to calculate this probability once the capital is known or to know the quantum of capital that is required to hold given the required confidence level.

  The drawback of the current solvency method is that the level of confidence provided by the capital held by the companies is not known. So the capital held may be too high or too low given the risk profile of the companies.

The companies having lower risk may end up holding higher required capital leading to inefficient use of capital and companies with higher risk may end up with lower required capital leading lower protection for the policyholders. Aligning the capital to the risk profile may also enable the use of available capital for orderly growth of the industry.

- Risks covered explicitly in deriving the Required Capital:
  As mentioned earlier, the current solvency requirements are 2-factor based and explicitly cover interest rate risks and mortality/morbidity risks. However, there are various other risks that are significant and may have an impact on solvency assessment.
  Let us take an example of 2 companies with similar liability profile where one investing in lower rated bonds and equities which has no consideration for ALM and on the other hand the other company which is having proper ALM and investing in G-secs. Could the required capital be same for these 2 companies? But under the current regime both may end up with similar levels of capital requirement.

  Hence with the current regime there is no possibility to understand all the risks that are taken by the companies and moving to RBC may help in explicit analysis of each risk that may threaten policyholder protection.

- Incentivizing better Risk Management practices:
  Current regime does not recognize the better risk management practices that a company may be having and hence there are no incentives for it or dis-incentives for not having them. By moving to RBC there would be incentives and disincentives in the form of level of required capital so that it encourages overall risk management culture of the companies. The companies having better risk management practices itself is a good indicator and leads to higher protection of policyholders and does long term good for the industry.

- Early warning and corrective action:
  In the current system, given that there is no explicit link between capital held and the risks associated with the business, the chances of an early identification of risks that threaten the solvency of the company by the Company or Board or the Regulator or Analysts are less compared to a system where each major risk is analyzed and quantified explicitly. Hence it is not possible to have a system of early recognition and ensure corrective action based on the key risks that may threaten the company's existence.

4.4. Having stated these differences or benefits of moving to a new regime, the current regime has one large benefit of ease of calculation. There are quite a few challenges that are posed by RBC or similar regime as below:

- Proper assessments of risks usually require detailed examination of insurance products, relevant industry and company data for determining both severity and frequency of the risk events, which may not be available
- Quantification of risks can be subject to several types of assumptions and increased modeling requirements
- Appropriate assumptions may be dependent on the experience of the insurer underwriting that risk. Such experience may not be available in sufficient detail or volume to fully estimate all aspects of the assumption with credibility without referring to relevant industry data. Sometimes even the industry data may not be available for setting the assumptions.
- Significant risk dependencies within an insurer's risks need to be carefully considered in determining the events and hence solvency requirements of a company

4.5. After careful consideration of various advantages and disadvantages it is recommended to move on to Risk Based Capital Framework for estimating the required capital due to the following reasons:

- While the existing statutory solvency framework, which relies on 2 - factors, has served its purpose well, it is not sufficiently transparent or risk-focused to adequately reflect the true financial conditions of the insurance companies.
- The proposed framework is risk-focused and follows the international standards and good practices in developed countries. It reflects the relevant risks that the insurance companies face.
- With greater transparency on risks, it will facilitate comparisons across insurance companies. It will also provide clearer information on the financial strength of insurers, and facilitate early and effective intervention by the Authority, if necessary.
- This framework also ensures consistency in valuation of assets and liabilities which is an increasing requirement under IndAS / IFRS
- It is comprehensive where all quantifiable risks can be incorporated in the calculation of required capital
- It encourages companies to focus on proper management of risks so that they can increase the efficiency of capital allocation to various risks

In support of the above the practices followed in other countries, in particular, reference to UK practice is provided in the Annexure 2.

5. Review of the Recommendations of the Committee on the Road Map for Risk Based Solvency Approach in Insurance Sector under the Chairmanship of P A Balasubramanian (PAB) (dated 22 April 2014).

The RBC and MCVL Committee appointed by the IRDAI order 10 June 2016 reviewed the PAB Committee Report as required by the IRDAI order. The main recommendations of PAB Committee as in the Executive Summary of the said report are stated below along with our brief comments. We have retained the paragraph numbers of the original report for easy reference.

Para 2.1: Risk Based Model.
2.1.1: Quantitative Aspects: It had following recommendations:
(i) PAB Committee recommended adoption of a market consistent model for valuations.

The committee reviewed the recommendations made and principles laid down as part of Appendix A and in particular the sections A.7 and A.8.

The recommendations made in the said report broadly are assets shall be valued at the amount for which they could be exchanged between knowledgeable willing parties in an arm's length transaction and liabilities shall be valued at the amount for which they could be transferred or settled between knowledgeable willing parties in an arm's length transaction.

On technical provisions, the committee suggested that the value of technical provisions shall be equal to the sum of best estimate and a risk margin.

The committee also considered IFRS 17 which has been issued by IASB that sets the accounting standards specific to insurance contracts. Though from an approach perspective this standard also recommends Best Estimate plus Risk margin approach, but the underlying principle is to look at fulfilment of liabilities than the exchange between two willing parties. The impact and changes that IFRS 17 will bring in to the Solvency Capital calculations shall emerge only over a period of time.

Hence the committee agrees with the recommendations made in the said report and any adjustments with regard to IFRS 17 can be made as we move closer to implementation.

(ii) It recommended a Value at Risk (VaR) Approach to capital requirements. It recommended a Standard Model, with structures and parameters to be specified by the IRDAI. It rejected Internal Model Approach.

The committee agrees with the approach recommended where the parameters are to be specified by IRDAI and at this stage the internal model approach is too early for the industry.

Additionally, based on suggestions contained in a 2009 monograph from the IAA, namely, Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins, some desirable characteristics for risk adjustment techniques are:

- Applies a consistent methodology for the entire lifetime of the contract
- Uses consistent assumptions consistent with those used in the determination of the corresponding current estimates;
- Be determined in a manner consistent with sound insurance pricing practices;
- Be determined in a manner consistent among different classes of businesses. They can be applied to different classes of business based on risk differences between these lines;
- Ease of calculation – the mechanical application of formula or the use of models that requires no judgmental inputs are considered to be 'easier' than methods that require judgments in addition to calculations. Methods that require less simulation of future results are also considered to easier than those require more extensive simulation of future results;
- Is consistently determined between reporting periods for each entity, that is, risk margin varies from period to period only to the extent that there are real changes in risk;
- Is consistently determined between entities at each reporting date, that is, two entities with similar business should produce similar risk margins using the methodology;
- Facilitates disclosure of information useful to stakeholders – the minimum level of likely disclosure would be the amount of risk margin and the basis of deriving that amount.

It is recommended that compliance with these principles is achieved in finalizing the risk margins.

(iii) For the valuation model, PAB Committee largely followed Solvency 2 Approach as on April 2014. To suit Indian conditions, it recommended a few simplifications of Solvency 2 Model.

A summary of the final version of EU Solvency 2 is attached in our report for easy reference. PAB Committee Report did not discuss Non-Life Insurance Business Valuation. However, it considered at some length Life Insurance Valuation Model.

The committee also felt that while adopting the Solvency 2 is acceptable but there are few key decisions associated with this given the maturity level of our industry. These are discussed in the following sections along with the recommendations as next steps.

The Life Insurance Risk Based Regime discussed by PAB Committee covered following topics:

Appendix A: Risk Based Capital

The recommendations made where action is required by IRDAI are:

1. A. 28.5.2 - The rate used in the determination of the cost of providing capital shall be the same for all insurance and reinsurance undertakings and shall be reviewed periodically by IRDAI.

   We agree with this part, however, as far as the review is considered there are various other aspects that are to be reviewed and cost of capital need not be dealt separately. As part of the implementation of RBC, it has to be determined at frequency the risks and risk factors shall be reviewed for revision and cost of capital factor should also be made part of such a review.

2. A.39. - The Regulator may provide the risk-free interest rate for various currencies and terms. The regulator may also provide future assumptions with regard to general inflation (CPI or WPI) that should be used for derivation of economic assumptions by insurance and reinsurance undertakings.

   Instead of Regulator specifying the risk-free interest rates or future assumptions for inflation, it is recommended that IRDAI could ask IAI to bring out suitable practice standards related to these aspects in concurrence with the Regulator.

3. A.151. - The Regulator would have to specify the scenarios and also approve the prospective management actions for which credit was claimed.

   This may be required for calculation of capital under participating business where there is a possibility for management to take few actions such as alterations of bonuses or investment strategies etc. It is agreed that the actions that will be allowed in capital calculations should be specified as part of the method.

Appendix B: Report on Market Risks and Counter Party Default Risks

There are few specific recommendations and each of them is opined below. In addition, the committee is of the view that all of the market risks specified herein need not be taken immediately. The risks that could be considered as a must are Interest rate risk, Equity risk, Property risk and Credit Default risk. Before deciding on the other risks that will be made part of capital calculations, exposure to each of these risks could be assessed and non-material risks should be deferred as part of further improvements.

The recommendations made where action is required by IRDAI are:

1. B.2.2.6. The committee recommends that IRDA can commission a study on how gilt yields at different durations have changed over the last 15 to 20 years to assess the magnitude of the extreme changes.
2. SCR for Equity Risk: B. 2.3.5. The values for x, y and z will be as specified by IRDA from time to time.
3. SCR for Property Risk: B. 2.4.1. The value for x will be specified by IRDA from time to time.
4. SCR for Credit Derivatives: B.2.5.9. The committee recommended that IRDA should specify the stress to be applied to the value of the asset recognized in the balance sheet.
5. B.3.2.6.d - IRDA needs to examine whether RBI has provided any guidance on the value to be attached to collateral in the case of default.

Specification of parameters or stresses related to calculation of capital should be part of the QIS that will be conducted through the consultants who will help with the implementation.

6. SCR for Market Risk Concentration:
   B.2.6.9– The exposure threshold on a single name exposure shall be determined by IRDA according to the weighted average credit quality.
   B.2.6.10 – CT (i) and g(i) values specified under the Solvency II framework need to be validated in the Indian context by IRDA so that the capital requirement for this source of risk is appropriate.

Currently, there are stricter Exposure norms as part of the investment regulations and this specification may arise in the context of removing these limits when principle based regulations take over from current rule based regulations. Hence no action may be required till such time the exposure norms are not liberalized.

Appendix C: Solvency Capital Requirements (SCR) for Health Insurance Risks (for products offered by Life Companies only)

There are no recommendations that require any specific action by IRDAI.

Appendix D: Loss Absorption of With-Profit Business.

There is a recommendation on Management actions (D.2.5), which was discussed above as part of A.151.

Appendix E: Treatment of Ring Fenced participating funds in a company's SCR.

There are no recommendations that require any specific action by IRDAI.

(iv) PAB Committee recommended adoption of a ""Twin Peak"" approach to solvency; that is, continuation of current Prudential Reporting Structure in parallel with new RBC Structure. This will allow new RBC Structure to bed in, and is necessity to protect policyholders interest.

The committee agrees with the approach recommended and it is also felt that having a parallel system till the new regime gains confidence is a prudent approach.

Para 2.1.2 of PAB Committee Report: Qualitative Aspects

PAB Committee noted the importance of qualitative aspects of RBC Regime including Standard of Corporate Governance, particularly in the area of Risk Management. It noted that IRDAI had already taken steps in that direction. However, more steps would be necessary to bring corporate governance up to Solvency 2 / RBC Regime. In section 5 PAB Committee noted a few gaps between prevailing IRDAI regulations and Solvency 2 regulations in this matter.

The committee agrees with the approach recommended; however, there have been few developments ever since the said report was published. The Corporate Governance has been revised where it includes few additional aspects of risk management such as ALM. Having said that there is still a scope for comprehensive review to identify and implement proper enterprise wide risk management framework and this should be implement on sidelines of implementation of new RBC regime.

2.2 of PAB Committee Report: Road Map to Adoption: (at April 2014)

2.2.1 Quantitative Impact Studies (QIS): It suggested 3 QIS Exercises- an iterative process during which the valuation model would be refined. It suggested the first QIS as on 31 March 2014- followed by 2 more at successive year ends. If results were satisfactory, PAB Committee recommended introduction of "Twin Peak" Solvency Approach from year end 31 March 2017.

One of the mandates given to this committee was to suggest a road map to adoption. The details related to this are provided in the section 6.

2.2.2 of PAB Committee Report: Policy Issues: it recommended that IRDAI should consider a few policy issues while doing QIS process.

* Consistency with the Insurance Core Principles.
* Consistency with IASB's Principles as adopted in India.
* Recognition of equivalence with Solvency 2.
* Whether there is any need to extend the valuation model to cover insurance groups.
* Definition and recognition of ancillary own funds and subordinated debt instruments in Capital.

In principle, the committee agrees with the recommendation. However, a cautious pragmatic approach could be adopted given the limitations of applicability of these to Indian context. As part of the implementation plan of the new regime consistency check with these principles should be embedded in to the process.

Additionally, the following documents / standards which set the principles forming the basis for liability calculations and setting risk margins should be referred in deriving the methodologies or setting risk margins.

1. Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Adjustments – Monograph by IAA
2. IFRS 17 Insurance Contracts.
3. A Global Framework for Insurer Solvency Assessment – Research Report by IAA.
4. Risk Based Global Insurance Capital Standards – IAIS – Currently Public Consultation Document is available
5. Ind AS 104 and Ind AS 109

2.2.3: Intervention Ladder:

PAB Committee recommended that IRDAI should develop a basis of prescribed actions it would take if solvency cover was to fall below certain limits. The actions may be triggered by a combination of qualitative and quantitative assessment. The actual intervention ladder to be adopted may depend on the results of QIS.

The committee agrees with the creation of Intervention Ladder and this should be one of the deliverables of the work that will be performed for QIS.

6. Implementation Roadmap:

6.1. Approach:

There are 2 important questions that need to be addressed while putting together a road map for implementation of RBC in India. 1) Number of years over which this will be transited and 2) Pooling the technical expertise that is required to conduct impact studies, finalizing the factors so that the suitable regulations are framed by IRDAI.

The implementation could be analyzed by breaking in to 4 phases – 1) Investigating Phase, 2) Agreement Phase and 3) Finalization / Implementation Phase and 4th phase is typically post implementation and involve continuous improvements on the basis of ongoing experience. In order to get consensus across industry on risks to be included, method and parameters for determining the capital it requires at least 3 impact studies. The experience from other countries suggests that it requires 3-4 years for making a transition from current regime to the new regime.

On pooling the resources or getting the technical expertise, the committee deliberated on 3 ways that IRDAI could look in to and these are discussed below:

1. Professional Body – Institute of Actuaries

- In India, there are numerous precedents of a regulator involving a professional body such as the Institute of Chartered Accountants of India (ICAI) for conducting research or studies on its behalf.
- The IAI currently has over 350 qualified actuaries as its members working in various insurance companies (including Life, Non-Life and Health insurance companies), consultancies, KPOs etc. and retired senior actuaries with considerable experience in various actuarial areas.
- In the past most work done for the IAI by members has been on voluntary basis and has been more advisory in nature. An RBC implementation project is likely to take 3-4 years. An exercise of this enormity would require active, full-time involvement of many of the members over a long period of time for advising participants, analysing results, discussions with all stakeholders including the regulator etc. It may also require inputs from other markets, experience from other regulators to understand the challenges that different countries have faced in implementation.
- All of this may require the IAI to either recruit or bring on-board experienced actuaries on secondment or other terms since the IAI

does not have an in-house team of actuaries. Given less number of actuaries and their active employment this option may not be feasible.

- The role of IAI could hence be structured to have a participation in setting the standards that are required than entrusting full implementation of RBC. Currently, there is a strong level of participation by IAI through its members in the Committee and 2 Sub-committees namely, IRDAI Committee for RBC and MCVL. This approach where these 2 sub-committees for Life and Non-Life insurance should be continued during the entire phase of implementation of RBC. They will assist the Steering Committee to be set up by IRDAI for implementation of RBC.

2. Self- Implementation by IRDAI
   IRDAI can set-up an internal committee with the purpose of designing and implementing the road-map on their own. The committee members could comprise of senior actuaries from the regulatory body, senior practitioners from the actuarial profession, and junior staff taking care of day-to-day work. The IRDAI could look to take members of the profession on pay-roll or on secondment from the existing employers. However, IRDAI may not have enough resources with the required expertise to spare from amongst the existing employees who are currently fully engaged with other activities. Hence the role of IRDAI will be with regard to oversight and manage the full implementation. In addition, IRDAI may also explore to get resources from insurance companies on deputation to support the implementation.

3. Engaging External Consultants.
   Here IRDAI has to engage external consultants on commercial terms and this has been the approach that is followed by many countries namely, Srilanka, Thailand, Hong Kong etc., in transiting to RBC framework. This approach scores over other approaches for the advantages as mentioned below, however, there are few areas which may have an impact on cost and these have to be carefully considered while entering in to an agreement with the consultants.

   Advantages:

   - Expertise / Experience:
     Broader business knowledge gained from vast experience having worked with European and other markets and in particular implementing Solvency 2 and/or RBC in different countries.
   - Resource Allocation:
     The resource allocation is expected to be well planned with suitable allocation depending on the Scope of work (SOW), estimation of man-hours and required number of people at various stages

- Independent from Business:
  Project Management Approach and ensures that companies and regulator's office' personnel allocate resources on a timely basis. External can handle efficiently the work in co-ordination with the personnel in business entities and regulator's office who otherwise are busy in their regular jobs.
- Continuity:
  In long term projects such as this, there is always a possibility for change of people working on these issues. If there is not enough documentation then it leads to lack and continuity and delays in implementation, firstly to find new people to work and secondly for them to figure out the next steps. Since the contract is with an entity and not an individual and it becomes the responsibility of the entity to ensure smooth progress of the task irrespective of changes that may take place in the people working on it. Also, the level of documentation is expected to be at of highest quality in the projects executed by these consultants.
- Time bound delivery:
  Known to manage and deliver in time with precise reporting at each milestone and are bound by a contract for delivering as per these timelines
- Inclusive Approach:
  Consultation with the Industry and inclusive approach in implementation becomes easier as the responses may be more candid to a non-impacted third party that if approached directly by IRDAI or by IAI

Areas requiring attention

- Explicit costs involved:
  The cost in this option is explicit and may be perceived as costlier
- Lack of flexibility to change Scope of work:
  Owing to complex nature of the project, there may not be adequate clarity initially on defining the scope of work. Lack of flexibility by consultants to change the scope may jeopardize the project or increase the cost.
- Conflict of Interests:
  The framework may be deliberately made complicated for ensuring dependency on continuing basis.
- Knowledge not transferred:
  Dependency for future improvements, if knowledge not adequately transferred/in-house expertise not developed.

Recommendation: After evaluating these sources the committee recognizes the complexity involved in a transition of this nature and the need for time bound delivery, expertise, continuity, constant engagement with the industry and the regulator.

Hence the committee recommends the following:

Engage with an external consultant for roll out or full implementation of this complex task as is done by some of the other regulators. However, it is important to short-list the external consultants solely on the basis of technical capability. In the tender process there should be a sequential approach where no commercials are invited before short-listing. Once the technically able consultant is short-listed the commercials are then to be invited from only those short-listed consultants.

Engage with IAI for preparing standards that are required to support the Risk Based Capital implementation. Currently, there is a strong level of participation by IAI through its members in the Committee and 2 Sub-committees namely, IRDAI Committee for RBC and MCVL. This approach where these 2 sub-committees for Life and Non-Life insurance should be continued during the entire phase of implementation of RBC. They will assist the Steering Committee to be set up by IRDAI for implementation of RBC.

Form a Committee as mentioned below to oversee the full implementation and, if required, to support external consultants or IAI in obtaining information or any other support from insurance regulatory bodies of other jurisdictions.

In case IRDAI decides to engage external consultants the committee further recommends the following:

1. Project Steering Committee:
   To have a Project Steering Committee which ensures that the interests of the regulator are fully aligned, could act as sounding body to the consultants and helps in taking key decisions for smooth conducting of the project.

2. Scope of Work / Terms of Reference:
   The Scope of Work is given below and is at minimum and based on the scope that is observed in other countries.

- Study existing economical capital submissions made by insurers and understand the level of preparedness and preliminary impact of difference in capital requirements

- Development of a framework and key approaches, identify the key risks relevant to the Indian market to be included in the framework. E.g. Balance sheet approach, Risk assessment approaches for different risks – stress testing or factor based approaches etc.,

- Devise a methodology to quantify the required risk capital and encourage more usage of risk mitigation strategies.

- Development of detailed rules including calibration of the risk parameters used to determine risk capital charges. Quantitative Impact studies should be conducted for insurers to ensure and be able to reasonably conclude that the new capital requirements are viable and should not bring instability to the insurers and are aligned with the requirements of the regulator

- Provide inputs to the regulator to develop or amend the existing regulations so as to implement the new regime

- Provide a recommendation for capital supervisory approach and implementation roadmap covering the short term, medium term and long term, including how an appropriate supervisory capital adequacy ratio (CAR) level should be determined, the minimum capital required, and intervention measures in case the CAR of any insurance company falls below a specified level.

- Advice on asset and liability valuation methodologies to be more appropriate in the risk context of Indian market.

- Provide a full consultation document covering risk capital requirements, available capital criteria, supervisory capital requirement levels, an RBC calculation template and framework for an RBC report.

- Provide templates for monthly reporting, quarterly reporting and annual reporting for insurance companies. Prepare standardized risk reporting templates.

- Provide a gap analysis report to compare the calculation methods under the current regime to RBC approaches in other countries.

- Conduct seminars to educate on RBC framework

- Specify frequency at which the risks to be included or factors used to quantify risks should be reviewed.

- This list may not be comprehensive and there could be additional requirements on the basis of some specific requirements that IRDAI may want to consider as part of implementation. Those could be incorporated after due consultation with IRDAI.

6.2. Time lines

The committee deliberated on the time lines required and the key mile stones as part of the implementation. Based on the discussions and what was followed by other countries the following are tentative milestones along with the expected timelines:

Tentative Timeline Chart:

Steps (once the formal work initiates)	Y0				Y1				Y2				Y3				Y4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Ground work and setting the context and finalising the external parties that do the work																				
Studying the Economic Capital reports that are submitted to the Regulator, OR Carry out a consultative study in conjunction with the insurance companies																				
Gap assessment and risk identification																				
Identification of a set of insurance companies as the sample set OR Come up with a sample insurance company																				
QIS 1 (detailed and keeping extra time since insurers will need to calibrate the distributions for first time)																				
- Study and analyse the approach to determine risk capital and identify the risks to be included in RBC																				
- Review of risks to be included and finalisation of the proposed risk grid																				
- Capital adequacy and solvency & economic balance sheet																				
QIS 2 (should take lesser time than QIS 1)																				
- determination of paramters on the basis of inputs																				
- Finalisation of templates for submission																				
- Disclosures - draft proforma submissions																				
- Focused training for the Regulatory staff and other stakeholders, if any																				
- Organise seminars and trainings to educate, including all insurers and stakeholders																				
QIS 3 (to assess any finer changes or tweaks based on proforma submissions), if required																				
- Impact assessment at an industry level																				
Focus on essential contents and framing regulations, as applicable																				
Final report including archives and other related documentation																				
- Regulatory intervention, if any - Corporate governance and risk management - Gap asssessment report wrt IAIS specifics - Time period that the Regulator should allow for full compliance and adherence																				
One final review with the regulatory staff and companies, give feedback on individual submissions and assessment																				
Regulatory reporting starts for insurance companies																				

Please note:
The above timelines are indicative and to be finetuned by the external party doing the work.
The timelines are planned to avoid burdening insurers during year end activities and deliverables to the extent possible.

7. Next Steps

7.1. Consultative Study on preparedness / preferences of the industry with respect to Risk Based Capital – Survey was conducted by the sub-committee and the report is attached as an Annexure.

7.2. Decision related to implementation of RBC

7.3. Forming a Project Steering Committee – sponsored by Member – Actuary and participation from actuarial, finance and investment departments of IRDAI and few external people with expertise in actuarial matters.

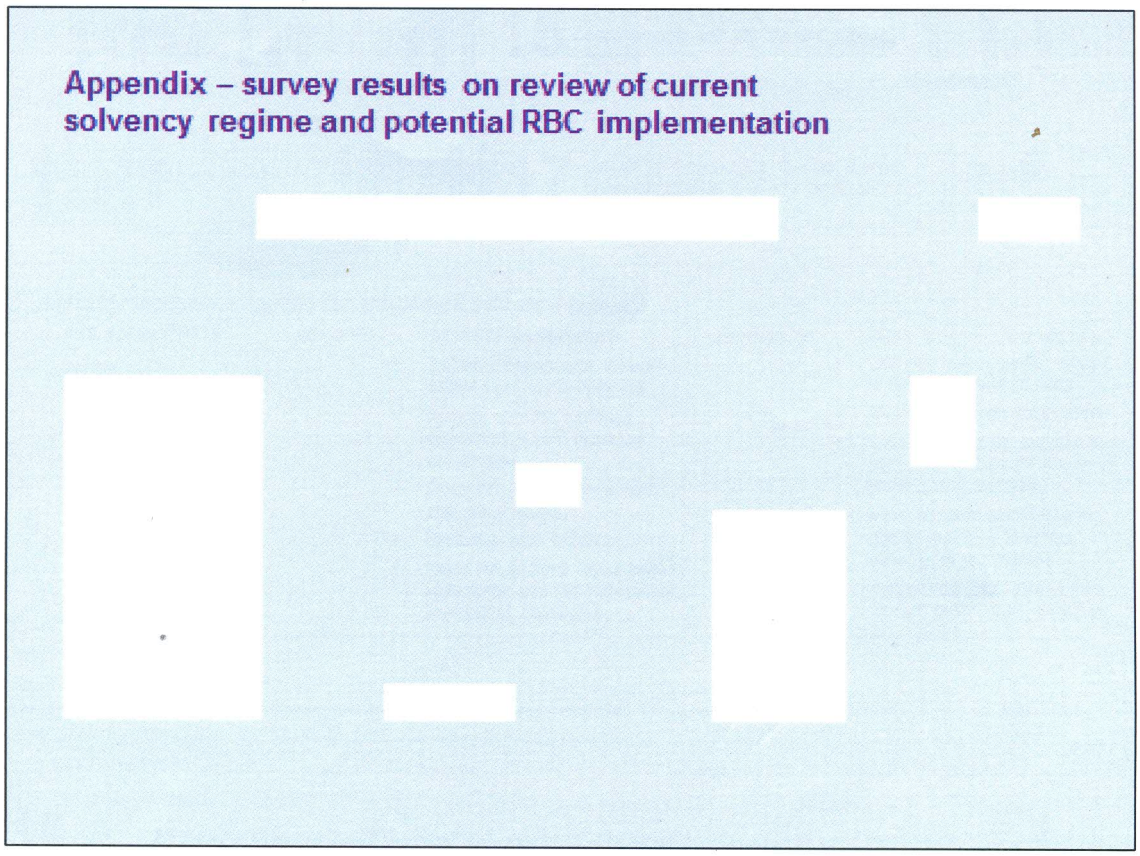
7.4. Key decisions to be taken as per the recommendations of the PSC

- Parallel move / one step change
- Extent to which quality parameters such as risk management to be implemented and over what time frame.

7.5. Floating an RFP and finalization of external party.

7.6. Commencement of the Project RBC.

8. Annexure 1: Survey Results on review of current solvency regime and RBC implementation



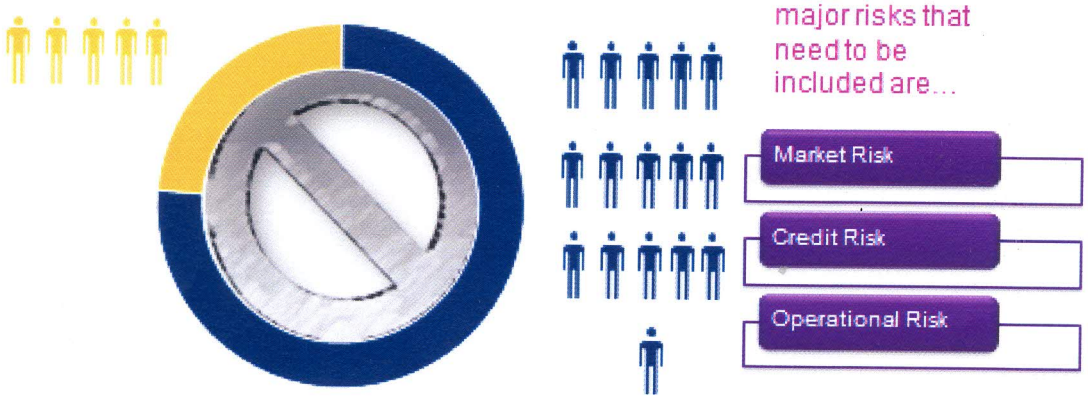
Overall satisfaction with the current solvency regime appears to be low

Industry feedback suggests that the current solvency regime...

...has some PROs	but with	several limitations	leading to	some suggested actions
• Simple • Easy to understand • Ensures consistency		• Capital requirements do not reflect risks in the business • Ignores specific business characteristics of individual companies • Does not give credit for better risk management • Excludes (non technical) risks • Does not address asset risks sufficiently and rewards riskier investment strategies		• Use risk management models to assess impact of risks • Align factors with experience • Disallow solvency support from participating fund FFA for non-participating business • Move to more sophisticated capital methods to reflect maturity of the industry • Implement RBC along with market consistent liabilities

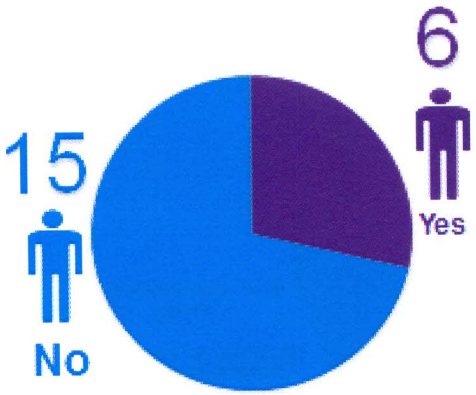
Allowance for risks

16 **out of 21** respondents believe that the current capital regime ***does not*** consider the major risks inherent in the business



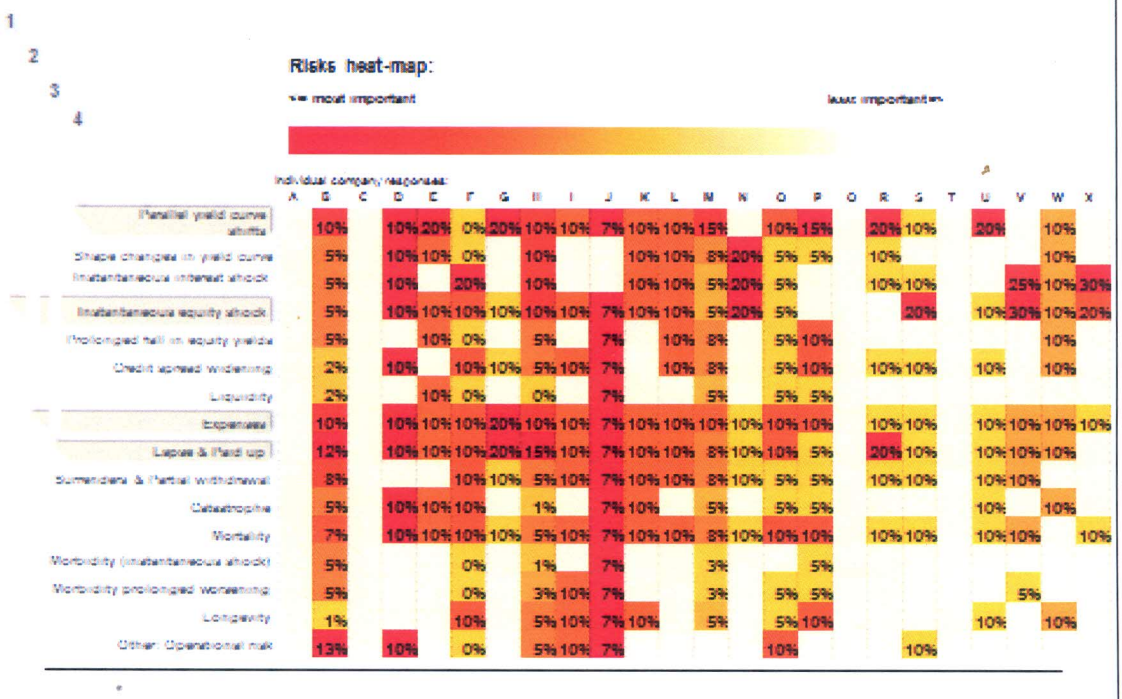
2 out of 3 respondents have some additional capital management or monitoring framework within their organization, apart from the Solvency I approach...

Most respondents do not use the Economic Capital framework, that is calculated annually, in the decision making process...

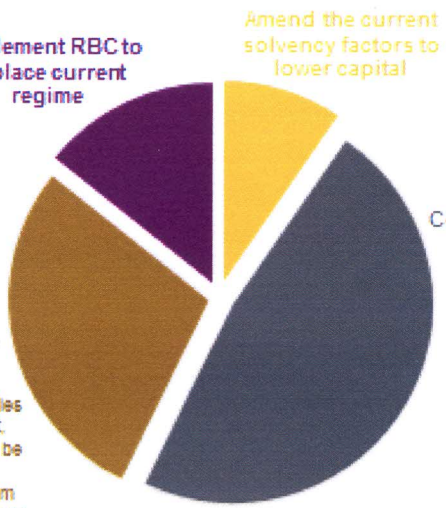


- As many as nine respondents noted that their capital framework follows or borrows mostly from the economic capital (EC) framework based on Solvency II "standard formula" stresses (EIOPA stresses as prescribed in QIS5)
- Four insurers also responded that their EC is determined using 1-year horizon with 99.5% confidence interval
- Respondents who do not follow any additional risk management framework noted that they use the regulatory stress factors (or Solvency I factors) in determining the required capital.

Top risks that respondents would include in the RBC framework:



Almost **half** of the respondents prefer the existing Regulatory Solvency I regime to run Concurrently for 2 years



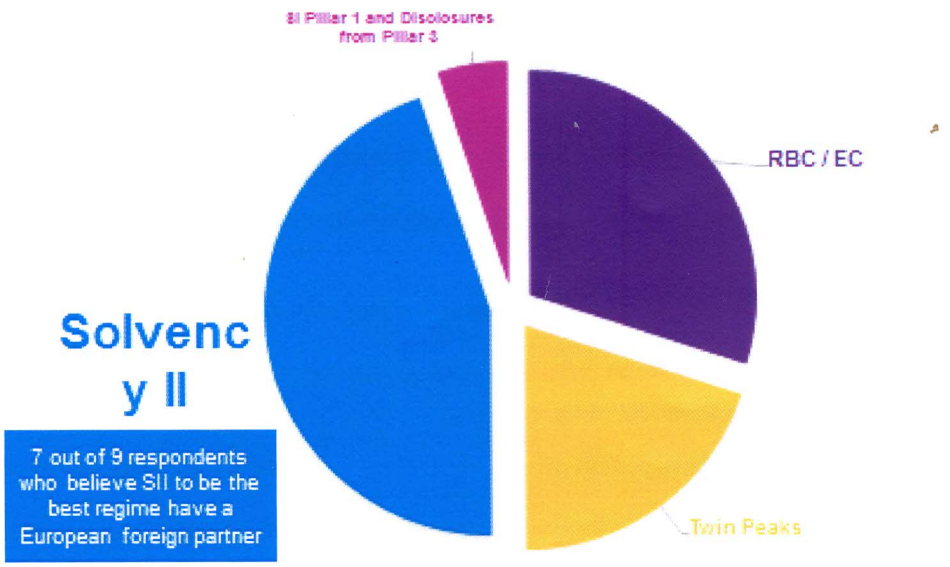
Concurrently for 4 years

- Various key strategies such as investment, reinsurance etc. to be aligned
- Expertise and system capabilities need to be built over time
- Step-by-step approach towards complete implementation

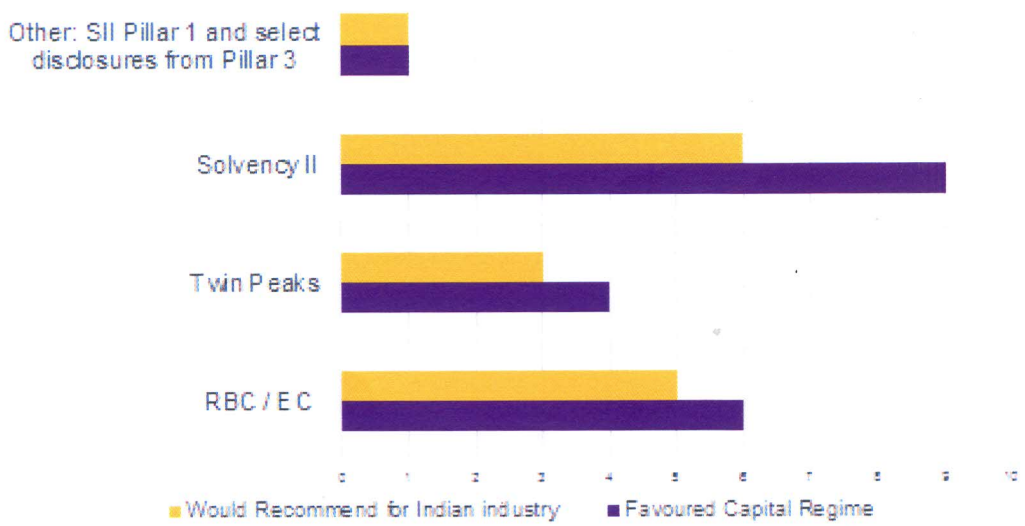
Concurrently for 2 years

- Sufficient time for insurers to get equipped
- Smoother transition without compromising with the regular prudential level
- Can be monitored for 2 years, and use the experience to effect any changes

Almost **half** of the respondents believe **Solvency II** to be the best global capital regime for life insurance companies



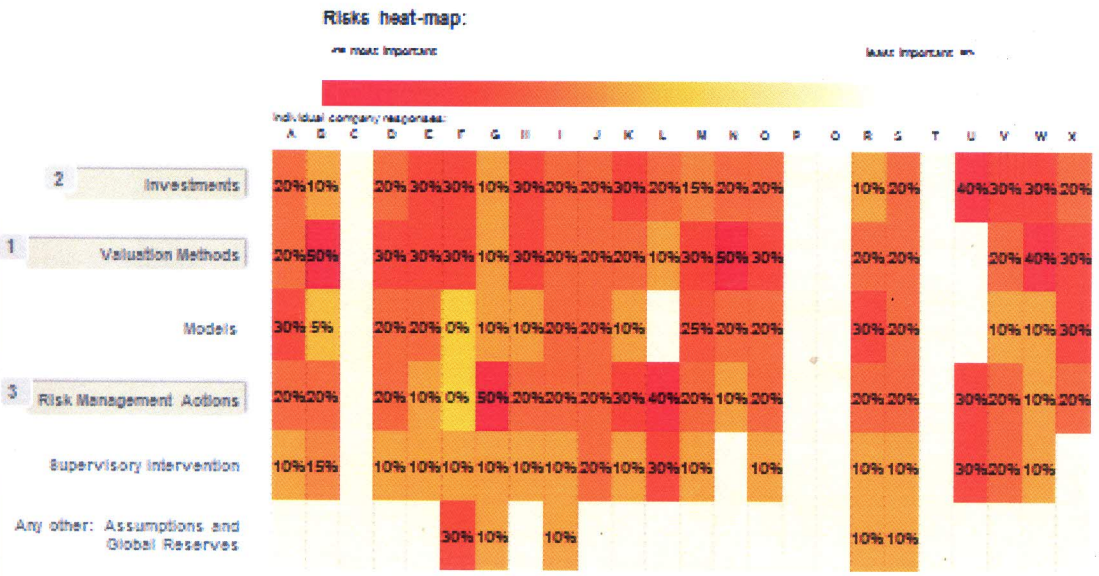
Further, most respondents would recommend the capital regime chosen by them for the entire Indian life industry



Key changes recommended to global regulatory frameworks before Indian adoption

- Regulatory framework (including the correlation metrics and calibration of risks) must be tailored specific to the Indian market before implementation
- Stress tests should also consider the varied nature of product features, distribution channel etc.
- Given the level of expertise and system capabilities required in transition, the new regime must be simple such as a factor based approach
- The framework must also create the right investment incentives for the insurers
- Appropriate expertise and guidance must be made available to enable smooth implementation
- Due consideration must be given to methodology on Operational risk calculation in line with developing insurance markets
- Documentation/disclosure requirements should also be amended in line with the Indian market

Top 3 reforms in regulations around Capital Requirement that respondents want



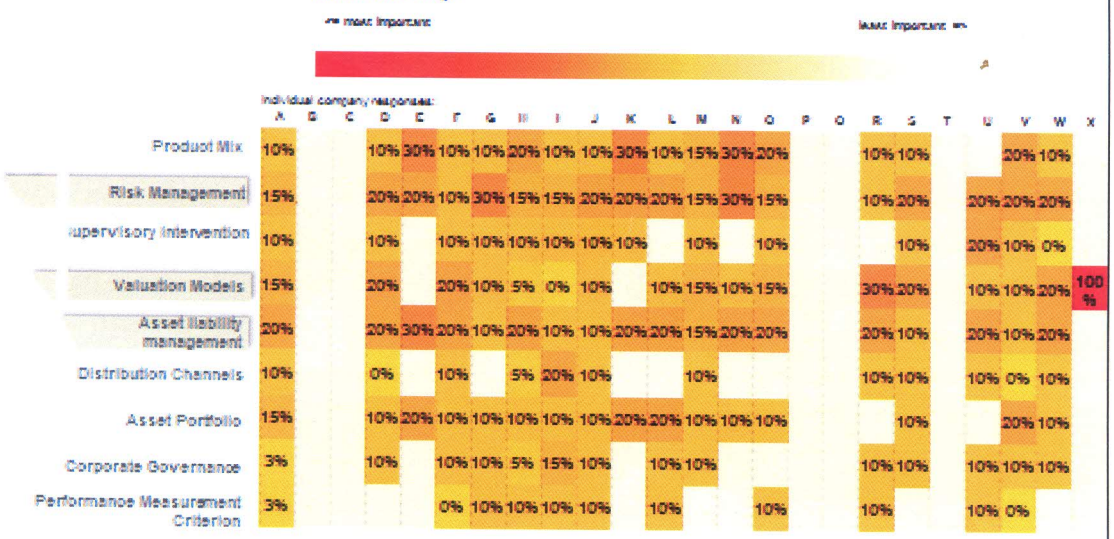
Top 3 components that should be allowed for in the risk based capital framework

1

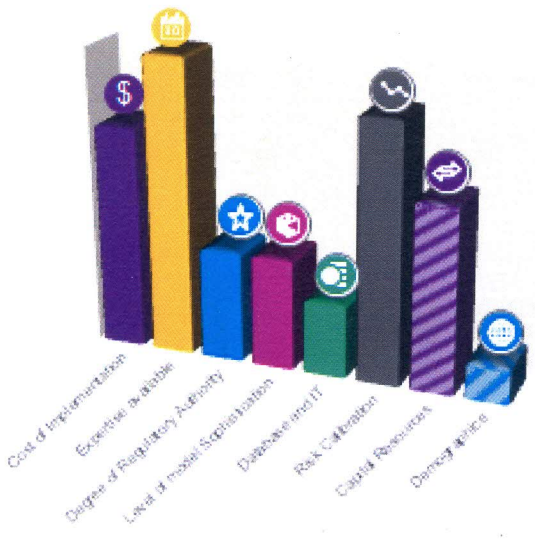
2

3

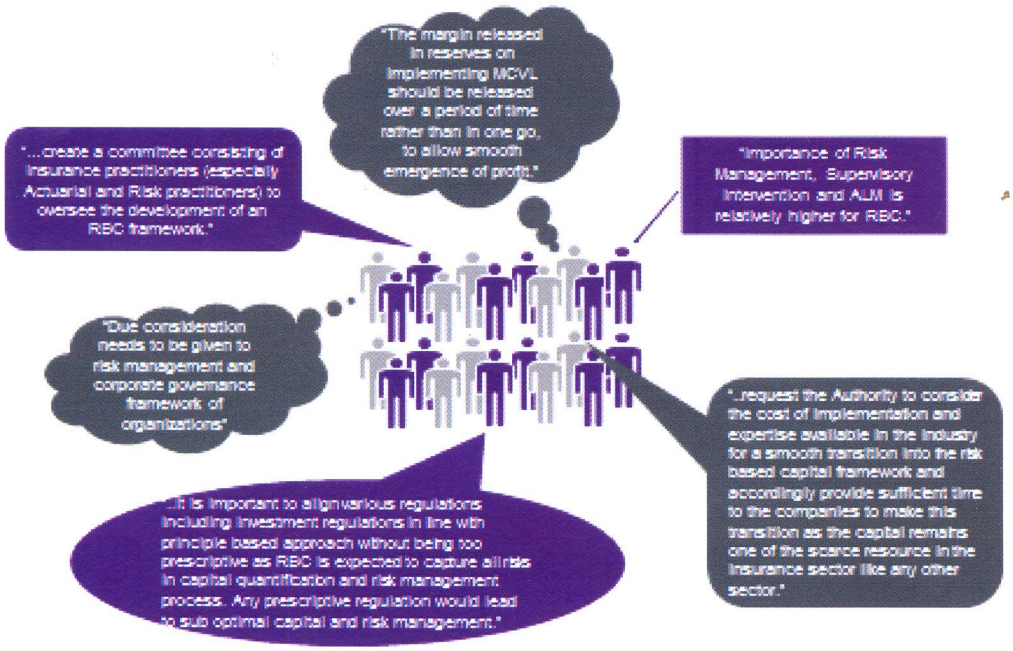
Risks heat-map:



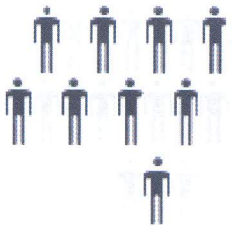
Changes in capital regime ranked in order of importance



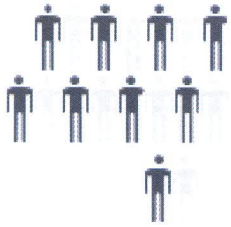
Other generic comments from the respondents on potential regime change



An overwhelming majority of respondents feel that Asset and Liabilities should be valued at market value for implementing the RBC regime

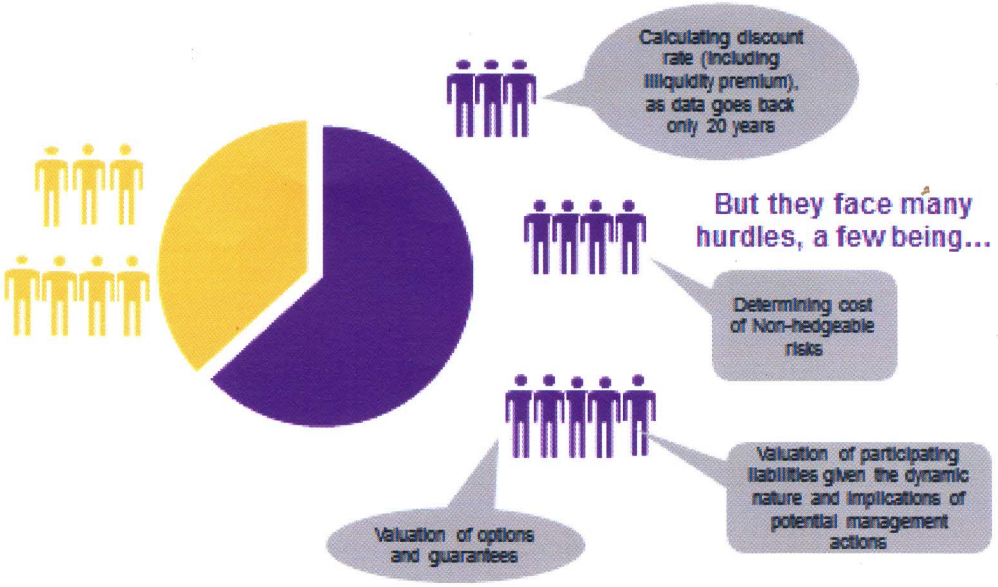


19 **out of 21** respondents believe that calculation of *market* value of *Liabilities* is crucial for implementing RBC regime

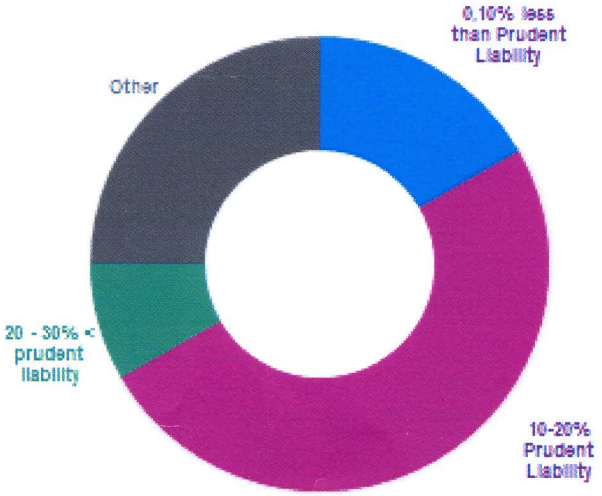


18 **out of 21** respondents believe the same for *Assets*

However just over half of respondents actually calculate the market consistent value of liabilities

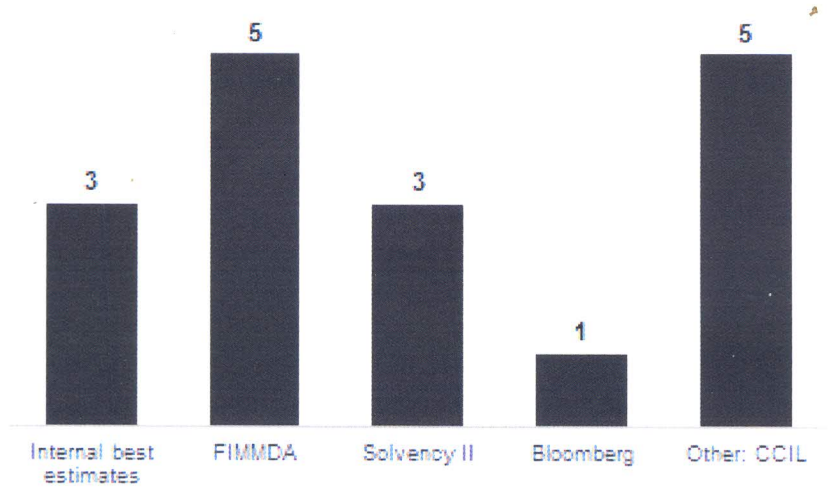


Of those that said Yes, we asked respondents to compare with prudent liability (GPV basis under I-GAAP)



- Half of the respondents (6 out of 12) felt that the market consistent valuation of liability (MCVL) is 10-20% lower than the prudent estimate of liability under GPV basis
- 1 out of 6 respondents stated that MCVL is lower by prudent liability in excess of 20%
- None of the respondents said that the MCVL is greater than the prudent liability

Most preferred discount rate used by respondents to calculate liabilities at market value



Most respondents believe a change is required in the current valuation regime of IRDAI if MCVL is introduced in India following Ind-AS implementation

Most respondents feel a change by **March 2018** is very much possible...

9. Annexure 2: Overview of the liability valuation and solvency assessment framework in the UK

In the United Kingdom, the valuation of liabilities and the solvency framework has developed over time and is an amalgamation of multiple approaches coming from gradually changed thinking on what needs to be achieved by a valuation.

Standards for capital management and demonstration of solvency

The overall capital management framework is based on a two pillar approach:

Pillar 1

- Published solvency ratios
- Based on prescriptive rules

"Realistic basis firm"

- WP liabilities > £500mn
- Required to follow a 'twin-peak approach' which requires a requires the market consistent assessment of all benefits, including guarantees and options

"Regulatory basis firm"

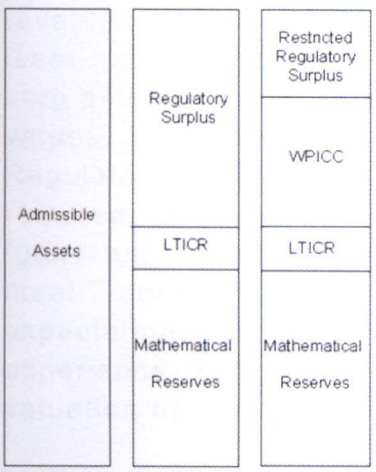
- Required to follow Peak 1 requirements only with a resilience reserve

The rules for Pillar 1 Peak 1 to which "realistic" and "regulatory" firms are subject to are different even though, both are under the same 'peak'

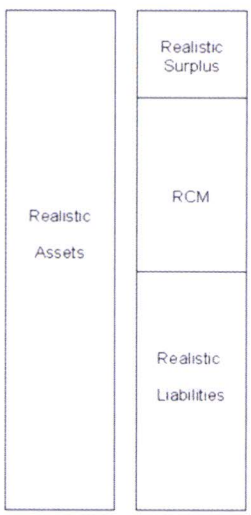
Pillar 2

- Individual Capital Assessment (ICA)
- Confidential assessment of solvency provided to the regulator only
- Calculated following Economic Capital (EC) principles internally by the firm
- Firm has to justify its methods and assumptions to the regulator
- Regulator can **and does** actively challenge insurers on their methods, assumptions and results
- Based on the regulator's assessment of firm's ICA calculations, the regulator issues the "Individual Capital Guidance" that is the amount of capital the firm must hold.
- ICG may be higher than the ICA calculated by the firm if the regulator is not satisfied that all risks have been captured fully in the ICA.

Twin peaks for a "Realistic basis firm"

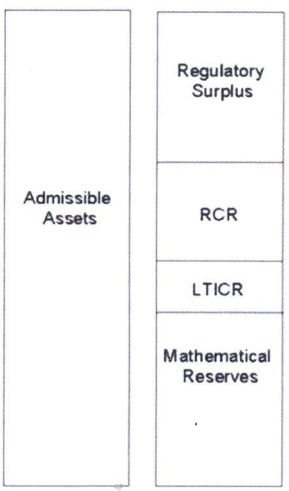


Peak 1
(Regulatory peak)



Peak 2
(Realistic peak)

Pillar 1, Peak 1 for a "Regulatory basis firm"



Peak 1
(Regulatory peak)

The Indian regulatory framework resembles the "Pillar 1, Peak 1" requirements as applied to a regulatory basis, life only firm in the UK.

A comparison of the principles underlying liability valuation and solvency margin calculation applicable under Pillar 1, Peak 1 for a regulatory basis firm and the current valuation regulations in India are set out below:

Mathematical reserves Main requirements in the UK	Comparison with Indian regulations
Established using a prospective actuarial valuation on prudent assumptions, including sufficient margins for adverse deviations	Similar principles are applied in India
Mathematical reserves must avoid any future valuation strain	**No such formal regulatory requirement**
The reserve for an individual policy cannot be less than the guaranteed surrender value for that policy	Similar principles are applied in India
In certain circumstances a policy reserve of less than zero is permitted. These circumstances include: – the general requirement to use prudent assumptions – that the contract does not have a guaranteed surrender value – that the total mathematical reserves for linked contracts are at least as large as the maximum of zero and any guaranteed surrender values.	**Negative reserves are not permitted.**
Regulatory-basis only life firms are required to make allowance for future annual bonuses sufficient to meet policyholders' reasonable expectations in the event that experience were to be as in the valuation basis.	Similar requirements apply, although reserving rules in India are more stringent as reserves need to be set up for both reversionary and terminal bonuses, as well as for corresponding shareholder transfers and tax on surplus arising.
When valuing non-unitised with-profits business, regulatory-basis only life firms must hold reserves at least as high as if a net premium method had been used; realistic-basis life firms have the option to use a gross premium method.	Gross premium valuation applied in India universally.
All firms may make a prudent allowance for lapses	Similar requirements apply, although practice varies.
Valuation rates of interest cannot exceed 97.5% of the risk-adjusted	Valuation rate of interest must be set prudently, allowing for future

yields on the backing assets ("risk-adjusted" means having reduced the yield on the backing assets to allow for the risk of default).

Formulaic minimum condition on derivation of valuation rate of interest applies, subject to reinvestment and other risks.

reinvestment risk, and based on the yields of the underlying assets. However, derivation of valuation rate of interest is not prescribed.

The minimum capital requirement in the UK for a regulatory basis firm is equal to the sum of Long Term Insurance Capital Requirement (LTICR) and Resilience Capital Requirement (RCR).

The LTICR has similarities with the solvency margin calculation in India in that it is calculated based on fixed percentage factors multiplied by defined measures of capital at risk (e.g. reserves or sum at risk).

RCR is an assessment of market risk based on a combination of prescribed shocks to equity values, property values and fixed-interest yields. The RCR is designed to show that the firm will still be able to demonstrate statutory solvency after the market shocks. The actual size of the shocks depends on market conditions prior to the valuation date: the equity values shock is in the range of a 10% to a 25% fall and the property values shock is in the range of a 10% to 20% fall. The fixed-interest yield shock is the more onerous of a fall or rise in fixed-interest yields of 20% of the long-term gilt yield. No equivalent of RCR is prevalent in India.

A comparison of fixed percentage factors used to determine capital requirements between LTICR in the UK and solvency margin in India are set out in the table below:

	India		UK		
Category	**Reserve Factor**	**SaR Factor**	**Reserve Factor [1]**	**SaR Factor [2]**	**Administrati expenses Factor**
Linked business					
Life Business					
With guarantees	1.80%	0.20%	4.00% [3]	0.30%	25.00% [4]
Without guarantees	0.80%	0.20%			
General Annuity					
With guarantees	1.80%	0.00%	4.00% [3]	0.30%	25.00% [4]
Without guarantees	0.80%	0.00%			

Pension					
With guarantees	1.80%	0.00%			
Without guarantees	0.80%	0.00%	4.00% [3]	0.30%	25.00% [4]
Non-Linked business					
Life Business					
Pure term	3.00% (1.00%) [6]	0.10%	4.00%	0.10%, 0.15% or 0.30% [5]	0.00%
Others	3.00% (1.00%) [6]	0.30% (0.10%) [6]			
General Annuity	3.00%	0.00%	4.00%	0.10%, 0.15% or 0.30% [5]	0.00%
Pension	3.00%	0.00%	4.00% [3]	0.30%	25.00% [4]
Health [7]	3.00%	0.00%	4.00%	0.00%	0.00%

1) The reserve factor is the sum of insurance expense risk capital component and insurance market risk capital component

2) A further factor is applied which is calculated as the higher of 50% and the reinsurance percentage

3) Relevant to the business of each of those classes, in so far as the firm bears investment risk and the allocation to cover management expenses in the contract of insurance has a fixed upper limit which is effective as a limit for a period exceeding 5 years from the commencement of the contract

4) Relevant to the business of each of those classes, in so far as the firm bears no investment risk and the allocation to cover management expenses in the contract of insurance does not have a fixed upper limit which is effective as a limit for a period exceeding 5 years from the commencement of the contract

5) Based on policy term

6) Factors for group business shown in brackets where different

7) An additional insurance health risk and life protection reinsurance capital component is calculated for the health business in UK which is based on the amount of premiums amount, claims amount and brought forward amount

	Reserving approach	Solvency standard			Notes
		Factor based	Risk based approach	Internal Model approach	
USA	Net premium valuation with a prescribed minimum basis		✓		• Stochastic calculations required for variable annuity business • Additional cash-flow testing (asset adequacy testing) is required based on projections of assets and liabilities under various scenarios
Canada	Gross premium valuation with margins for adverse deviation		✓		
South Africa	Gross premium valuation		✓		
UK	• Amalgamation of different rules developed historically. Both NPV and GPV allowed. • Resilience reserves required to be determined under various scenarios	→		✓	• UK follows a 2 Pillar / "twin peak" approach with different Companies subject to different rules depending on nature of business. • A "realistic-basis life firm" is one which has with-profits insurance liabilities in excess of £500m and must calculate a Pillar 1 Peak 2, realistic liability and subject to further Pillar 2 requirements • Under Pillar 2, all firms must calculate an internal economic capital, ICA, and regulator may require further capital add-on's if felt necessary • UK is moving to Solvency II standards from 2016, as per those discussed below.
EU	Solvency 2 standards to apply from 2016 - requires liability to be valued on a best estimate GPV basis, along with an explicit risk margin			✓	• Solvency 2 standards follow a full economic capital appraoch to solvency. • Under Pillar 1, firms may choose to calculate solvency based on prescribed standard formula or an internal model. • Under Pillar 2, all firms must assess and quantify firm-specific risks explicitly.
China	C-ROSS expected to be implemented from 2016, very similar to Solvency II	→		✓	
Singapore	Gross premium valuation with margins for adverse deviation, as specified in the RBC framework		✓		
Sri Lanka	Currently on NPV, expected to move to GPV with margins for adverse deviation, as specified in the RBC framework	→	✓		• Current solvency standard is factor based (5% of reserves) • Companies required to calculate RBC in parallel • RBC to be fully implemented from 2016 onwards
Hong Kong	Currently on NPV, expected to move to GPV with margins for adverse deviation, as specified in the RBC framework	→	✓		
Australia	A GPV is adopted with one extra feature in that the valuation liability does not change markedly as a result of assumption changes. Reserves can only be released according to a profit carrier e.g. premiums or claims			✓	

→ indicates current solvency standard applicable in the country, but moving to a different framework in the near future

Subcommittee Report on RBC Approach for Non-Life Insurance including Health Insurance and Reinsurance

PART II OF THE REPORT OF THE COMMITTEE ON RISK BASED CAPITAL APPROACH & MARKET CONSISTENT VALUATION OF LIABILITIES

Contents

1. Introduction & Executive Summary

1.1. The global insurance industry is undergoing significant regulatory change, with regulator in both developed and emerging markets endeavoring to adoption of risk based capital (RBC) or revisiting their existing RBC regime. Most of the RBC framework across various jurisdiction have many similarities with the European Solvency II standard and at the same time there is wide disparity in the level of sophistication and applications. Many of the changes are being driven by local market nuances, such as characteristics of the insurance products being sold, maturity of the insurers operating in those jurisdiction, etc.

1.2. This section of the report primarily presents the view of the General and Health Insurer sub-committee and covers business underwritten by general insurer, standalone health insurer and such business of reinsurer operating in India. The sub-committee in formulating its view have taken into consideration the outcome of survey conducted, discussion with various stakeholders and existing RBC regime in multiple jurisdiction.

1.3. Based on the above, the sub-committee has recommended the implementation of factor based standard model RBC regime with three years of parallel reporting (as part of QIS) and subsequent migration to a full-fledged RBC regime.

1.4. On qualitative recommendation, committee also recommends that insurance companies perform Own Risk and Solvency Assessments (ORSA) as part of effective risk management systems.

1.5. The committee is of the view that an external consultant with requisite skill set may be appointed for the implementation of RBC regime. The terms of reference of the external consultants has been provided in section 4 of this report. Similarly, recommendation on minimum edibility criteria is provided in Section 5 of this report.

1.6. The committee has also recommended setting up of steering committee which would be responsible for oversight and management of the implementation process.

1.7. It is believed that three years would be a reasonable time to conduct three QIS study along with necessary analysis before the industry adopts the factor based standard model. The key milestones along with an indicative timeline are provided in section 6.

2. Current Solvency and RBC Regime: Pros and Cons

2.1. Ensuring Solvency of an Insurance Company in paramount and is one of the major focus area of Insurance Regulators worldwide because any failure of insurance company may lead to systematic risk in the economy and loss of confidence in financial system of public in general. A lot of research has been done in this domain and different countries are following different practices in this respect. In India currently a formula based approach is used which takes into account various components like, quantum of business written, profitability of business in terms of incurred claims, level of reinsurance, availability of free assets, etc. Another approach which is comparatively recent development and is being adopted by various markets is the Risk Based Capital (RBC) in which quantum of capital required is assessed based on the risks that an insurance company is carrying.

2.2. In order to decide whether India should move to RBC it is imperative that we look at the pros and cons of both the systems.

2.3. Pros of Formula approach

2.3.1 Simplicity: The main reason of using Formula Approach is that it is very simple to understand and implement including the required input data.

2.3.2 Consistent with Accounting Practices: Reflects local accounting practices

2.3.3 Time-tested: The approach is being used for quite some time and it has withstood the test of time

2.3.4 Incorporates many factors: It takes into account various factors while determining amount of capital required, like, volume of business written, claims incurred in the past, availability of free assets, quantum of reinsurance, etc. which are all relevant.

2.4. Cons of Formula approach

2.4.1 Technical justification of parameters: The amount of capital is very sensitive to the value of parameters being used and quite often the value of parameters being used is called into question. For example, there is no clear logic of why beyond a certain limit reinsurance ceded will not reduce quantum of capital required, etc.

2.4.2 Doesn't consider all risks: There are certain risks that are not explicitly considered by formula approach, like, riskiness of investment portfolio, operational risks, counterparty risk, accumulation risk etc.

2.4.3 Asset and Credit risks are managed by quantitative restrictions rather than capital.

2.4.4 Insurance cycle drawbacks: In a soft insurance cycle when the prices decline year on year, the Solvency capital would be expected to increase. However, under Solvency 1 framework the Solvency capital decreases despite increase in underlying exposures.

2.4.5 Under-priced Products: Motor third party liability, a long tailed class of business, in India is tariffed and currently underpriced. Current solvency framework wouldn't accurately capture risks for long tailed liability risks.

2.4.6 Reinsurance Covers: Solvency 1 factors currently used cannot allow non-linearity between exposure and premiums. Thus in cases where (re)insurance coverage is on non-proportional basis the solvency 1 calculation wouldn't be appropriate.

2.4.7 Nuances not captured: Solvency I approach doesn't consider all the risks and does not distinguish between the different approaches followed by different companies with respect to risks they are facing. Therefore, for an insurance company the incentive (in the form of required capital) to have risk mitigation in place is less.

2.4.8 Not suitable for complex scenarios: The formula approach is not very suitable in very complex scenarios because it uses broad brush approach e.g. multi-year covers or ART.

2.5. Pros of RBC approach

2.5.1 Comprehensive: It is modular in design and considers all the different risks in assessing capital, therefore, gives more confidence to all the stakeholders, like, regulator, insurance companies and public at large.

2.5.2 Promotes risk management: The insurance company gets good view of the amount of capital required for each risk and therefore it promotes culture of risk management to conserve capital which is beneficial to the industry in the long run.

2.5.3 Credibility: The factors / parameters used under RBC approach are based on extensive studies and therefore it gives more confidence to its users.

2.6. Cons of RBC approach

2.6.1 Complex working: Unlike formula approach the working of RBC may involve complex modelling and thus may need specialized talent at industry and at regulator's end.

2.6.2 Prone to misuse: It may be misused if internal models are too complex and too much reliance is placed on them. This subjectivity may also result in understating amount of capital required intentionally.

2.7. **Conclusion:** As we have seen above the Formula approach is not completely without merit and that is the reason it has been in use for many decades. But with the insurance industry becoming more and more complex and being confronted by new risks every day, it is high time that we move from formula approach to Risk Based Capital approach for determining solvency for insurance and reinsurance companies. Although there may be some challenges in the path to implement RBC, like development of right talent pool but these are not insurmountable and we should make a start sooner than later towards adoption of RBC approach to solvency. In order to avoid pitfall of misuse the structure of RBC framework should be designed in a way that the scope of subjectivity is limited and even internal models are strictly in line with broad guidelines and subject to independent peer review.

3. Recommendation on RBC regime approach

3.1. **Factor Based Standard Model for RBC regime:** The sub-committee debated on adoption of Factor based standard model RBC regime, internal model based RBC and hybrid approach combining elements from both the approaches. Considering the level of maturity of the Indian market, implementation of RBC regime in other emerging economies and availability of technical skills in the country, the sub-committee recommends a factor based approach with all the parameters pre-defined. The companies need to just provide the necessary data required for computation of required risk based capital. Over a period when companies develop the competencies to create an internal model which is more representative of the risks inherent in their business then the dual approach of standard formula and internal model may be considered.

3.2. **Implementation Arrangement to RBC:** There are three possible alternative routes that may be adopted for the implementation arrangement. Firstly, an immediate migration to RBC which runs the risk of inadequate and inappropriate understanding of the changes, unplanned effect on excess or shortfall on solvency. Furthermore, it may also be adversely affected due error in estimation of various risk parameters due to lack of data and unavailability of historical data for back testing of these parameters. Second approach is adoption of "Twin Peak" approach was solvency would be determined to be higher of the existing formula based approach and RBC factor based approach. The sub-committee was of the view that this would end up having worst (in contrast to best) of the both approaches. Third and last approach considered would be to have continued solvency requirement by existing formula based approach and simultaneously have RBC factor based reporting for a period of time (e.g. three years) with constant analysis by the Authority and insurer. This will ensure that companies continue with the regime they are currently but simultaneously they get acquainted with the new regime. Three years' period, the committee felt, will provide enough time for the companies to optimize the business mix from a risk management perspective

3.3. Own Risk and Solvency Assessment:

3.3.1 Management and boards of directors of (re)insurance company follow processes to assure themselves 1) that they have the financial resources available to accomplish their objectives and 2) that they can utilise these resources in an efficient manner. Since (re)insurance companies are in the business of taking risk and have the primary objective of fulfilling obligations to policyholders, they must maintain financial resources (capital) to absorb fluctuations in financial results.

3.3.2 To determine how much capital is required and to assess capital adequacy, (re)insurers rely solely upon the requirements, standards and processes promulgated by regulators. Regulatory capital requirements are determined based upon large market segments and hence could potentially disregard the specific risks to which any individual (re)insurance company is exposed. As a consequence, these capital requirements may be too conservative or too optimistic for any given (re)insurer. Because of this, many insurers have spent considerable analytical resources to make their own internal assessment of risk, and of the adequacy and efficient use of their capital.

3.3.3 In response to the IAIS Insurance Core Principle ICP 16, IRDAI should require insurance companies to perform own risk and solvency assessments (ORSA) as part of effective risk management systems. The regulations would also require the formalisation of ORSA processes and the submission of reports that summarise the results of ORSA processes to regulators on a periodic basis.

3.3.4 ORSA will be an ongoing process by which (re)insurer's senior management team routinely assesses its own risk and solvency position; it provides a declaration of the company's assessment of its position in terms of profit, risk and capital, both now and in the future, under different scenarios and relative to the company's appetite for risk. ORSA needs to consider and be consistent with an insurance company's business strategy and the business planning process. ORSA should consider risk and solvency both from a purely economic view and by applying the regulatory requirements, should reflect the material differences between the two, and should demonstrate that the company's resources are adequate considering both views looking forward over the time horizon of the business planning process under both baseline and stressed conditions

3.4. Other Special Considerations:

3.4.1 From a governance perspective, the committee recommends that the calculated risk based capital during the three-year parallel reporting regime should be disclosed in the notes to financial statements. This will ensure that all stakeholders are well informed about what is expected in the future.

3.4.2 There may be a need for a special treatment for Indian insurer underwriting foreign business through branches or through foreign inward treaties.

3.4.3 For standalone specialist insurer and reinsurer, it is expected parameters (both pricing and reserving) for various Lines of Business would ensure correct assessment of solvency requirement, however if there are special consideration arising due to correlation with other risk, the same would need to be appropriately dealt.

4. Recommendation on Implementation Process

4.1. The sub-committee discussed three different kind of implementation partners that can assist the Authority on the implementation route. Each of such arrangement is discussed in subsequent paragraphs.

4.1.1 **External Consultants:** The external consultant(s) are expected to bring with them experience of rolling out similar projects in other geographies. They will be able to use their knowledge in various domains. More importantly they will be able to dedicate resources on a full-time basis for the project which will enable speedy implementation. On the flip side they may not be having a detailed understanding of the peculiarities of the Indian market and they come at a cost.

4.1.2 **Professional Bodies:** The Authority may seek help of professional bodies to help them with the rollout. This could be professionals from IAI, ICAI, CFA society and so on. The drawbacks of involving professional bodies is challenges of rollout in timely manner and availability of required technical skillset, to an extent, may act as an impediment.

4.1.3 **Academicians from prestigious institutions:** The expert academicians in prestigious institutions like IIMs, NIA, IIRM etc. maybe considered. While technical skills may not be a problem the lack of industry insights could act as an impediment here.

4.2. Alternatively, the Authority may set up a task force comprising its own personnel and senior professionals from the industry to roll this out. For the purpose of such implementation, the Authority may consider secondment of resources from the non-life insurer, standalone health insurer and reinsurer conducting such business in India. This may be cost effective and knowledge about the local sector is expected to come in handy. However, given the highly technical nature of the task, lack of experience of such implementation within the Authority, and need for significant higher resources allocation for a temporary duration would be some of the challenges.

4.3. The committee recommends that roll out through external consultant(s) should be the way forward taking into consideration the technical skillset needed, urgency to rollout in a timely manner and without compromising on the quality of implementation. However, the Authority would be responsible for the implementation process including oversight, internal resource allocation, communication with the industry participants etc.

4.4. **Constitution of Steering Committee**: - Given the implementation duration, intensity of activities, usage of external consultants as

implementation partners, and need for extensive engagement by all the insurer, it is recommended to set up a Steering Committee to be headed by Member Actuary, officials from the Authority, members of the sub-committee, project lead/partner from the implementation partner, etc.

4.5. **Terms of Reference of the Implementation Partner:** The minimum items that should be included in the scope of work for the external consultants would be

4.5.1 Qualitative Study

- Make a detail study of Economic Capital submission made by non-life insurer, standalone health insurer and reinsurer conducting such business in India and share the findings of the same to the Authority.
- Study the Indian market in detail from publicly available information and non-company/policy level data available with IIB/ BAP. Interviews with key personnel in the industry may also be conducted

4.5.2 At least three Quantitative Impact Studies (QIS) to be performed

- Prepare the data templates and estimate parameters for various risk including correlation matrix for all risk considered.
- Perform QIS to assess the capital requirement of the industry and its comparison with current capital requirement
- Procure feedback from companies on the methodology
- Fine tune & finalize the methodology
- Perform another QIS based on the final methodology
- Impact analysis and Communicate the findings to the industry through the Authority
- Suggest the roadmap to be followed by companies in terms of additional data to be captured
- Suggest the roadmap to be followed by the Authority in terms of modifying the selected methodology (if needed) as the companies collect the required data
- Suggest the supervision measures that maybe adopted by the Authority for monitoring

4.5.3 Disclosures – Public disclosure mechanism needs to be strengthened so that a market discipline mechanism is engraved into the system

- Modifications needed in current public disclosure templates and the rationale for the same
- Formats of new disclosures that needs to be made by the companies
- Proforma formats in which risk reporting maybe submitted to the Authority
- Suggested IT system to capture the disclosure data & enabling seamless industry level aggregation

4.5.4 Timelines – the consultant needs to assess the tasks and provide the expected timelines. After freezing the timelines with the concurrence of the Authority the consultant is expected to strictly adhere to it

4.5.5 Handholding (~6 months)

- Help the Authority in rolling out the RBC regime
- Provide adequate training for the personnel in the Authority's office from a supervisory point of view
- Provide a workshop for actuarial/risk management/accounting/IT staff of companies to help them adapt themselves to the new regime. This should cover data requirements, computation methodologies etc.
- Communicate IT related requirements of the Authority to the Authority's technology service provider and oversee the implementation

5. Selection of External Consultants

5.1. The sub-committee is of the view that the selection of external consultant as implementation partner should be two stage process. The first stage for external consultant would be to meet the minimum technical requirement criteria laid down by the Authority. Some of the aspects that may be included in the minimum technical requirements are listed below.

5.1.1 The consultant firm should be a partnership firm or limited company;

5.1.2 The minimum revenue of the firm in preceding year should be INR 10 Crs and minimum profit in the preceding year should be INR 1 Crs;

5.1.3 The firm or the associated firm should have prior experience in successfully developing and implementing such assignment;

5.1.4 The firm should have a minimum prescribed number of actuarial employees (with different level of qualifications) having worked in the similar assignment or advanced knowledge (as demonstrated by work skill) RBC regime in an advanced economy.

5.2. Only the firms complying with the minimum norms as finalized by the Authority would be eligible to make a financial bid. Financial bid may allow for flexibility or changes emerging challenges during the implementation process.

5.3. The external consultants should demonstrate the understanding of RBC regime, implementation challenges, extent of work require for parameterization etc. by sharing detailed project plan, expected challenges, establishing protocols of communication with various stakeholders, frequency and regulatory of progress report, details of key personnel involved in the implementation process, etc.

6. Key Milestones and suggested timelines for Implementation

6.1. The implementation road map could be categorized into 4 phases, viz

- Investigating phase
- Agreement phase
- Finalization / Implementation phase and
- Lastly post implementation phase

6.1.2 In order to get consensus across industry on risks to be included, method and parameters for determining the capital it requires at least 3 impact studies. The experience from other countries suggests that it requires 3-4 years for making a transition from current regime to the new regime.

6.1.3 The key milestones along with an indicative timeline for implementation of RBC is given below:

Key Milestones for the Implementation of RBC	FYE18				FYE19				FYE20				FYE21				FYE22			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
01] Analysis of Historical Economic Capital Rerport submitted by non-life insurer																				
02] Undertake a consultative study (both qualitative and quantative) with non-life insurer																				
03] Gap Assessment - On Data Requirement and Risk Identification																				
04] Qunatitative Impact Study 1 (QIS1)																				
i) Full Instruction for QIS1 exercise and result templates to be circulated to non-life insurer																				
ii) Submission of QIS1 by every non-life insurer																				
iii) Impact Study, Analysis and parameterisation of risk based on QIS1 submission																				
iv) Sharing of the result and consultation with the industry participants																				
05] Qunatitative Impact Study 2 (QIS2)																				
i) Circulation of revised parameters, instruction and result template for QIS2																				
ii) Submission of QIS2, ORSA disclosure & pro-forma by every non-life insurer																				
iii) Impact Study, Analysis and re-parameterisation of risk based on QIS2 submission																				
iv) Sharing of the result and consultation with the industry participants																				
v) Feedback from non-life insurer																				
06] Draft Regulations																				
i) Circulation of draft regulations and disclosure																				
ii) Inputs from insurer and other stake-holders																				
07] Qunatitative Impact Study 3 (QIS3)																				
i) Circulation of revised parameters, instruction and result template for QIS2																				
ii) Submission of QIS2, ORSA disclosure & pro-forma by every non-life insurer																				
iii) Impact Study, Analysis and re-parameterisation of risk based on QIS2 submission																				
iv) Sharing of the result and consultation with the industry participants																				
v) Feedback from non-life insurer																				
08] Gap Assessment report with respect to IAIS specifics																				
09] 6 Months Implementation Hand Holding																				

Notes

The Milestones are after the appointments of the Consultant

Non-Life Insurer in the above chart includes Standalone Health Insurer and GI Reinsurer

The above timelines are broad indication and more detailed timelines would be drawn in consultation with the appointed implementation partner and industry participants.

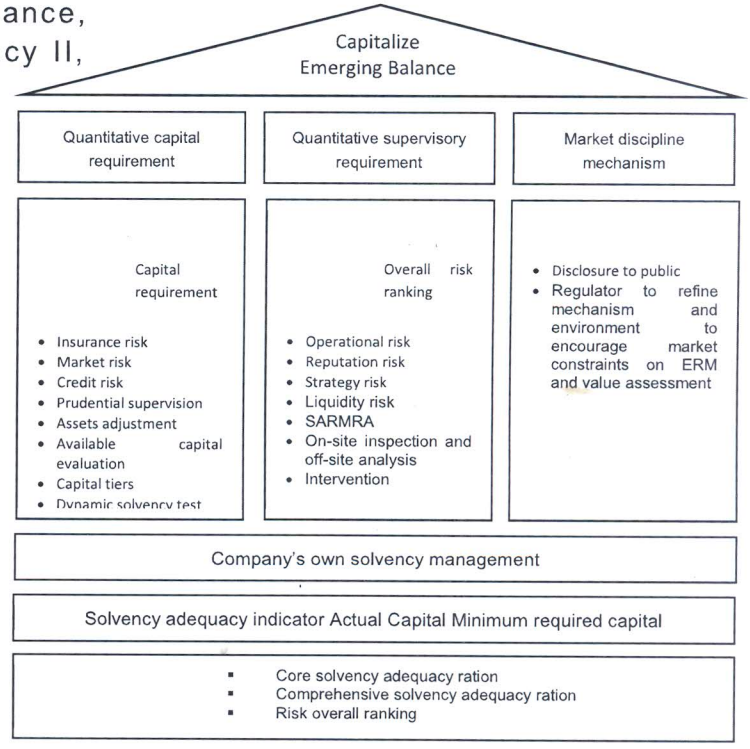
All steps to be done in consultation with the Authority

7. Annexure 1: Solvency Regime in different jurisdiction

7.1. China[1]

7.1.1 Introduction

- The China Insurance Regulatory Commission (CIRC) has adopted a factor-based solvency system similar to Europe's Solvency I regime from 2003 to 2007. It is composed of internal risk management, solvency reporting, financial analysis and supervision, regulatory intervention, and bankruptcy remediation.
- Over the past 30 years, the Chinese insurance market has become one of the fastest-growing in the world, and its complexity and risk have increased accordingly. The static solvency system failed to adequately reflect asset and liability risks facing insurance companies. Therefore, it has limitations in providing good guidance for insurers to improve risk management quality and capabilities.
- In line with global trend of moving toward more risk-oriented regulation and governance, such as Europe's Solvency II, the US NAIC's solvency modernization initiative and Singapore's RBC 2, CIRC developed a new solvency system for mainland China to not only meet local market needs but also provide pragmatic and invaluable experience for other emerging markets, as well as the international insurance community.



- In 2012, CIRC formally launched a project to establish "China's second-generation of solvency supervision system" known as China Risk Oriented Solvency System (C-ROSS), and it came into effect in 2016.

[1] *Reference "Risk-based capital and governance in Asia-Pacific: emerging regulations" by E&Y*

- C-ROSS links quantitative capital requirements with three major underlying risks faced by insurance companies: insurance risk, market risk and credit risk.

7.1.2 Pillar I: Quantitative Capital requirements

- The capital requirements for various risks (Insurance, Market, Credit etc.) are quantified using a prescribed standard method and aggregated together, allowing for diversification, as shown in the figure below. Operational risk is included in Pillar II due to a lack of reliable experience data to quantify it. A solvency stress test is also required under Pillar I to test the financial resource capability of insurance companies under stress scenarios.

7.1.3 Pillar II: Qualitative supervisory requirements: CIRC considers two specific supervisory action for Pillar II

- Integrated risk rating (IRR): CIRC comprehensively evaluates an insurer's overall solvency based on both quantitative results in Pillar I and qualitative risk assessments in Pillar II, including operational risk, strategic risk, reputational risk and liquidity risk.
- Solvency-aligned risk management requirements and assessment (SARMRA): Companies' own solvency management plays an important role in the C-ROSS regime. CIRC will set the minimum standards of risk management for insurers and will periodically evaluate their practices, such as governance structure, internal controls, management structure and processes. It also will assess insurance companies' risk management capability and risk profile.

7.1.4 Pillar III: Market discipline mechanism

- Pillar III of C-ROSS enforces oversight of insurance companies by the media, rating agencies, financial analysts and the general public by an integrated disclosure requirement. It also utilizes markets' self-regulation power to improve insurers' overall risk management capability and market discipline.
- Investment management: Under C-ROSS, the capital requirement for invested assets will link directly to the risk. Asset liability management (ALM) will become more important in the future, as ALM can minimize the negative impact on net assets or available capital.

- Capital management: Internal solvency and capital management is the basis for the external regulatory solvency requirement. The implementation of C-ROSS will give more room for active capital management to optimize capital structure and improve capital return. C-ROSS will also establish various capital tiers. As long as the financing tool can meet the capital attribution, it can be included in available capital.

7.2. Hong Kong

7.2.1 Introduction

- Since the 1980s, Hong Kong has followed a rule-based capital adequacy regime for insurers, which sets a predefined formula to determine the solvency margin requirement. The formula is based on a Solvency I framework. The factors are stipulated by the regulator and do not reflect the underlying risks of the insurance business.

7.2.2 Solvency margin:

- According to the ICO CAP41, an insurer must maintain an excess of assets over liabilities of not less than a required solvency margin. The objective is to provide a reasonable safeguard against the risk that the insurer's assets may be inadequate to meet its liabilities arising from unpredictable events, such as adverse fluctuations in its operating results or the value of its assets and liabilities. As required by the ICO, the statutory minimum solvency ratio is 100% of the required solvency margin; however, the OCI has a soft requirement of 150%.
- In case of general insurance business, the solvency margin is determined by the greater of 1) and 2) below and is subject to a minimum of HKD10m, or HKD20m for certain statutory classes:
  - One-fifth of the relevant premium income up to HKD200m, plus one-tenth of the amount by which the relevant premium income exceeds HKD200m
  - One-fifth of the relevant claims outstanding up to HKD200m, plus one-tenth of the amount by which the relevant claims outstanding exceeds HKD200m
- Premiums in this context are defined as the greater of 50% of gross written premiums or 100% of gross written premiums less ceded reinsurance. Outstanding claims are defined as the greater

of 50% of gross claims outstanding or 100% of gross claims outstanding, less reinsurance recoverables plus the unexpired risk reserve.

7.2.3 Dynamic solvency test

- In 2005, a requirement was introduced for a "Dynamic Solvency Testing" report to be prepared by the appointed actuary on an annual basis and submitted to the board of directors of the company and the IA. The report sets out the projected financial condition of the company under seven prescribed scenarios and other factors chosen by the appointed actuary.

7.2.4 Looking ahead

- There is a growing trend toward a common regulatory framework for financial institutions. This follows in the aftermath of global financial turmoil and substantial market developments since legislation was first drawn up. Aiming to align with international standards and practices, the OCI began discussions and consultation with the industry on the introduction of an RBC framework in 2013.
- The OCI is reviewing the solvency and capital regime with a view to developing an appropriate RBC framework for Hong Kong, taking into account experiences in other jurisdictions and latest international regulatory requirements. The OCI has indicated that the new RBC framework is expected to be implemented in 2016.

7.2.5 Considerations

- The expected RBC framework would consider the need to maintain a level playing field for all insurers in the market.
- According to the OCI, the expected RBC framework would consider the following key aspects:
- Latest Insurance Core Principles, Standards, Guidance and Assessment Methodology (ICP) issued by the International Association of Insurance Supervisors (IAIS)
- Experience of overseas jurisdictions, although this will not replicate Solvency II
- Hong Kong's unique market situation (e.g., diverse profile of large and smaller players with different lines of business)
- Incentives to introduce enhanced risk management
- Ease of use and ability to compute new capital requirements for such a diverse market
- The need to maintain a level playing field for all insurers in the market

- Avoidance of regulatory arbitrage

7.3. Singapore

7.3.1 Introduction

- The Monetary Authority of Singapore is finalizing the risk calibration and features of the RBC framework, with implementation expected from 1 January 2017.
- The RBC framework for insurers was first introduced in Singapore in 2004. It adopts a risk-focused approach to assessing capital adequacy and seeks to reflect most of the relevant risks that insurers face. The minimum capital prescribed under the framework serves as a buffer to absorb losses. The framework also facilitates an early intervention by the Monetary Authority of Singapore (MAS), if necessary.
- While the RBC framework has served the Singapore insurance industry well, MAS has embarked on a review of the framework (coined as "RBC 2 review") in light of evolving market practices and global regulatory developments. The first industry consultation was conducted in June 2012 in which the MAS proposed a number of changes and an RBC 2 roadmap for implementation.

7.3.2 Current state

- In March 2014, MAS issued a consultation paper on the RBC framework, updating an earlier version from June 2012. This second paper included the detailed technical specifications required for insurers to conduct quantitative impact study (QIS) 1; this will gather information and help evaluate the full impact of the RBC 2 proposals.

- The new proposals include: Solvency intervention levels
  - Adopt the prescribed capital requirement (PCR) and minimum capital requirement (MCR) at both the company level and insurance fund level; the PCR is calibrated to a VaR of 99.5% and MCR to a VaR of 90% over a one-year period
  - Submit to MAS a plan to restore capital position within three months if the insurer's capital falls below PCR

- Valuation of assets and liabilities
  - No proposed change to the approach for deriving provision for adverse deviation (PAD)
  - Gradually phase out the use of a long-term risk-free discount rate (LTRFDR) for policy liabilities of 30 years or more over the next 5 years (to apply to general insurance policy liabilities if an insurer decides to apply discounting)
  - Introduce a matching adjustment (MA) to the risk-free discount rate for valuing life insurance policy liabilities

- Components of required capital
  - Introduce new insurance catastrophe and operational risk requirements, and reorganize some risk modules
  - Recalibrate the life insurance risk requirements using VaR of 99.5% over a one-year period and impose the usage of a prescribed correlation matrix
  - Allow for diversification benefits (a) within C1 requirement for life insurers, (b) within C2 requirement, (c) for the interest rate mismatch risk requirement between insurance funds, and (d) between C1 and C2 requirements
  - Remove debt investment and duration mismatch risk requirements and replace them with interest rate mismatch risk requirement and credit spread risk requirement
  - Combine the counterparty risk requirements for different asset classes into a single module
- Components of available capital
  - Classify current tier 1 capital into common equity tier 1 (CET1) capital and additional tier 1 (AT1) capital
  - Recognize up to 90% of the preapproved capital instruments that are not meeting the new criteria, reducing by 10% every year
  - Impose minimum floors on CET1 and tier 1 capital of no lower than 65% and 80% of total risk requirements of insurance funds respectively, excluding participating funds
  - Incorporate a principal loss absorption feature for AT1 capital instruments

- Allow part of the negative reserves to be recognized as a form of positive regulatory adjustment in the calculation of available capital for solvency purposes
- Not recognize the reinsurance arrangement between head office and branch and between an insurer and its downstream entities for QIS 1
- Include claim liabilities in the reinsurer's share of liabilities to calculate reinsurance adjustments
- Remove licensing status of reinsurance counterparty from reinsurance adjustment formula
- Reclassify the allowance for provisions for non-guaranteed benefits as a form of regulatory adjustment to the available capital, rather than one of the components, along with tier 1 and tier 2 capital

▪ Treatment of OIF business for reinsurers

- MAS proposed to continue to exempt the OIF business of foreign-incorporated reinsurance branches from solvency requirements and also to continue to subject the OIF business of foreign-owned, locally incorporated reinsurers to the current simplified solvency requirement.
- For QIS 1, insurers are expected to conduct the exercise based on data with a valuation date of 31 December 2013. Results for scenarios 1 and 2 were due by 30 May 2014, while results for scenario 3 were due by 30 June 2014.
- A] Scenario 1: Assume all RBC 2 proposals are incorporated with the exception of MA
- B] Scenario 2: Same as scenario 1, except that insurers should assume that there is no LTRFDR and that a 30-year SGS yield is used for durations 30 years and beyond
- C] Scenario 3: Assume all RBC 2 proposals are incorporated, including the MA for life business if the criteria set out in the MA proposal can be satisfied
- A direct general insurer or general reinsurer that chooses not to discount its liabilities because the impact is immaterial would only need to do scenario 1. Direct life insurers and life reinsurers would, at a minimum, need to do both scenarios 1 and 2. If they write participating and non-participating businesses, scenario 3 would be applicable as well.

- The MAS expects to conduct another round of QIS in 2014, to finalize the details on the risk calibration and features of RBC 2 framework by year-end. Full implementation of RBC 2 is likely to take effect in January 2017.

7.3.3 ERM and ORSA development

- All insurers in Singapore, regardless of their tier, are required to conduct ORSA starting in 2014.
- The MAS introduced MAS Notice 126 Enterprise Risk Management for insurers in April 2013. This notice, which took effect in January 2014, introduces both mandatory and non-mandatory requirements for all licensed insurers operating in Singapore, except for captives and marine mutual insurers. The notice is intended to be used in conjunction with the MAS Risk Management Guidelines that were in place before 2014.
- Some of the mandatory requirements include the need to establish an ERM framework, putting in place risk identification and measurement processes, instituting and maintaining a risk management policy and risk tolerance statement, establishing a feedback loop, and performing an ORSA annually. These requirements, aimed at raising the risk management bar within the Singapore insurance industry, have generated immense interest and momentum among industry players.
- MAS Notice 126 also highlights the adoption of economic capital, which is the amount of capital that an insurer needs to satisfy its risk tolerance and new business plans. This goes beyond the existing regulatory capital requirements that insurers need to set aside. The MAS has clarified its stance during the consultation prior to the issuance of Notice 126 that the establishment of economic capital models is entirely at the discretion of insurers, provided that they are aware of all relevant and material risks that they face. The MAS will neither evaluate insurers' economic capital models in the meantime nor accept economic capital in lieu of regulatory capital requirements.
- Tier 1 insurers are required to submit an ORSA report to the MAS by 31 December 2014, while non-tier-1 insurers have until 31 December 2015 to do so. That said, all insurers in Singapore, regardless of their tier, are required to conduct ORSA starting in 2014. Given that the ERM and ORSA requirements are fairly new to the Singapore insurance industry, industry players may anticipate further refinements or guidance from the MAS in the next few years.

7.3.4 Stress testing the financial condition of direct insurers

- The MAS issued a circular in January 2014 setting out the stress-testing requirements for both direct life and non-life insurers for the year ended 31 December 2013.
- In view of the overlap between the annual regulatory stress-testing exercise and the new ORSA process that insurers are required to undertake in 2014, the MAS has streamlined the annual stress-testing requirements to moderate the demand on insurers' resources to the end of 1Q14. For instance, the stress-to-failure scenario is no longer mandatory. The contents of the stress-test report have also been simplified to focus only on the quantitative impact of the prescribed scenarios. Discussions about key risks and vulnerabilities and an actuary's recommendations to mitigate those risks and vulnerabilities have been removed and are intended to be covered as part of ORSA.

7.4. Malaysia

7.4.1 Introduction

- The Malaysian life and general insurance industry has been regulated under an RBC framework for statutory requirements since 1 January 2009. Since then, the following new requirements have been introduced for risk and capital management:
- For life and general insurers, the regulator, Bank Negara Malaysia (BNM), has taken further steps to strengthen the risk and capital framework by introducing the ICAAP in late 2012. This process is similar to what is common in the banking sector. Key ICAAP elements are:
  - An individual target capital level (ITCL) that reflects a company's own risk profile and risk management practices — this is determined by conducting appropriate stress and scenario tests (in this guideline, the term "stress testing" will generally denote the whole process of stress and scenario testing)
  - A capital management plan that takes into account the insurer's strategic business direction and the changing business environment

- Processes that monitor and ensure the maintenance at all times of an appropriate level of capital that is commensurate with the company's risk profile

- For family and general "Takaful" insurers, the RBC framework is effective from 1 January 2014, with the first reporting date of 31 December 2014. This is a significant change for the "Takaful" industry, as the existing solvency regime was formula-based.

- In addition, the Parliament of Malaysia enacted the Financial Services Act 2013 (FSA) and the Islamic Financial Services Act 2013 (IFSA) in March 2013. The objective was to introduce a more risk-focused and integrated approach to the regulation and supervision of financial institutions to safeguard financial stability.

7.4.2 Risk and capital management implications

- Some of these regulatory changes are having a far-reaching impact on the business and corporate strategies of Malaysian insurers. While the industry is still coming to grips with these changes, a number of insurance companies have started considering the risk and capital management implications and potential solutions to address them.

- Key implications of these changes that are high on insurers' agendas include:

  - Strengthening the capital management framework to demonstrate regulatory compliance with ICAAP regulations and to optimize a company's capital position and needs at the same time. From our observations in the industry, this is a key area for the regulator; several insurers have been asked to conduct further work to address any BNM concerns.

  - Putting in place the infrastructure for RBC reporting for "Takaful" insurers beginning 31 December 2014. This includes understanding the strategic impact on product offerings, as well as future capital requirements.

  - Understanding the implications of FSA 2013 for the corporate structure for composite insurers or insurers writing conventional and "Takaful" business under one legal entity.

7.4.3 Implementation challenges

- Insurers are investing significant time and effort in complying with and implementing these regulatory changes. Most perceive these changes not only as a compliance activity, but also as a means to rationalize their business strategy and current capital allocation philosophy.

- Key challenges faced by the industry in the ICAAP implementation include:
  - Developing a consistent set of risk appetite statements that are well-aligned to the organizational business strategy, and cascading these statements into operational risk limits
  - Deciding on a target level of capital that is consistent with the risk profile of the business
  - Developing a capital management plan that is forward-looking, comprehensive and well-documented to include the contingency management action framework
  - Increasing the involvement from the board in areas related to capital management
- The main focus for the "Takaful" industry appears to be on compliance with the reporting requirements. However, it is expected that this will gradually shift toward rationalization of the product and business strategy due to a change in the capital framework under RBC.
- For the FSA and IFSA, the market has not seen any significant initiative yet, but it is expected that as the implementation deadline draws closer (five years from the effective date), some corporate restructuring activity is likely to occur.

8. Annexure 2: Results of Survey of Non-Life insurance companies on Risk Based Capital

8.1. The committee had sent a small questionnaire to all non-life companies (including health and specialized companies) on various aspects of Risk Based Capital to get the industry views which might be of help in understanding the current position of the industry for its readiness for RBC regime. The questions were consciously designed to be open ended so that insurers could give qualitative comments for each question.

8.2. Q1.1: Do you think current solvency regulation of IRDAI for non-life insurer, standalone health insurer a reinsurer of such businesses is adequate and does not need any major changes?

Response: Most insurers gave the answer in affirmative indicating the industry needs a solvency regime more responsive to risks.

8.3. Q 1.2: List the areas in which current regime is adequate

Response: Most views have hailed the following qualities of the current solvency regime:

- Simple and hence resource efficient
- Standardized and hence affords comparison across insurers
- Has inbuilt prudence such that insurers have withstood difficult times
- Easy to communicate the results and the drivers of solvency
- Objective calculation with no scope for subjectivity and hence very transparent

8.1. Q 1.3: List the areas in which current regime is inadequate

Response: The views are summarized below:

- RSM calculation is very conservative since it is based on incurred claims rather than outstanding claims

- Does not account for all the risks in an insurance company
- Does not account for inadequacy or premiums or reserves
- Unduly benefits insurers with weak reserves
- Diversification benefit is not allowed by solvency formula
- Excessive capital requirements for retail health insurer
- Asset valuation ignores credit quality
- No provision for public disclosure of reserve adequacy
    - Liability valuation focuses only on claims and ignores premium liabilities
    - Liability valuation is retrospective rather than being prospective
- It is not risk based
- No incentive for better risk management and corporate governance
- Too generic and factor based
- Does not allow full reinsurance credit
- Reinsurance credit factor ignores reinsurer credit rating

8.2. Q 1.4: For various strategic decisions, do you have any alternative methods/approach to assess the Capital requirement? If yes, please explain in brief

Response: All companies stated that they use only the IRDA solvency formula to assess their capital requirement and do not use any alternative methodology.

8.3. Q 1.5: You are currently calculating Economic Capital (EC). Do you use the EC framework for your decision making or any other purposes? If yes, please give brief details.

Response: All except one company said they use IRDA solvency formula. Only one insurer said that they use EC for their Cat reinsurance purchase decision.

8.4. Q 1.6: In your assessment, on a scale of 1 to 5 (1 being immediate and 5 being beyond five years), how quickly should the industry move towards RBC framework?

Response: The response to this question has been varied and ranges from 1-5 giving no clear indication of the industry's preparedness to move to RBC

8.5. Q 1.7: Which of the following risks would you want to include in a risk based capital framework? Please distribute 100 marks amongst the below, in order of your preference and weights

Reserve risk
Premium risk
Reinsurance risk
CAT Risk
Operational risk
Credit risk (On Investment portfolio & Reinsurance Receivables)
Renewal risk
Market Risk (Both Interest Rate and Equity)
Liquidity Risk

Response: Most insurers gave highest weightage to Reserve risk, Premium risk, reinsurance risk and CAT risk.

8.6. Q 1.8: Recommend the transition arrangement that should be put in place along with broad timelines.

Response: The response to this question is divided from one extreme of immediate implementation to 5 years and more.

8.7. Q 1.9: List down the top 5 most risky and 5 least risky lines of business along with the underlying rationale

Response: Almost all insurers have unanimously ranked Motor TP as most risky. Apart from this line of business, insurers responses are divided and amongst all insurers some or the other insurer has named every line of business in the most risky group, except Motor OD which most insurers agree is less risky.

8.8. Q 2.0: At the Industry Level, implementation of RBC would impact the capital requirement in any one of the following ways:

- Lower than what is today
- Not much change in capital requirement
- Higher than not more than 10% of what is today
- Higher than more than 10% of what is today

Response: Again the response to this question is divided between all the responses and hence no clear indication at the industry level.

8.9. Q 2.1: In order to have an industry wide smooth transition, each of the elements listed below are extremely important. Let us know the extent of your agreement with this statement for each of the listed elements.

- Capital Commitment for Transition - extent of investment to be made for transition to new regime and not the Solvency Capital that may arise due to implementation of RBC framework.
- Risk Calibrations
- Quality of historical data
- Modeling Skill Set (within Industry & the Authority)
- IT Capabilities
- Modeling Skill Set (within the Authority)
- Any Other (Please Specify)

Response: For most elements insurers have agreed or strongly agreed, though the response to first question was expected to be a capital that insurers are willing to commit for moving to RBC.

8.10. Q 2.2: On a scale of 1 to 5, please assess the level of preparedness of the industry for each of the below elements. (1 being the lowest and 5 being the highest)

- Capital Resources
- Risk Calibrations
- Quality of historical data
- Modeling Skill Set (within Industry)
- IT Capabilities
- Modeling Skill Set (within the Authority)
- Any Other (Please Specify)

Response: The response to this question is divided amongst the insurers with insurers rating the preparedness of the industry anywhere between 1 to 4, hence giving no clear indication of industry's preparedness.

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