# RISK MANAGEMENT
## IN CURRENT SCENARIO

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# RISK MANAGEMENT IN CURRENT SCENARIO

***(Collection of articles on enterprise risk management, strategic risk management, risk culture, risk based capital, financial risk management)***

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# Section - 7

## Risk Based Capital

# RISK BASED CAPITAL - ISSUES, CHALLENGES AND OPPORTUNITIES

## Introduction

A Stable insurance sector is encouraging various insurance regulators around the world adopting Risk-Based Capital ("RBC"). In Asia, many insurance markets have moved to RBC or moving towards more advanced RBC 2 regimes, the latest being China implemented RBC in 2016, Philippines is getting ready for RBC 2 in 2017, Singapore implementing RBC 2 sometimes in 2017-18, Hong Kong time frame 2017-22 is under way besides, Malaysia, South Korea, Thailand, /ndonesia and Taiwan have already implemented RBC.

## Why RBC?

The purpose of RBC is to bring insurance sector more responsive to changes in both local, global economic and demographic environment. Many failures have been witnessed in the past in the financial sectors particularly in banking and insurance and need was observed to have solvency regime that can withstand some financial turmoil.

So instead of having a static solvency regime where solvency capital remains more or less static despite changes in the demographic and economic environment, the world have moved and is moving towards an era where the solvency capital will be dynamic to the changes in various internal and external risk factors.

## Recent RBC Entrants

Recently in 2017, Philippines which is getting ready to implement RBC 2 regime. Philippines has adopted three pillar approach to RBC where Quantitative calculation in Pillar-1, Governance in Pillar-2 and Disclosure in Pillar-3. The risk charges applied under Pillar-1 for the year 2017 is at 95.5% of confidence level increasing to 97.5% in 2018 and finally 99.5% in 2019 and beyond.

The Hong Kong Market is also working towards RBC with consultation starting in 2017 and full implementation by 2022. They are also adopting the three pillar approach similar to other markets, wherein the pillar-1, the quantification of risk capital is performed by using Market risk, Credit Risk, Life Underwriting risk and operational risk for life insurers. The Pillar-2 is Enterprise Risk Management and ORSA requirement and Pillar-3 is disclosure.

China implemented the RBC is very quick time within four years between 2012 to 2016 with three pillars approach.

## Key Issues, Challenges, and Opportunities

Implementation of RBC is not free from challenges, different stakeholders such as regulator, insurance players, shareholders etc faces a different level of challenges. The section below discusses some of the issues, challenges, and opportunities that these stakeholders mayface.

## Regulatory Challenges

Regulators are to stay proactive and ahead of the market in spotting emerging risks along with collaborating with international agencies in sharing knowledge and learning from each other.

The role of the Regulator is not just concerned about the protection of the policyholders but also instilling confidence in the customers to have faith in the financial system of the Country. The regulator is not also free

from challenges; they may find challenges putting in place all the regulation along with monitoring mechanism. They have to ensure that their own resources are in place, up to date with skills, systems etc. Implementation of RBC is a keychallenge for the regulator.

## Impact on Market

There is far reaching impact on the insurance industry by the implementation of RBC which may change the competitive landscape. The RBC may split financially strong players with the weaker ones; in such situation, consolidation in the market is not ruled out. In China, it was observed that smaller players required more capital to supporttheir business model.

Such situation is addressed by altering the strategy of the Company for investment, product, sales, and marketing. Players may select target market based on their risk appetite and ability to withstand volatility rather than present everywhere.

It has been observed in many markets moving to RBC adopting lesser guaranteed products and focusing more on protection products. Where low-interest rate regime is prevailing, there is a focus on risk management in the lapse, expense, and mortality to generate a surplus from these risks. Moving to unit-linked products are other options as it requires lower capital.

More successful players have a better implementation of risk management; they derive direct value both in terms of capital and profit. In the China, there is a reward of the lower capital requirement for better risk management.

In the different insurance markets in Asia, there are areas of convergence and divergence related to RBC. The convergence areas are risk framework - definition of risks and risks events, diversification of risks, economic balance sheet etc. The areas of divergence are - country specific features

in the calibration of risk factors, the liquidity of financial markets, accounting standards, product specific features, methodology etc.

Many of the regulatory regimes around the world are treating cyber risk in a crude way, though it can have a catastrophic impact because there is a shortage of data, cyber insurance is limited and many insurers do not provide such protection, blurring of territorial boundaries proving difficult to pinpoint the fault increases the complexities. Currently, cyber risk sits in the operational risk category and does not gain enough importance whereas its impact could be very high; therefore, there is a need to have a separate category for cyber risk similar to catastrophe risk to allow for appropriate risk change. It should attract more regulatory focus in RBC.

## Interest rate risk

Companies selling long-term traditional products with guarantees face high capital charge due to interest rate risk. Many Asian economies are lacking longterm risk-free assets to back long-term liabilities, this makes difficult to match the assets and liabilities in long terms products.

The interest rate shocks result in higher capital requirement where there is a mismatch between assets and liability duration.

To manage this risk, the Companies need to focus on assets liability management, reduction in duration gap between assets and liability and hedge the risk from derivatives.

There is a need to realign the investment strategy based on the available capital and focus on the customer target segment matching with the investment philosophy. For example, a more capital constrained Companies may invest in relatively secure assets to save capital and make product strategy that consumes lesser capital such as protection or unit-linked business.

Bigger and well-capitalized players may have a competitive advantage of investing in riskier assets to give a higher return to policyholders as compared to smaller players. Their investment strategy and risk appetite will have more powers to absorb shocks.

In order to sustain in such environment, the Companies have to keep their long-term strategy agile while focusing on the implementation of RBC.

## Risk and Capital

In an RBC regime, capital is based on risk, so risk and capital become synonymous; there is a direct relationship between the better management of risk and capital management. There is a need to invest in a risk management. In the China insurance market, there is an allowance to keep lower capital for better risk management. Risk management also allows benefits of risk diversification due to the negative correlation between the risk factors.

Many countries with risk-based capital regime have adopted three line of defense model, where the first line is the front line function, the second line is risk and compliance function and the third line is audit function.

Many countries who have implemented risk management, the key challenges are the development of risk culture within the organization.

The role of CRO is becoming very important where he is to do a balancing act of helping to identify risks to meet business objectives.

In the coming times, the role of CRO will be very challenging as he will be on firing line both from management and shareholders. He should be a critical friend ratherthan policing.

Sri Lankan market implemented RBC in 2016, some of the learning from this market are that actuarial competency is very important in the

successful implementation of RBC, Sri Lankan market has felt some challenges in garnering the actuarial resources. Senior Management involvement is very important in the implementation of RBC. Use of scenario testing and risk appetite is important in decision making. Employing disciplined process of setting actuarial assumption helps in reducing future volatility in profit emergence and capital requirement.

## Strengthening Customer Experience

Better customer experience helps in improving the customer's loyalty; this also brings more loyal customer through family and friends. In the western market, it has been found that the lapse rate of loyal customers is half of rest of the population. Such initiatives help in optimizing capital and profit.

Better expense management with lower operating expense helps in releasing the capital. This can be performed by improving /T capabilities, better fraud management, enhancing front line sales training, errorfree processing.

## Operational risk

The quantification of operational risk is challenging for most of the markets, however many markets have developed Risk Control Self Assessment process and created a probability and loss amount grid as a part of Common materiality framework to address the operational risk issues.

## Final thoughts

In the end, we need to ask some fundamental questions, whether the implementation of capital as a function of risk would make solvency dynamic with changes in the risk factors for which the regulatory changes are implemented around the world. Will it able to spot Bank Swan?

# Moving towards RBC

Until recently, capital employed in the insurance sector was not an explicit function of risk. Now, most of the developed and Asian economies have moved towards the Risk-Based Capital (RBC) framework, where the capital employed is in proportion to the risk taken.

India is also moving in this direction. The current position of capital determination for the statutory solvency purpose is based on a Solvency I approach. In this approach, two identical companies with similar size and volume will keep similar capital amounts irrespective of how risks are managed in both companies - offering little incentive for better risk management.

## Disclosures on websites

It may be observed that although the capital requirements in the Indian in-surance sector are not directly based on risk currently, many steps taken by the regulator are for the protection of policyholders, with disclosure norms, and financial stability requirements similar to those prevalent in the RBC jurisdiction.

Since 2010, the regulator had prescribed all insurance companies to disclose all their financials on their websites on a quarterly basis.

Apart from this, all insurers will also have to report economic capital

annually as a part of the Appointed Actuary's report and calculate its solvency position on this basis, as well as on a statutory basis. However, economic capital is not used to determine the solvency of the company.

## "Twin Peaks" approach

On RBC, the Indian regulator's RBC committee had studied the framework and submitted a report to the regulator in 2014. The committee recommended adopting a "Twin Peaks" approach to solvency, where current prudential norms will continue to one peak and new risk-based capital will be employed as the second peak. The first peak would preserve policyholder protection on a current basis to allow companies time to fully understand the implications of the new system of the second peak. The next move is awaited from the regulator.

Over the last couple of years, the Indian insurance regulator has taken various steps required for good gov-ernance in the direction of risk-based capital. One of them is making the Chief Risk Officer one of the key positions in the insurance company, where he is not only responsible for executing the Board's decisions, but also has to be accountable for effective implementation of statutory and regulatory provisions for overseeing the operations of the insurers, in order to put in place the best governance procedures and market conduct practices.

## Corporate governance guidelines

The regulator also issued revised corporate governance guidelines in 2016 to define the relationship between the shareholders, Board of Directors and Management. The terms of reference to different committees have been revised to enhance the overall risk management process across the organisation to ensure financial stability.

In addition, players have to submit stress test results on reserves and solvency positions on the key risks; the solvency position also has to be projected for next three years to as-sess the capital position to withstand

various scenarios through which an insurance company may pass through, such as any expansion plan. There is also an annual requirement of the actuarial profession to submit the Financial Condition Report to the Board and regulator.

## Role of the Board

At the current juncture, there are op-portunities for the players to set their key strategic objectives to leverage risk management benefits in future when RBC is introduced.

The role of the Board in setting the tone from the top and right risk culture is also critical, and are like heart and veins of the human body which cannot function without these two.

# Risk Based Capital over Traditional Approach in Insurance Sector

## Introduction

Strong Solvency of insurance companies is important for both the regulator and the policyholders. Financially strong insurance industry not only helps in increasing insurance penetration and economic growth but also help in building the trust of the people on the social security fiber of the country. Regulators over the time have made changes in the regulation to make insurance industry financially strong. The recent regulatory changes across the globe have led to determining solvency capital as a function of risks that insurance companies face rather than a simple formula. The article discusses how risk diversification and risk management helps in optimizing the solvency capital.

## How the solvency position of the insurance companies is assessed?

Every insurance Company keeps reserves to meet the future liabilities that will arise in a form of death, maturity or surrenders and this is because annual level premium charged is not commensurate with incidences of expenses and claim arising. The reserves are kept based on prudential regulatory norms. However, regulators also prescribe additional money that the insurance companies must keep aside in a form of solvency capital to meet the contingency.

The history of keeping solvency capital goes back to 1973 when non-life insurance companies were asked to keep the solvency capital and later the same was applied to life insurance companies in 1979 in European Union (EU). The methodology of keeping the solvency capital was modified for life and nonlife companies in the mid-1990s. Over the years, similar methodology is used in many jurisdictions including India.

However, during the economically turbulent times, the methodology used to identify such solvency capital has found to be inadequate exposing the limitations of this method leading to insolvency of insurance companies. This is because; the methodology used for such solvency capital calculation is based on a simple formula as a factor of reserve and a factor of the sum at risk. This method does not directly consider how much risk an insurance company is taking.

For example, two life insurance companies of similar size and shape will keep similar solvency capital even if one of them is managing their risks better. However, in reality, those companies that manage their risks better have lesser chances of failing compared to the one where risks are not properly managed. Therefore, the companies that manage their risks better, should ideally hold lesser solvency capital compared to the one where risks are not well managed. But the formula does not allow such benefits to the insurer.

This solvency capital directly comes from the shareholders, so shareholders bear the cost of locking this money which otherwise could have earn higher return. Therefore, shareholders would like to lock lesser solvency capital; while regulator would like to have strong solvency position, that is, higher solvency capital. This is a dichotomy between the shareholders and regulators.

capital will be allocated based on how much risk an insurance undertake. In EU, this is called, Solvency-II regime while in other jurisdictions this is called Risk Based Capital or in short RBC. Some jurisdictions in Asia are

moving to the second phase of RBC, which they call, RBC2 such as in Singapore and Philippines.

India, on the other hand, is currently following the traditional approach of allocating the solvency capital which is based on the formula approach. However, the regulator has taken some steps in this direction such as bringing risk management, the disclosure of financials on their website, Corporate Governance etc which is part of RBC regime.

## What is Risk Based Capital?

Risk based capital is calculated based on how much risk is taken by the insurance companies as opposed to using a standard formula. The Higher risk would require higher capital requirement and vice versa. One of the benefits of using risk based capital is as risks are correlated; the benefit of risk correlation is passed to the insurance companies. Further, as the risk capital is based on how much risk an insurance company takes, so better risk management also optimizes the capital.

The risks used in a life insurance company to quantify the risk capital broadly fall into insurance risk, financial risks, operational risk, credit risk etc. The components of insurance and financial risks are:

- Insurance Risk
  - Mortality risk
  - Lapse Risk
  - Expense Risk
- Financial Risk
  - Interest rate risk
  - Equity Risk
  - Foreign exchange risk o Spread risks

Risk Capital Calculation methodology is based on Statistical distribution uses the measure of Value at Risk (VaR) defined as the maximum loss

that an insurance company can suffer in a given time frame and within a certain confidence level. There are two methods of calculating the risk based capital, one is an internal model approach where Value at risk (VaR) is 99.5th percentile value of loss due to each risk and second is Stress testing or which is based on value of Assets and Liabilities once calculated on base assumption and again calculated on Stressed assumption. The difference between the two is the risk based capital for a particular risk. The stressed assumption is equivalent to 99.5% confidence level for each risk "r" or at any other desired level of confidence.

For example, if 7% interest rate is a base assumption and as an example, 5% down stressed assumption at 99.5% confidence level, then the risk based capital will be calculated as the difference between the value of assets and liabilities calculated at 7% and 5%.

The total risk capital is not just the sum of all the individual risk capitals because many of the risks are correlated, for example, Interest rate risk and lapse risks are correlated, lapse risk and mortality risks are correlated, longevity risks are mortality risks are correlated. The benefit of these correlations reduces the risks from the sum of all the risks capital. What does this means, if lapse rate increases, this leaves the portfolio with sub standard lives, as good lives have lapsed their policies because they know their health is better and do not require insurance, the remainder of the portfolio likely to exhibit the worse mortality experience compared to what was originally anticipated.

The advantage of correlation allows companies choosing risks where the correlations are either negative or close to zero. This allows reducing the overall risk capital because the increase in one risk reduces the other risk or do not increase the other risk at a linear rate. For example, mortality and longevity have negative correlation of -0.25, this means that if the portfolio has term products and annuity products, the overall risk of the portfolio will reduce because any increase in mortality rate will reduce the annuity payouts.

This is now understood that the risk capital allows benefits of risk choice to the insurance companies which was not available when the solvency capital was calculated using the formula approach. Another advantage of risk based capital is better to risk management which helps in reduction of capital.

## What is Risk Management?

The risk is an uncertainty that can derail meeting the objectives of the company and Risk Management enable meet Company's objectives by finding the mitigating action to address the risks. In the risk management process, the first step is risk should be identified which can impede meeting the objectives, for example, if a life Company is planning to enter into the annuity business and they do not have any prior experience in manufacturing and selling annuity business, the key risk is, they may not able to achieve the objective of selling required number of annuity business leading to resulting loss.

Therefore, the shareholders will not able to get the return on the solvency capital that they have locked this new line of annuity business. This may happen due to lack of resources, lack of selling skills, system requirement, lack of understanding of the products, management of the longevity risk etc. If the key risks and its sources are not identified properly, its action plan can never be prepared. For every risk identified, the life company must prepare an action plan to address the risks.

The action plan could be hiring right professionals who have already dealt in the past with the annuity business. They can also take a help from the reinsurance companies who have experience in annuity business, training to the sales staff could be given to addressing the annuity selling skills. Such mitigation plan may help in achieving the business objectives of selling profitable annuity business and thereby providing desired return to the shareholders.

Risk management not only helps in managing the risks better, but it also

helps in taking a good Risk Based Decisions by identifying good risks, knowing whether the new risks are strategic fit or not within the business and whether it adds value to the Company or not. For any new initiative, if the risk-adjusted return on Capital (RAROC) exceeds the cost of equity capital, the initiative will add value to the business.

This is one guide can be taken while taking the risk based decisions. Other measures that are often used are whether the new initiatives are within the defined risk appetite or not and if the Company is accepting any risk that is outside the risk appetite should be properly justified by the management to the Board.

## How India stands on this front?

As mentioned above, solvency capital in the insurance sector in India is currently calculated using the formula approached or also called solvency-1 approach. Risk management under this method allows second order benefits to the shareholders because, the capital is not directly risk based, however, risk management does help in developing the risk culture, reducing the early and fraudulent claims, improving the persistency of the Company, keeping expense within budget etc. All these efforts help in improving the profitability of the Company and thereby adding the surplus in the insurance Company's kitty to improve the solvency.

In order to bring more rigors into the risk management sphere, the Indian insurance regulator, have enhanced the risk management domain by making the Chief Risk Officer's position in all insurance companies as key positions; have revised the corporate governance guidelines to bring strengthen the risk management committees, responsibilities of Board members have been enhanced, mandatory disclosure of all financials on the Company's website etc. These efforts will help the insurance companies in India to develop risk management culture and prepare for the risk based capital regime.

## Final word

There is a global effort in providing more social security, peace of mind and strong financial system to help the people, in general, to take benefits of insurance products to meet uncertainties of life. The change in the solvency regime expected to make the insurance sector stronger. This, however, likely to bring some challenges to the insurance industry which they need to gear up to handle the challenges. Risk management in this new frontier will play a key role in the success of capital and profit optimization; it would be good for the insurance players in India to enhance the risk management skills as currently, there is a lot of gap in demand and supply. However, beware of a black swan.

# RBC in the Indian Insurance Industry

***"Risk- Based Capital is recommended by the Committee to IRDA to be used for the purpose of Solvency assessment. What could be the possible impact of RBC regime on the Indian Insurance Industry is discussed in the write-up"***

## Background

Insurance Companies in India is to keeps reserves to meet the future liabilities, these reserves are kept based on prudential regulatory norms. However, regulators also prescribe additional money that the insurance companies must keep aside in a form of solvency capital to meet the contingency if it arises. Such money cannot be used for any other purpose.

This Solvency capital in India is currently calculated based on two-factor approach, which however does not take into the account of all the risks that insurance company faces. There is a shifting world over on the calculation of capital based on all the risks that company faces as opposed to two-factor approach currently used, commonly known as Risk-Based Capital (RBC) Approach.

## Introduction

This write-up assesses the high-level likely impact on the Indian Insurance

Industry when Risk-Based Capital (RBC) regime will be implemented in India, expectedly by 2021. The Committee on RBC set up by the Indian Insurance Regulator (IRDA) in June 2016 has given its report in July 2017 and has recommended the introduction of RBC regime by March 2021. The report is available on IRDA website.

## The key highlights in the report are:

1. The RBC approach may be based on factor-based model as compared to internal model used in some markets
2. Qualitative Impact Study (QIS) will be performed which will help in determining the approach and assessment of parameter value
3. Recommendation on the implementation of Enterprise Risk Management (ERM)

The impact of this change in the capital calculation will be on key stakeholders and the way insurance company operates. Some of these changes are discussed below are my personal opinion based on the studies available from those markets where RBC has been implemented.

## Shareholders

The solvency capital directly comes from the shareholders which cannot be used for any other purpose than supporting the solvency. The investment norms on solvency capital money are much stricter which means that the Shareholder earns a return on this money by around equivalent to return on G-Sec and therefore loses the right to earn market return.

This means that shareholders bear the cost of locking this money which otherwise could have earn higher return. Therefore, shareholders would like to lock lesser solvency capital and therefore reduce the risk; however, the current solvency regime does not provide this opportunity as the capital is not a function of all the risks.

The introduction of risk-based capital will provide this opportunity to the Shareholders to optimize the return on capital by suitably managing the risks that the Company will undertake. This will enhance the focus of shareholders on the enterprise risk management which provides a tool to manage risks. Such tools not only help in optimizing the capital position but also help in taking risk-based decision to stay within the risk appetite.

This means that on every penny spent on the Company risk can be adjusted to provide a better return than the market return. This may change the strategic focus of the Company on the investment that it makes rather than just following the competition because the risk appetite of different players of the same size could be different.

## Product Design

Due to the risk-based capital requirement, the Companies may shift the focus of product design based on their risk appetite. For example, those companies who have constraint capital position may move away from designing high capital-intensive products such as products with high-interest rate guarantee which consumes higher interest rate risk capital to protection based products which are less capital intensive.

The key risk in the protection product is a mortality risk which can be hedged by purchasing the reinsurance cover as compared to the higher capital requirement for interest rate risk in the absence of interest rate risk hedging tools. Similarly, other options of moving to lower capital intensive products are to move towards linked products where customer bears the investment risks.

However, such expected change in the product designs must be driven by customer's need rather than just capital requirement. The emerging economic condition will also be a factor for the customer's choice of financial products need. Some bottom rung players may need additional capital to manage the needs of the customer and their own risk appetite.

It would be useful for the insurance players to re-look into their product strategy based on currently available capital and future risk-taking ability. Such change now will help in the smooth transition from the current capital regime to RBC regime.

## Mergers

In the western market when they were moving to the RBC regime, it was observed that the risk-based capital had a higher capital requirement as compared to their earlier regime. The impact on the Indian insurance players in terms of their capital position will only be known in the industry go through the Quantitative Impact Study (QIS); if the results of other markets that moved to RBC is used, there could be challenge to some bottom rung companies in terms of their available capital to back solvency.

So they may require either additional capital injection or they may take the route of mergers with stronger players. Some players may take IPO route to fetch additional capital but their other financials will be the key in taking this route for the public to invest money to get a suitable return. Post implementation of RBC, consolidation in the insurance industry may not be ruled out.

## Investment

The introduction of RBC may bring new investment norms which will impact different players based on their capital position in leveraging competitive advantage. Players with higher capital and higher risk appetite may have a more competitive advantage in investing into the more risky assets thereby giving customers better return products based on their needs. The exact nature of investment norms will only be known when the parameter values for investment are known.

There will be a linkage of investment norms, products design, and risk appetite while setting the strategy for the future. Those players who will

be managing the risks better will be in a better competitive position in terms of satisfying customer's need as well as Shareholder's required return. The key in this direction is build up of risk culture.

## Enterprise Risk Management

The RBC committee has exclusively recommended a parallel implementation of Enterprise Risk Management (ERM). The ERM in a simple sense is a Company-wide application of risk management where all functions contribute to identification and management of risk. This is opposed to silo approach where risk management is focused and limited to few functions.

The implementation of ERM likely to bring the change in the mindset of the all the employees in relation to how they perceive risk and risk management, this is because shareholders will be keen to optimize the return on capital. The ERM will also help in choosing the risks so that they get diversification effect when they aggregate the risks. The aggregation of risks is not summed total of all risks because different risks are correlated, so overall risk gets reduced.

Risk diversification may be used smartly to lower the overall capital requirement. In some countries such as China where implementation of ERM reduces the overall capital requirement.

## Policyholders

Policyholder's need and managing their expectation will determine the leaders in the market; this is represented by Conduct Risk which is defined as the risk of not delivering good customer outcome. In some countries, managing conduct risk is one of their key requirements of success apart from financial results. The future of risk management will have a very important component of conduct risk apart from other standard risks.

Though the conduct risk separately, may not demand the additional capital but it could be a key driver of new business generation. In this

direction, recently, IRDA, the Indian Insurance Regulator has prescribed to give Claim ratio mandatorily in the advertisement to help customers in choosing the right player. The price of the products may not be the key pull factor, so the companies may have to focus on services and claim payment to attract and retain customers than just worrying about price.

## Summary

The final details of RBC implementation will be known later by the IRDA, however initial assessment of moving to risk-based capital suggests that the insurance companies may work on their strategy to place themselves better when finally it gets implemented. The areas where the players can work on are

1. ERM may be proactively implemented in conjunction with the Board, which will not only help in optimizing the Capital but also help in developing and implementing the ERM model within the Company.
2. Such ERM implementation will also help in building the risk culture across the organization.
3. Focusing on the product design which optimizes the capital given the risk appetite of the Company. Because there will be diversification effect of different risks, product classes and risks may be chosen which provide this advantage. For example, annuity and term product portfolio will bring down overall risk as longevity risk and mortality risks are negatively correlated.
4. Improving the customer satisfaction level
5. Once the details of the parameter values are known, there will be players who can take advantage of investment norms based on their product design. The investment norms may also drive the choice of product design.

It is imminent that the landscape of the Indian Insurance industry is bound to change in next five years if RBC is implemented as scheduled.

# Risk Based Capital in Insurance Sector

## Need for Capital

Capital is needed in the insurance sector to write the new business and back the solvency of the company to be utilized if reserves kept backing the policyholder's liability turns out to be insufficient. Different countries have different capital requirement regulations, however, the purpose is same to protect insurance companies from getting insolvent.

Insurance Companies is to keeps reserves to meet the future liabilities, these reserves are kept based on prudential regulatory norms. However, regulators also prescribe additional money that the insurance companies must keep aside in a form of solvency capital to meet the contingency if it arises. Such money cannot be used for any other purpose.

This Solvency capital in India is currently calculated based on two-factor approach, which however does not take into the account of all the risks that insurance company faces. There is a shifting world over on the calculation of capital based on all the risks that company faces as opposed to two-factor approach currently used, commonly known as Risk-Based Capital (RBC) Approach.

## Why World is moving towards Risk Based Capital?

The purpose of RBC is to bring insurance sector more responsive to changes in the economic and demographic conditions both at local and

global level. It has been witnessed failures in the financial sectors particularly in banking and insurance and need was felt to have regulatory solvency regime that can withstand some financial turmoil. According to one data source kept from 1991 by National Organization of Life & Health Insurance Guaranty Associations, US, and every year in the US around two to three local level life/health insurance companies are taken over by the state department.

So instead of having a static solvency regime where solvency capital remains more or less static despite changes in the demographic and economic situations, the world has moved and is moving towards an era where the solvency capital will be dynamic to the changes in various internal and external risk factors.

## What is Risk Based Capital?

Historically in 1989, JP Morgan Chairman, Dennis Weatherstone use to have "4.15 pm Report" every day. The report used to combine the entire firm's data on market risk in one place, the intention was to collect the information sufficient to answer the question: "How much could the bank loss if tomorrow turns out to be a relatively bad day". If the bank keeps the amount equivalent to the amount of loss that the bank may suffer in one day they can sustain in the business.

The amount thus kept is calculated based on a statistical methodology known as Value at Risk (VaR) is central to capital calculation under both Basel-II/III and Solvency-II regime. This enables banks and insurance companies to calculate the appropriate level of capital to maintain its solvency to the desired level of confidence based on the risks that it present within the certain time frame.

Risk Capital Calculation methodology is based on Statistical distribution uses the measure of Value at Risk (VaR) defined as the maximum loss that an insurance company can suffer in a given time frame and within a certain confidence level. There are two methods of calculating the risk-

based capital, one is an internal model approach where Value at risk (VaR) is 99.5th percentile value of loss due to each risk and second is Stress testing or based on the value of Assets and Liabilities once calculated on base assumption and again calculated on Stressed assumption.

Under this methodology, the risk capital is calculated for each risk and then aggregated. The stressed assumption is equivalent to 99.5% confidence level for each risk "r" or at any other desired level of confidence.

- **Internal models**
  Value at risk (VaR) = 99.5th percentile value of loss due to each risk
- **Stress testing**
  Risk Capital(r)= [Assets - Liabilities ]
  @ Base assumption
  @ Stressed assumption

The stressed assumption is equivalent to 99.5% confidence level for each risk "r" or at any other desired level of confidence.

For example, if 7% interest rate is a base assumption and, 5% down stressed assumption at 99.5% confidence level, then the risk-based capital for interest rate risk will be calculated as the difference between the value of assets and liabilities calculated at 7% and 5%.

## Risk Diversification

The aggregation of all risks at Company level is not just the sum of all the individual risk capitals because many of the risks are correlated, for example, Interest rate risk and lapse risks are correlated, lapse risk and mortality risks are correlated, longevity risks and mortality risks are correlated. The benefit of these correlations reduces the total risks as a benefit of diversification. This means that if lapse rate increases, this leaves the portfolio with substandard lives, as good lives have lapsed their

policies because they know their health is in a better state and do not require insurance, the remainder of the portfolio likely to exhibit the worse mortality experience compared to what was originally anticipated.

The advantage of correlation allows companies choosing risks where the correlations are either negative or close to zero. This allows reducing the overall risk capital because the increase in one risk reduces the other risk or do not increase the other risk at a linear rate. For example, mortality and longevity have a negative correlation of -0.25, this means that if the portfolio has term products and annuity products, the overall risk of the portfolio will reduce because any increase in mortality rate will reduce the annuity payouts.
Risk Based Capital Position in Asia

Many of the Asian countries have either moved to the RBC or in a process of moving to RBC in next three to five years time. All the developed countries have already moved to the RBC. In the Asian countries India, Hong Kong, and Vietnam are in the preparatory stage of moving to RBC.

The details of RBC position of some of the countries in the Asia Pacific are the following:

***Singapore:*** Singapore was perhaps one of the first countries in Asia moving in the direction of keeping capital based on the risk way back in 2004. To enhance the RBC further, the Monetary Authority of Singapore (MAS) started the review of their first RBC in 2012 with first consultation paper, the 2nd consultation paper were taken out in 2014 (detailed information on how to conduct 2nd QIS) and 3rd consultation paper in August 2016 aiming to understand the potential financial impact on Singapore insurers of second Quantitative Impact Study ('QIS2'). In the new RBC regime, the new risks included are Spread Risk, Operational Risk, Catastrophe Risk, and Liquidity Risk.

***China:*** China started their RBC journey rather late in 2012 but

implemented the RBC in a four year quick time in 2016. Their framework is similar to European Solvency-2 regime is called C-ROSS (China Risk Oriented Solvency System). The capital calculation is based on risks of Insurance, Credit and Market risk. The operational risk is placed under pillar-2 due to lack of reliable historic data. Strategic, reputational and liquidity risk falls under the pillar-2. China has made special mention using risk management to leverage the capital position of the insurance companies.

***Hong Kong:*** Hong Kong Market is also working towards RBC with consultation starting in 2017 and full implementation by 2022. They are also adopting the three pillar approach is similar to other markets, wherein the pillar-1, the quantification of risk capital is performed by using Market risk, Credit Risk, Life Underwriting risk and operational risk for life insurers. For non-life companies, GI underwriting risk is in place of life underwriting risk. The Pillar-2 is Enterprise Risk Management and ORSA (Own Risk Solvency Assessment) requirement and Pillar-3 is disclosure.

***Indonesia:*** Indonesia, followed RBC since 2013, under this regime, the balance sheet is constructed using, assets on market value, and reserve on best estimate liability plus Margin of Adverse Deviation (MAD), RBC based on the stress test. They have also moved reserving to Gross Premium Valuation basis from Net Premium Valuation. The valuation discount rates they are using are average of three-year yield on Government stock with a maximum addition of 50 bps on top of this. The MAD is not defined but should be equivalent to 75% of the confidence level. No specific methodology is defined

***Malaysia:*** Malaysia is using the RBC regime since 2009, the implementation of RBC in Malaysia started happening in 2014 and the first reporting happened during Dec 2014. The Regulator is Bank Negara Malaysia (BNM)

***Philippines:*** Philippines has adopted three- pillar approach to RBC where Quantitative calculation in Pillar-1, Governance in Pillar-2 and Disclosure in Pillar-3. The implementation of RBC was planned in four phases with final implementation in phase 4 in 2017. The risk charges applied under Pillar-1 for the year 2017 is at 95.5% of confidence level increasing to 97.5% in 2018 and finally 99.5% in 2019 and beyond.

## Risk Based Capital Position in India

The solvency capital in India is currently determined using the Solvency-1 approach where the formula is used as x% of Reserves and y% of the sum at risk, where x and y are defined by the regulator for the different product line. This method is simple to calculate and traditionally used the world over.

However, this method has disadvantage that it does not take risk exclusively into account and there is a very little incentive for good risk management to optimize capital position. Therefore, there are a no diversification benefits insurance companies get under Solvency-1.

In this approach, two different companies with similar products, strategy, management, the business volume would have similar capital requirement even if one company is with very good risk management while other with not so good risk management.

This is because the formula does not allow the use of good risk management in the calculation of solvency capital, though there could be some second order effect due to good experience resulting from risk management efforts.

So in this approach, there is a very little incentive for capital saving due to good risk management.

Ideally, poorly risk managed companies should have more risk, more

chances of losses and therefore should have a higher capital requirement to meet extra loses.

Therefore, in risk-based capital, capital is calculated based on the risk profile of the Life Companies. So a better risk managed company will have a lower capital requirement as compared to poorly risk managed company. Therefore solvency-II provides an incentive to invest in risk management.

## RBC Recommendation

The Committee on RBC set up by the Indian Insurance Regulator (IRDA) in June 2016 has given its report in July 2017 and has recommended the introduction of RBC regime by March 2021. The report is available on IRDA website.

***The key highlights in the report are:***

1. The RBC approach may be based on factor-based model as compared to internal model used in some markets
2. Qualitative Impact Study (QIS) will be performed which will help in determining the approach and assessment of parameter value
3. Recommendation on the implementation of Enterprise Risk Management (ERM)

## "Twin-Peak" approach

Prior to submission of 2016 report on RBC, the Indian regulator also established another committee in 2014 to study the possibility of RBC jurisdiction. The committee recommended adopting "Twin-Peak" approach to solvency where current prudential norm will continue to one peak and new risk-based capital will be employed as the second peak. The first peak would preserve policyholder protection on a current basis to allow companies time to fully understand the implications of the new system as the second peak. The next move is awaited from the regulator.

## Regulatory Initiatives

Despite India being in the Solvency-1 regime, the IRDA has taken many steps that that will be useful as a groundwork for RBC regime. For example, public disclosures on Company's website about the financial results of the Company are one of the requirements under pillar-3 of RBC regime. This the regulator made it mandatory since 2010. The financial information such as profitability, Solvency position, actuarial assumptions used in valuation etc can be found on the individual Company's website.

Another step that the regulator took was, all insurers have to report economic capital annually as a part of Appointed Actuary's report and calculate its solvency position on this basis along with statutory basis. However, economic capital is not used to determine the solvency of the company.

The regulator also made the Chief Risk Officer position as one of the key positions in the insurance company where he is not only responsible for executing the Board's decisions, but also have to be accountable for effective implementation of statutory and regulatory provisions for overseeing the operations of the insurers.

## Corporate governance guidelines

The regulator also issued revised corporate governance guidelines in 2016 to define the relationship between the shareholders, Board of Directors and Management. The terms of reference to different committees have been revised to enhance the overall risk management process across the organization to ensure financial stability.

In addition, players have to submit stress test results on reserves and solvency positions on the key risks; the solvency position also to be projected for next three years to assess the capital position to withstand various scenarios through which an insurance company may pass through such as an expansion plan. There is also an annual requirement of the

actuarial profession to submit the Financial Condition Report to the Board and regulator.

## Key Issues, Challenges, and Opportunities

Implementation of RBC is not free from challenges, different stakeholders such as regulatory, insurance players, shareholders etc faces a different level of challenges. The section below discusses some of the issues, challenges, and opportunities that these stakeholders may face.

### *Regulatory Challenges*

The Regulator is to stay proactive and ahead of the market in spotting emerging risks along with collaborating with international agencies in sharing knowledge and learning from each other.

The role of the Regulator is not just concerned about the protection of the policyholders but also instilling confidence in the customers to have faith in the financial system of the Country. The regulator is not also free from challenges; they may find challenges putting in place all the regulation along with monitoring mechanism. They have to ensure that their own resources are in place, up to date with skills, systems etc. Implementation of RBC is a key challenge for the regulator.

### *Impact on Market*

There is a far-reaching impact on the insurance industry by the implementation of RBC which may change the competitive landscape. The RBC may split financially strong players with the weaker ones; in such situation, consolidation in the market is not ruled out. In China, it was observed that smaller players required more capital to support their business model.

Such situation is addressed by altering the strategy of the Company for investment, product, sales, and marketing. Players may select target market based on their risk appetite and ability to withstand volatility rather than present everywhere.

It has been observed in many markets moving to RBC adopting lesser maturity guaranteed products and focusing more on protection products. Where low-interest rate regime is prevailing, there is a focus on risk management in the lapse, expense, and mortality to generate a surplus from these risks. Moving to unit-linked products are other options as it requires lower capital.

More successful players have a better implementation of risk management; they derive direct value both in terms of capital and profit. In China, there is a reward of the lower capital requirement for better risk management.

### *Industry*

In the different insurance markets in Asia, there are areas of convergence and divergence related to RBC. The convergence areas are risk framework - definition of risks and risks events, diversification of risks, economic balance sheet etc. The areas of divergence are - country specific features in the calibration of risk factors, the liquidity of financial markets, accounting standards, product specific features, methodology etc.

Many of the regulatory regimes around the world are treating cyber risk in a crude way, though it can have a catastrophic impact because there is a shortage of data, cyber insurance is limited and many insurers do not provide such protection, blurring of territorial boundaries proving difficult to pinpoint the fault increases the complexities. Currently, cyber risk sits in the operational risk category and does not gain enough importance whereas its impact could be very high; therefore, there is a need to have a separate category for cyber risk similar to catastrophe risk to allow for appropriate risk change. It should attract more regulatory focus in RBC.

### *Interest rate risk*

Companies selling long-term traditional products with guarantees face

high capital charge due to interest rate risk. Many Asian economies are lacking long-term risk-free assets to back long-term liabilities, this makes difficult to match the assets and liabilities in long terms products.

The interest rate shocks result in higher capital requirement where there is a mismatch between assets and liability duration.

To manage this risk, the Companies need to focus on assets liability management, reduction in duration gap between assets and liability and hedge the risk from derivatives.

There is a need to realign the investment strategy based on the available capital and focus on the customer target segment matching with the investment philosophy. For example, a more capital constrained Companies may invest in relatively secure assets to save capital and make product strategy that consumes lesser capital such as protection or unit-linked business.

Bigger and well-capitalized players may have a competitive advantage of investing in riskier assets to give a higher return to policyholders as compared to smaller players. Their investment strategy and risk appetite will have more powers to absorb shocks.

In order to sustain in such environment, the Companies have to keep their long-term strategy agile while focusing on the implementation of RBC.

## Conclusion

Under RBC, instead of having a static solvency regime where solvency capital remains more or less static despite changes in the demographic and economic situations, the world has moved and is moving towards an era where the solvency capital will be dynamic to the changes in various internal and external risk factors.

RBC is calculated using the statistical methodology Value at Risk which provides both benefits of diversification as well as benefits of better risk

management to the Company. If Company can manage their risks better, they can optimize the capital utilization.

Many of the markets in the Asia Pacific have moved to the RBC regime and some of the countries such as India is in a process of doing so. The RBC committee set by the regulator has given a recommendation to RBC regime by 2021; the next step from the regulator is awaited. The Indian regulator has taken some steps that are required in the direction of RBC such as disclosure of Company's information on their website, making the CRO position as key persons, revision of corporate governance guidelines etc.

The implementation of RBC is not free from challenges that have observed in the markets already moved to the RBC regime. The Indian market may take lessons from those countries and implement the learning.

The key fundamental question which the time will answer that how this change in the capital identification helps the insurance industries across the globe in sustaining the storm.