Annexure-2 Details of the calculations including guidance points

This section provides a brief explanation of the section requirements of the template. The statutory solvency balance sheet items are self explanatory and in total should be same as reported as part of filing annual return submissions to the authority. All amounts to be filled in INR '000s

Insurers should mention the quantification method e.g. stress testing/Stochastic simulation/Factor based method used to quantify individual components. Insurers should parameterize and quantify individual risk based on their own assessments and views about particular risks. Participants are also encouraged to add additional rows to the table to incorporate further details

1. Liabilities

1.1. Policyholder liabilities. Policyholder liabilities should reflect market consistent values on a realistic basis. .

1.2. Any other liabilities (if any) not classified in 1.1

1.3. Other economic adjustments depend upon the methodology adopted and may include among other items such as cost of options and guarantees

1.4. For statutory valuation, while valuing the liabilities the technical rate is taken as the sum of risk free rate and a risk margin. This risk margin varies from insurer to insurer based on their own experience viz., portfolio performance, variability in the yield, claims experience, surrender, lapses etc. But, for economic capital calculation, keeping in line with international practice, the valuation of liabilities should be done at risk free interest rate which could be the yield on 10 year Government of India security.

2. Capital requirements

The relevant sections contain example parameters and example quantification methodologies for illustrative purposes only. Participants should parameterize and quantify risks based on their own risk assessments

2.1. **Insurance risk**. Insurance risk includes components like mortality, morbidity, longevity, persistency, catastrophe, expenses, inflation etc.

2.1.1. *Mortality/Morbidity risk*: The total economic required capital (ERC) for Mortality/Morbidity should be input in the economic capital column. This total amount should be further detailed in the following table. The format is provided here as an example. For example, the quantification method (Decision 4) for individual risks should be clearly mentioned and the relevant parameters stated.

Table 2.1.1 Risk components	Risk capital	Quantification method (Decision 4)	Quantification Parameters
Mortality		Refer Appendix of economic capital and	Refer Appendix of economic capital and MCEV report by IOAI

		MCEV report by IOAI	
Longevity			e.g. +10% improvement in mortality rates for annuity business
Morbidity		e.g. Stress testing	e.g. +10% increase in morbidity
Catastrophe		e.g. factor based	e.g. 1.5 per thousand applied on death sum at risk
Total	Same as 2.1.1 from the main table		

2.1.2. *Lapse/Surrender etc risk*: The Lapse/Surrender/Withdrawals/Top-ups ECR should be input in the economic capital column. This total amount should be further detailed in the following table. The format is provided here as an example.

Table 2.1.2 Risk components	Risk capital	Quantification method (Decision 4)	Quantification parameters
Lapse trend		e.g. Stress testing	e.g. +20% increase or -20% decrease in lapse rates whichever is onerous
Surrender shock		e.g. Factor Based	e.g. +50% of surrender strain (Surrender Value in force less economic provisions
Withdrawal, Top-up			
Total	Same as 2.1.2 from the main table		

2.1.3. *Expense/Inflation risk*: The total Expense/Inflation ECR should be input in the economic capital column. This total amount should be further detailed in the following table The format is provided here as an example.

Table 2.1.3 Risk components	Risk capital	Quantification method (Decision 4)	Quantification parameters
Expense and inflation		e.g. Stress testing or e.g. Factor based	e.g. +10% increase in expenses and 1% increase in inflation rate or e.g. .75% of liabilities
Expense/Inflation ECR	Same as 2.1.3 from the main table		

2.1.4. *Insurance other risk components*: The Insurance other risk ECR should be input in the risk based capital column. This total amount should be further detailed in the following table. The format is provided here as an example.

Table 2.1.4 Risk components	Risk capital	Quantification method (Decision 4)	Quantification parameters
XXXX			
Insurance other risk ECR	Same as 2.1.5 from the main table		

2.1.5. A simple arithmetic aggregation of all insurance risk components without accounting for diversification.

2.2. **Market risk**. Market risk includes components like interest rates, equity returns etc.

2.2.1. *Interest rate risk*: The Interest ECR should be input in the economic capital column. This total amount should be further detailed in the following table. The format is provided here as an example. For example, the quantification method (Decision 4) for individual risks should be clearly mentioned and the relevant parameters stated.

Table 2.1.1 Risk components	Risk capital	Quantification method (Decision 4)	Quantification parameters
Interest rate risk		e.g. Stochastic simulations	e.g. 1000 simulations using short rate mean reverting interest model with a mean reversion level of 7% and a volatility of 15 %
Interest ECR	Same as 2.2.1 from the main table		

2.2.2. *Equity risk*: The Equity ECR should be input in the economic capital column. This total amount should be further detailed in the following table. The format is provided here as an example. For example, the quantification method (Decision 4) for individual risks should be clearly mentioned and the relevant parameters stated.

Table 2.1.1 Risk components	Risk capital	Quantification method (Decision 4)	Quantification Parameters
Equity risk		e.g. Stress testing	e.g. 60% fall in equities
Equity ECR	Same as 2.2.2 from the main table		

2.2.3. *Foreign Currency Exchange risk*: The Forex ECR should be input in the risk based capital column. This total amount should be further detailed in the following table. The format is provided here as an example. For example, the quantification method (Decision 4) for individual risks should be clearly mentioned and the relevant parameters stated. It is recognized that, presently, this item may not be relevant or may be immaterial for most of the insurance companies in India.

Table 2.1.1 Risk components	Risk capital	Quantification method (Decision 4)	Quantification Parameters
Forex risk		e.g. Stress testing	e.g. 10% fluctuation in domestic currency
Forex ECR	Same as 2.2.3 from the main table		

2.2.4. *Property risk*: The Property (i.e. real estate) ECR should be input in the economic capital column. This total amount should be further detailed in the following table. The format is provided here as an example. For example, the quantification method (Decision 4) for individual risks should be clearly mentioned and the relevant parameters stated.

Table 2.1.1 Risk components	Risk capital	Quantification method (Decision 4)	Quantification Parameters
Property risk		e.g. Stress testing	e.g. change in rental yields; e.g. change in market values
Property ECR	Same as 2.2.4 from the main table		

2.2.5. *Other Market risk components*: The Other Market risk ECR should be input in the economic capital column. This total amount should be further detailed in the following table. The format is provided here as an example.

Table 2.1.4 Risk components	Risk capital	Quantification method (Decision 4)	Quantification parameters
XXXX			
Market other risk ECR	Same as 2.2.6 from the main table		

2.2.6. A simple arithmetic aggregation of all insurance risk components without accounting for diversification.

2.3. **Operational risk**. Operational Risk is the risk of loss resulting from inadequate or failed internal process, controls, controls, people, and systems or from external events

The Operational ECR should be input in the economic capital column. This total amount should be further detailed in the following table. The format is provided here as an example. For example, the quantification method (Decision 4) for individual risks should be clearly mentioned and the relevant parameters stated.

Table 2.1.1 Risk components	Risk capital	Quantification method (Decision 4)	Quantification parameters
Operational risk		e.g. factor based	e.g. factor applied on head count or expenses or economic capital
Operation ECR	Same as 2.3 from the main table		

2.4. **Credit risk**. Risk of default and change in the credit quality of issuers of securities, risk of counterparty default

The credit risk ECR should be input in the risk based capital column. This total amount should be further detailed in the following table. The format is provided here as an example. For example, the quantification method (Decision 4) for individual risks should be clearly mentioned and the relevant parameters stated.

Section	Description	Statutory solvency 31st March 2010	Economic capital 31st March 2010	Brief Remarks (to be filled in by the insurers as per ECR provided)
1	**Total Liabilities**	**=Row(1.1)+ Row(1.2)+ Row(1.3)**	**=Row(1.1)+ Row(1.2)+ Row(1.3)**	

Table 2.1.1 Risk components	**Risk capital**	**Quantification method (Decision 4)**	**Quantification parameters**
Spread risk		e.g. stress testing	e.g. 2% widening of bond spreads
Default risk		e.g. factor based	e.g. probability of default applied on counterparties
Credit risk ECR	Same as 2.4 from the main table		

2.5. **simple arithmetic aggregation** of all risk components viz. insurance, market, operational and credit risk ECR without accounting for diversification.

2.6. **Impact of Aggregation/Diversification of above risks**: An aggregation/diversification of all risk components has to be quantified. The statistical correlation methodology (Decision 5) along with the relevant parameters and matrices should be mentioned here.

Please see the table below and this will give a form at for final presentation of economic capital figures, for each of the item explained above:

1.1	Policyholder liabilities			Insurers required to mention main principles to arrive at the value of economic liabilities like the valuation method, target percentiles, any margins etc.
1.2	Other liabilities			Insurers required to list components of any other liabilities (if any) not already included above
1.3	Other economic adjustments			Insurers required to list components of other economic adjustments (if any) Separately, insurers are required to mention whether implicit and explicit guarantees are accounted for and their method of estimation e.g. stochastic, scenario based, closed form solution or any other appropriate method
2	**Capital requirements**	**=Row (2.6)**	**=Row (2.6)**	Insurers required to mention target level of security, time-horizon and the measure of risk while quantifying their economic capital **(Decisions 1, 2 and 6)**
2.1	**Insurance risk**	**=Row(2.1.7)**	**=Row(2.1.7)**	
2.1.1	Mortality/Morbidity risk		Input Mortality/Morbidity risk ECR	Additionally, please fill in table 2.1.1
2.1.2	Lapse/Surrender risk		Input Lapse/Surrender risk ECR	Additionally, Please fill in table 2.1.2
2.1.3	Expense/inflation risk		Input Expense/inflation risk ECR	Additionally, Please fill in table 2.1.3
2.1.4	Longevity risk		Input Longevity risk ECR	Additionally, Please fill in table 2.1.4
2.1.5	Any other insurance risk component		Input Insurance Other risk ECR	Additionally, Please fill in table 2.1.5 (If any)
2.1.6	Arithmetic aggregation of insurance risk components		=Sum of above Rows 2.1.1 to 2.1.5	

2.2	**Market risk**	**=Row(2.2.7)**	**=Row(2.2.7)**	
2.2.1	Interest rate risk		Input Interest risk ECR	Additionally, Please fill in table 2.2.1
2.2.2	Equity risk		Input Equity risk ECR	Additionally, Please fill in table 2.2.2
2.2.3	Forex risk		Input Forex risk ECR	Additionally, Please fill in table 2.2.3
2.2.4	Property risk		Input Property risk ECR	Additionally, Please fill in table 2.2.4
2.2.5	Any other market risk component		Input Market Other risk ECR	Additionally, Please fill in table 2.2.5 (If any)
2.2.6	Arithmetic aggregation of market risk components		=Sum of Rows 2.2.1 to 2.2.5	
2.3	**Operational risk**		**Input Operational risk ECR**	**Additionally, please fill in table 2.3**
2.4	**Credit risk**		**Input Credit risk ECR**	**Additionally, please fill in table 2.4**
2.5	**Total of all risk categories**		**Row(2.1)+ Row(2.2)+ Row(2.3)+ Row(2.4)**	
2.6	Aggregation/Diversification effect of above risks			
2.7	**Total of all risk categories after adjustment for aggregation/diversification**		**2.5 minus 2.6**	
2.8	**Total Assets Required**		**1 plus 2.7**	
2.9	**Total Assets Available on an Economic Basis**			
2.10	**Total of statutory liabilities and 150% of RSM**			
2.11	**Total Assets on an IRDA Basis**			

Calculate A) 2.9 divided by 2.8 and also B) 2.11 divided by 2.10.