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Climate change: Impact on the insurance industry

Comparative Analysis an India and rest of countries

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***Introduction* – Climate change is expected to have wide-ranging impacts on the insurance industry, including risk management, rate making and reserving. There may be increases in some types of claims (e.g., Fire, flood, wind), but also opportunities in insurance products and insurance investments. The actuarial profession is considering what role it could play in climate change**

***Keywords*– Data Analysis, Comparative Analysis through Statistics**

I. **Top five challenges for the Insurance Industry**:

1) Climate Change:
   - A long - term risk with broad-reading implications.
   - Can affect Pricing, reserving and solvency including Mortality & Health problems.
2) Demographic shifts in core markets:
   - Creates new demands that insurance companies are well placed to satisfy.
   - The challenge will be to maintain market share in core markets in the face of competition from Non –insurance sectors
3) Catastrophic events:
   - The costs increase potential impact on insurer's earnings and capital.
   - The significant challenges include pricing & financing.
4) Emerging markets:
   - Both a risk and an opportunity but success is not guaranteed.
   - Many companies' growth strategies are essentially emerging market strategies, but challenges abound
5) Regulatory changes:
   - Most of respondents agree that individuals will have inadequate of new regulation and insurance laws & Accounting rules.
   - Could result in changes in operation & underwriting practices.

II. **Impact of global warming on the insurance industry**:

S.no.	Cause	Effects
1	An increase in hot days and heat waves	Affecting health, life, property, business interruption & crop insurance
2	Flooding & Earthquake	Affecting Property, flood, crop, vehicle, life, health & business interruption insurance
3	Wild fire	Affecting crop, property, life and health insurance
4	Rising temperature, drought and flood	Affecting Crop, property insurance
5	Coastal erosion from rising sea levels	Property, flood, business interruption and life insurance

III. **The Impact of climate change on the Insurance Industry:**

Non –Life Insurers:

1) Property Insurance: Coastal property is at risk from the rising sea level and increasing strength of storm surges. On the other hand drought, could lead to an aggregation of damage to foundations due to soil settling.
2) Health Insurance: The unpredictable heat wave made clear that the potential impact of climate change on health insurance. The heat wave contributed too many hospital admissions and the premature deaths of people. The increasing occurrence of floods, storms and cyclones could also lead to an increase in the risk of infectious diseases.

3) Agriculture Insurance: Drought and floods can also have different consequences for farmers. Prolonged droughts will fuel forest fires that could endanger agricultural land and result in air pollution in the affected region.
4) Motor Insurance: Statistics showed that road accidents were more numerous on hot days. It can also be very important concerning damages to the vehicles, in case of storm, floods, landslides (falling trees, rocks, pieces of roof) which are damaging a lot of two & four wheelers.
5) Business interruption insurance: It is a type of insurance that covers the loss of income that businesses suffer after a disaster. The potential effect on small and medium size enterprises of increasing flood damage and reducing insurance availability could be serious for the economy as a whole. But only 26% think climate change is a real threat to them.

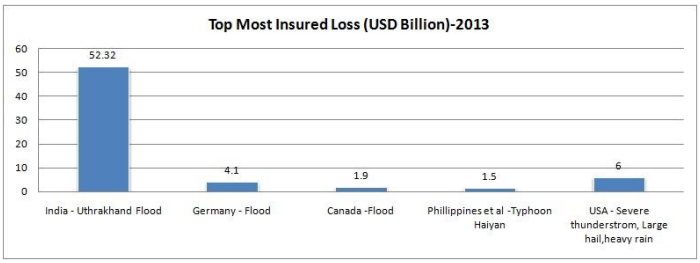
Life –Insurers:

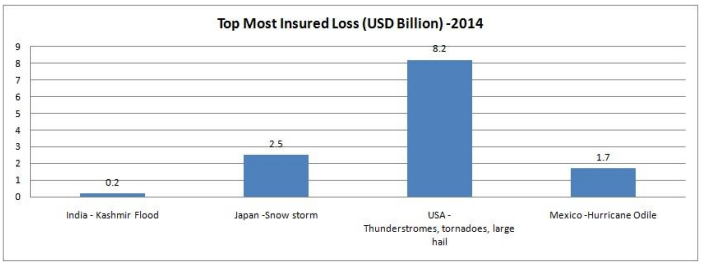
- While property and casualty insurers may face the greatest impact of climate-change related catastrophic events, life insurers face challenges as well.
- Life insurers manage products that for financial security during retirement and in the event of premature death. Because life insurers hold long-term assets and enter in to long-term contracts, action taken now may have significant implications for future solvency.
- Life insurers have an obligation to their policyholders to fulfill all contingences and must be prudent when managing investment and issuing policies.
- Not preparing for the possible effects of climate change may indeed have serious for both life insurer & policyholder.

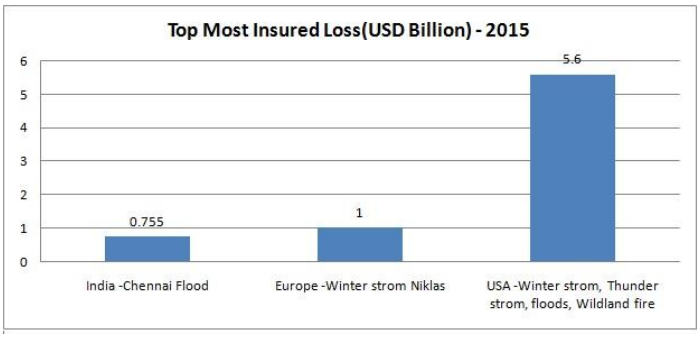
Re –Insurers:

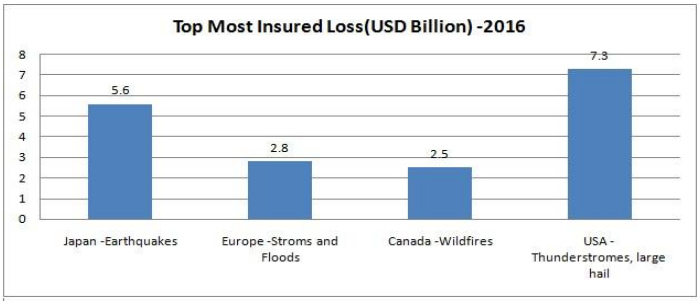
- Insurance companies hold reserves to meet the expected value of future claims and additional capital is held against unexpected events. Financial assets are held to back these reserves and capital.
- For general insurers, reserves are typically backed by both of government and corporate –fixed interest securities.
- The liabilities of an insurer are likely to be affected by climate change in a number of ways. Unless terms and conditions or insurance coverage change, capital requirements are likely to increase as the probability of extreme events increase.
- Insurers must pay insurance coverage can remain unchanged. Reinsurers and alternative capital market providers will not accept risk on terms that are not commercially viable.

IV. Top Most Insured Loss (2013-16)









1) Property and business interruption, excluding liability and life insurance losses
2) Swiss Re estimate
3) With the Permission of Property Claims services(PCS)

IV. ANOVA RESULTS

Insured loss with respect to reason:-

ANOVA					
TOTAL INSURED LOSS (USD billion)					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	231.708	4	57.927	.304	.869
Within Groups	2096.760	11	190.615		
Total	2328.467	15			

Insured loss with respect to country:-

TOTAL INSURED LOSS (USD billion)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	930.335	7	132.905	.760	.634
Within Groups	1398.132	8	174.767		
Total	2328.467	15			

V. CONCLUSION & RECOMMENDATION

The ANOVA results prove that the significant value (.869) is more than P-value 0.05.we accept null hypothesis and reject alternative hypothesis. So we conclude that there is no statistically significant difference in insured loss with respect to reason. As well as significant value (.634) is more than P-value 0.05. So we conclude that there is no statistically significant difference in insured loss with respect to country. Finally conclude that the climate change problem affect all over the insurance industries around the world.

Developing new insurance products which cover risks affected by climate and weather events, such as health, Property & casualty and crop yields. Insurers are also looking to the scientific community to help it build forward-looking risk models that make climate change into account, with profound results.

VI. REFERENCES

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