Chapter- I

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1.1 General outline

Insurance is a system of spreading the risk of one onto the shoulders of many. Whilst it becomes nearly impossible for an individual to bear by him all the losses caused to his property or to his 'stake' in anything such as a sporting event due to any unforeseen happenings, insurance is a method which distributes his burden of the loss among a number of other persons within the group formed for the particular purpose. In the world of business, be it services, commerce or industry; a large sum of properties are employed. In the absence of a proper risk management mechanism in place, the volume of uncertainty is the maximum and the huge investments are at stake. By purchasing insurance policy this sort of risk can be minimized.

The Indian economic scenario has changed over the last couple of decades in general and in the post liberalization period in particular. Changes are even likely to get intensified in the years to come owing to the on going economic crisis. With the changes already in hand and the changes that are likely to occur, industries would be constrained to go for newer means of business, newer methods, new investments and may be a complete restructuring of the business involving different nature and extent of risk complexion. And in order to have a sustained industrial growth, a sound general insurance mechanism to provide insurance coverage to the business and industry will be of great importance. The growth and financial soundness of the
general insurance business in itself will lead to the growth, financial soundness and strength of the industry as a whole. Moreover, being in the business of covering risks the general insurance players have to understand their own risks and also the risk of the insured's. Hence it is intended, through this study, to make an in depth analysis of the performance of general insurance business in India with special reference to their ability to manage risk.

1.2 Relevance of the study
A lot of changes have taken place in the Indian economic scenario during the last two decades. This is particularly true in the context of the nineties when the Indian economy assumed a structural change in terms of regulations, players and instruments. Prior to the turn of the nineties, the general insurance business was wholly a state owned subject with the General Insurance Corporation (GIC) controlling the general insurance market with its four subsidiaries, namely, National Insurance Corporation Ltd, New India Assurance Ltd, Oriental Insurance Company Ltd and United India Insurance Company Ltd. In the pre-privatization period, the public sector players in the general insurance business used to offer four categories of products such as the motor, health, commercial/industrial and rural insurance. With the induction of the private players in to the general insurance business in India in the post liberalization period not only that many new products in the prevalent product categories got infused but also new categories of products like the agriculture insurance got into the hands of the buyers. The general insurance business in India in the post liberalization period has been dynamically changing and upgrading its
business operations in the field of product development, product pricing, actuary, underwriting, claims management, risk management, asset-liability management, reinsurance and customer relationship management. On the product development front, for instance, the IRDA has come up with specific requirements of product design such as a clear and transparent cover, simple language, similar sequence of presentation in the related documents, fair terms and conditions between the insurer and the insured, prior approval of the products and alike. On the customer relationship management front, the Government of India has promulgated the Redressal of Public Grievance Rules 1998 under the Insurance Act 1938 to establish the Insurance Ombudsman in order to provide the insured a speedy and inexpensive grievance redressal mechanism.

The changes in the economic policy with increasing emphasis on liberalization and open market system; transformation in the orientation of domestic general insurance market from sellers to buyers; enhanced incentives for global investments; establishment of IRDA with its dominating role in controlling and regulating the functioning of the players, have all rendered the general insurance business market of the pre liberalization period a complete obsolete.

The changes that have taken place in the last decade have got long term implications not only for the institutions offering general insurance coverage but also on the instruments, risk outlook and functioning. With the induction of private players in the fray, the general insurance business in India needs an extensive appraisal of its
performance for better understanding of the impact of the changes and hence the present study entitled ‘A study on the Performance of General Insurance Business in India with special reference to Risk Management’.

The present study has relevance in as much as it provides insight into the behavior of the variables which determine the performance of general insurance business in India. Formulation of econometric models based on the behavior of the variables influencing the performance of general insurance business in India will facilitate better decision making and risk management process of the players in the industry. The findings of the study are also likely to help the policy formulators in bringing needed modifications to the existing policy and provisions to give further boost to the industry. Besides, the present study will also provide direction for further research.

1.3 Review of literature

There have been some attempts in the past to study the trends, patterns and risk management mechanisms of general insurance business in India and also abroad. Some of the prominent studies undertaken abroad and in India relating to the performance of the general insurance business and the risk management have been highlighted as under:

1.3.1 Studies abroad

Review of the literature on studies conducted abroad has been made under two categories; studies relating to performance and studies relating to risk management.
1.3.1.1 Studies relating to performance

Robin Pearson (2002) has conducted a study titled 'Growth, crisis and change in the insurance industry: a retrospect' by correlating the impact of technology, the interaction between markets and organizational change, and the globalization of insurance and its relationship to economic growth. The study concluded with the findings that there exists a strong positive correlation between the study variables.

Giné, Xavier, Townsend, Robert, Vickery, James (2007) have conducted a study called 'Statistical Analysis of Rainfall Insurance Payouts in Southern India.' which presents statistical analysis on the effectiveness of rainfall index insurance policies in India. The rainfall data are used as the main source for the measurement of rainfall insurance payout distribution in the country. The rainfall index insurance products were developed by the ICICI Lombard General Insurance Co. Ltd., and introduced in the Indian rural households in 2003. The primary focus of the rainfall index insurance is to offer protection on the insurers' households against rainfall events such as severe shocks and other related incidents. The study could not fully establish the effectiveness of the rainfall index linked to insurance payout and hence called for further research on the subject to evaluate effectiveness of rainfall index insurance.

Horne (2007) in the study 'Price war spices up Indian market' reports on the developments in the non-life insurance industry in India. It is mentioned that in the first phase of a two-step de-tariffication programme, tariffs were abolished for general
line of insurances including fire, engineering, and motor excluding third-party, and allowing insurers to price the risks themselves for the first time. A critical evaluation of the second phase of the programme forecasts free hands to the insurers to set their own terms and conditions on policies.

Shortridge, et al. (2004) in their study 'The Impact of Institutional Ownership on the Reinsurance Decision' observed that insurers with higher levels of institutional ownership purchase less reinsurance.

Powers, et al. (1998) have conducted a study entitled 'Insurance Market Games: Scale Effects and Public Policy' to propose a game-theoretic model to study various effects of scale in an insurance market. After reviewing a simple static model of insurer solvency in which all customers have inelastic demand, they have presented a one-period game in which both the buyers and sellers of insurance make strategic bids to determine market price and quantity.

Zheng, et al. (2009) in their study titled 'A Comparative Study of International Insurance Markets' have proposed the Benchmark Ratio of Insurance Penetration (BRIP) as a new paradigm for international insurance comparison. Their study makes a new assessment and comparison of insurance growth levels of certain countries as well as certain economic groups, and further discusses the policy implications. It proposes that it is necessary to have a new recognition of the international insurance growth pattern and insurance companies should not only
continue to consolidate market share in developed markets but also actively explore developing markets.

Gine, et.al., (2008) in their work ‘Patterns of Rainfall Insurance Participation in Rural India’ had made an extensive study of rural insurance in India. The study opines that the innovative rainfall insurance policy offered to small farmers in rural India decreases the risk between insurance payouts and income fluctuations. It also increases with household wealth, and decreases with binding credit constraints. These results are consistent with the predictions of a simple neoclassical model with borrowing constraints.

Mosley and Krishnamurthy (1995) in the study “Can crop insurance work (?): The case of India” have assessed the performance of the Indian Comprehensive Crop Insurance Scheme from 1985 to 1993 in relation to a critical literature which argues that comprehensive agricultural insurance is subject to insurable moral-hazard obstacles.

Rosenzweig, Mark R (1993) in a study titled ‘Women, Insurance Capital, and Economic Development in Rural India’ has conducted a similar research but taking the demographic aspects into consideration. In the research the longitudinal data from a national probability sample of rural households in India was used. The estimates confirm earlier findings based on more geographically confined data from India that inter household financial transfers play a small but significant role in
contributing to consumption-smoothing. The results also indicate that the transformation of traditional agriculture through technological change does not necessarily lead to great equality by sex in the intra household distribution of resources despite the evident normality of equality in intra household resources.

Amy and Kathleen (1996) in a study titled "Multiple Dimensions of Private Information: Evidence from the Long-Term Care Insurance Market" has demonstrated that there is an existence of multiple dimensions of private information in the long-term care insurance market. Two types of people purchase insurance: individuals with private information that they are at high risk and individuals with private information that they have strong taste for insurance. The results of the study have demonstrated that insurance markets may suffer from asymmetric information even up to the absence of a positive correlation between insurance coverage and risk occurrence.

Mark, et.al. (2000) in their study on 'International Property-Liability Insurance Consumption' have highlighted the international scenario of property-liability insurance during the eighties and the early part of nineties to report that the world insurance market has grown substantially during this period. The analysis explains that a substantial proportion of the variation in property-liability insurance consumption across countries belongs to the Organizations from Economic Cooperation and Development (OECD). The study focuses on two lines of insurance: motor vehicle and general liability to indicate that economic conditions affect the
demand for insurance differently across lines of coverage. In particular, the study pointed out that income has a far greater effect on motor vehicle insurance consumption than on general liability insurance consumption.

Viscusi and Born (1995) have undertaken an empirical research titled 'The General-Liability Reform Experiments and the Distribution of Insurance-Market Outcomes' to study the effects of reforms on general liability insurance in United States. The study used firm-level data from two states, New York and Colorado, which enacted reforms over the period 1984-1991. The regression models used in the study indicated that the improvement in insurer profitability was substantial largely due to a secular trend rather than to the effect of liability reforms.

Born and Viscusi (1994) in their study 'Insurance Market Responses to the 1980s Liability Reforms: An Analysis of Firm-Level Data' have indicated that tort reform had a restraining effect on losses and premiums, with a net positive effect on profitability.

Hansen and Imrohoroglu (1992) in their study 'The Role of Unemployment Insurance in an Economy with Liquidity Constraints and Moral Hazard' have studied the potential welfare benefits of unemployment insurance, along with the optimal replacement ratio using a quantitative dynamic general equilibrium model. The study opines that if there is moral hazard and the replacement ratio is not being set optimally, it is set to an empirically plausible value, the economy can be much worse off than it would be without unemployment insurance.
J. François Outreville (1990) has conducted an extensive analysis of the significance of general insurance in study "The Economic Significance of Insurance Markets in Developing Countries". The study investigates empirically the relationship between property-liability insurance premiums and economic and financial development with a cross-section of 55 developing countries. The evidence suggests that the developing countries have a supply-leading causality pattern of development.

1.3.1.2 Studies related to risk management

Nobuyoshi Yamori (1999) in his work 'An Empirical Investigation of the Japanese Corporate Demand for Insurance' has empirically investigated the factors influencing the demand for general insurance of non-financial corporations by using data on Japanese corporations to conclude that insurance demand of Japanese corporations is influenced by the size, leverage, and regulations rather than the ownership structure and tax consideration.

Campbell, John (1997) in his study 'Before the next cataclysm' has examined how the casualty/insurance industry, government and the capital markets are coping with the greater scale of risk and uncertainty of the catastrophe in the United States. The study also included measuring and managing exposures susceptible to catastrophic losses; association between awareness of greater exposure and the improved system of disaster risk management and insurance for high-risk properties.
Froot, Kenneth (2008) in a research titled 'The Intermediation of Financial Risks: Evolution in the Catastrophe Reinsurance Market' has discussed the reinsurance market for catastrophic events and analyzed the reasons why insurance companies have a hard time finding reinsurers who are able to handle such risks. According to the study though the risk sharing practice is most common in cases of major disasters, it is actually lowest in these cases, which forces insurance companies to pay all the claims themselves.

Paul Embrechts and Hanspeter Schmidli (1994) in his study 'Mathematical Methods of Operations Research' has emphasized that external events play an increasingly important role in stochastic modeling in insurance and finance. The study makes a critical analysis of various techniques for the description, analysis and prediction of future events applicable in the field of insurance and finance.

The study 'Attacks may hike terror cover rates' by Phillips, Zack (2008) has discussed terrorism insurance coverage in India amidst recent terrorist attacks in Mumbai. Making an evaluation of terrorism reinsurance pool managed by the state-run General Insurance Corporation of India, the study emphasized on the possibility of exhaustion of the pools due to large terrorism casualties. According to the study the reinsurance renewals would affect the primary market and will take considerably large period to know the extent of liability losses from the attacks.
Rod Pearson (2006) has highlighted the role of insurance in overall risk management strategy in his study entitled 'Only the fittest will survive'. According to the author, in risk management, insurance must form part of the overall strategy which involves quantifying the major risks confronting the business, putting in place a system to lessen risks and determines what to insure and what to self-insure.

Grace, et. al. (2005) in their study, 'Increased Hurricane Risk and Insurance Market Responses' have made a critical evaluation of disaster insurance. According to them the severe hurricane seasons of 2004 and 2005 and the resulting losses have prompted insurers to reassess their risk and business strategies in Southeastern states. This study examines the trends in the affected homeowners insurance markets and discusses how these markets are likely to change in response to the reassessment of hurricane risk. They also propose that the price of insurance also will increase significantly in high-risk areas, although the magnitude and pace of rate hikes will depend on insurers' risk assessments and regulatory approvals.

Giarini (1996) in the study 'The Role of Risk Management and Insurance: Looking Beyond the Neo-Classical Views on the Economics of Uncertainty' has maintained that insurance and risk management have moved center-stage of the modern economy. The growth of insurance world-wide and its manifestly increasing relevance to key aspects of government action i.e., social policies, savings, environmental and industrial risks, health schemes, liability issues, catastrophic and systematic risks, etc. provide a clear indication of where some key issues in the modern economy are
to be found. And yet, the role of insurance and risk management is still grossly underrated.

Zolkos (2001) has conducted a study titled 'Risk management and insurance continue evolving' and has provided an outlook on risk management and insurance capital in the United States. The study has viewed insurance as a form of capital and has moved it towards a more holistic approach of risk management.

Miller, Peta(2004) in the study ‘Risk management, insurance functions separating: Survey' has reported that risk management is now a well-established discipline within many European companies and is separated from the insurance buying function at well over one-third of organization.

Mark, et al.(2003) in their study titled 'An Examination of Alternative Approaches to Risk Management and Insurance Research' have highlighted that much current risk management and insurance research follows a pattern prescribed by the science paradigm. This study discusses some well-recognized problems associated with the science paradigm, and then presents several alternatives that can supplement the science paradigm, thereby broadening and deepening the scope of risk management and insurance research and education.

Nielson, et. al., (2005) in their study ‘The Evolution of the Role of Risk Communication in Effective Risk Management' has submitted the view that the risk
management have evolved significantly over the past decades causing dramatic changes in the communication channels required to effectively handle the ever-changing risks a firm faces. The first generation of risk management dealt primarily with risks inside a company creating a need for internal risk communication. The second generation, which arose with the growth in third-party liability claims, involved many more stakeholders external to the company and forced the risk management function to deal with communications to these external parties. The third generation, which began as an expansion of the external risks that firms are exposed to, involves the board and senior management in the risk communication function.

Schmeiser, Hato (2004) in the study of 'New Risk-Based Standards in the European Union: A Proposal Based on Empirical Data' has highlighted on criticism concerning the solvency system and the European Commission’s developing new rules for insurance companies operating in the member states of the European Union. The author has highlighted that under the Solvency II concept, an insurer is allowed to verify its solvency by using an internal risk management model previously approved by the regulatory authority. The study also develops an internal risk management approach for property-liability insurers that is based on dynamic financial analysis.

Patrick, et. al., (2005) in their research study 'Derivatives in Weather Insurance' have analyzed the fast-growing derivative market. The study presents an overview of weather risks, weather derivatives, and the weather derivatives market, and
examines the valuation of weather derivatives in an incomplete market, the hedging
effectiveness of standardized weather derivatives, as well as optimal weather
hedging with the consideration of basic risk and credit risk.

Hoyt, et al., (2007) have undertaken a simulation model analysis of value at risk titled
'Computing Value at Risk: A Simulation Assignment to Illustrate the Value of
Enterprise Risk Management'. The study examines aspects of risk management and
the effects by a particular risk in a simulation model.

Liebenberg, André P., Hoyt, Robert E. (2009) have conducted a study 'The
Determinants of Enterprise Risk Management: Evidence From the Appointment of
Chief Risk Officers'. This study provides an initial attempt at identifying the
determinants of Enterprise Risk Management adoption. The study uses a logistic
regression framework to compare the firms to a size- and industry-matched control
sample. It is found that in case of a general absence of differences in the financial
and ownership characteristics of sample and control firms, the firms with greater
financial leverage are more likely to appoint a CRO.

analysis' have reported that as early as the 1970s, European Union (EU) member
countries implemented rules to coordinate markets and regulation. However, with the
movement toward a general single EU market, financial services regulation has taken
a priority. The authors put forth that Solvency I regulations has resulted into creation of risk-based capital standards which is the main focus of Solvency II.

Imrohoroglu (1989) has studied the 'Cost of Business Cycles with Indivisibilities and Liquidity Constraints' and has given a simple general equilibrium model with incomplete insurance markets in order to assess the impact of imperfect insurance on the magnitude of the welfare costs of business cycles. Two versions of incomplete insurance markets have been considered here, and certain statistical properties of the equilibrium stochastic processes in these environments have been compared with those of a perfect insurance economy.

Daron Acemoglu and Robert Shimer (1998) in their study 'Efficient Unemployment Insurance' have constructed a tractable general equilibrium model of search with risk aversion. An increase in risk aversion reduces wages, unemployment, and investment. Unemployment insurance has the opposite effect: insured workers seek high-wage jobs with high unemployment risk. According to the study an economy with risk-neutral workers achieves maximal output without any unemployment insurance, but an economy with risk-averse workers requires a positive level of unemployment insurance to maximize output. Therefore, moderate unemployment insurance not only improves risk sharing but also increases output.

Robert and Khang (2000) in their work 'On the Demand for Corporate Property Insurance' have elaborately studied the factors of risk reduction. The study observed
that changes in the firm-specific or unsystematic risks faced by a corporation have no
effect on the firm value. While testing the practical validity of most of the analytic
arguments regarding corporate demand for insurance, the study further observed that
insurance helps to reduce various agency costs associated with the stakeholders' conflicts, in addition to providing real services, and reducing taxes.

David and Smith (1983) have undertaken a study titled 'The Interdependence of
Individual Portfolio Decisions and the Demand for Insurance.' They have analyzed the
individual's demand for insurance as a special case of general portfolio hedging
activity to conclude that when the payoffs of the policy are correlated with the payoffs
to the individual's other assets; the demand for insurance contracts is generally not a
separable portfolio decision. They further argued that this separability condition is not
-generally met because of significant interdependence of claims across different
insurance policies.

Carmelo Giaccotto (1986) has conducted a study titled 'Stochastic Modelling of
interest Rates: Actuarial vs. Equilibrium Approach' with a purpose of developing a
general methodology for analyzing insurance functions when interest rates are
stochastic. Two alternative approaches have been considered in this study. For the
actuarial case, a recursive algorithm has been developed to value insurance
functions for stationary as well as non-stationary interest rate processes and for the
ilibrium approach, the Vasicek model for pricing zero coupon bonds has been
ed to obtain the present value of the insurance functions.
Abraham M. Niessen (1948) has conducted a research titled 'Actuarial Estimates for Public Sickness Insurance Plans' which explores possibility of making cost estimates for public sickness insurance plans. The study recommends for an appropriate public sickness insurance plan with proper long range estimates of the peril.

David Wilkie (1997) in his study 'Mutuality and Solidarity: Assessing Risks and Sharing Losses' opines that mutuality is the principle of private, commercial insurance; individuals enter the pool for sharing losses, and pay according to the best estimate of the risk they bring with them. However, although some genetic information is clearly useful to underwriters, other information may be so general as to be of little use. The way in which mortality rates are assessed is also explained in the study.

David (1987) has conducted an extensive study titled 'Managing Business Risk' to quantify and manage business risk. The work has described risk as one of the six major areas of functional responsibility in business.

Michael and Isaac (1999) have conducted an empirical study titled 'A General Model of Insurance under Adverse Selection' where they have considered optimal insurance schemes in a principal-agent multi-dimensional environment in which two types of risk averse agents differ in both risk and attitude to risk. The study observed that risk corresponds to any pair of distribution functions and attitudes to risk are represented by any pair of non-decreasing and concave utility functions.
Attanasi and Karlinger (1979) have worked towards predicting risk preferences in their study 'Risk Preferences and Flood Insurance'. According to the study a detailed theoretical model characterizing the individual's decision to purchase flood insurance is specified and the magnitude of the risk parameter is estimated using data based on transactions of flood insurance purchases. Empirical results for several samples indicated that consumers exhibited a relatively uniform degree of risk aversion across various localities where different hydrologic and economic conditions prevailed.

Charles and Robert (1967) in a study 'Profit Planning in Non-Life Insurance Companies through the Use of a Probability Model' have put forth the view that a short-range control method for property-liability insurance is of great importance. It includes choosing an operating profit level as a company objective and making intelligent manipulations of underwriting and investment policies to maximize the probability of achieving the goal.

David Blake (1996) has undertaken a study 'Efficiency, Risk Aversion and Portfolio Insurance: An Analysis of Financial Asset Portfolios Held by Investors in the United Kingdom' by using data for the United Kingdom. The study has revealed that investors in six different wealth ranges hold mean-variance efficient portfolios of financial assets. The study has estimated coefficients of relative risk aversion for investors in each wealth range and found that these coefficients are much higher than the coefficients found by most of the previous studies. This implies that firstly investors are unwilling to hold risky assets unless they are compensated with a
sufficiently high risk premium and secondly they are willing to pay for portfolio insurance.

David Cass (1996) in his study titled 'Individual Risk and Mutual Insurance' has attempted at the importance of individual risk assessment in the mutual insurance. According to the study market uncertainty is specified in such a way that general types of individual risk and collective risk are properly accounted for. It has been shown that consistency of beliefs and optimality of allocation can be guaranteed with an appropriate array of pure Arrow securities to spread collective risk and mutual insurance policies to pool individual risk.

Christian (2000) has conducted an empirical study titled 'Risky Business (?) Evaluating Market Risk of Equity Investment Proposals to Reform Social Security' to discuss the economic risks involved in public and private equity investments as a funding solution for Social Security. To quantify the risks involved in equity investment, stochastic simulations based on the economic assumptions of the 1998 trustees Report of Old Age and Survivors Insurance and Disability Insurance have been used in combination with different assumptions about the rates of return ononds and stocks. The analysis shows that for public equity investment, financial market risk remains significant for at least 40 years. For individual accounts, theudy revealed that the chance of doing worse than with Social Security or of falling poverty in retirement is generally high, yet varies with income level, gender,amily status, and employment history.
James and Lai (1987) in their study ‘Insurance Premium Pricing and Ratemaking in Competitive Insurance and Capital Asset Markets’ have developed an equilibrium model of insurance pricing integrating both the insurance and capital asset markets from the insurers’ viewpoint. In contrast to the capital assets based models, it emphasizes the importance of the insurance market, i.e., the claim payments by all insurers as a whole, in pricing insurance premiums. The study established that premium for insurance is a function of both the systematic insurance market risk and the systematic capital market risk.

1.3.2 Studies in India
The studies conducted in India may also be highlighted as studies relating to performance, and studies relating to risk management as described below:

1.3.2.1 Studies relating to performance
Vijay Kumar (2004) has conducted a study in the Indian context titled ‘Globalization of Indian insurance sector - issues and challenges’ to observe that opening up of the insurance sector will foster competition, innovation and product variations although one has to consider various issues at stake including demand for pension plan, separateness of banking from insurance sector, role of IT, possible use of postal network for selling insurance products and above all, the role of Insurance Regulatory Authority.
Ahuja (2003) has undertaken a comprehensive study of micro insurance in India titled 'Micro Insurance in India: trends and strategies for further extension' to observe that policy-induced and institutional innovations are promoting insurance coverage among the low-income people who form a sizable sector of the population and who are mostly without any social security cover. The study emphasizes that though the reach of 'micro-insurance' is limited, the insurance companies, both public and private, operating with commercial considerations, can insure a significant percentage of the poor through this form of insurance as serving the low-income people who can pay the premium certainly makes a sound commercial sense to insurance providers. However, it is also emphasized that micro-insurance needs a further push and guidance from the regulator as well as the government. With increasing flexibility in premium collection and encouraging micro-insurance among micro-finance institutions (MFIs) can result into desired outputs.

In order to get an insight into the after affects of liberalization of insurance sector in United States, Bhaumik (2002) has conducted an empirical research titled 'Liberalization of the Insurance Industry: Some Lessons from the US experience'. The study examines the experience of the US insurance industry during 1970s and 980s. It traces the evolution of the insurance companies in the US from firms underwriting plain vanilla insurance contracts to those selling sophisticated investment contracts bundled with insurance products. In this context, it brings into focus the importance of portfolio management in the insurance business, and the nature and impact of portfolio related regulations on the asset quality of the insurance
companies. The research also highlights the experience of the US insurance companies with respect to one of the most important determinant of profitability, i.e. cost management. In the process, it provides a rationale for the increased automation of insurance companies.

Jain (2004) has conducted a study on the agriculture insurance sector titled 'Challenges in implementing agriculture insurance and reinsurance in developing countries'. His study attempts to address certain basic issues relating to agricultural insurance in developing economies with reference to different operational heads, namely, premiums and claims. The study also makes a critical analysis of the impact of different regulatory changes over the period of the study.

Tripathy (2004) has done a study in the context of agricultural insurance titled 'Agricultural insurance in India- a perspective' to conclude that the ongoing National Agricultural Insurance Scheme is a good step forward to insure risks of million of farmers whose livelihood depends on the pattern and distribution of monsoon rainfall in India. The provides an insight into the innovative techniques in agricultural/rural insurance, which overcome some of the disadvantages of yield based group insurance and suggests rainfall index insurance as a better alternative to the existing scheme.
Subhash and Bhat (2007) in their study ‘What Lies Beneath: The Untapped Insurance Market in India’ have observed that the very purpose of nationalizing the insurance sector got sidelined due to the monopolistic power coupled with the bureaucratic mindset of LIC and GIC. Insurance being opened up to private players in 1999 and subsequent private players entering into the market indicated the willingness of foreign institutional investors to enter the Indian insurance sector. But through all these major changes the actual impact was felt only in major urban areas, while the vast majority of the rural population has remained excluded from the insurance sector. According to the study unless the rural markets are given priority consideration, all predictions about future insurance industry potential in India are resulting into a distant dream.

Vaswati Kumari (2000) in the study, ‘India Forms Domestic Reinsurer’ reports that the government of India has created a domestic reinsurance company by converting the state-run General Insurance Corporation (GIC) into a reinsurer. The study also reflects that the norms prescribed for foreign reinsurers has to be liberalized further and be made in parlance to that of the national reinsurer to make the reinsurance market more vibrant and productive.

A study named ‘New claim’ by Deepti Bhat (1996) has led its focus on the Indian insurance market i.e. the market captured by Life Insurance Corporation of India and General Insurance Corporation. It has focused on the similarities between these two companies and the impact of the Government's decision to deregulate the insurance
sector. The study has taken into account the statistics on insurance policies in India and has discussed on the low number of people having insurance in the country as compared to rich countries and the reasons of reforms in the insurance business in India.

Dasgupta (1999) in his study 'Calling For Urgent Change' reports about the interest of international insurance and reinsurance companies in the insurance market in India despite the political turmoil with the 1999 elections. The study has taken into account the weaknesses of the monopolies of General Insurance Corporation in India and the plans of the boards of several Indian banks to enter the insurance market. It has highlighted the problems of foreign insurers in India and the widening the restrictions imposed upon them. The study emphasizes on opening up of the insurance sector as a corrective measure for the bureaucratic lacunas of the insurance sectors.

In the study 'Foreign Firms Seek Right Match in India', Vaswati Kumari (2000) has focused on the move of foreign firms to partner with insurance companies in India by 2000. The study has done an extensive analysis of Information on the partnership of Allianz AG of Germany and Bajaj Auto General Insurance Company, the partnership negotiations of MetLife with Jammu and Kashmir Bank, and the deal of Industrial Development Bank of India with Principal Financial Group based in Iowa. The study has outlined the modalities and important considerations of these partnerships.
Markram 2005) in her study 'The growth machine' has focused on insurance business in global perspectives. According to the study, Asia is seen by many insurers and reinsurers as the growth market of the future, with countries like China and India opening up to foreign companies. India and China, though are one of the fastest growing insurance markets but put together they represent a meager portion of global insurance premiums.

Krishnamurthy, et. al., (2005) in their study 'Insurance Industry in India: Structure, Performance, and Future Challenges' have undertaken an extensive review of the post liberalization scenario of insurance in India. According to the authors with the liberalization and entry of private companies in insurance, the Indian insurance sector has started showing signs of significant change. According to the study some of the challenges faced by the insurance sector pertaining to the demand conditions are competition in the sector, product innovations, delivery and distribution systems, use of technology, and regulation.

Dowding (2008) in his study 'Risk management in India sees significant advances' has looked at the significant advances in India's risk management market. According to the study many U.S. and European companies have established operations in India to take advantage of the nation's rapidly growing economy, where risk management practices may not match Western standards. According to the author as India faces an economic evolution with a growing gross domestic product and
liberalized and opened private Indian insurers and joint ventures, the sector will witness teething problems of the private players.


Pant (1999) in his study titled 'Insurance Regulation and Development Bill: An Appraisal' has put the view that liberalization of the insurance sector in India will see the increasing involvement of the large and powerful insurance companies of the world in the Indian insurance industry. The study emphasized that this involvement should be put into a positive factor for the growth of the Indian insurance sector in particular and the Indian economy in general.

An empirical investigation of crop insurance sector in India has been undertaken by Dandekar (1985) in his study 'Crop Insurance in India: A Review' suggesting various solutions for proper implementations of crop insurances in India. The study traces the methodological modifications made from time to time in the original schemes of crop insurance to identify certain outstanding problems and to suggest provisional solutions.
1.3.2.2 Studies related to risk management

Rautela (2005) has conducted a study on the importance of risk management in the present day scenario titled 'Risk management for vibrant economic growth and sustained development' by establishing correlations between poverty and disaster induced losses, and to clearly put forth a hypothesis for deepening poverty in India, the disaster-poverty cycle and to suggest that India would perpetually remain a developing nation unless attempts are made to reduce the burdens of disasters on public exchequer. A practical strategy has been put forth for disrupting the disaster-poverty cycle through appropriate risk management measures. This has been envisaged to compensate the disaster victims better besides significantly reducing the burden on public exchequer. The findings of the study suggests that risk management is the key for reducing the burden on the public exchequer as also for minimizing the misery and trauma of the masses exposed to disasters.

Sharma and Vashishtha (2007) have undertaken a study titled 'Weather derivatives: risk-hedging prospects for agriculture and power sectors in India' to examine the state of risk management in agriculture and power sector of India and to evaluate the effectiveness of weather derivatives as alternative risk management tools and the basic framework required to implement them. According to the study the applications of traditional risk-hedging tools and techniques in Indian agricultural and power sectors have proved to be costly, inadequate, and more importantly, a drag on
the country's fiscal system. Mostly they offer a hedge against only the price risk. The study suggests how an appropriate weather-based derivative contract system may be a more flexible, economical and sustainable way of managing the volume-related weather risk in an economy, like India, having predominant agricultural and power sectors.

Ravallion, et. al. (1997) in their study 'Risk and Insurance in village India: a comment' have examined the robustness of the findings about the implication of perfect intrallage in insurance risk-sharing using longitudinal household data on consumptions and incomes for three villages in India. According to the study there is evidence that the full-insurance hypothesis provides a benchmark in that household consumptions co-move and do not appear to be much influenced by contemporaneous own income.

Rajiv Sobti (1988) in the work 'Increasing Social Variability and Insurance Equilibrium' has studied the increased variability in the economy on the price of insurance. The work analyzes the impact of increased variability in the economy on the price of insurance, the quantity of insurance transacted and the welfare of the players in the economy. A general equilibrium framework has been used to show that conclusions can be reached under fairly weak assumptions of concave utility functions and a downward sloping market demand curve. The work examines the impact of increased uncertainty in the economy on the price of insurance, the amount of insurance transacted in the economy, and the utility of the groups, providing as well as receiving
insurance in the economy. The increased variability in the economy takes place as a result of the payoff pattern of one of the constituents becoming more risky. This change causes the aggregate consumption opportunities of the economy to become more risky.

Walker, et. al., (1986) in their study ‘Risk Benefits, Crop Insurance, and Dryland Agriculture’ have evaluated the risk benefits and their management. They have analyzed one important determinant of farmers’ participation in the potential for crop insurance to reduce household income variability and observed that participation by farmers in voluntary public-sector crop insurance programmes has historically been low. Based on simulated crop insurance designs carried out on household panel data, they have found that crop insurance is not effective in smoothing fluctuations in income. The simulation results point to some general conditions that have to be satisfied if crop insurance is to generate measurable risk benefits. They argue that those conditions are unlikely to be met in India’s Semi-Arid Tropics.

Martin and Chaudhuri (1997) in their study ‘Risk and Insurance in Village India: Comment’ have attempted to properly access the risk management of the rural insurance in India. The study observed that, consumption is being driven by risk-sharing, and if the correlation between individual consumption changes and individual income changes is due to endogeneity of labor-leisure choices, then individual household consumption changes ought to be correlated with aggregate income changes since risk-sharing implies the pooling of incomes.
Thus review of the studies mentioned above indicates that although some research studies have been conducted on the performance of general insurance business abroad, in India such studies and especially the studies relating to general insurance business and risk management have been rather limited. It is therefore through this study that the gap is intended to be bridged.

1.3 Objectives

The broad objective of the study has been to make an in-depth analysis of the performance of general insurance business in India with special reference to its risk management mechanism. The specific objectives are:

1. To study the growth and development of general insurance business in India.
2. To find out the important factors which govern performance of general insurance business in India.
3. To study the inter relationship that exists between
   a. the general insurance business segments of fire, marine and miscellaneous;
   b. the general insurance business sectors of private and public; and
   c. the performance variables like premiums, investments, net profits, underwriting profits, net assets, claims, operating expenses and commission.
4. To study the risk management mechanism unique to general insurance business and its effectiveness in the Indian context.
5. To offer an econometric analysis of the factors influencing the performance of general insurance business in India.
1.5 Hypotheses

The following hypotheses have been formulated for the purpose of the study:

- $H_01$: There is no relationship between insurance premiums and claims.
- $H_02$: Insurance premiums and commissions have no association in between.
- $H_03$: Premium income is independent of the operating expenses.
- $H_04$: There is no relationship between insurance premiums and net profits.
- $H_05$: There is no relationship between the premium income and the current assets.
- $H_06$: Insurance premiums and current liabilities have no association in between.
- $H_07$: Claims and the operating expenses are independent of each other.
- $H_08$: There is no relationship between the claims and the underwriting expenses.
- $H_09$: Claims and current liabilities are independent of each other.
- $H_010$: Premium incomes of public and private sector over the segments of fire, marine and miscellaneous are independent of each other.
- $H_011$: Claims of public and private sector over the segments of fire, marine and miscellaneous are independent of each other.
- $H_012$: Operating expenses of public and private sector over the segments of fire, marine and miscellaneous are independent of each other.
1.6 Scope

The scope of the study is limited to a time series analysis of the performance of general insurance business in India in the post liberalization and post privatization era for a period of 8 years from 2000-01 to 2007-08. The scope is also limited to the study of general insurance players dealing with the products in the category of fire, marine and miscellaneous as stipulated by the IRDA. The companies dealing with export import credit guarantee has been excluded from the scope of the study.

1.7 Limitations

Use of secondary data with all its inherent drawbacks has been the primary limitation of the study. A variation in sample size over the study period is yet another limitation. The study takes into account the study of general insurance business and not the life insurance business in the post privatization era. Exclusion of specialized player, namely, the Export Credit Guarantee Corporation may be taken as another limitation of the study.

1.7 Chapterisation

The study has been divided into six chapters in all. Chapter-I deals with the relevance of the study, review of literature, objectives, scope and limitations of the study. Chapter-II deals with the research methodology adopted for the study. The specific points covered in this chapter are sample design and sampling, tools and techniques used for data analysis, formulation of hypotheses and explanation of
variables. Chapter-III highlights the growth and development of the general insurance business in India. Chapter-IV deals with the risk management techniques adopted by the players of general insurance business. Chapter-V deals with the analysis of data and testing of the formulated hypotheses to empirically establish the inter relationship that exists between the performance variables. Chapter-VI summarizes the major findings and provides direction for future research.

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