Chapter 1
Introducing the Problem

1.1. General Discussion on Risk and Insurance

As per Williams (1983), modern living and business activities in general involve risk of sustaining losses of varying type and degree. A policy of insurance provides for the payment of monetary compensation for losses sustained on the occurrence of an insured event. Individuals and business managers are faced not only with the uncertainty of when losses may occur but also with the uncertainty as to the level of replacement costs. In the business community, where risks are great and the level of potential losses is high, a degree of security and certainty can be provided for managers by taking out insurance policies. By paying a premium based on assessed risk a commercial firm minimizes its potential loss burden and its managers are free to concentrate financial resources and their own abilities on normal areas of operation. From insurers’ point of view they hold a fund which has been pooled by contributors. The largest contributions are paid by those who are likely to make substantial or more frequent claims. However, the greater risks those contributors face are spread across all members of the fund. The expertise of the insurer lies in the fixing equitable contributions amongst members of the fund, setting competitive premium levels and maintaining a secure and profitable fund.

Risk is the central basis of the contract of insurance. Essentially risk is the element of uncertainty as to whether losses may or may not be sustained. There are three basic types of risks:

(A) Pure Risks – Pure risks involve either loss or preservation of the status quo. A warehouse may be covered against fire damage but no claims may ever be made on the policy;

(B) Speculative Risks – Speculative risks involve the prospect of gain as well as loss or the status quo position. Because of the element of speculation and the prospect of gain such risks cannot normally be insured. For instance, marketing a new product involves the risks of financial losses. However, market research conducted before the product is launched gives the entrepreneur a reasonably accurate assessment of demand for the product. He has an element of personal control over the risk involved; indeed he is unlikely to proceed if the research is unfavourable.

(C) Fundamental Risks – Fundamental risks are generally uninsurable as they can involve wide-ranging losses for businesses, individuals and society as a whole. They involved losses following occurrences such as war, and the insurers are extremely selective if they agree to cover a risk of this sort.
A number of conditions must be satisfied before a policy of insurance can be considered. They are –

- **Insurance** provides only monetary compensation when losses have occurred based, for instance, on the assessed value of goods at the date of loss. No allowance can be given for sentimental value of property;

- **A specific loss** must be unexpected, otherwise it is not usual for insurance cover to be given. Generally, a person with a terminal illness is not likely to be accepted for life assurance and because shoplifting is a prevalent crime it will be excluded by insurers from the businessman’s theft policy;

- **Losses which may be sustained** as a result of a general disaster are normally excluded from cover. Insurers are unwilling to accept the responsibility for substantial claims by policy holders which might well exhaust the insurance fund. State funds may be made available on the occurrence of these events;

- **Normally it must also be possible** to calculate the degree of risk attached to the insured event. Reference to statistical information enables insurers to offer a commercially reasonable premium.

These conditions may be fixed and subsequently varied by public policy, statute or commercial profitability, so far as insurers are concerned.

**General Benefits of Insurance**

As per Williams (1983), although the main function of an insurance fund is to spread losses equitably among subscribers and to compensate claimants, there are a number of subsidiary benefits. These are as follows –

- **Security** – Adequate insurance protection transfers the risk of unexpected losses from the business operator to the insurer and gives him a degree of confidence to enable him to concentrate his own skills on affairs in hands.

- **Efficiency** – It is perfectly feasible for a profitable firm to guard against the risks of losses by setting aside several reserves. Insurance removes the need for such reserves, enabling such funds to be invested in production thereby putting profits to most effective use. Plainly, even the largest reserves could be exhausted by a series of substantial claims. The firm whose insurance premiums are a known quantity can operate more cost effectively and need only pass on a smaller percentage of the risk premium to the customer.

- **Loss Prevention** – The benefits of diligent attention to potential loss assessment and prevention are twofold. First the risk of losses occurring can be reduced, and generally uninterrupted business operations are of more importance than monetary compensation. Secondly the more obvious benefit is in reduced premium ratings. Specialist surveyors and investigators engaged by insurers, will advise on installation of alarms, sprinklers systems and so on. Large firms will themselves employ a risk manager to study all aspects of their business activities.
The Contract of Insurance

A simple contract of insurance is an agreement between parties which they intend to be legally binding (Williams, 1983). Any party to the agreement may seek legal redress to have terms of the contract enforced or the payment of damages for non-performance of those terms. A contract of insurance falls within this definition and is generally evidenced in writing in the form of a policy document.

There are several factors which are essential elements to the contract of insurance. These are as follows –

(a) **The Offer** – Generally the person seeking insurance offers business to the insurer by submitting a proposal form. This form should contain, for the benefit of both parties, the fullest particulars of the proposer and the nature of risk.

(b) **The Acceptance** – Having studied carefully the proposal form and assessed the risk, the insurers may notify the proposer in writing or orally that they are prepared to give him cover from payment of the first premium. Unless conditions are introduced by the insurers, which require reconsideration by the proposer, the agreement becomes legally binding. It is, of course, essential for the person insured to verify that the insurers have in fact agreed to take on all the risks he proposed.

(c) **Consideration** – Any party seeking to enforce a contract must show that consideration has passed from themselves to the other party: that is to say that they have performed some act – assumed some responsibility for the benefit of the other party. In the context of insurance, consideration passes from the insured to the insurer on payment of the premium. The consideration given by the insurer is his acceptance of the risk.

(d) **Validity** – A contract of insurance may be unenforceable or rendered unenforceable because of actions of the insured. For instance trading activities in breach of government sanctions, operating vehicles in breach of Road Traffic Regulations may invalidate the contract.

**Insurable Interest**

When a person insures his motor car or any of his property, that property is termed the subject matter of the insurance. However, the money he stands to lose, or more properly the financial interest protected, is termed the subject matter of the contract of insurance.

Before a binding policy of insurance can be effected there must be an insurable interest, that is, a legally recognised relationship between the subject of the insurance and the financial interest to be protected.
**Utmost Good Faith**

When parties enter into a normal commercial agreement they do so on an equal footing. For instance the purchaser of merchandise may ask for samples, state specifications or carry out durability tests. The more extensive his enquiries, the more certain he will be about the bargain he is about to strike. Because the purchaser may make extensive enquiries at his own discretion, there is no obligation on the vendor to volunteer information that is not requested. What the vendor does say about his goods must not amount to misinterpretation or fraud but the law imposes no higher obligation.

Different considerations apply to a contract of insurance. When the insurer is assessing a proposal he makes many enquiries and evaluations but he cannot make a complete assessment of the risk proposed without the fullest co-operation of the proposer. To ensure that both the parties are on an equal footing at the inception of the contract the law requires them to act in the utmost good faith. So far as the proposer is concerned, he must supply all material facts to the insurer including details which the insurer may not have requested but which may have a bearing on the risk. Similarly if the insurer has any information about the risk proposed which might affect the terms of the contract it must be disclosed. If either party fails to act with the utmost good faith, the contract may be rendered null and void.

**Indemnity**

It has been seen from the general principles that the prime functions of insurance are to provide security and compensation for loss, injury or damage. There is a question that how much compensation needs to be paid when an insured event happens and it is governed by the long established indemnity rule. The insured’s finances are to be restored to the position they were in before the loss or damage occurred, but no further. It would be against the public interest for a policy holder to make profit out of a claim as there would be a temptation to bring about the loss himself. The indemnity principle cannot strictly apply to life assurance or personal injury claims because life and limb have no accurate measure in money terms. In these cases therefore the ‘indemnity only’ limit to compensation does not apply but in practice the sum assured is limited by the level of premium that the insured can afford. The insurers will also restrict the sum assured to be in keeping with the policy holder’s current financial status.

**Subrogation**

The literal definition of subrogation is the right to make a claim in the name of another person. Subrogation has two aspects in the insurance context developed through common law. The first is the logical extension of the indemnity rule in that it would be unjust for a policy holder to receive compensation from his insurers for a loss and also compensation in the form of damages if the loss were deemed to be the fault of a third party. Therefore any damages so awarded in a Court action are required to be held
on trust of the insurers. The second and major aspect is that once insurers have settled a policy claim they may themselves pursue an action for damages in the same if their policy holder. In practice, it is sensible for the policy holder to seek prompt compensation by claiming on his insurance and to leave the uncertainties of litigation to his insurers. For their part, the insurers are entitled to recover the amount paid to their insured but no more. If damages exceed the policy settlement, the surplus amount is payable by the insured.

Proximate Cause

Events which cause losses are termed as perils and in relation to insurance policies they fall into the following categories –

(a) Insured Perils – These are the perils which are specifically covered by a policy; such as fire or storm etc.
(b) Uninsured Perils – These are the perils which are not covered or referred to in a particular insurance policy; such as storm in a theft policy.
(c) Excluded Perils – These are the perils which are referred to in a policy and stated to be outside the scope of cover. This may be either because to cover them would inflate the premium or because it would be uneconomic for the insurer.

Returning to basic principles, a policy of insurance exists to indemnify the holder against financial losses. Unless the policy covers all risks, losses must be caused by insured perils before the insurer is under any obligation to compensate. In the majority of the cases, the technical cause of a loss will be quite clear. Where a sequence or combination of causes produce a loss the insurer’s obligations are determined by the principle of proximate cause. The facts are carefully examined to establish the nearest, active and efficient cause of the loss. If the conclusion is that the proximate or nearest cause of the loss is an insured peril then the insurer must indemnify.

Risk

Risk is defined as uncertainty concerning the occurrence of a loss. Objective Risk is defined as the relative variation of the actual loss from the expected loss. There are several methods of handling risks. These are Avoidance, Loss Control, Retention, Noninsurance Transfers and Insurance. Insurance is the most practical method for handling a major risk. By means of insurance, a pure risk is transferred to the insurer.

Insurance is the pooling of fortuitous losses by transfer of such risks to the insurers, who agree to indemnify insured for such losses, to provide other pecuniary benefits on their occurrence, or to render services connected to the risk. An insurance plan typically follows the following characteristics –

- Pooling of Losses
- Payment of Fortuitous Losses
- Risk Transfer
- Indemnification

Pooling or the sharing of losses is the heart of insurance. Pooling is the spreading of the losses incurred by the few over the entire group, so that in the process average loss is substituted for the actual loss. Pooling facilitates (1) the sharing of loss by the entire group, and (2) prediction of future losses with some accuracy on the law of large numbers.

A Fortuitous Loss is one that is unforeseen and unexpected and occurs at a result of chance, i.e., the loss must be accidental. Insurance policies cover only the fortuitous losses.

Risk transfer is an important characteristic and essential element of Insurance. Risk Transfer means that a pure risk is transferred from the insured to the insurer, who typically is in a stronger position to pay the loss than the insured.

Indemnification for losses is another characteristic of insurance. Indemnification means that the insured is restored to his or her approximate financial position prior to the occurrence of the loss.

From the viewpoint of an insurer, there are ideally six requirements of an insurable risk –

- There must be a large number of exposure units
- The loss must be accidental and unintentional
- The loss must be determinable and measurable
- The loss should not be catastrophic
- The chance of loss must be calculable
- The premium should be economically feasible

Underwriting

Underwriting is the process of selecting and classifying applicants for insurance. The fundamental objective of underwriting operation is to produce a profitable book of business for the insurer. The main principles behind underwriting are the followings –

- Selection of insured according to the company’s underwriting standards
- Proper balance within each rate classification
- Equity among policy owners

Underwriting is the most important part of the insurance business. Insurance business is based on the concept of dividing the loss encountered by an individual among the many. In order to finance the losses claimed by an individual, it is necessary to see that only the legitimate claims are to be financed. Properly undertaken underwriting policy is necessary so that insurance business remain profitable on the part of the insurer as well as the legitimate claims of the insured are met. Loose underwriting
standards will lead to many illegitimate claims which will in turn affect the financial condition of the Insurance Company and thus increasing the premium cost. Rising of the insurance premiums above affordable labels is not acceptable for the insured. So in order to keep a proper control on the premium level while making the insurance business profitable, due importance is necessary to be given to the underwriting activities which can be taken as the backbone of a profitable insurance business.

Three important factors which influence the insurance market are the followings:

- The Underwriting Cycle
- Consolidation in the Insurance Industry
- Securitization of Risk

1.2. Discussion on Underwriting Cycle – Different Measures to Determine Pattern

As per Stewart et al. (1991), the underwriting cycle in the property-casualty insurance business is the recurring pattern of increases and decreases in insurance prices and profits. In recent years, the cycle has also been characterized by dramatic changes in the availability and quality of insurance. Cyclicality is not unique to insurance. For over a century, the economists have referred to the fluctuations in overall business activity as the ‘business cycle’. Many industries besides the insurance have had upturns and downturns in prices and profits accompanied by variations in product quality and supply.

As per Craig English (2013), all industries experience cycles of expansion and contraction and similarly, the insurance industry is cyclical in nature. Although no two cycles are the same, insurance industry cycles typically last from two to ten years and are comprised of a hard market and a soft market. As per English (2013), after experiencing a soft market in the US insurance industry for approximately eight years, due to a combination of factors, the market began to change, firming up in 2011. According to English (2013), by the end of 2012, the soft market had started to bottom out and we are now facing a hard market.

**Hard Market and Soft Market**

The characteristics of a Soft Market in the insurance industry include –

- Lower Insurance Premiums;
- Broader Coverage;
- Reduced Underwriting Criteria, which means underwriting is easier;
- Increased capacity, which means insurance carriers write more policies and higher limits; and
- Increased competition among insurance carriers.
Ultimately these rate reductions associated with a soft market affect the insurance carriers’ bottom line, as a carrier relies on a combination of insurance premiums and investments to make money as a company.

The characteristics of a Hard Market in the insurance industry include –

- Higher insurance premiums;
- More stringent underwriting criteria, which means underwriting is more difficult;
- Reduced capacity, which means insurance carriers write less insurance policies;
- And less competition among insurance carriers.

**Reason from Shifting from Soft Market to Hard Market**

According to English (2013), a string of natural disasters and the residual effects of the economic downturn have been the main causes for this change in the US insurance industry cycle from soft to hard market.

**Mother Nature** – As per English (2013), Germany’s Munich Re, one of the world’s leading reinsurers, rated 2011 as the worst year in history in terms of losses due to natural catastrophes worldwide. US alone experienced numerous high-level tornadoes in the Southeast and Midwest, significant flooding on the East coast, a drought in the South and a massive winter blizzard and summer hailstorms in the Midwest. And in 2012, the trend had continued with the impact of Hurricane Sandy. Worldwide, one of the strongest earthquakes ever recorded shook Japan, a widespread drought struck East Africa, the worst flooding in 50 years occurred in Thailand and a major typhoon hit the Philippines. For insurance carriers, all of these significant natural disasters meant a large increase in claims. When losses are high due to natural disasters, carriers reserves are reduced, and insurance companies look to replenish reserves by increasing rates. As per English (2013), Zurich-based reinsurance company Swiss Re Ltd., reported that insurers sustained $116 billion in losses from natural catastrophes and man-made disasters in 2011. Swiss Re Ltd. also reported that the total economic losses, both insured and uninsured, due to disasters reached an estimated $350 billion, making 2011 the year with the highest catastrophe-related economic losses in history.

**Economic Downturn** - During the insurance industry’s soft market when rates were extremely low, insurance carriers relied on their return on investments to make money. Whereas carriers used to shoot for and obtain double digit return on investments, now they are only seeing between three and five percent return. Carriers are no longer making the investment income they once had. As a way to counteract these investment losses, rates have begun to escalate.
As per English (2013), in addition, there are two things that effect business insurance premiums – payroll and revenue. As companies began experiencing a decrease in revenue and consequently started to lay off employees, both their payroll and revenue decreased, which in turn meant a decrease in premium to the insurance carrier. This is another way in which the insurer is losing money due to the economic downturn.

Effect of Hard Market - During a hard market, underwriting gets tougher and more stringent. With each year, underwriters are becoming more sophisticated, looking more closely at losses, safety records and financials. It can be manifested that insurers are digging deeper into a company’s financials than in the past. Most insurance underwriters today want a five to ten percent higher rate upon renewal, and some are requiring substantially more. Rates will vary from carrier to carrier and will depend on a business’s inherent risks, claims history and finances.

In India, prior to 1999, the insurance market was mainly governed by the public sector companies. From 1999 onwards, different private players entered the Indian insurance market. In the US insurance market, where there had been many private players in the Insurance markets since a very long time, a thorough study was made regarding the underwriting standards and the level of premiums over time (Rejda, 1999). In those studies, it was found that there exists a cyclical pattern in the number of underwriting results (as also in profitability measures in the property and liability insurance). This cyclical pattern in underwriting stringency, premium levels, and profitability is referred to as the underwriting cycle (Rejda, Principles of Risk Management & Insurance). It is the pattern following which the Property and Casualty insurance and reinsurance premiums, the profits and the availability of coverage, rise and fall over time. Alternatively, the tendency of the above parameters (property and casualty insurance and reinsurance premiums, the profits and the availability of coverage) to swing between profitable and unprofitable periods over time is commonly referred to as the underwriting or insurance cycle. As mentioned earlier, in the US market, property and liability insurance markets fluctuate between the periods of tight underwriting standards and high premiums, called a "hard" insurance market, and periods of loose underwriting standards and low premiums, called a "soft" insurance market. These market conditions are direct or indirect effects of certain economic and non-economic factors. In the US study, it was found that during the periods – 1956-1958, 1964-1966, 1972-1975, 1984-1988, 1992-1994, 2001-2003, there were hard insurance markets while during the remaining part there was a soft insurance market. The hardship after 2001 came in the insurance market due to an onslaught on the WTC with subsequent bankruptcy in small insurance companies and too much loss in the economy. This necessitated increased premiums with stringent underwriting activities. Such type of cycle may exist in Indian non-life insurance market too. However, any research on identifying such cycle in respect of the Indian non-life insurance industry is yet to be done. This study is an effort to investigate such distinctive features in non-life insurance market in India among others.
Measures of Underwriting Cycle

A number of measures can be used to understand the status of the underwriting cycle. Some of them are the followings (Catlin et al) –

- Income before Income Tax
- Net Underwriting Contribution
- Loss Ratio/Attritional Loss Ratio
- Gross Premiums
- Claims Performance
- Combined Ratio

Combined Ratio is an important measure which is used to understand the Underwriting Cycle Pattern. Combined ratio is the ratio of paid losses and loss adjustment expenses plus underwriting expenses to the premiums. If the value of the combined ratio is greater than 1 (or 100, when the ratio is multiplied by 100), then it can be said that the underwriting operations are unprofitable. For example, if the combined ratio is 1.08 (or 108) then for every INR 100 collected as premium, INR 108 is paid by the insurer as the expenses and the claims. Study on the combined ratios over time in different insurance sectors (like automobile, property etc.) is an important task in the Indian perspective in order to visualize the changing pattern of the Indian Insurance industry and also to generate ideas about the future dimensions of the growth of insurance sector in India.

1.3. Overview on Global and Indian Non-life Insurance Scenario

Insurance History

Insurance dates back to early human society. Two type of economies are known in the human society – natural or non-monetary economies (using barter and trade with no centralized nor standardized set of financial instruments) and monetary economies (with markets, currency, financial instruments and so on). Insurance in the former case entails agreements of mutual aid. If one family’s house gets destroyed, the neighbours are committed to help in rebuilding it. Granaries embodied another early form of insurance to indemnify against famines.

The first methods of transferring or distributing risk in a monetary economy, were practiced by Chinese and Babylonian traders as long ago as the 3rd and 2nd Millenia BC, respectively. Chinese merchants travelling treacherous river rapids would redistribute their wares across many vessels to limit the loss due to any single vessel’s capsizing. The Babylonians developed a system which was recorded in the famous Code of Hammurabi (1750 BC) and practiced by early Mediterranean sailing merchants. If a merchant received a loan to fund his shipment, he would pay the lender an additional sum in exchange for the lender’s guarantee to cancel the loan should the shipment be stolen or lost at sea.
Achaemenian monarchs in Ancient Persia were presented with annual gifts from the various ethnic groups under their control. This would function as an early form of political insurance, and officially bound the Persian monarch to protect the group from harm. At some point in the 1st Millenium BC, the inhabitants of Rhodes created the ‘General Average’. This allowed groups of merchants to pay to insure their goods being shipped together. The collected premiums would be used to reimburse any merchant whose goods were jettisoned during transport, whether to storm or sinkage.

The ancient Athenian ‘maritime loan’ advanced money for voyages with repayment being cancelled if the ship was lost. In the 4th century BC, rates for the loans differed according to safe or dangerous times of year, implying an intuitive pricing of risk with an effect similar to insurance. The Greeks and Romans introduced the origins of health and life insurance in 600 B.C. when they created guilds called ‘benevolent societies’ which cared for families of deceased members, as well as paying funeral expenses of members. Guilds in the Middle Ages served a similar purpose. The Jewish Talmud also deals with several aspects of insuring good. Before insurance was established in the late 17th century, ‘friendly societies’ existed in England, in which people donated amounts of money to a general sum that could be used for emergencies.

Separate insurance contracts (i.e., insurance policies not bundled with loans or other kinds of contracts) were invented in Genoa in the 14th century, as were insurance pools backed by pledges of landed estates. The first known insurance contract dates from Genoa in 1347, and in the next century maritime insurance developed widely and premiums were intuitively varied with risks. These new insurance contracts allowed insurance to be separated from investment, a separation of roles that first proved useful in maritime insurance. The first printed book on insurance was the ‘Legal treatise On Insurance and Merchants’ Bets by Pedro de Santarem, written in 1488 and published in 1552.

Insurance became far more sophisticated in Enlightenment era of Europe, and specialized varieties developed. Some forms of insurance developed in London in the early decades of the 17th century. For example, the will of the English colonist Robert Hayman mentioned two ‘policies of insurance’ taken out with the diocesan Chancellor of London, Arthur Duck, of the value of 100 pound each, one related to the safe arrival of Hayman’s ship in Guyana and the other was in regard to ‘one hundred pounds assured by the said Doctor Arthur Ducke on Robert Hayman’s life’.

Lot of advancements have come in the society since the last century due to the considerable increase in the economic activities worlds over. Insurance is a major economic activity now having its own huge market in all countries world over.

Insurance penetration is measured as ratio of premium (in US Dollars) to GDP (in US Dollars). The following table shows the Swiss Re data on the International Comparison of Insurance Penetration (Handbook of Indian Insurance Statistics, IRDA, 2010-2011).
Table 1.1 – International Comparison of Insurance Penetration

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</table>

*Source: IRDA Statistics Handbook 2011

The above table shows that income from insurance is a major segment of GDP covering more than 10% for some advanced countries in current global scenario. In India also, it is gradually on rise and currently it is covering more than 5% of the national GDP. If we consider the world figure, insurance income is currently generating 7.5% of the total GDP and 3% is being generated by the non-life insurance sector alone.

Insurance density is measured as the ratio of premium (in US Dollar) to total population. The following table shows the Swiss Re data on the International Comparison of Insurance Density (Handbook of Indian Insurance Statistics, IRDA, 2011-2012).
The table shows that insurance density is much low for India when compared to the world average. Insurance density is highest in case of Switzerland with world average being 627. In case of Non-life insurance, the density figure is 263.

Venkatesh (2013) gives a brief summary of the history of insurance and current scenario in India. According to the author, in India, insurance has a deep-rooted history. It finds mention in the writings of Manu (Manusmrithi), Yagnavalkya (Dharmasastra) and Kautilya (Arthasastra). The writings talk in terms of pooling of resources that could be re-distributed in times of calamities such as fire, floods, epidemics and famine. This was probably a pre-cursor to modern day insurance. Ancient Indian history has preserved the earliest traces of insurance in the form of marine trade loans and carriers’ contracts. Insurance in India has evolved over time heavily drawing from other countries, England in particular. 1818 was the advent of life insurance business in India with the establishment of the Oriental Life Insurance Company in Calcutta. This Company however failed in 1834. In 1829, the Madras
Equitable had begun transacting life insurance business in the Madras Presidency. 1870 was the enactment of the British Insurance Act and in the last three decades of the nineteenth century, the Bombay Mutual (1871), Oriental (1874) and Empire of India (1897) were started in the Bombay Residency. This era, however, was dominated by foreign insurance offices which did good business in India, namely Albert Life Assurance, Royal Insurance, Liverpool and London Globe Insurance and the Indian offices were up for hard competition from the foreign companies.

In 1914, the Government of India started publishing returns of Insurance Companies in India (Venkatesh (2013)). The Indian Life Assurance Companies Act, 1912 was the first statutory measure to regulate life business. In 1928, the Indian Insurance Companies Act was enacted to enable the Government to collect statistical information about both life and non-life business transacted in India by Indian and foreign insurers including provident insurance societies. In 1938, with a view to protecting the interest of the insured, the earlier legislation was consolidated and amended by the Insurance Act, 1938 with comprehensive provisions for effective control over the activities of insurers. An Ordinance was issued on 19th January, 1956 nationalizing the Life Insurance sector and Life Insurance Corporation came into existence in the same year. The LIC absorbed 154 Indian, 16 non-Indian insurers as also 75 provident societies—245 Indian and foreign insurers in all. The LIC had monopoly till the late 90s when the Insurance sector was reopened to the private sector.

The history of general insurance dates back to the Industrial Revolution in the west and the consequent growth of sea-faring trade and commerce in the 17th century (Venkatesh (2013)). It came to India as a legacy of British occupation. General Insurance in India has its roots in the establishment of Triton Insurance Company Ltd., in the year 1850 in Calcutta by the British. In 1907, the Indian Mercantile Insurance Ltd was set up. This was the first company to transact all classes of general insurance business. 1957 was the formation of the General Insurance Council, a wing of the Insurance Association of India. The General Insurance Council framed a code of conduct for ensuring fair conduct and sound business practices. In 1972 with the passing of the General Insurance Business (Nationalization) Act, general insurance business was nationalized with effect from 1st January, 1973. 107 insurers were amalgamated and grouped into four companies, namely National Insurance Company Ltd., the New India Assurance Company Ltd., the Oriental Insurance Company Ltd and the United India Insurance Company Ltd. The General Insurance Corporation of India was incorporated as a company in 1971 and it commence business on January 1st 1973. This millennium has seen insurance come a full circle in a journey extending to nearly 200 years. The process of re-opening of the sector had begun in the early 1990s and the last decade and more has seen it been opened up substantially. In 1993, the Government set up a committee under the chairmanship of R N Malhotra, former Governor of RBI, to propose recommendations for reforms in the insurance sector. The objective was to complement the reforms initiated in the financial sector. The committee submitted its report in 1994 wherein, among other things, it recommended that the private sector be permitted to enter the insurance industry. They stated that foreign companies are allowed to enter by floating Indian companies, preferably a joint venture with Indian partners.
Following the recommendations of the Malhotra Committee report, in 1999, the Insurance Regulatory and Development Authority (IRDA) was constituted as an autonomous body to regulate and develop the insurance industry (Venkatesh (2013)). The IRDA was incorporated as a statutory body in April, 2000. The key objectives of the IRDA include promotion of competition so as to enhance customer satisfaction through increased consumer choice and lower premiums, while ensuring the financial security of the insurance market. The IRDA opened up the market in August 2000 with the invitation for application for registrations. Foreign companies were allowed ownership of up to 26%. The Authority has the power to frame regulations under Section 114A of the Insurance Act, 1938 and has from 2000 onwards framed various regulations ranging from registration of companies for carrying on insurance business to protection of policyholders’ interests. In December, 2000, the subsidiaries of the General Insurance Corporation of India were restructured as independent companies and at the same time GIC was converted into a national re-insurer. Parliament passed a bill de-linking the four subsidiaries from GIC in July, 2002.

Today there are 24 general insurance companies including the ECGC and Agriculture Insurance Corporation of India and 23 life insurance companies operating in the country (Venkatesh (2013)). The insurance sector is growing at a speedy rate of 15-20%. Together with banking services, insurance services add about 7% to the country’s GDP. A well-developed and evolved insurance sector is a boon for economic development as it provides long-term funds for infrastructure development at the same time strengthening the risk taking ability of the country. Venkatesh (2013) presented a trend analysis of the increase of premium income in the last decade. The formula he used for trend analysis is as follows –

Trend Percentage = (Present Year / Base Year) * 100

Table 1.3 – Trend Analysis of Life and Non-life Insurance Premium (in Crore INR)

<table>
<thead>
<tr>
<th>SL NO</th>
<th>YEARS</th>
<th>LIFE INSURANCE</th>
<th>NON-LIFE INSURANCE</th>
<th>TOTAL</th>
<th>TREND %</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2002</td>
<td>50094.46</td>
<td>12385.24</td>
<td>62479.7</td>
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<tr>
<td>2</td>
<td>2003</td>
<td>55747.55</td>
<td>14870.25</td>
<td>70617.8</td>
<td>113.03</td>
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<tr>
<td>3</td>
<td>2004</td>
<td>66653.75</td>
<td>16542.49</td>
<td>83196.24</td>
<td>113.15</td>
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<tr>
<td>4</td>
<td>2005</td>
<td>82854.8</td>
<td>18456.45</td>
<td>101311.25</td>
<td>162.15</td>
</tr>
<tr>
<td>5</td>
<td>2006</td>
<td>105875.76</td>
<td>21339.1</td>
<td>127214.86</td>
<td>209.69</td>
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<tr>
<td>6</td>
<td>2007</td>
<td>166075.84</td>
<td>25930.02</td>
<td>192005.86</td>
<td>307.3</td>
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<tr>
<td>7</td>
<td>2008</td>
<td>201351.41</td>
<td>28805.6</td>
<td>230157.01</td>
<td>368.37</td>
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<tr>
<td>8</td>
<td>2009</td>
<td>221785.47</td>
<td>31428.4</td>
<td>253213.87</td>
<td>405.27</td>
</tr>
<tr>
<td>9</td>
<td>2010</td>
<td>265447.25</td>
<td>35815.85</td>
<td>301263.1</td>
<td>482.17</td>
</tr>
<tr>
<td>10</td>
<td>2011</td>
<td>291638.64</td>
<td>43841.84</td>
<td>335480.48</td>
<td>536.94</td>
</tr>
<tr>
<td>11</td>
<td>2012</td>
<td>287072.11</td>
<td>54578.49</td>
<td>341650.6</td>
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</tr>
</tbody>
</table>

* The above table is taken from Venkatesh (2013)

The total insurance premium income (combining both life as well as non-life) has increased 5 times in the last 10 years.
Thus, it appears that the insurance sector has an immense potential to contribute towards the GDP of the countries irrespective of developed as well as developing countries. Though lots of studies have been done for identification of the underwriting cycle patterns in advanced countries like USA, UK and other EU members, but it remains as a virgin area in the Indian context and thus efforts need to be made to unfold the underwriting cycle pattern through developing appropriate models specially in the arena of Indian property and liability insurance market. It is interesting to note at this point that there exist some indices through which the underwriting cycle pattern can be visualized. The examination of the behaviours of such indices is also a prime task in Indian context. All the works on Indian market scenario have shed light on the aspects which are imperative to understand the features related to the development of Indian non-life insurance industry as a whole.

Needless to mention that the Insurance industry has a growing market in India and it presently captures a substantial portion of the job-market in India too. Thus understanding the growth pattern of the insurance market is very much necessary for properly utilizing the sector as a revenue generator.

The broad objective of the study/research problem can be summarized as follow –
Understanding the growth dynamics and assessment of the pattern of the underwriting cycle of the non-life insurance sector in India and statistical modeling of the insurance market data to assess the future growth potential of the insurance market.

1.4. A Delineation of the Outline of Content of Other Chapters

Chapter 2 gives a review of the available literature in respect to the specific and related area of research on insurance in Global as well as Indian perspective. It also describes the research gap and the scope of research in the area.

Chapter 3 briefly describes the research work pursued, different terminologies used, different statistical models and tools used in the study.

Chapter 4 presents the detailed study on the underwriting cycle pattern and statistical modelling on the combined non-life insurance data in the Indian perspective.

Chapter 5 presents the detailed study on the underwriting cycle pattern and statistical modelling on the fire insurance data in the Indian perspective.

Chapter 6 presents the detailed study on the underwriting cycle pattern and statistical modelling on the marine insurance data in the Indian perspective.

Chapter 7 presents the detailed study on the underwriting cycle pattern and statistical modelling on the miscellaneous insurance data in the Indian perspective.

Chapter 8 presents the comprehensive summary of the important findings from the research work, conclusion and also recommendations.
Chapter 9 presents the limitations of the current study as well as future scope of research in the area.