2.1 Rationale behind conducting the review of literature

Literature review can be defined as a study of the knowledge base created by existing researchers in a particular area of study. This helps a new researcher to understand the gaps in existing research and then design the research topic for study accordingly. It also directs a researcher in contextualizing the findings as the study progresses. In nutshell, review of literature is useful to the researcher at the time of framing a research topic, as also at the later stage of findings and recommendations.

This chapter deals with the detailed study of the literature available on and around the topic selected by the researcher. Literature was arranged in chronological order to understand the flow of development of forensic accounting as a subject. Entire focus was on financial statement frauds and the contribution by researchers in the field. Few most relevant and important research papers have been noted in detail with special reference to research methodology followed and the findings of the research. In case of other research papers and reports, key findings have been noted. Researcher has begun with the chapter by giving the meaning of few key concepts relevant to the research topic.

2.2 Important concepts

(a) Financial Reporting-
(ICAI, 2014) in its study module defined corporate financial reporting as a series of activities that allows companies to record operating data and report accurate accounting statements at the end of each month, quarter and year”. It is the language of management’s communication with the stakeholders of a company.

(b) Auditing-
The Institute of Chartered Accountants of India (ICAI) in its general guidelines on Internal Auditing, has defined auditing as follows:-

“Auditing is a systematic and independent examination of data, statements, records, operations and performance (financial or otherwise) of an enterprise for a stated purpose. In any auditing situation, the auditor perceives and recognises the propositions before him for examination, collects evidence, evaluates the same and on this basis, formulates his judgment which is
communicated through his audit report.” An audit is performed by the auditor to express his opinion about the quality of book-keeping and financial reporting.

(c) **Fraud**
Webster’s new dictionary has defined fraud as “the intentional deception to cause a person to give up property or some lawful right”.

Companies Act, 2013 in its section 447, has defined fraud as “Any act, omission, concealment of any act or abuse of position committed by any person or any other person with the connivance in any manner, with intent to deceive, to gain undue advantage from, or to injure the interests of, the company or its shareholders or its creditors or any other person, whether or not there is any wrongful gain or wrongful loss”. This definition has been designed to cover the aspects of misstatements, ethics and propriety.

(d) **Financial Statement Frauds**
“Financial Statement Frauds” have been defined by ACFE as- “The deliberate misrepresentation of the financial condition of an enterprise accomplished through the intentional misstatement or omission of amounts or disclosures in the financial statements in order to deceive financial statement users.”

(e) **Financial Misstatement**
(ISACA) in their module has mentioned about financial misstatement at length. Misstatement means not stating the financial statements in accordance with the generally accepted accounting standards and policies. Misstatement can take form of fraud, non-compliance with laws or unintentional errors. Financial misstatements affect all the stakeholders and as such are harmful to the repute and financial health of an organization. Stakeholders often refer to financial statements for taking an informed decision. Misstated financials can lead the stakeholders to taking wrong decisions or decisions based on wrong data.

“True and Fair” books of accounts is what the regulatory authorities expect from companies. In that sense, such misstated financial data means a
kind of deceit and can be misleading to the stakeholders. Moreover, such misstatements increase the overall business risks.

(e) **Cooking the books of accounts**
A study by Ernst and Young in 2008 stated that companies cook the books in order to meet the tough targets in terms of profitability, sustainability and returns to shareholders. (Kotsiantis, Koumanakos, Tzelepis, & Tampakas, 2006) mentioned that fraudulent financial reporting is called as “Cooking the books of accounts”. Cooking up of books is defined as an act or series of acts whereby financial statements are falsified in order to make things seem better than they actually are. The need to show better picture arises in order to keep the shareholders happy, to tap new investors and to fetch attractive performance bonuses for the managers.

(f) **Forensic Accounting**
ACFE defines forensic accounting as “the use of professional accounting skills in matters involving potential or actual civil or criminal litigation, including, but not limited to, generally acceptable accounting and audit principles; the determination of lost profits, income, assets, or damages; evaluation of internal controls; fraud; and any other matter involving accounting expertise in the legal system”.

Forensic accounting is all about using the accounting knowledge and investigative skills to ascertain and answer the legal issues involved in a case or event.

(g) **Red Flag**
These are also called as “Early indicators of fraud”. In this study, the researcher has called them as “Fraud Symptoms”. Red flags speak about deviations from the norms or expected activity. They indicate anomalies or unusual events that occur in an organization. The symptoms do not necessarily mean fraud exists; as it may have been caused by mistakes as well. Symptoms simply mean an alarm of things that are not meeting the normal trend of things or activities. (Albrecht W. , 2005) mentioned that fraud is not seen very commonly, but its indications are observed quite frequently. Fraud is not
easily proven since fraudsters have themselves at a safe line where authority cannot convict them. And, as such having the warning bells ringing is a precondition for fraud deterrence. (ASOSAI) in their notes on auditing mentioned that more the red flags, higher would be the chances that something wrong is taking place or is likely to take place.

2.3 Scheme of the chapter
The researcher conducted a detailed review of literature on the aspects like financial reporting issues, auditing procedures, frauds taking place worldwide, research on forensic accounting, red flags, fraud detection and prevention etc. Gaps identified therefrom, gave a headway to the researcher to pursue the research at hand.
An exhaustive review of literature has been conducted by the researcher in the time frame of year 1967 to year 2014. Details are as follows-

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<thead>
<tr>
<th>Sr. No.</th>
<th>Nature of literature</th>
<th>Nos.</th>
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<tr>
<td>1</td>
<td>Research Papers</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>Doctoral Thesis</td>
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<tr>
<td>3</td>
<td>Books</td>
<td>20</td>
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<td>4</td>
<td>Reports</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>ACFE Fraud Manuals</td>
<td>2</td>
</tr>
</tbody>
</table>

The chapter has been divided into five parts as mentioned below, in order to establish a flow of concepts. Each part has been discussed in detail hereunder-

2.4 Complexion of Financial Statement Frauds
2.4.1 Why do financial statement frauds take place in companies?
Financial statement frauds take place primarily due to the separation of ownership and management as encompassed in the very nature of a joint stock company. The structure of a joint stock company expects its management to protect the interest of its shareholders, maximize their wealth and run the operations of the business smoothly. The responsibility of wealth maximization can be fulfilled only if the company makes profits year after year and generates enough assets.
Shareholders expect a growth in their wealth either by means of dividend or by way of rise in share prices of the company. Whatever may be the expectation, it cannot be fulfilled without sufficient profits and more of operating profits to be precise.

However, this cannot always be practiced in reality. Volatility in economy, complexities of business, changing government and fiscal policies affect the share market and business in general. As a result, a company does not earn profits all the time. This creates pressure on management when it comes to reporting to the shareholders (ACFE, 1999).

Share market also exerts pressure on management owing to the share prices of company’s shares. Shareholders do not like to stay invested with a company which is not profitable. (Joshi, 2013) in his book mentioned that the most common motive of listed companies in general is to beat the anticipations of the analysts. Whereas the most common motive behind accounting frauds by unlisted companies is to avoid taxes. As a result, the management is tempted to misstate the financial statements of the company in such a manner that the company is seen profitable by owners, though it is not.

(Vasudevan, 2004) cited that performance linked bonus and incentives to management is one more reason why financial statement frauds occur. If a company does not earn sufficient profits in a particular year, the incentives and bonuses of the managers get affected. In order to prevent this, the managers often are seen fudging with the books of accounts so as to show a rosy picture to the shareholders.

### 2.4.1.1 Who commits financial statement frauds?

(Bossard K., 2004) in the article in a journal mentioned that senior and middle management has the maximum motivation to commit financial statement frauds. In the same context, an article by (Weidinger) for KPMG Austria, mentioned that KPMG has been observing that financial statement frauds are increasingly committed by senior and middle level managers.

In nutshell, any manager who has an access and opportunity to misstate financials of a company would do so.
The base line for all the reasons of committing financial statement frauds is the urge on
the part of management to show a bright picture about financial health of a company; especially when it is not as bright.

2.4.2 Factors associated with fraud
There are many aspects which create favorable atmosphere for fraudulent intentions and as a result frauds keep on growing in size and severity. Some of the key factors associated with frauds have been stated below-

2.4.2.1 Psychology of fraudsters
(ICAEW, 2013)in its report mentioned that it is fraud prevention can be exercised in an efficient way if the drives that lead a fraudster towards committing frauds are known. And, this is where the concept of fraud triangle comes in picture.

(Wolfe & Hermanson, 2004) studied and built further on Donald Cressy’s fraud triangle and designed a new fourth aspect to it. Lot of researchers have tried to find the reasons for which people commit fraud and the ways to prevent the wrongdoing. These reasons can be understood well with the help of the psychology of fraudsters.

The first element of fraud triangle is the ‘Motivation or Pressure’ to commit fraud. The motivation or pressure to commit fraud comes in the form of urge for financial stability, personal financial needs and financial targets etc.

Second element of the fraud triangle is ‘opportunity’. Employees may have access to records, valuable documents or other information. This creates an opportunity to commit fraud. Detailed knowledge about the employer makes it very easy for employees to design fraud plan.

Third element of the triangle is the ‘Rationalization’ of the wrongdoing. Fraudsters always rationalize their behavior by convincing themselves that committing fraud is not as bad. Justifications like "I deserve it. I only want my share", "I am doing it because I do not have any other option", and “The employer will blow the money even if I don’t take” etc. allow a fraudster to fulfill his fraudulent intentions.
Hermanson came up with the fourth dimension to the triangle which is called as ‘capability’ of the fraudster to commit fraud. A fraud will not take place if the fraudster does not have the capability to recognize an opportunity and take its advantage in order to create personal gain. Accordingly, any person who has the required skills, technical knowledge, knowledge of the business and the ability to pull a fraud off can convert an opportunity into actual fraud.

(Farrell & Franco, 1999) have observed that the trusted and valuable employees are often found to be involved in the fraud cases. This makes it even more difficult to trace the fraudster. Fraudster is likely to be a married man with family duties or one having lot of financial responsibilities. He is likely to be an experienced and old employee or one with lots of knowledge in the field.

Study of the elements of fraud psychology helped the researcher in designing questionnaire for primary data collection. It also led the researcher to understand the possible red flags of frauds.

2.4.2.2 Insufficient regulatory mechanism

(ASSOCHAM, 2015) in a survey jointly conducted with Grant Thornton mentioned that “Indian corporate frauds in the form of corruption, money laundering, tax evasion, window dressing, financial reporting fraud and bribery have increased by over 45% in the last two years”. The reasons cited were weakness in internal controls, scarcity of resources at disposal and over-riding powers of the senior management.

2.4.2.3 Financial difficulties

Literature review surfaced the fact that fraudulent financial reporting and financial distress are strongly correlated to each other and affect each other. Fraudulent financial reporting is more likely to take place in companies facing financial difficulties than in normal and healthy companies (Beasley et al., 1999).

(Rittenberg, 2012) pointed out that financial distress is strong fraud risk indicator. Thus, a timely identification of financial distress may save fraudulent reporting and thus, can save companies from loss of image in the market.
2.4.3 Frauds at global level

(Haribhakti) in their report have mentioned various aspects of fraud risk as also frauds in Indian context.

**Enron (2001)** –
Known as an energy firm in USA, Enron kept huge amount of debts off the balance sheet, thereby keeping the balance sheet liabilities light and manageable. Fraud was brought forth by a whistle blower. Arthur Anderson, later merged into E & Y, was caught guilty. The company later filed for bankruptcy. This proves the fact that fraudulent financial reporting is a serious fraud risk and should be treated as one.

**WorldCom (2002)**-
A telecom company in USA, got into the trouble due to its CEO. He inflated assets to the tune of $11 billion. He capitalized line costs rather than charging them off to Profit and loss account, thereby underreporting the expenses. He further inflated revenue with the help of false accounting entries. Fraud was unearthed by the internal auditing department and the company went for bankruptcy.

**Bernie Madoff Scandal (2008)**-
Almost a $65 billion lost to fraud, this was the biggest ever Ponzi scheme. Investors were paid out of their own money and money of other investors, rather than out of profits.

**Satyam Software (2009)**-
Indian IT Services company falsified revenue by increasing it by $1.5 billion. Revenue, profits and cash were all falsified. Founder chairman Mr. Raju admitted fraud through a letter.

(Lohana, 2013) has taken a detailed view of fraud in India like Enron, Telgi, Harshad Mehta scam etc. He furthers pointed out the need of forensic accounting in India owing to changing economic and legal environment. Investors can regain confidence in Indian capital market with the increasing use of forensic services.
2.4.4  Research on “Incidence of frauds in India”

Rising incidences of frauds over past few decades have geared up the research at the level of the government of India and other regulatory bodies. Several preventive and corrective measures like including the concept of fraud in Companies Act 2013, suitable amendments in standards on auditing and accounting are directed towards handling the fraud risk in a better manner at country’s policy level.

(Bhasin M., 2007) in his article mentioned that there are a few agencies in India which work towards combating frauds in the country. SFIO is responsible for tax evasions as also violation of norms by RBI, FEMA etc. Economic offences wing of Central Bureau of Investigation handles the cases relating to financial frauds involving larger amounts and Central Vigilance commission has set up to deal with cases of corruption.

Apart from this, surveys by big four chartered accountancy firms, Association of Certified Fraud Experts (ACFE) etc. have identified the increasing threat posed by financial statement fraud and also the other important types of frauds in the country. This awareness has paved way for growing realization and acceptance of the utility of forensic services.

A detailed study of these helped the researcher in formulating the objectives and in understanding the significance of the research topic.

Few important reports mentioning the rising incidences of frauds in India have been cited hereunder-

(I)  KPMG’s India Fraud Survey 2012

Key Findings-

1)  71% of the respondents claimed that “Fraud is an inescapable cost of doing business”.

2)  Procurement, sales and distribution and inventory are areas most exposed to frauds.

3)  It has been observed that whistle blowing, internal audits and data analysis tools were the most effective ways of detecting frauds.
4) Statutory audit of books of accounts was found to be the least impactful tool of fraud mitigation.

The report suggested that companies should take a long term view of fraud risk management and undertake broad frameworks of fraud mitigation. Deterrence for wrong deeds should be installed through stringent controls and supervision.

(II) ‘ACFE’s Report to the nations on Occupational fraud and abuse, 2012’
The report stated the following key findings and highlights:-

a) The impact of frauds related to occupation -
It was estimated in the survey that usually, an organization suffers a 5% of its total revenues to fraud annually.

b) Fraud detection -
It was stated that frauds lasted for a median of 18 months before being spotted. Tips were most effective way of detecting frauds as agreed by the respondents.

c) Victims of fraud -
Report stated that the smallest organizations in the study suffered the largest median losses. Small firms employ fewer anti-fraud controls than others exposing them to fraud risk more. Sufficient controls to prevent frauds reduce cost and efforts to a great extent. Survey found that nearly half of those who suffer losses due to frauds do not recover them from the perpetrators. This means that prevention and early detection alone can help organizations save money on account of frauds.

d) Fraudsters -
Survey observed that frauds were common amongst senior managers and most common areas of fraud were - accounts, operations, sales, top level management, customer service and purchase. It has been observed that fraudsters show one or more behavioral red flags.
This paper has discussed the various means and ways in which black money is generated in order to cheat the exchequer in Indian context. It brought to the notice of readers that manipulation of financial statements can also be done in order to generate black money or to evade tax. It stated few ways of manipulations that are very common amongst organizations. Manipulation of sales / receipts by way of suppression or inflation of sales revenue, diversion of sales to sister concerns etc. is most common. Other ways are manipulation of expenses, manipulation of closing stock, inflation of capital expenses etc. These all are called as manipulations using books of accounts.

However, manipulations can also take place ‘out of the books’ by way of maintaining parallel set of books of accounts to note all parallel money (called as black money in common parlance) transactions, by not accounting for certain assets, expenses etc. ‘Out of books’ manipulations don’t reach the books and as such remain unaccounted. Thus, these are the ways of committing fraud where, the end result is creation of black money; but the method is misstatement of financial data.

The Serious Fraud Investigation Office (SFIO) was set up by the Government of India in July 2003. It is a scrutinizing agency, which unites professionals from forensic audit, law, banking, share market etc., with an aim of unearthing corporate frauds. Investigations and reports on that basis are prepared by experts and penalties are then decided by the ministry of corporate affairs. After this, SFIO files cases in respective courts of law. Financial statement frauds, project funding frauds, capital market frauds and frauds in revenue are the most commonly observed types of frauds. The then State Minister, Shri Sachin Pilot, in answering a question on corporate frauds asked by (Agarwal, 2013) in Rajya Sabha, mentioned that 132 cases of fraud or illegal transactions have been brought in front of MCA. Out of those, 89 cases have gone into investigation procedure. Year wise summary is as follows-
<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Companies under Investigation</th>
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<tbody>
<tr>
<td>2009-2010</td>
<td>7</td>
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<tr>
<td>2010-2011</td>
<td>1</td>
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<tr>
<td>2011-2012</td>
<td>8</td>
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<tr>
<td>2012-2013</td>
<td>19</td>
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<tr>
<td>April and May 2013</td>
<td>54</td>
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</table>

The frauds in corporate sector have increased over last five years and same has been reflected in the investigation conducted by SFIO. It was also noticed by researcher that SFIO is the only agency in India which has started disclosing fraudulent companies to public at large on their website. No other body has been this transparent in disclosures of frauds as yet.

2.5 Disclosure of financial information and role of auditors in financial reporting

2.5.1 Disclosure of financial information

Disclosure of financial information is all about showing the true and fair picture of the business transactions and the resultant financial position of a business to all concerned. This act of presenting information to stakeholders is termed as Financial Reporting.

In the study module designed by ICAI for students of chartered accountancy course, it has been stated that literature like ‘Arthashastra and Rig Veda’ has made references to the concept in accounting and auditing in Indian context. However, a formal structure of accounting was introduced in 1494 for the first time by Fra Luca Pacioli; who came up with the “Double Entry Book Keeping System”.

Accounting is basically concentrated around the ‘measurement and valuation’ of economic events. The committee on terminology set up by the American Institute of Certified Public Accountants formulated the following definition of accounting in 1961:-

“Accounting is the art of recording, classifying, and summarising in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character, and interpreting the result thereof.”
However, only interpretation of financial situation is not sufficient. Communication of the financial position to all the concerned parties is also equally important. Accordingly, accounting should identify, measure and communicate the economic information to its users.

Financial statements are meant to present clearly and concisely, the financial information of an organization. They are the end product of the entire exercise of book keeping. Financial statements for businesses usually include the Income Statement, Balance Sheet, Cash Flow Statement, schedule of Fixed Assets and other annexures and notes as necessary. Financial statements speak about the year-on-year progress of the organization and present a “Post Mortem Analysis” of the financial health of a business. True and fair financial statements as prepared by the management and audited by the statutory auditor act as the roadmap for decision making for the stakeholders.

Accounting system got a strong impetus after evolution of large-scale manufacturing. Trustworthiness of accounting system and reports generated through the system were essential for survival and long term sustainability. This led to the development of a concept called ‘Financial Reporting’ done through financial statements and reports.

(Alexander & Britton, 2004) mentioned in their book that evolution of joint stock company led to separation of ownership and management; thereby leading to the need of disclosing the financial statements to the owners each year. Accounting needed some substantiation as far as its accuracy and truth is concerned. This gave rise to auditing function. Auditing function slowly changed its emphasis from true and correct to true and fair view of accounting. The concept of financial reporting got evolved in real sense, only after the industrial revolution. It was felt that survival and success of a firm was dependent on the trustworthiness of accounting system and reports generated therefrom.

(Mukharjee, 2003) mentioned that reliability, applicability, ease of understanding and comparability are the four most crucial characteristics of accounting information. Reliability of accounting is achieved only when the transactions are recorded in accordance with the substance and economic reality of the same and not just the legal
Reliability also means unbiased provisions and assumptions in accounting, prudence and completeness of information etc. Accounting information should be easy to understand and be of relevance to its users. It should be presented by ensuring consistency in accounting policies and standards followed. In the same context, (Bhattacharya, 2012) said that financial information will be considered reliable only if it is free from errors, material misstatements and bias. Financial misstatements take place when the accounting information is cooked with an intention to show a rosy picture to the stakeholders. Other intentions can be to earn unlawful personal gain, to avoid taxes, to show more revenue than actual figures etc. Stakeholders take their decisions on the assumption that the financial statements presented before them are reliable and show true financial position. However, misstated financial information fails to guide its users in decision making. Moreover, such misstatements reduce stakeholders’ trust on the accounting system, auditing procedures and overall control mechanism of a company.

(Gupta, 2005) specified that financial misstatement is perpetrated through either an unintentional error or an intentional fraud. The major difference between an error and fraud is that of the “Intent” behind the action. Fraud is perpetrated with an intention to deceive someone for personal gain, whereas an error is an inadvertent mistake committed due to insufficient knowledge or lack of expertise. As far as genuine accounting errors are concerned, they can take place at any time and from anyone. Accounting error means error of principle, error of commission, loss of documents, inappropriate disclosure of a transaction etc.

Whether it is an error or a fraud, the effect of both, lies in financial statements being misrepresented. However, intention behind frauds is dangerous than the perils of accounting errors. Also, if frauds are not detected on time, such situation may be perceived as favorable to commit more severe and long reaching frauds. It is thus, more important to assess the risk of fraud than the risk of errors in financial statements.
2.5.2 Ways of “Fraudulent financial statement schemes”

(Gomez, 2012) mentioned that in accounting, frauds can take place in the form of manipulation of accounts, misappropriation of cash and misappropriation of goods. Specially talking about financial statements frauds, they can take the shape of improper journal entries, unreasonable assumptions, improper revenue recognition, overstating the expenses, understating the revenue etc.

(Helms, 2012) observed that certified public accountants tend to focus on misappropriation of assets fraud (theft of cash and misuse of property, equipment, etc.) and not on financial statement fraud, due to both the higher occurrence of the former type of fraud and the publicity usually associated with it. He claimed that the most common method of overstating financial statements is to overstate revenue, which in turn leads to an increase in company's stock market value and possibly management compensation. According to him, fraud is committed by juggling with numbers. Fraud can be perpetrated either by improper journal entries or by unreasonable assumptions about the estimates in accounting like provisions, reserves etc. Improper revenue recognition, overvaluing existing assets or capitalizing revenue expenses etc. can be the other areas in which fraud is committed.

2.5.3 Role of auditors in financial reporting and fraud detection

(Gupta, 2005) states that the inventor of ‘Double entry book keeping system’, Fra Luca Pacioli, mentioned the duties and responsibilities of auditor in his treatise. Auditing underwent sea changes after industrial revolution and the focus shifted from ‘true and correct’ to ‘true and fair’ view of accounting.

It has been stated in the Standard on Auditing (SA – 240) that primary responsibility for prevention and detection of frauds and errors rests with both; those charged with the governance and the management of an entity. Auditor is not supposed to perform audit with a suspicion in mind about fraud possibilities. However, he must investigate thoroughly when there is a reasonable reason to believe that something is incorrect or suspicious (Tandon, Sudharsanam, & Sudharabahu, 2009). The researcher used these inputs to decide the financial ratios to be used in the present study.
(Sengur, 2012) carried out a study to identify auditors’ perception regarding fraud prevention measures about fraudulent financial statements, misappropriation of assets and corruption. In compliance with SAS 99, a total of 3 main and 14 other fraud prevention measures have been identified. They emphasize on honesty, ethics, antifraud processes and controls etc. as effective preventive measures. Analysis using ‘Freidman and Wilcoxon tests’ proved that that statutory audit and developing an appropriate oversight process is more effective to prevent fraudulent financial reporting compared to preventing misappropriation of assets and corruption. Author mentioned that fraud is a business risk. The study mentioned that fraud prevention must always be proactive, in order to be effective and useful in fraud risk mitigation.

### 2.5.4 Role of management in relation to financial reporting

SA-240 states that the management is responsible for the entity’s internal control and for the preparation of the financial statements. Accordingly, it is appropriate for the auditor to make inquiries of management regarding management’s own assessment of the risk of fraud and the controls in place to prevent and detect it. The nature, extent and frequency of management’s assessment of such risk and controls may vary from entity to entity.

It can range from a detailed assessment on an annual basis or as part of continuous monitoring to a less structured and less frequent assessment in case of some firms. An assessment of the risk of fraud may indicate the importance that the management assigns to internal controls.

Companies Act 2013 has also laid provisions for management’s check on internal controls. The act not only asks the management to install robust internal controls but also directs it to ensure its implementation. This is very much in line with the philosophy laid by SA-240.
2.5.5 Regulatory provisions about the role of auditors in relation to financial misstatements in reporting-

(a) Companies Act 2013-

Companies Act 2013 has spoken a lot about financial reporting and role of auditors in relation to frauds. The act has heightened the bar on governance in general and on the auditors and reporting procedures in particular.

Key provisions in this regard have been cited hereunder-

Auditor’s reporting responsibilities have been increased by the new act. One of them is about adequacy of internal financial controls system and its effectiveness. ‘Internal financial controls’ have been defined by the act as “the policies and procedures adopted by the company for ensuring the orderly and efficient conduct of its business, including adherence to company’s policies, the safeguarding of its assets, the prevention and detection of frauds and errors, the accuracy and completeness of the accounting records, and the timely preparation of reliable financial information” (Section 134 of Companies Act 2013). Thus, the act has mandated the auditor to ensure that policies and procedures relating to prevention and detection of frauds and errors are in place and are functioning in the correct manner.

Top-level management should follow such policies as would help the company to perform better. An auditor does not have the absolute duty to uncover fraud, but they should ensure a true and fair reporting so that the interests of the stakeholders are protected. Effectiveness of internal controls can be felt only when the management is efficient and has a positive outlook. (Ramaswamy, 2005) treated forensic accounting as one of the best ways of resolving reporting issues.

Researcher has conducted the present study with the help of published financial statements which would reflect the reporting problems if any.

(b) Standard on Auditing (SA) - 240

‘Standard on auditing’ (SA) – 240. gives insight into the auditor’s responsibility relating to fraud in an audit of financial statements-
An auditor is supposed to follow the standards of auditing and is supposed to ensure that the financial statements are free from any material misstatement and present true and fair view of the books of accounts. Sampling used in auditing procedures while vouching the business transactions, limited time at hand and expenses involved in auditing give birth to an unavoidable risk that some material misstatements in the books of accounts will remain undetected. Fraud that causes a material misstatement in the financial statements is most relevant and noteworthy for an auditor.

Two types of intentional misstatements are relevant to the auditor –

1) Misstatements resulting from fraudulent financial reporting –
   “Fraudulent financial reporting” involves intentional misstatements including omissions of amounts or disclosures in financial statements to deceive financial statement users. It can be caused by the efforts of management to manage earnings in order to deceive financial statement users by influencing their perceptions as to the entity’s performance and profitability. Such earnings management may start out with small actions or inappropriate adjustment of assumptions and changes in judgments by management. Pressures and incentives may lead these actions to increase to the extent that they result in fraudulent financial reporting.

2) Misstatements resulting from misappropriation of assets -
   Misappropriation of assets primarily leads to misuse of assets or resources of a firm. It directly or indirectly affects the financial statements and as such is relevant to an auditor.

Researcher in the present study has considered those financial statement frauds that hit the financial statements. Whether these frauds occur in the form of fraudulent reporting or misappropriation of assets, is not really relevant in case of the present study.

(Basu, 2012) in his research, touched upon important issues like fraud risk assessment, role of internal auditors, and reference to SA-240 for aspects of audit procedures for fraud, responsibility of fraud detection etc. in his research paper. He has mentioned that the auditor is expected to gather sufficient information required to identify risks
of material misstatement, evaluate these risks using the information, and then react suitably thereon. The standard stresses on two key aspects namely skeptical attitude and inquisitive mind, as the must-haves for any auditor. However, frauds take place in spite of these rules and guidelines and in that case fraud response mechanism had to be in place and operational.

2.5.6 Fraud detection and prevention

2.5.6.1 Fraud detection –
Detection starts with suspicion and prevention begins with caution! This attitude is the major difference between the two.

(Harvey & Campbell, 2011) stated that fraud detection means identifying a fraud scheme that has been operationalized by circumventing the fraud prevention mechanism. Detection techniques are nothing but investigative techniques that help investigator in searching for evidences and fraud schemes. Detection of frauds is typically a blend of proactive, reactive and data mining techniques. They further state that a robust fraud detection should be made of ongoing risk assessments, manual checks, data mining techniques, staff awareness and training. The responsibility of fraud detection lies primarily with management, employees, board as also the internal audit department.

Fraud detection and prevention both work towards a final goal of minimizing fraud risk. Fraud detection is performed if it is suspected that a fraud exists. Prevention techniques are implemented before a fraud takes place or in fact in order to ensure that fraud does not take place. Prevention is also essential since it can help in early detection of fraud schemes.

Literature showed that many researchers have studied about fraud detection tools and techniques and they have been presented in a separate section in this chapter (Section 2.8.2).

2.5.5.2 Fraud Prevention: Meaning, relevance and measures
(Levi, 1988) in his article wrote that eliminating frauds in entirety is not possible. However, “as with all crime problems, it is a question of making them manageable”.
He came up with fraud control measures which can reduce fraud possibilities. Levi has highlighted the fraud risk management, which he feels is feasible as compared to fraud elimination. This old research on fraud prevention has explained three sorts of fraud control measures highlighting the importance of good governance and strong controls. They are: employing honest staff after enough background check, robust systems in business and stringent policies regarding punishment to fraudster.

A report by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) compiled by Beasley (Beasley, 1999) examined fraudulent financial reporting from 1987-1997 by US public companies. Most companies committing frauds were small sized and it was observed that frauds were generally committed by senior level managers. Remarkable share of capital was owned by founders and board members and these companies in such companies and they had a weak audit committee. Most critical findings were regarding ethics and governance. This reiterates the importance of the “Tone at the top”. Tone at the top means the climate of ethics and values in the organization. Lesser the fraud tolerance at senior level of management, lesser would be the possibility of fraud. Researcher in the study has thus, included primary data gathered from senior finance experts, in order to check their opinions about organizational ethics, organizational culture, their views about fraud risk mitigation etc.

(Ramaswamy, 2005) specified weak corporate governance and feeble accounting system are the two important reasons behind financial statement frauds. The author also stated that ineffective implementation of corporate governance can lead to faulty corporate reporting systems at many places.

(Adams, Campbell, Campbell, & Rose, 2006) stated that fraud prevention is the most lucrative way to deal with financial losses occurring due to frauds. It should be introduced as an effective plan of preemptive measures aimed at mitigating fraud risk. Fraud is a universal issue which affects all organization alike, irrespective of their size, age and industry. Fraud has disastrous consequences and as such deterrence is essential. Weak fraud deterrence system can actually throw an organization out of business. As such, identifying loopholes in existing internal controls and fraud prevention system is absolutely essential.
Researcher in the present study has studied the indicators that can warrant need to go deep and see if an abnormality is a fraud or just an error.

**Assessment of Fraud Risk and Fraud Control Framework**

(SAIUAE, 2011) has explained a fraud control framework to be followed by every organization.

**Figure 2.1 Fraud Control Framework**

Fraud prevention means having controls in place that reduce the risk of occurrence of fraud. Fraud risk assessment and development of a fraud control plan are the key tasks in fraud prevention. Fraud risk assessment necessarily means identifying fraud risks and treating them appropriately.

Fraud detection, the second stage, works best with the help of aware and vigilant employees, and sufficient whistle blower policies.

Fraud response system should function when fraud is reported to the management. It is all about investigating fraud, securing evidences, recovering losses and preventing further loss.

Researcher has based the current study on the first stage of this framework. However, the overall fraud control will be successful only when all three stages cited above work hand in hand.
(Susmanschi, 2012) cited that controls by management and internal audit are most effective tools of fraud prevention.

(Akasie, 2010) in his book stated that ‘Management Control system’ is aimed at ensuring that resources are procured and utilized efficiently towards the fulfilment of corporate goals.

Efficient management control system of a company can reduce the opportunities of possible frauds by acting as the beacon of good governance and ethical behavior for its employees. Reduced opportunities lead to reduced fraud risk and lot of cost saving on fraud control initiatives. Researcher in the present study used this thought in setting the second hypothesis.

(Adams et al., 2006) called fraud risk assessment as an affordable and easy-to-use way to identify gaps in a company's fraud prevention processes. By identifying risks early, companies get an opportunity that the problem can be fixed before suffering from a financial loss as a result of a fraud.

(IIA, 2008) stated that corporate scandals are on the rise and as such stakeholders expect organizations to observe a “no fraud- tolerance attitude” and strict adherence to good governance principles. It has become immensely important for the management to maintain a right attitude at the top level, in order to ensure that the same percolates down to middle and lower level management and other employees. IIA prescribes a fraud risk management program as a must have for each organization. Every firm should periodically assess its fraud risk exposure, in order to identify potentials of fraud. As a step forward, the firm should put in place, preventive techniques to save itself from perils of fraud risk. Detection techniques should also be applied in a firm, when prevention fails. Lastly, an efficient reporting and investigation should persist in every organization to address fraud circumstances. The author mentions that the preventive techniques do not ensure an organization to be fraud–free but they certainly act as the first line of defense against fraud.
The concept of fraud risk assessment as a tool to prevent frauds and detect them at an early stage has been taken by the researcher as a basis for hypotheses formation for the present study.

Many international studies have treated fraud prevention as the most cost effective way of preventing fraud loss (SAIUAE, 2011). An age-old maxim says, “A stitch in time saves nine”. Rationale of fraud prevention is totally based on this maxim. Early detection done with an objective of controlling frauds in time would lead organizations towards a fraud free culture. Finally, fraud prevention is a subset of fraud detection. Prevention detects frauds before they grow out of shape and proportion. In this sense, prevention is also termed as early detection (Furlan & Bajec, 2008).

(ASSOCHAM & Grant Thornton, Fraud: A key governance risk, 2014) survey indicated that fraud risk assessment and review of compliance controls was seen as a one-time exercise by most of the respondents. There is a dire need to ensure that companies do risk assessments in a structured way and more regularly in order to see the real impact. These findings were useful to the researcher while conducting interviews.

2.6 Forensic accounting and research thereon

2.6.1 Utility of forensic accounting for auditors

(Hassink, Meuwissen, & Bollen, 2010) studied the extent to which auditors comply with auditing standards once they encounter fraud. The study also aims to provide evidence on the role of auditors in fraud redressal and preventing it from recurrence. Survey among all audit partners of the top 30 Dutch audit firms amounting to a sample of 296, was conducted. Author found out that it is difficult for individual auditors to build up expertise in fraud detection, creating thereby a need to train the auditors in the area of forensics and fraud detection. Integration of forensic accounting practices in the yearly audit is the only possible solution for reasserting credibility in the auditing process. Authors advised that fraud oriented techniques must be practiced as a routine process and not a one odd event. These techniques would have immense utility to auditors in the exercise of their duties.
(Islam, Rahman, & Hossan, 2011) conducted a study which aimed at evaluating the role of forensic accounting as a measure of fraud deterrence in Bangladesh. Sample for the study consisted of chartered accountants, cost and management accountants, multinational corporations, and 50 local organizations. Study concluded that external audit is influenced to a great extent by forensic audit.

2.6.2 Importance of Forensic Accounting

(Hunt & Stefan, 1997) mentioned that forensic accounting could be extremely useful in prevention of fraudulent activities in business organizations. Forensic accountants prove to be very useful for any business. But their services are very costly and as such small businessmen may not use forensic services for their business.

(Owojori & Asaolu, 2009) explained the concept, need and role of forensic accounting in solving vexed problems of corporate world. According to him, forensic accounting goes beyond simple record keeping and provides an accounting analysis that can help organizations in solving disputes. He states that the inability of internal and statutory auditors to detect frauds highlight the need of forensic accounting in the interest of the shareholders.

(Koh, Lawrence, & Suat, 2009) gathered the literature review on the topic of public acceptance towards occurrence of fraud detection. The study was about Malaysian companies which were relatively new and inexperienced. Their inexperience was observed to be the crucial reason behind many accounting loopholes and possibilities of frauds that emerged in the country. Authors said that cause and effect of fraud and the errors made by individuals gives rise to forensic accounting. Forensic accounting and its principles can prove to be an effective way of reducing and preventing accounting fraud. It was felt that creating awareness about forensic accounting amongst various stakeholders in turn would motivate them to demand forensic services in the company.

The researcher has observed immense importance having given to the aspects of ethics and organizational culture in all the research works carried out from early 20th century and even before. Fraud can be controlled only when adequate controls are exercised and severe penalties for committing a fraud are in place. A 2013 report by
TARI has noted that ‘Low rate of prosecution’ was noticed as an important reason for increase in corporate frauds in India over last 15 years. Forensic accounting helps in gathering the evidences suitable in the court of law and thus, chances of prosecution being executed against the fraudster would increase.

2.6.3 Nature and Extent of Forensic Accounting services across the globe

(Renick, 2007) proposed a solution for the problem of high costs that the forensic services demand. He wrote that a phased engagement of a forensic accountant in a firm can prove to be really effective because the scope and timeframe of each phase can be controlled in that case. Work can be taken on the basis of one phase at a time; so that each phase becomes an individual assignment with its own targets and concerns. Since all the efforts are directed towards one phase at a given time, this methods generates quicker results and can lead the way to the next phase if needed. Such phased engagement would also permit the client to decide whether to expand or limit the purview of each phase and also the entire engagement. Choosing the expanse of the assignment in turn means considerable saving in time, costs and efforts.

He proposed a two-step structure of taking an assignment in the phased engagement pattern. Phased engagement starts with exploration and evaluation of the easily available information. Here the forensic expert performs an initial review sufficient enough to conclude whether there is a potential reason demanding further action. It concludes with identification of possible threats and chalking out the path ahead. ‘Phase II’ includes in depth analysis of transactions, books, records, interviews of employees, inputs from third parties, related party transactions etc. It can be conducted in many ways like analysis of specific accounts, analysis of events in specific time period, analysis of interrelated accounts etc. Report generated at the end of this phase includes specific findings, additional areas of risk that are crucial to the organization.

(Vasudevan, 2004) has explained the concept of forensic accounting by relating it to various factors that surround it. Corporate frauds arise as a result of financial misstatements and accounting gimmicks designed to deceive others for wrongful gains. Manipulation, misrepresentation or alteration of accounting records, intentional omission of significant financial information, non-adherence to accounting principles
etc. can be the many ways in which financial information can be misstated. Author further stated that the management misstates the financial health of a company to its shareholders due to many compelling circumstances or reasons. Avoidance of tax payment, fund raising, pressure to achieve high revenue targets, maintaining a higher earnings trend are a few to name.

The author has also pointed out ‘Critical Point Auditing’ (Digging out the symptoms of possible frauds from the financial statements of an entity) and ‘Propriety Audit’ (to find out whether the intention behind financial transactions was fraudulent or not) as two major techniques of forensic audit that help in detecting frauds.

This research helped researcher in forming the hypothesis for the present study. Researcher used this concept of “digging out symptoms” and has studied its utility in pinpointing the vulnerable areas of a financial system. Researcher in the present study, designed a hypothesis to test if pinpointing the need of forensic accounting to few areas can reduce the costs of forensic assignments or not. If so, this would take care of the cost issues that have been pointed out by Hunt (1997) and Renick (2007).

2.7 Red Flags

2.7.1 Concept of Red Flags

Red flags is a concept in forensic accounting which talks about getting hints from the transactions, events, behaviors of employees, accounts, documents etc. about irregularities and abnormalities in business. These fraud symptoms can be categorized as unexplained accounting anomalies, weakness in internal controls, unusual behaviors of employees, anomalies exposed by whistleblowers, changes in the standard of living etc. These include all types of frauds and do not point at any particular type of fraud. However, it is obvious that some red flags will have closer association with a particular type of fraud as compared to other types. For example, accounting anomalies point towards financial statement frauds more than any other type (Graham & Carmichael, 2012).

Red flags for financial statement frauds are nothing but warning signals that necessitate accountant’s attention to some abnormality in the finances of an
organization. These are the indicators that raise a flag when a fraud symptom is seen or a fraud risk is felt. Symptoms can arise due to either a fraud or just an error. Red flags does not mean that there is a fraud. They just mean that there is something unusual in the financial statements. Simply put, they indicate a necessity to dig deep into the origin of a transaction or an area or a process, in order to find out the truth. Red flags can be qualitative and quantitative as well.

(Corbin, 2002) mentioned that the effects of a financial fraud are upsetting and they harm the financial health of an organization as also affect the stakeholders, creditors, investors etc. Severity of fraud can be reduced if fraud is unearthed soon after its occurrence. This prompts the need of recognizing the early warning signals of fraud. These are often termed as ‘Red Flags’.

(Zack, 2013) while explaining about the concept and utility of red flags for financial statement frauds said that red flags in the form of an anomaly in ratios, can often turn out to be an aberration occurring due to non-fraud reasons like change in business model, capital structure changes, rise in costs etc. So it is for the accountant to seek the reasons behind such abnormalities or anomalies.

(Austin, 1999) in his book stated that anomalies in ratios could point directly to the existence of fraudulent actions. However, anomaly detection alone is of no use in controlling fraud risk. Accounting frauds are much deeper in intensity and extent, than what these anomalies can show and thus, may demand a detailed examination of events by using sophisticated analysis tools. Analysis of data cannot stop only by understanding that something is going wrong or that some ratio has been behaving abnormally over a few years in the past. It is essential to investigate further to understand the real reasons behind such anomalies.

(Chariri, 2009) in this context concluded in his article that a proactive fraud approach involves a review of internal controls and the ascertainment of areas most susceptible to fraud. Researcher has used concept of identifying susceptible areas while setting the hypotheses.
explained ‘Red flagging approach’ is one of the most effective ways of fraud detection. However, as the technology progressed, this red flagging has been structured as “Fraud detection hypothesis testing” approach. Various qualitative red flags were studied and many of them indicated the possibility of fraudulent activities. This approach narrated in this study consists of five significant steps. The process starts with studying the operation of the firm to identify the possibilities of fraud. Using data mining programs relevant to a firm, one can identify red flags. Feedback is essential to see if out if the flags really hinted a fraud or the red flags had arisen just as a result of other factors such as genuine errors, miscommunication etc. Red flags can be quantitative and qualitative also. Both have their independent value and utility.

2.7.2 Qualitative Red Flags:

observed that frauds start with smaller cooking up of data. They slowly start growing in quantity and size till the time they are not noticed by someone in an organization.

have mentioned about various qualitative and quantitative indicators of major financial fraud in their research report. They studied ten major financial fraud companies in Europe and America. Few factors such as massive growth of company, lavish expenditures, operational mystery etc. were noticed to be most common amongst fraudulent companies; few years prior to the year of fraud detection.

stated that three factors namely management control and loopholes, ethics and tone of the top management and rationalization behind fraud are instrumental in financial statement misstatement that take place due to fraud.

defined red flagging as an early warning that can be used to determine the probability of financial statement frauds. Survey of 46 questionnaires circulated to lenders and investors in South Africa revealed that investors there know about red flags and use the same in decision making. A total of 65 qualitative red flags were incorporated in the questionnaire and were analyzed using a Likert scale.
Authors indicate that behavioral predictive models, corporate failure predictions, ratio analysis when combined with qualitative red flags would give strength and more relevance to red flagging.

(Rockwood, 2002) has thrown light on the accounting issues that all the investors should look for before parking their funds in the shares of any company in order to ensure good returns and protection of funds. Companies having revenue recognition issues and those which consistently meet high earnings targets can be said to be companies showing red flags. Researcher has considered this aspect while setting the objectives of the current study.

(Bossard & Blum, 2004) stated a few red flags as the most important ones for auditors to vouch. They were slow-moving inventory, significant entries towards the year end, high percentages of incentives linked to profits, sudden change in wealth as well as lifestyle of employee, significant entries at the end of the financial year etc.

(Shanmugam, Haat, & Ali, 2010), while indicating about most common type of misstatement commented that frauds that impact on the profit and loss account as a result of the overstatement of expenses or the understatement of income are most commonly observed.

(Hegazy & Kassem, December 2010) have done detailed survey of previous literature on qualitative as also quantitative red flags of frauds. Purpose of their study was to determine whether red flags can be helpful for external auditors in detecting fraudulent financial reporting. It was found that red flags are helpful in detecting financial fraud. Insufficient information or access to auditor and the management centered around a few people were brought forth as significant red flags.

(Yucel, 2013) in his research paper stated the importance of studying the fraud risk factors also known as red flags. Evaluation of fraud risk can lead to effective utilization of resources and creating an early warning system against possible risks. Care can be taken accordingly, before actual fraud takes place.
Fraud risk factor does not mean that fraud exists. These factors only draw attention of accountants and auditors towards the areas where fraud may take place or the areas where more diligence is needed. Risk factors vary in intensity and thus the effect. The research paper studied 34 audit firms through a questionnaire which was based on Likert scale. The author concluded that red flags can act as early warning signals. Researcher studied all these qualitative red flags to understand the aspects that fetch high importance in judging the fraud symptoms. These helped researcher build the second hypothesis.

2.7.3 Quantitative Red Flags-
(Kinney, 1987) stated that a very little is known about the ability of ratio analysis to identify material monetary error in actual accounting data.

(Thornhill, 1995) stated that financial analysis using ratios is commonly suggested as a useful tool for identifying irregularities or fraud.

(Austin, 1999) wrote a book on detection and prevention of financial statement frauds. He said that unexpected deviations in relationships very often than not indicate errors, but they also might indicate illegal acts or fraud. Therefore, deviations in expected relationships should be investigated further to determine the exact cause.

The financial connections given by Austin were as follows-
1) Assets and Liabilities - Sudden increase in the ratio of the two variables may mean hidden liabilities and sudden decline may indicate huge loans.
2) Sales and Cost of Goods sold – If sales increase, the cost of goods sold should generally show a proportionate increase.
3) Sales and Accounts Receivables – These two are directly proportional to each other.
4) Inventory and Sales - These two should move in same direction as a general norm. Inventory moving faster than sales might indicate obsolete, slow-moving goods or overstated inventory.
5) Profit percentages - Pressure on management affects the bottom line adversely and leas to frauds in reporting.
These relationships between various financial variables helped researcher understand the importance of those variables.

Researcher studied these connections amongst the variables and used them to choose the financial ratios for the present study.

(Grove & Cook, 2004) in his research paper has used few infamous cases of frauds namely Enron, WorldCom, Qwest and Global Crossing as a platform to learn for the auditors. It explains the financial reporting problems faced in the above mentioned cases and enlightens the auditors about early warning signals for earnings management and financial frauds. Authors found out following ratios which worked well as red flags in case of fraud firms taken for study. These were as follows-

Quantitative Factors-
1) Gross margin and Sales growth
2) Price to book ratio and price earnings ratio
3) ROA and ROE ratios
4) Current Ratio
5) Quality of earnings and effective cash tax rate

The study also came up with a few Qualitative Factors as the most relevant ones. They were - falling stock prices, resignations from top management, insider stock trading, non-transparent and complex financial reporting etc.

(Weld, 2004) reiterated the importance of thorough ratio analysis and mentioned about various red flags such cash flows not linked to earnings, reserves not correlated with balance sheet items, results always meeting analysts’ expectations etc. as the indicators of frauds.

(Harrington, 2005) spoke about Beneish model invented by Messod Daniel Beneish. The model used sales growth index, gross margin index, asset quality index, days’ sales in receivables index, sales, general and administrative expenses index as analysis ratios for detecting financial statement fraud. This model has been used very effectively over many years.
(Brazel, Jones, & Warne, August 2009) conducted a survey of 194 nonprofessional investors to establish the relation between accounting information and perception of investors about rate of fraud in business. It was found investors may not have the necessary domain knowledge about red flag identification and analysis.

(DiNapoli, 2010) figured out that cash, inventory and payroll as the most sensitive areas to check fraud possibilities. These areas need more attention with reference to controls, checking the accuracy etc.

(Rothberg, 2012) claimed that calculating and monitoring key financial ratios is the best way to measure the financial performance of a business and can spot problems before they get worse. Current ratio, debt-to-equity ratio, days sales outstanding (or DSO), accounts receivable (A/R) days, accounts payable (A/P) days, inventory turnover are the key ratios in this regard. He says “if you can measure the financial performance, you can easily manage it.” This brings out the importance of measuring the possible risk of fraud as the first step towards fraud risk management.

The above inputs from the researchers showed the path to the researcher for the present study and helped while choosing the financial ratios for the study.

(Bhasin M. L., 2013) has examined in detail the Satyam Computer’s creative accounting scandal. Satyam fraud has been a typical case of financial reporting fraud which showed all traits like overstated assets, undermined liabilities, unreal figures of customers, employees etc. He furthers points out that it is absolutely essential to investigate all inaccuracies in case of any suspicion or chance of fraud. These misstatements were not done overnight. It was a well thought out fraud scheme that was executed in parts over many years. This accelerated the thought process of the researcher in the context of present study.

Researcher was prompted to take a data base covering ten years’ of horizon for financial data based in this study.
The entire review of literature relating to financial ratios brought forth the fact that use of financial ratios could give indications about irregularities in financial statements. Many research papers have stated financial ratios as crucial in detection of financial fraud possibilities. This helped the researcher in finalizing the indicators to be drawn from fraudulent companies and apply them to check the fraud quotient of the firm.

2.8 Tools and Techniques used in prevention and detection of financial statement frauds

2.8.1 Techniques of fraud examination

(Basu, 2014) explained in his article, important techniques embedded in forensic accounting. They can broadly be explained as follows-

1) Benford’s Law-
   This law is based on the basic logic that fabricated or cooked up figures possess a pattern which is different from the valid figures. Benford’s law states that digit 1 has maximum likelihood of occurrence than any other digit. Also the likelihood that other digits appear in numbers reduces as those digits go higher from 1 to 9. It looks at numbers from a perspective not known to auditors. It is absolutely effective in the areas in salaries, expenses, revenue, debtors, fixed assets etc. for identification of anomalies in book entry as also industry specific anomalies. This law is based on the logic that numbers in business follows some systematic progression. There are five significant tests propounded by Benford. According to him, digits 1, 2 and 3 appear as lead numbers in approximately 60% of the times and so on. (Nigrini, 1996) was the first to use Benford’s law to financial statements in order to detect fraud.

   (Panigrahi, 2006) in his article stated that Benford’s law is advantageous since it has scale invariance. However it has many shortcomings. Sample data, data with range limits etc. cannot be worked upon using this law. It cannot be used for multivariate analysis.

2) Theory of Relative Size factor-
   It is based on the rationale that each field of a transaction has a defined normal range and data which falls out of this range should be treated as unusual or an
outlier and should be investigated further. It is worked out as the ratio of the largest number to the second largest number in the given data. However, this is quite primitive technique and may not catch errors and frauds.

3) **Computer Assisted auditing tools**
These are computer friendly tools which help auditors in identifying inconsistencies, sample testing, recalculating numbers etc.

4) **Data Mining techniques**
These overcome the limitations posed by three methods cited above. Data mining techniques study interdependencies between many variables, enabling thereby to find out a suspicious pattern. Three major types of mining techniques are discovery, deviation analysis and predictive models. Association rule, cluster analysis are most common discovery techniques. Deviation analysis used trend analysis, value prediction etc. Whereas, modelling is done using regression, neural network, decision tree analysis etc.

5) **Ratio Analysis**
Review of literature revealed use of financial ratios in fraud detection and to identify factors linked to fraudulent firms. Section 2.8.2 depicts a detailed study of ratios being used in fraud detection and prevention. It was observed that ratios were used very effectively for fraud detection by many previous researchers. However, fraud prevention domain remains relatively unexplored as far as utility of ratio analysis is concerned.

### 2.8.2 Statistical Tests used in fraud detection / prevention
Many of these studies used a combination of one or more of the techniques mentioned above. A detailed review of these studies is given below-

(Beaver, 1967) was one of the early inventors of the use of financial ratios to detect corporate financial difficulties. He anticipated the potential power of prediction inbuilt in the financial ratios. He has noted univariate analysis, multivariate analysis, probit and logit models have been the most commonly used models of financial fraud prediction as stated in the study.
Author found out that all the ratios cannot have the predictive ability of equal level. For example, cash flows to total debt is a better predictor as compared to liquid ratio. He further stated that predicting non-failed companies was possible more than predicting the failed companies. Scope for further research lies in the area of ‘Multi-ratio analysis’, where many ratios should be used at the same time.

Researcher has picked up this thought and has used it in data processing.

(Courtis, 1978) cited that it is not possible to visualize financial analysis unless it is transferred into financial ratios as stated by James Horrigan in 1965. Author mentioned that very little work has been done on inter-links between different ratios and their analysis to map the profile of a firm. Highly correlated ratios can be removed after ensuring that all relevant aspects of a firm’s complexion are covered. This research helped the researcher in crystalizing the thought process as regards the statistical tools that can be used for present study.

(Persons, 1995) in his research, stated that financial leverage, size of the firm, capital turnover and composition of assets are significant factors linked with fraudulent financial reporting. He performed stepwise logistic models to study fraud and non-fraud firms and t-test was used. He gave a few key areas to assess the financial system of a company from different angles. They were financial leverage, profitability, asset composition, liquidity, capital turnover, size and overall financial position. Author used various ratios for the same. It was concluded that accounting data is useful in finding the likelihood of fraudulent reporting.

(Summers & Sweeney, 1998) studied 184 companies and used Altman’s Z Score as also ‘Cascaded logit analysis’. Authors studied the relation of insider trading with financial statement frauds. They concluded that companies wherein frauds have been observed hold significantly huge inventory as compared to the sales amount. Also, the return on assets in case of those companies was significantly higher in the year prior to the year when the incidence of fraud took place.
(Spathis, Doumpos, & Zopounidis, 2002) explored an innovative classification methodology to find out firms issuing falsified financial statements (FFS) and identified factors associated with such statements. Falsification comes mainly in the form of showing more assets, profits and sales than actual or understatement of liabilities, losses and expenses. Prior research puts forth few variables like sales, account receivables, reserve for bad debts and inventory as more prone to frauds than others (Schilit 1993; Loebbecke et al 1989). Spathis et al. studied 76 Greek firms; half of them were fraudulent and half were non-fraudulent. Ten financial ratios were applied to detect factors associated with FFS. Statistical tools namely UTADIS (Utilite’s Additives Discriminants) classification method and factor analysis were used.

Factor analysis reduced the ten ratios to only four key ratios namely – Sales to Total Assets, Net Profit to Sales, Inventory to Sales and Total Debt to Total Assets. Finally two most important ratios that surfaced both from original set of ratios and from the reduced set were Total Debt to Total Assets and Inventory to Sales ratio. It was observed that the overall error rate of UTADIS is significantly lower than that in descriptive analysis and logit analysis. The results indicated that the investigation of financial data can be helpful towards the identification of FFS and highlight the importance of financial ratios as stated above.

(Kaminski, Wetzel, & Guan, 2004) conducted analysis of ratios for a span of seven years using 21 ratios. It was a study of fraud and non-fraudulent firms, which yielded 16 ratios as significant. Of these, five were significant during the period prior to the fraud year. Discriminant analysis was used. However, conclusion of this study was that financial ratios have relatively limited ability in detecting occurrence of frauds.

(Buffett, 2002) in his letter as CEO mentioned that if a company continuously meets the targets of performance many times in a row, then surely a red flag exists in that company. He mentioned that the results of a company should normally move as the economic cycle changes. A company can never achieve the targets of performance continuously, for excessively long period. Thus, the very nature and definition of economic cycle can also pop up a red flag.
Researcher in the present study took time span of ten years between 2004 and 2013 taking hint from this letter of Mr. Buffett.

(Kotsiantis et al., 2006) studied the efficiency with which machine learning techniques can be used to detect firms indulging into financial statement frauds. Data of financial year 2001-2002 relating to 164 fraud and non-fraud firms in Greece was picked up. Study used purely financial ratios as input vector. Authors used representative algorithm for data processing. It was found that “a relatively small list of financial ratios decides the classification results to a large extent”.

(Hogan, Rezaee, Riley, & Velury, 2007) were the authors of one of the articles published for Public Company Accounting Oversight Board (PCAOB) in USA and have gathered the academic research on fraudulent financial reporting. It has been observed by (Kaminski et al., 2004) that ratio analysis has yielded limited success in fraud detection due to instability of ratios over time and subjectivity of ratios. However, this research mentioned that advanced tools like cluster models, simple logistic models, Benford’s law etc. have worked very well while comparing fraud and non-fraud companies.

Researcher thus, decided to use financial ratios in conjunction with strong statistical tools in the present study.

(Grove & Basilico, 2008) studied companies from five diverse sectors. A Probit analysis was used for financial data and variables remarkable for the difference in mean were studied for non-financial data. Three ratios were found to be really significant in leading to the outcome of research. They were- Gross margin index, Sales growth index and accounts receivables index. The research also gave certain non-financial indicators such as weak management control system, opaque disclosures etc. as significant in predicting falsified statements. These indicators were used in designing the research methodology for the present study.

(Tie, 2010) spoke about postmortem analysis of fraud in his research article. Sizemore has stated trend analysis and ratio analysis as simple yet effective techniques that can be used to identify red flags and possibly prevent the losses from frauds.
This has further strengthened the belief of the researcher in using ratios as red flag indicators in this research.

(Cecchini, Aytug, Koehler, & Pathak, 2010) put forth a methodology to detect fraudulent financial reporting by applying publicly available financial data. This study combined fraud assessment research in accounting with data mining. Support vector machines using the financial kernel separated the fraud and non-fraud companies. The methodology was found to have the predictive value since it was able to separate fraudulent companies and non-fraudulent companies in subsequent years only by using the historical data.

This paper facilitated the thought process of the researcher for the present study. It confirmed that historical data can show a path towards prediction of fraud possibilities.

(Unegbu & Tasie, 2011) conducted a study to suggest a CPT model for detecting the ‘intent’ in published financial statements, thereby differentiating frauds from genuine errors. The authors strongly believed that the determination of whether financial statements are falsified or not is very important before further decisions are made based on it. There is no point in applying bankruptcy or insolvency models on companies if the financial statements are falsified. 51 companies were selected on the basis of characteristics mentioned by Beasley et al. in 1999 as also few other factors indicating unhealthy finances of a company. Those characteristics included companies with negative retained earnings, companies struggling to maintain solvency, companies holding negative working capital etc. A cash flow statement and percentage trend analyses model was proposed in the study.

Authors claimed that an investor has access to and uses only the published financial statements and as such they used only those for the analysis. Study found that CPT model has very high ability to differentiate between falsified and non-falsified financial statements.

This led the researcher to pick up publicly available financial data for the present study.
(Grove & Basilico, 2011) conducted a study with the help of nine major reporting frauds that took place across the world in 21st century. A two-pronged approach to risk management was suggested by Grove and Basilico. The study considered seven models like Altman’s Z score, Shaky books ratio, Sloan’s model etc. Conclusion was that these models and eleven traditional ratios combined with corporate governance can work as an effective risk management model and can raise flags indicating financial statement frauds. Authors concluded that Altman’s Z score bankruptcy model gave best results, indicating problematic financial condition of fraudulent companies. Three ratios namely Sales growth index, Gross Margin index and Days sales in receivables worked best.

(Mironiuc, Robu, & Robu, 2012) in his research paper, identified the key financial components of fraud and to determine the probability of occurrence of the risk of fraud. 65 fraud and non-fraud companies were chosen as sample for the research. Various ratios were used to analyze data. According to the results of the research, the financial ratios obtained on the basis of profits and cash flows are particularly important in signaling the possibilities of financial frauds.

(Mehta, Patel, & Purohit, 2012) developed a model for detecting factors associated with fraudulent financial statements (FFS). 30 companies with FFS and 30 companies without FFS were chosen as sample. 35 variables and ratios were chosen from previous literature review for testing. A logistic regression technique was used to test and develop the model.

The paper presented ten variables as potential indicators of fraudulent financial statements namely. Some of them were - net profit to sales, accounts receivable to sales, working capital to total assets, inventory to sales, total debt to total assets etc. It was further found that companies with high inventories with respect to sales, high debt to total assets and low net profit to total assets were more likely to misrepresent financial statements.
(Sharma & Panigrahi, 2012) studied the literature on use of various data mining techniques specifically used for financial fraud detection between financial years 1992-2011.

Figure 2.2 Data Mining Techniques


Following four key classes of techniques were observed to have been used for fraud detection-

1) Neural Network which includes Fuzzy NN, Decision trees, Logistic models etc. [(Kotsiantis et al., 2006), (Fanning and Cogger, 1998)]

2) Regression models which include Probit and Logit techniques, Statistical Regression analysis, Clustering analysis etc. [(Persons, 1995), (Summers and Sweeney, 1998), (Beasley, 1996), (Spathis, 2002)]

3) Fuzzy logic which also includes Rule based and Expert reasoning systems

4) Expert System and Genetic Algorithm

It was stated that outlier analysis is highly suitable in financial accounting fraud detection. It was useful in differentiating fraudulent data from authentic data. Research concluded by showing the urgency to bridge the gap between researchers and practitioners so that more practical models could be invented with the help of researchers.(Hawkins, 1980) explained an outlier as an observation that deviates so
much from the other observations in a given data set that, it arouses suspicions that it was generated by a different mechanism. Outliers thus, point out the threats existing in the financial statements of companies. This research paper was instrumental in establishing the thought process of the research towards data processing and analysis.

(Gupta & Gill, 2012) applied association rule and cluster analysis on 114 listed companies in order find a solution for preventing fraudulent financial reporting. K-means clustering identified 17 non-fraud firms as fraudulent based on the analysis. It was mentioned that these results would act as preventive measures for the management of companies.

(Radziah, Dickson, Sembilan, & Wan, 2013) studied financial ratios to see if they could differentiate fraudulent financial statements (FFS) and non-fraudulent ones. Analysis was performed using paired sample t-test and logistic regression was used. Ratios like debt equity ratio, Sales to total assets showed negative correlation with FFS. Many other ratios like inventory to total assets, gross profit to assets etc. showed strong positive relation.

Researcher found that (Spathis, 2002), (Fanning and Cogger, 1998) etc. used advanced statistical tools to detect fraudulent financial statements. But very little work has been done on fraud prevention measures as compared to fraud detection area (Gupta, 2012).

Researcher utilized this germ to explore fraud prevention field and studied Indian scenario in particular, by using the red flags specified by literature.

Falsification of financial statements is significantly linked to sudden corporate liquidation, bankruptcy and winding up. As such it was found that many models like (Beaver, 1967), (Altman, 2002) etc. which detect financial problems or difficulties of a firm, have also been used for detection of frauds. It has been observed that the temptation to commit fraud is higher for a firm which faces financial difficulties as compared to other firms.

(Altman, 1968) took the study further by using multivariate analysis.
Altman was the first to conduct a multivariate study for predicting financial distress. The research employed 22 financial ratios to compare between 33 failed companies and 33 successful companies. Altman developed a model called “Z-score” model. The results showed that five ratios with their weights, namely, working capital to total assets, retained earnings to total assets, profit before interest and tax to total assets, market value of equity to book value of total debt and sales to total assets could predict financial failure correctly up to 95% in the first year, and then the prediction rate fell down to 36% in the fifth year before the failure.

(Sori & Jalil, 2009) studied 17 failed companies and matched them with non-failed companies using the criteria of same industry, same failure year, closet asset size and same age since inception. A total of 64 ratios were chosen for research. A forward stepwise multivariate discriminant analysis was used to process the data. Two ratios were found significant out of 64 financial ratios utilized in this analysis. They were - Cash flow to Sales and days sales in receivables.

(Yap, Yong, & Poon, 2010) studied the ability of financial ratios in predicting failure of companies using Multiple Discriminant Analysis (MDA) in the Malaysia. A total of 64 companies (32 failed companies and 32 non-failed companies) were analyzed with 16 financial ratios. It was observed that ratios that measure “liquidity and profitability” are most useful in predicting a company’s success or failure. Looking at the existing literature, researcher found that developed countries like USA and UK have quite transparent disclosures about fraudulent firms in their countries. India is not on the same footing in this regard. Opaque disclosures in India restrict the researchers to surge ahead in the field of forensic accounting in Indian context. This led researcher to pick up a wider spectrum of Indian economy for the present study. Review of literature from this section pointed out that lot of research has been done on fraud detection and factors showing likelihood of fraudulent financial statements.

2.9 Gap Analysis
After an extensive survey of literature, it was found that there are some gaps in the present body of knowledge. This prompted the researcher to take up this topic for study. Brief findings from the review of literature and consequent “Gap Analysis” has been presented here-
1) Majority of the reviewed literature has focused on fraud detection. **Gap Identified**- It was observed that there is a lot of scope for research in the fraud prevention area. Research on early detection of frauds and on preventive measures of fraud has been limited. Early detection is the need of the hour and as such must be tackled on priority by companies.

2) A lot of previous research work has followed the method of comparing Fraud and Non-fraud firms (Spathis 2002). But such method of research cannot be adopted in India due to the opaque disclosures about frauds. **Gap Identified**- Research on Indian economy by taking a wider cross section of companies operating in India was not observed by the researcher. This gap was filled during the research at hand.

3) More research in the field of forensic accounting has been conducted by those entities that have access to financial data. **Gap Identified**- Frauds and Finances are the most crucial aspects of a firm and thus the information relating to those will not be accessible to all. The research will be of some use to common man only if it is done with the help of financial data easily available to him. As such, researcher used financial statements as the input for research.

4) It was observed that lot of study has been done on qualitative red flags as compared to quantitative red flags. Quantitative red flags are easy to understand and interpret as compared to the qualitative red flags. **Gap Identified**- There was a need to state numbers, which are relatively easy to understand. Researcher found that concentrating more on numbers was essential.

5) **Ratio Analysis** has been identified and used as a powerful financial measurement in finding out the financial difficulties as also frauds and errors in the existing literature. **Gap Identified**- However, ratio analysis has not been used as much for early detection or prevention of frauds. In Indian context, such research has not been
done. Whatever research exists is on selected companies with a very small sample. Thus, researcher used ratios to identify indications of vulnerability to fraud risk.

6) Looking at the expectations of stakeholders and management from the auditors, it is absolutely essential that forensic accounting principles be applied to accounting systems. Lot of time and efforts are required to be spent on forensic activities but the people are still a bit reluctant to accept it. As a result, only giant organizations are availing these services as of now. The major problem is that forensic services are very costly in general and more specifically in India.

**Gap Identified**- Pinpointing sensitive areas will enable all entities to use the expertise for areas most vulnerable to frauds. Also the cost of using forensic expertise for smaller areas will be much lesser and thus affordable to all.

7) **Stronger internal controls** are a good way to minimize frauds.

**Gap Identified**- There is a need to ensure that internal controls incorporate elements of forensic accounting and fraud risk mitigation techniques.

8) Various sectors have their own set of problems and prospects that should be studied one by one in order to **formulate a regime for fraud prevention and early detection** for each of them.

**Gap Identified**- There was a need to study sector-specific warning signals of possibilities of frauds. The present study included it as one of the objectives of study.

9) Ratio analysis when coupled with data mining techniques give better results as far as fraud detection is concerned.

**Gap Identified**- Researcher has used the said combination for identifying indicators showing the need of forensic accounting. This in turn would help in fraud prevention.
2.10 Conclusion
Based on the above review of literature, the researcher formulated the objectives as well as the hypotheses of this study.

The hypotheses of the research were-
1) Properly identified red flags or fraud indicators based on financial data lead to early diagnosis of fraud symptoms.
2) Properly identified red flags or fraud indicators based on financial data pinpoint the need of forensic accounting as a management control system for selected areas of transactions instead of implementation of full-fledged forensic accounting system.

Overall tone of the literature suggested that there is need to put forth fraud symptoms in order to identify the fraud risk at an early stage, so that fraud losses can be minimized. The researcher in this research has studied the indicators which prompt the need to use techniques of an advanced field of investigative accounting known as ‘Forensic Accounting’.