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STATEMENT OF THE PROBLEM
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RESULTS & DISCUSSION
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PREVENTION AND DETECTION OF FINANCIAL STATEMENTS FRAUD: A STUDY

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ABSTRACT
Financial statement fraud is a deliberate misstatement of material facts by management in the books of accounts of a company with the aim of deceiving investors and creditors. This illegitimate task performed by management has a severe impact on the economy because it significantly dampens the confidence of investors. Every day, news of financial statement fraud is adversely affecting the economy worldwide, considering the influence of the loss incurred due to fraud, Prevention and detection of financial statement fraud has become a major concern for almost all organizations globally. However, it is a fact that prevention of financial statement fraud is the best way to reduce it, but detection of fraudulent financial reporting is critical in case of failure of prevention mechanism. Effective measures and methods should be employed for prevention and detection of financial statement fraud. This study of detecting financial statement fraud helps auditors, tax authorities and bankers to identify the false financial statements during the scrutiny. The aim of this paper is to provide a methodology for prevention and detection of financial statement fraud and to present the empirical results by implementing the framework.

KEYWORDS
financial statements, fraud detection, vertical and horizontal analysis.

INTRODUCTION
Financial statement fraud is a deliberate misstatement of material facts by management in the books of accounts of a company with the aim of deceiving investors and creditors. This illegitimate task performed by management has a severe impact on the economy because it significantly dampens the confidence of investors. The percentage of financial statements that contained false information is quite high. Against this background, researchers, management, lenders, workers, suppliers, clients and the community at large have demonstrated a great interest in the detection of false financial statements.

Association of Certified Fraud Examiners (ACFE), in its report to the nation on occupational fraud and abuse (2012) suggests that, the typical organization loses 5 per cent of its revenue to fraud each year and reveals that perpetrators with higher levels of authority tend to cause much larger losses. The report by the ACFE also measured the common methods of detecting fraud and found that in more than 43 per cent cases tips and complaints have been the most effective means of detecting frauds. Prevention and detection of financial statement fraud has become a major concern for almost all organizations globally. Though, it is a fact that prevention of financial statement fraud is the best way to reduce it, but detection of fraudulent financial reporting is critical in case of failure of prevention mechanism. The aim of this paper is to provide a methodology for prevention and detection of financial statement fraud and to present the empirical results by implementing the framework.

While there is strong research concerns for detecting false financial statement fraud in developed countries. Financial statement fraud has been dominating the newspapers and news channels. Satyam Computers, one of biggest financial statement fraud in Indian listed companies, led by its founder, was identified in the recent past. This has eroded badly the trust of investors as well as the value of the stock price. Ketan Parekh case followed by the Unit Trust of India case and in the recent past, the Satyam and World Bank-Wipro cases that have not just tested the Indian business framework, but also sent ripples across the global scene. These cases underscore the need for investors and companies to protect their investments by detecting fraud in its earliest stages by distinguishing between truthful and misleading information.

In practice, financial statement fraud might involve: (1) Manipulation of financial records, (2) Intentional omission of events, transactions, accounts, or other significant information from which financial statements are prepared, (3) Misapplication of accounting principles, policies, and procedures used to measure, recognize, report, and disclose business transactions reiterates the idea that fraud is an intentional act, and fraud frequently includes the perpetrator(s) feeling pressure or having an incentive to commit fraud and also perceiving an opportunity to do so.

REVIEW OF RELATED LITERATURE
Financial statement serves as a tool for communicating to users and stakeholders the true and fair view of the company. The review of literature reveals the various researches have been conducted so far related to financial statements fraud in order to examine the effectiveness and limitations of these techniques in detection of financial statement fraud.

Okoye (2000), opines that the basic tool in financial statement analysis is the ratio, which is a percentage or decimal relationship of one figure to another. Financial ratios describing all aspects of financial performance, including profitability, solvency, leverage, liquidity and managerial performance are indicators of the company's health and means to deceive creditors and investors.

According to Spathis (2002), financial statements fraud falls into different categories and consists of manipulating elements by overstating assets, sales and profit or understating liabilities, expenses or losses. And explained these types of financial statement fraud briefly: i) Improper revenue recognition: The most common scheme used in financial statement fraud involves manipulation of revenue figures. This involves posting sales before they are made or prior to payment. ii) Manipulating expenses: Another fraud involving financial statements is the deliberate manipulation of expenses. An example of manipulating expense is to capitalise normal operating expense. This is an improper method to delay recognition of the expense and artificially raise income figures. iii) Overstating assets: Overstatement of current assets on financial statements and failure to record depreciation expense are often employed as methods of fraud. This fraud can cause significant losses and have far reaching effects, not only the financial statements fraud bring down the business, but also hurt the organizations employees, clients, investors and third parties.

ACFE (2003), claims that financial statement fraud is 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 to deceive financial statement users. Managers may exploit the ambiguities and available choices to present the financial picture that meets their financial targets. Thus, the dividing line between *"Earnings Management"* and *"Earnings Manipulation"* is indeed narrow (Brennan & McGrath, 2007). Public and private business commit financial statement fraud to secure investors interest or obtain bank approvals for financing as justification for bonuses or increased salaries or to meet expectations of its shareholders.

Warfield (2007), assert that financial statements are useful for the assessment of a company's liquidity, solvency, financial flexibility and performance. Financial statements have been viewed in connection with avenue to perpetuate fraudulent activities and deception.

Asset management ratios are indicators of management efficiency in the utilization of business assets. The ratio relates the business assets to volume of operation to determine whether there is over or under utilization. Under-utilization results in high maintenance cost which in turn has a reducing effect on the operating profit of the organization, while over-utilization results in frequent breakdown or disruption in operations and high cost of repairs (Ilaboya, 2008).

Kapoor (2011), applied four data mining techniques namely regression, decision trees, neural network and Bayesian networks in order to examine the effectiveness and limitations of these techniques in detection of financial statement fraud.

NEED AND IMPORTANCE OF THE STUDY

Financial statement serves as a tool for communicating to users and stakeholders the true and fair view of the company. Financial statement shows where the company is, and where it is heading.

Financial statement analysis is a process that enables readers of a company's financial reports to develop and answer questions regarding the data presented. Financial statements express the economic condition of a company in three ways: (1) The Balance Sheet reports assets, liabilities, and owners' equity, (2) The Income Statement accounts for the income or loss of the company, (3) and the Cash Flow Statement displays the sources and uses of cash.

Financial analysis techniques can help investigators discover and examine unexpected relationships in financial information. These analytical procedures are based on the premise that relatively stable relationships exist among economic events in the absence of conditions to the contrary. Known contrary conditions which cause unstable relationships to exist might include unusual or nonrecurring transactions or events, and accounting, environmental, or technological changes. Public companies experiencing these events must disclose and explain the facts in their financial statements. Increasingly, Private and Not-for-Profit Companies follow best practices and do the same.

Unexpected deviations in relationships most likely indicate errors, but also might indicate illegal acts or fraud. Therefore, deviations in expected relationships warrant further investigation to determine the exact cause. Several methods of analysis assist the reader of financial reports in highlighting the areas that most likely represent fraudulent accounting methods.

OBJECTIVES OF THE STUDY

The broad objective of the study is to investigate accounting ratios and false financial statements detection, while the specific objectives are:

1. To ascertain the extent to which Leverage Ratios significantly relate to the probability of financial statement fraud occurrence
2. To determine the extent to which Profitability Ratios significantly relate to the probability of financial statement fraud occurrence
3. To examine the extent to which Asset Management Ratios significantly relate to the probability of financial statement fraud occurrence
4. To examine the Liquidity Ratios significantly relates to the probability of financial statement fraud occurrence.

METHODOLOGY

The present study is descriptive in nature. The data used for the study is secondary in nature and has been collected from Bombay Stock Exchange bulletin, annual reports of NIFTY and report on fraudulent accounting methods in India, various reputed journals, newspapers, white papers and websites of various companies.

DISCUSSION

COMPARATIVE TECHNIQUES

A fraud examiner commonly employs the following techniques to identify the relationships among the financial data that do not appear reasonable. Comparison of current period information with similar information from prior periods, prior period amounts normally are assumed to be the expectation for the current period. A modification of this comparison is the incremental approach whereby prior period numbers are adjusted for known changes, such as significant purchases or sales of assets

SALES VERSUS COST OF GOODS SOLD

The company generates sales because it sells its merchandise. This merchandise had to be purchased, manufactured or both, all of which entail a cash outlay for materials, labour, etc. Therefore, for each sale there must be a cost associated with it. If sales increase, then the cost of goods sold generally increases proportionally. Of course there are cases where a company has adopted a more efficient method of producing goods, thus reducing its costs, but there still are costs associated with the sales that are recognized upon the sales of the goods.

SALES VERSUS ACCOUNTS RECEIVABLE

When a company makes a sale to a customer, the company generally ships the merchandise to the customer before the customer pays, resulting in an accounts receivable for the company. Therefore, the relationship between the sales and the accounts receivable is directly proportional. If sales increase, then accounts receivable should increase at approximately the same rate.

SALES VERSUS INVENTORY

A company's inventory is merchandise that is ready to be sold. A company generally tries to anticipate future sales, and in doing so, tries to meet these demands by having an adequate supply of inventory. Therefore, inventory usually reflects the growth in sales. If sales increase, then inventory should increase to meet the demands of sales. Inventory that grows at a faster pace than sales might indicate obsolete, slow-moving merchandise or overstated inventory.

PROFIT MARGINS

Companies generate sales revenue by selling products or providing services. Likewise, companies incur direct and indirect costs related to producing or acquiring the products they sell, or providing the services for their customers. Gross, operating, and net profit margins are shown on the income statement. Over time, profit margins should stay consistent as the company targets a certain profit in order to stay in business. If the company encounters increased competition and must reduce the price for its products, it will have to find ways to cut expenses. Ongoing pressure on profit margins indicates pressure on management, which could ultimately lead to fraud in the financial reporting.

ASSETS VERSUS LIABILITIES

A financially healthy company tries to maintain a consistent balance between assets and liabilities. By keeping a certain balance, the company displays its solidity to lenders or equity investors and keeps financing costs down. A sudden change from historical norms means something has changed with management's view of its business. It also could indicate that management is trying to hide something. A sudden increase in the ratio could mean that liabilities such as long-term debt have been hidden in off-balance sheet entities. If the value of liabilities rises and the ratio spikes downward, it could reveal that the company is borrowing heavily to finance operations and the risk of fraud is acute.

TYPES OF ANALYTICAL PROCEDURES

Fraud examiners employ several techniques to manipulate plain, unconnected numbers into solid, informative data to interpret the company's financial standing. Investigating relationships between numbers offers deep insight into the financial well-being of an organization. By comparing these relationships with other industries or businesses within the same industry, an examiner can extrapolate evidential matter and gain a greater comprehension of the company's financial condition. Financial statement analysis includes the following:

- Percentage analysis, including vertical and horizontal analysis
- Ratio analysis
- Cash flow analysis

PERCENTAGE ANALYSIS: VERTICAL AND HORIZONTAL

There are traditionally two methods of percentage analysis of financial statements: vertical analysis and horizontal analysis. ***Vertical analysis*** is a technique for analyzing the relationships between the items on any one of the financial statements in one reporting period. The analysis results in the relationships between components expressed as percentages that can then be compared across periods. This method is often referred to as "common sizing" financial statements. In the vertical analysis of an income statement Net Sales is assigned 100%, for a balance sheet Total Assets is assigned 100%, on the asset side and Total Liabilities and Equity is expressed as 100% on the other side. All other items in each of the sections are expressed as a percentage of these numbers.

In the bellow example, it is observed that accounts payable is 27.27% of total liabilities. Historically, it may find that this account averages slightly over 25%. In year two, accounts payable rose to 49.41%. Although the change in the account total may be explainable through a correlation with a rise in sales, this significant rise might be a starting point in a fraud examination. Source documents should be examined to determine the rise in this percentage. With this type of examination,

fraudulent activity may be detected. The same type of change can be seen as selling expenses decline as a part of sales in year two from 20 to 18.75%. Again, this change may be explainable with higher volume sales or another bona fide explanation. But, close examination may possibly point a fraud examiner to uncover fictitious sales, since there was not a corresponding increase in selling expenses.
The following is an example of financial statements that are analyzed by both vertical and horizontal analysis:

TABLE 1: BALANCE SHEET

Particulars	Vertical analysis				Horizontal Analysis	
	1st Year		2nd Year		Change	% of Change
	Rs.	%	Rs.	%		
Current Assets	40000	12.12	20000	4.71	- 20000	-50.00
Cash	150000	45.46	200000	47.06	50000	33.33
Accounts Receivable	80000	24.24	145000	34.12	65000	81.25
Inventory	60000	18.18	60000	14.11	--	--
Fixed Assets	330000	100.00	425000	100.00	95000	28.79
Total	90000	27.27	210000	49.41	120000	133.33
Accounts payable	60000	18.19	60000	14.11	--	--
Long term Debt	100000	30.31	100000	23.53	--	--
Shareholders Equity	80000	24.24	55000	12.95	-25000	-31.25
Retained earnings Total	330000	100.00	425000	100.00	95000	28.79

TABLE 2: INCOME STATEMENT

Particulars	Vertical analysis				Horizontal Analysis	
	1st Year		2nd Year		Change	% of Change
	Rs.	%	Rs.	%		
Net Sales	200000	100.00	400000	100.00	200000	100.00
Cost of Goods sold	100000	50.00	250000	62.50	150000	150.00
Gross Profit	100000	50.00	150000	37.50	50000	50.00
Operating Expenses	40000	20.00	75000	18.75	35000	87.50
Selling Expenses	45000	22.50	100000	25.00	55000	122.22
Administrative Expenses						
Net Profit	15000	7.50	(25000)	- 3.25	(40000)	-266.67

Horizontal analysis is a technique for analyzing the percentage of change in individual financial statement items from one year to the next. The first period in the analysis is considered the base, and the changes in the subsequent period are computed as a percentage of the base period. If more than two periods are presented, each period's changes are computed as a percentage of the preceding period. The resulting percentages are then studied in detail. It is important to consider the amount of change as well as the percentage in horizontal comparisons. A 5% change in an account with a very large dollar amount may actually be much more of a change than a 50% change in an account with much less activity. Like vertical analysis, this technique will not detect small or immaterial frauds. However, both methods translate changes into percentages, which can be compared to highlight areas of top concern.
In the previous example, cash declined by Rs. 20,000 from year one to year two a 50% drop. Further analysis reveals that the 100% increase in sales has a much greater corresponding increase in cost of goods sold, which rose 150%. This is an unusual increase and displays a deteriorating financial condition. If management employed fraudulent accounting in the period, it might mean that revenues were understated for some reason. Management might have wanted to avoid a high tax bill or wanted to shift revenues to the next period for some reason. It might also mean that the cost of goods is rising, which may pressure management to improve the appearance of the company's financials by engaging in fraudulent accounting in future periods.

FINANCIAL RATIO ANALYSIS

Ratio analysis is a means of measuring the relationship between two different financial statement amounts. This form of financial statement analysis can be very useful in detecting red flags for a fraud examination. Many professionals including bankers, investors, business owners, and investment analysts use this method to better understand a company's financial health.
An accounting ratio is an index computed from two or more accounting values with close affinity or relationship. Ratio analysis allows for internal evaluations using financial statement data. The relationship and comparison are the keys to the analysis. For further insight, financial statement ratios are used in comparisons to an entity's industry averages. As the financial ratios present a significant change from one year to the next or over a period of years, it becomes obvious that there may be a problem. As in all other analyses, specific changes are often explained by changes in the business operations. When a change in a specific ratio or several related ratios is detected, the appropriate source accounts should be researched and examined in detail to determine if fraud has occurred. For instance, a significant decrease in a company's current ratio may point to an increase in current liabilities or a reduction in assets, both of which could be used to cover fraud.
These ratios may also reveal frauds other than accounting frauds. If an employee is embezzling from the company's accounts, for instance, the amount of cash will decrease disproportionately and the current ratio will decline. Liability concealment will cause a more favorable ratio. Similarly, a check-tampering scheme will usually result in a decrease in current assets, namely cash, which will in turn, decrease the current ratio. In fact, these frauds may be more easily detected with ratio analysis because employees other than management would not have access to accounting cover-ups of non-accounting frauds. Anomalies in ratios could point directly to the existence of fraudulent actions. Accounting frauds can be much more subtle and demand extensive investigation beyond the signal that something is out of the norm.
The following calculations are based on the example of financial statements presented earlier

Current Ratio

The current ratio, current assets divided by current liabilities, is probably the most frequently used ratio in financial statement analysis. This comparison measures a company's ability to meet present obligations from its liquid assets. The number of times that current assets exceed current liabilities has long been a measure of financial strength. In detecting fraud, this ratio can be a prime indicator of manipulation of accounts involved. Embezzlement will cause the ratio to decrease. Liability concealment will cause a more favorable ratio.
In the preceding example, the drastic change in the current ratio from year one (3.00) to year two (1.74) should cause an examiner to look at these accounts in more detail. For instance, a check-tampering scheme will usually result in a decrease in current assets (cash), which will in turn decrease the ratio.

Debt-to-Equity Ratio

The debt-to-equity ratio is computed by dividing total liabilities by total equity. This ratio is heavily considered by lending institutions. It provides a clear picture of the relative risk assumed by the creditors and owners. The higher the ratio, the more difficult it will be for the owners to raise capital by increasing long-term debt and the greater the risk assumed by creditors. Debt-to-equity requirements are often included as borrowing covenants in corporate lending agreements. The example displays a year one ratio of 0.83. This is very favorable, as it shows that the company is financed more by equity than debt.
However, year two shows a ratio of 1.74, meaning that debt is greatly increasing relative to equity. In this case, the increase in the ratio corresponds with the rise in accounts payable, sudden changes in this ratio may signal an examiner to look for fraud.

Profit Margin

The profit margin ratio is net income divided by sales. This ratio is often referred to as the efficiency ratio, in that it reveals profits earned per dollar of sales. This percentage of net income to sales examines not only the effects of gross margin changes, but also changes in selling and administrative expenses. If fraud is committed, net income may be artificially overstated, resulting in a profit margin ratio that is abnormally high compared to other periods. False expenses will cause an increase in expenses and a decrease in the profit margin ratio. Over time this ratio should be fairly consistent.

In this example, the profit margin analysis is already calculated in the vertical and horizontal analyses, while revenues increased by 100%, the cost of goods sold increased by 150%, which in turn dropped profit margins from 7.5% to -3.25%. Further investigation could uncover fraudulent accounting that shifted costs from one period to another or might reveal another type of fraud in which inventory is being stolen so, costs appear to jump.

Collection Ratio

Accounts receivable aging is measured by the collection ratio, which divides 365 days by the receivable turnover ratio to arrive at the average number of days to collect receivables. In general, the lower the collection ratio, the faster receivables are collected.

A fraud examiner may use this ratio as a first step in detecting fictitious receivables or larceny and skimming schemes. Normally, this ratio will stay fairly consistent from year to year, but changes in billing policies or collection efforts may cause a fluctuation. The example shows a favorable reduction in the collection ratio from 273.76 in year one to 182.5 in year two. This means that the company is collecting its receivables more quickly in year two than in year one.

Inventory Turnover

The relationship between a company's cost of goods sold and its average inventory is shown through the inventory turnover ratio. This ratio measures the number of times the inventory is sold during the period. This ratio is a good determinant of purchasing, production and sales efficiency. In general, a higher inventory turnover ratio is considered more favorable.

For example, if cost of the goods sold has increased due to theft of inventory (ending inventory has declined, but not through sales), then this ratio will be abnormally high. In the above example, inventory turnover increases in year two, signaling the possibility that an embezzlement is buried in the inventory account. An examiner should look at the changes in the components of the ratio to determine a direction in which to discover possible fraud.

CONCLUSION AND RECOMMENDATIONS

The concern for accounting ratios and fraudulent financial statements detection have been of interest in accounting research in recent times. The collapse of highly rated firms around the world is linked to financial statement frauds and inability for early detection by stakeholders. Meanwhile, incidences of financial statement frauds are at increasing side. Therefore, it is expected that application of accounting ratios would aid in detection of likelihood of financial statements fraud occurrences.

The following recommendations were consequently put forward.

1. Creditors, Venture capitalists, Debenture holders should ensure that leverage or debt ratios are computed whenever financial statements of firms they have stake are released so as to check the true state of the firms.
2. Stakeholders should ensure that profitability and performance ratios of firms are critically evaluated and also used for assessing the health of their firms in the annual reported financial statements.
3. Investors both local and foreign should always closely examine at least five years financial statements of firms before investing and monitoring the level of their investments in firms in terms of their dividends and earnings.
4. Procedures for the management of firm's assets (assets utilization) should be documented in the Companies and Allied Matters Act by the regulatory authorities so as to prevent sharp practices of Managers.
5. Liquidity ratios should be clearly computed and the manner to arrive at the respective figures should be well stated by management in the notes to accounts of the reported financial statements so as check incidence of fraudulent financial statements.
6. Professional Accounting bodies in India (Institute of Chartered Accountants of India and Association of National Accountants of India) should from time to time admonish their members not to support or be involved in fraudulent financial statements.
7. Government regulatory authorities like Bombay Stock Exchange, Security and Exchange Commission, Reserve Bank of India, Financial Reporting Council of India and others should ensure that financial statements of firms are properly screened and endorsed by them before being released.

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