

**HOW TO DETECT AND PREVENT
FINANCIAL STATEMENT FRAUD
(SECOND EDITION)**

(No. 99-5401)

VI. INVESTIGATION TECHNIQUES FOR FRAUDULENT FINANCIAL STATEMENT ALLEGATIONS

Financial Statement Analysis

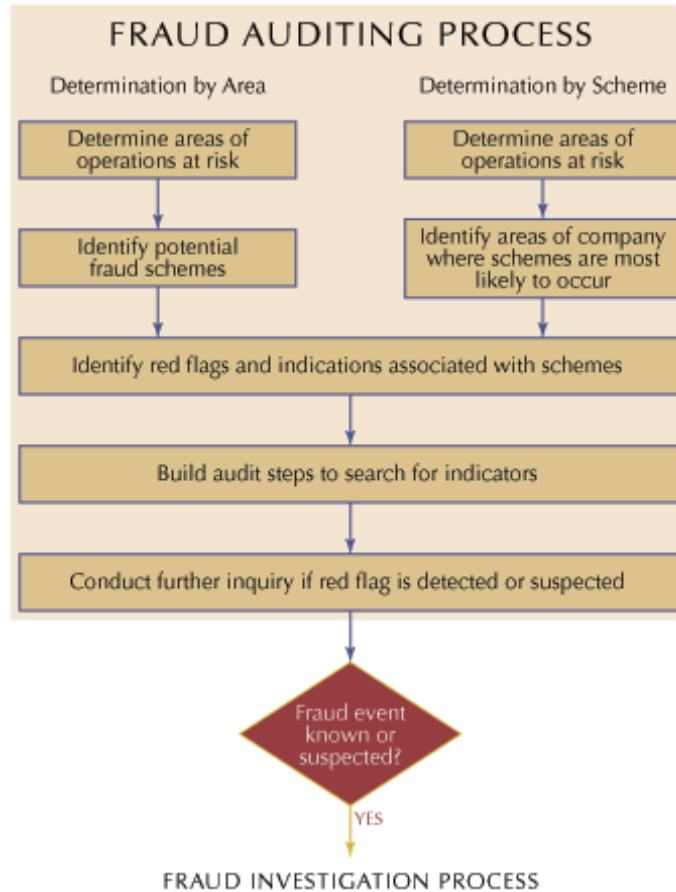
Financial statement analysis is a process that enables readers of a company's financial reports to develop and answer questions regarding the data presented. Financial statements express the economic condition of a company in three ways: (1) the balance sheet reports assets, liabilities, and owners' 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.

Analytical procedures are used to detect and examine relationships of financial information that do not appear reasonable. They are useful in identifying:

- Differences that are not expected;
- The absence of differences that are expected;
- Potential errors;
- Potential fraud and illegal acts; and
- Other unusual or non-recurring transactions or events.



(Source: “The Emerging Role of Internal Audit in Mitigating Fraud and Reputation Risks,” Internal Audit Services, PriceWaterhouseCoopers, 2004)

These analytical techniques assist with the first steps in the fraud investigation process. With a calculator and the financial statements, an examiner can identify areas of high risk, highlight the most likely schemes, and list the red flags that warrant further investigation.

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 and changes in lines and volumes of business.
- *Comparison of current period information with budgets or forecasts.* This comparison should include adjustments for expected unusual transactions and events.

- *Study of relationships among elements of information.* Certain accounts vary in relation to others, both within a financial statement and across financial statements. For instance, commissions are expected to vary directly in relation to sales.
- *Study of relationships of financial information with the appropriate non-financial information.* Non-financial measures are normally generated from an outside source. An example would be retail stores where sales are expected to vary with the number of square feet of shelf space.
- *Comparison of information with similar information from the industry in which the organization operates.* Industry averages are reliable in stable industries. Unfortunately, industry trade associations require months to compile, analyze, and publish information; therefore, the data may not be timely.
- *Comparison of information with similar information from other organizational units.* A company with several stores might compare one store with another store. The “model” store should be sufficiently audited to provide assurance that it is an appropriate standard.

(Source: Practice Advisory 2320-1 “*Analysis and Evaluation*,” The Institute of Internal Auditors. January 5, 2001.)

Financial Relationships

An understanding of general relationships between certain financial statement balances is necessary to identify relationships that appear unusual. If sales increase, how should the cost of sales respond? If commission expense decreases, what would be expected of sales? Answers to questions such as these are the foundation of financial analysis. The following relationships are general, and traditionally occur between financial accounts; however, unique circumstances may render different results.

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.

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, labor, 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 sale 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 account 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.

Unexpected Relationships

When analytical procedures uncover an unexpected relationship among financial data, the fraud examiner must investigate the results. The evaluation of the results should include inquiries and additional procedures. Before asking the company's employees and management about the variations, the fraud examiner should first establish expectations for the causes of the variances. From expected causes, the fraud examiner will be better suited to ask meaningful questions when interviewing company personnel. Then, explanations derived from employees should be tested through examination of supporting evidence. For example, if the sales manager indicates that the increase in sales is due to a new advertising campaign, examine the advertising expense account to verify that a campaign did occur. If the advertising expense is similar to the prior year, the relationship is not reasonable and fraud may exist.

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

viable 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.

Horizontal analysis is a technique for analyzing the percentage 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, immaterial frauds. However, both methods translate changes into percentages, which can then be compared to highlight areas of top concern.

The following is an example of financial statements that are analyzed by both vertical and horizontal analysis:

Investigation Techniques for Fraudulent Financial Statement Allegations

BALANCE SHEET

	<i>Vertical Analysis</i>				<i>Horizontal Analysis</i>	
	<u>Year One</u>		<u>Year Two</u>		<u>Change</u>	<u>%Change</u>
Assets						
Current Assets						
Cash	45,000	14%	15,000	4%	(30,000)	-67%
Accts Receivable	150,000	45%	200,000	47%	50,000	33%
Inventory	75,000	23%	150,000	35%	75,000	100%
Fixed Assets (net)	60,000	18%	60,000	14%	-	0%
Total	<u>330,000</u>	100%	<u>425,000</u>	100%	<u>95,000</u>	29%
Acc'ts Payable	95,000	29%	215,000	51%	120,000	126%
Long-term Debt	60,000	18%	60,000	14%	-	0%
Stockholder's Equity						
Common Stock	25,000	8%	25,000	6%	-	0%
Paid-in Capital	75,000	23%	75,000	18%	-	0%
Retained Earnings	75,000	23%	50,000	12%	(25,000)	-33%
Total	<u>330,000</u>	100%	<u>425,000</u>	100%	<u>95,000</u>	29%

INCOME STATEMENT

	<i>Vertical Analysis</i>				<i>Horizontal Analysis</i>	
	<u>Year One</u>		<u>Year Two</u>		<u>Change</u>	<u>%Change</u>
Net Sales	250,000	100%	450,000	100%	200,000	80%
Cost of Goods Sold	<u>125,000</u>	50%	<u>300,000</u>	67%	<u>175,000</u>	140%
Gross Margin	125,000	50%	150,000	33%	25,000	20%
Operating Expenses						
Selling Expenses	50,000	20%	75,000	17%	25,000	50%
Administrative Expenses	60,000	24%	100,000	22%	40,000	67%
Net Income	<u>15,000</u>	6%	<u>(25,000)</u>	-6%	<u>(40,000)</u>	-267%

Additional Information

Average Net Receivables	155,000	210,000
Average Inventory	65,000	130,000
Average Assets	330,000	425,000

VERTICAL ANALYSIS

As illustrated in the above example, *vertical analysis* of the income statement uses total sales as the base amount, and all other items are then analyzed as a percentage of that total. Vertical analysis emphasizes the relationship of statement items within each accounting period. These relationships can be used with historical averages to determine statement anomalies.

In the above example, we observe that accounts payable is 29% of total liabilities. Historically, we may find that this account averages slightly over 25%. In year two, accounts payable rose to 51%. 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 17%. 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.

HORIZONTAL ANALYSIS

Horizontal statement analysis uses percentage comparison across accounting periods, or in a horizontal manner. The percentage change is calculated by dividing the amount of increase or decrease for each item by the prior period amount.

In the previous example, cash declined by \$30,000 from year one to year two, a 67% drop. Further analysis reveals that the 80% increase in sales has a much greater corresponding increase in cost of goods sold, which rose 140%. 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.

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. In the analysis of financial statements, each reader of the statements will determine which portions are most important. As with the statement analysis discussed previously, the analysis of ratios is limited by its inability to detect fraud on a smaller, immaterial scale.

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 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.

$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

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 (2.84) to year two (1.70) 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.

QUICK RATIO

The quick ratio, often referred to as the acid-test ratio, compares assets that can be immediately liquidated to liabilities that will come due in the next year. This

$$\frac{\text{Cash+Securities+Receivables}}{\text{Current Liabilities}}$$

calculation divides the total of cash, securities, and receivables by current liabilities. This ratio is a measure of a company's ability to meet sudden cash requirements. In turbulent economic times, it is used quite prevalently, giving the analyst a worst-case look at the company's working capital situation.

An examiner will analyze this ratio for fraud indicators. In year one of the example, the company balance sheet reflects a quick ratio of 2.05. This ratio drops in year two to 1.00. In this situation, a closer review of accounts receivable shows they are increasing at an unusual rate, which could indicate that fictitious accounts receivable have been added to inflate sales. Of more concern, perhaps, is the increase

in accounts payable which might require, at a minimum, a closer review to determine why. If the drop in the ratio indicates a problem customer or significant slowing in the time to collection, it might reflect a general decline in company prospects. That, in turn, would be a red flag that management could feel pressured to report fraudulent financials.

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 0.89. This is very favorable, as it shows that the company is financed more by equity than by debt.

$$\frac{\text{Total Liabilities}}{\text{Total Equity}}$$

However, year two shows a ratio of 1.84, 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.

$$\frac{\text{Net Income}}{\text{Net Sales}}$$

In this example, the profit margin analysis is already calculated in the vertical and horizontal analyses. While revenues increased by 80%, the cost of goods sold increased by 140%, which in turn dropped profit margins from 6% to -6%. 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.

RECEIVABLE TURNOVER

Receivable turnover is defined as net sales on account divided by average net receivables. It measures the number of times the

$$\frac{\text{Net Sales on Account}}{\text{Average Net Receivables}}$$

receivables balance is turned over during the accounting period. In other words, it measures the time between sales on account and the collection of funds. This ratio is one that uses both income statement and balance sheet accounts in its analysis. If fictitious sales have been recorded, this bogus income will never be collected. As a result, the turnover of receivables will decrease.

If the fraud is caused from fictitious sales, this bogus income will never be collected. In the example, the accounts receivable turnover jumps from 1.61 to 2.14. The examiner can use this ratio as an indicator that revenues might be fake, thus requiring further examination of source documents.

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.

$$\frac{365}{\text{Receivable Turnover}}$$

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 226.3 in year one to 170.33 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.

$$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

For example, if cost of 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 case 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.