Methodologies For Identification Of Fraud During Internal Audit

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Introduction to Fraud
What is Fraud?

Companies Act 2013
As per the explanation to Sec 447 of Chapter XXIX, “fraud” in relation to affairs of a company or any body corporate, includes any act, omission, concealment of any fact, 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.

The Institute of Chartered Accountants of India
SA240 – The Auditor’s Responsibilities Relating to Fraud in an Audit of Financial Statements, issued by the ICAI defines fraud as an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage.

Institute of Internal Auditors
‘Any illegal act characterized by deceit, concealment, or violation of trust. These acts are not dependent upon the threat of violence or physical force. Frauds are perpetrated by parties and organizations to obtain money, property, or services; to avoid payment or loss of services, or to secure personal or business advantage’.
What is Common Among Them?
What Happened Because of Fraud?
Why Frauds Happen?

Pressure (motive)
- Addiction – drink, drugs, gambling
- Coercion or blackmail
- Credit crunch
- Debts
- Family pressure
- Illness
- Results, results, results!
- Revenge

Opportunity (ability to carry out fraud)
- Abuse of authority
- Complex transactions
- Exploiting errors
- Inadequate & ineffective internal audit
- Inadequate & ineffective internal controls
- Inadequate segregation of duties
- Lack of effective oversight
- Poor governance

Rationalization (justification of dishonest intention)
- Everyone else does it
- I am in charge
- It is a cost of doing business
- It is a victimless crime
- It is only a small amount
- I’ll never get caught
- Rules are meant to be broken
- They can afford it
- They do not pay me enough
- Who cares?
Frauds Is Evolving

➢ For today’s business organizations, fraud is inevitable. It’s no longer a matter of “if” you will be affected — it’s a matter of “when” you will be affected.

➢ Many businesses are vulnerable to fraud, particularly those with sales channels exposed to electronic payment portals and systems, complex global supply chains, a significant presence in emerging markets, and so on.

➢ Business reengineering, reorganization, or downsizing may weaken or eliminate control, while new information systems may present additional opportunities to commit fraud.

➢ In recent years, the development of new technologies has also provided further ways in which criminals may commit fraud. With the advancement of technology, fraud has evolved and become increasingly difficult to discover. In other words, the fraudster is getting smarter.

➢ The global pandemic- COVID-19 has also led to a higher number of frauds and malpractices since people are working from home, and having poor IT controls compared to when working from the office.
Fraud Statistics

THE GLOBAL COST OF FRAUD

Fraud is a significant problem, affecting organizations in every region and in every industry worldwide. Measuring the true extent of the damage caused by occupational fraud can be challenging due to the inherent nature of concealment and deception involved in most schemes. However, our study provides some valuable insight into the scope of this issue and how it affects organizations everywhere.

OUR STUDY COVERED

- **2,110** cases from **133** countries
- CIs estimate that organizations lose **$3.6 BILLION**
- **$1,783,000** average loss per case
- 21% of cases have losses of $1 million or more

Loss per Case

- 25th percentile: $20,000
- Median: $117,000
- 75th percentile: $600,000

Loss per Region

- North America: $24,000,000
- Europe: $21,000,000
- Asia-Pacific: $20,000,000
- South America: $18,000,000
- Middle East and North Africa: $16,000,000
- Sub-Saharan Africa: $10,000,000
- Eastern Europe and the Commonwealth of Independent States: $9,000,000

Source: 2022 Report to the Nations. Copyright 2020 by the Association of Certified Fraud Examiners, Inc.
Fraud Statistics

A DECADE OF OCCUPATIONAL FRAUD: TRENDS FROM 2012–2022

Frauds are being caught FASTER and causing SMALLER losses.

Median losses down

6% Median duration down

More perpetrators are in roles with HIGHER LEVELS OF AUTHORITY

56% Managers/executives/owners


The percentage of cases involving CORRUPTION is on the RISE

33% 2012 50% 2022

FRAUDSTERS are COLLABORATING MORE

1 Perpetrator

66% 2012 42% 2022

2+ Perpetrators

42% 2012 58% 2022

Implementation rates for 17 of the 18 analyzed anti-fraud controls have INCREASED OVER THE LAST DECADE

Those that have INCREASED the most:

- Hotline 54% 70% 16%
- Fraud training for hourly employees 47% 61% 14%
- Anti-fraud policy 47% 60% 13%
- Fraud training for management/executives 47% 50% 12%
- Formal fraud risk assessments 36% 45% 11%

Source: 2022 Report to the Nations. Copyright 2020 by the Association of Certified Fraud Examiners, Inc.
**Fraud Statistics**

**How Does Tenure Affect Fraud Risk?**

The ability to commit fraud is a skill, and our data suggests that the longer a person works for a company, the better they become at fraud. In this infographic, we compare fraudsters with long tenure (more than 10 years) to those with moderate-to-low tenure (5 years or less).

- **Long tenured fraudsters** steal almost **3X MORE**
  - $90,000 vs. $250,000
  - <5 years vs. >10 years

Even when comparing fraudsters with similar levels of authority, long-tenured fraudsters caused much larger losses.

- **Employee**
  - <5 years: $50,000
  - >10 years: $177,000

- **Manager**
  - <5 years: $100,000
  - >10 years: $240,000

- **Executive**
  - <5 years: $280,000
  - >10 years: $610,000

Long-tenured fraudsters are more likely to **collude**

- Percent of cases with multiple perpetrators: 56% vs. 64%
  - <5 years vs. >10 years

Long-tenured fraudsters **take longer to catch**

- 10 months vs. 24 months
  - <5 years vs. >10 years

Less-tenured fraudsters were **more than twice as likely** to have been previously fired or punished for fraud-related conduct.

- <5 years: 9%
- >10 years: 21%

Less-tenured fraudsters were more likely to have a **criminal record**.

- <5 years: 3%
- >10 years: 9%

These 6 **red flags** were much more common among long-tenured employees:

- Living beyond means: 38%
- Unusually close association with vendor/customer: 17%
- Control issues, unwillingness to share duties: 11%
- Rivalry or intimidation: 11%
- Irritability, suspiciousness, or defensiveness: 12%
- Recent divorce or family problems: 10%

Source: 2022 Report to the Nations. Copyright 2020 by the Association of Certified Fraud Examiners, Inc.
Profile of Internal Fraudsters By Region

<table>
<thead>
<tr>
<th>Region</th>
<th>Junior Staff</th>
<th>Middle Management</th>
<th>Senior Management</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America</td>
<td>47</td>
<td>39</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Western Europe</td>
<td>34</td>
<td>41</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>North America</td>
<td>33</td>
<td>48</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>33</td>
<td>52</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Africa</td>
<td>30</td>
<td>40</td>
<td>27</td>
<td>3</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>28</td>
<td>41</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>Middle East</td>
<td>23</td>
<td>26</td>
<td>45</td>
<td>6</td>
</tr>
<tr>
<td>Global</td>
<td>34</td>
<td>42</td>
<td>20</td>
<td>3</td>
</tr>
</tbody>
</table>

% respondents who reported that an internal party was the main perpetrator of economic crime

- Junior staff
- Middle management
- Senior management
- Other
Occupational Fraud & Abuse Classification System (The Fraud Tree)

Corruption
- Conflicts of Interest
  - Purchasing Schemes
  - Sales Schemes
- Bribery
  - Invoice Kickbacks
- Illegal Gratuities
- Economic Extortion
  - Bid Rigging

Asset Misappropriation

Financial Statement Fraud
- Net Worth/Net Income Overstatements
  - Timing Differences
  - Fictitious Revenues
  - Concealed Liabilities and Expenses
  - Improper Asset Valuations
  - Improper Disclosures
- Net Worth/Net Income Understatements
  - Timing Differences
  - Understated Revenues
  - Overstated Liabilities and Expenses
  - Improper Asset Valuations
  - Improper Disclosures

Source: 2020 Report to the Nations. Copyright 2020 by the Association of Certified Fraud Examiners, Inc.
Why Focus on Fraud?

Damage inflicted by corporate fraud goes far beyond direct monetary loss. Intangible losses include:

- Poor brand reputation and public image
- Lack of business credibility
- Low employee morale and performance
- Inability to retain and attract qualified staff
- Damage to regulator relations
- Poor dividend returns/effect on share price
- An inability to meet short term commitments
Who Is Responsible To Detect Fraud?

➢ With increased regulatory focus and widespread negative impact of frauds, organizations are increasingly concerned about the vulnerability and exposure, and whether they are adequately protected.

➢ Management is responsible to implement controls and developing a healthy tone at the top that deters fraud.

➢ Internal auditors are nowadays expected to have sufficient knowledge to evaluate the risk of fraud in their organizations and are required to report to the Board on any fraud risks found during their investigations. Internal auditors should have sufficient knowledge to identify the indicators of fraud.

➢ Internal auditors should provide objective assurance to the Board that fraud controls are sufficient for identified fraud risks and ensure that the controls are functioning effectively.
Methodologies For Identification Of Fraud
Methodologies For Identification Of Fraud

➢ Data Analytics

➢ Data Mining Methods
  – Benford’s Law – Reliability of data population, facilitates audit sampling
  – Space-Time Dimension Test – Data mining, Analytical procedures to cover abnormalities, trends, patterns, etc
  – Ratio Analysis, Relative Size Factor (RSF)
  – Duplicate Transactions – Repetition at different times may give amazing results
  – Even amounts test, Last two-digit test
  – Application of inverse logic – incomplete, missing, or altered information

➢ Document Review Methods

➢ Investigative Intelligence and Analysis
The goal is to turn data into information, and information into insight.

- Carly Fiorina
  ex CEO of Hewlett-Packard
Data Analytics – How It Works?

Data Sourcing
Data sourcing starts with answering the key questions: What data to source, How and where of data quality checks, and rules and controls around how to manage and maintain the supply of data.

Data Analysis
Using an extract of data to search for and identify trends, exceptions, errors, or indications of potential fraud by comparing and analyzing files according to the criteria established by the auditor.

Data Narration & Story Telling
Creating dashboards providing exception-based reporting and alerts which helps the management in monitoring the internal process controls.

Rule Engine
Identify errors, fraud, and inefficiencies by independently checking and validating transactions against specified control parameters and business rules.
Need For Data Analytics In Fighting Frauds

Use Advanced Technologies
- Automating Audit tests can bring down the review time.
- Less time is spent on performing analysis, and more time is spent on understanding the analysis.

Build New Methods
- Organizations moving to agile methodologies for audit.
- More frequent cycles help audit functions contribute more flexibly and in real-time.

Perform Deeper Analysis
- Data analytics methods can be helpful in audit planning.
- Analytics helps to identify risks by analyzing data and to identify patterns, correlations, and fluctuations.

More Transparency
- Advanced analytics can help better understand the internal control environment.
- Use exception reporting to improve audit efficiency and detect fraud.
Why Sampling Is No Longer Good Enough
But Using Data Analysis Is Effective For Fraud Detection

Sampling

➢ Although testing a sample of data is a valid audit approach but it’s not very effective for fraud detection purposes. This is because fraudulent transactions don’t generally occur randomly.
➢ To effectively test and monitor internal controls, enterprises need to analyze all relevant transactions—something that’s almost impossible to do without data analytics and automation.
➢ There are serious shortcomings with many control testing methods like sampling.
   – You can’t fully measure the impact of control failures.
   – You can miss smaller anomalies—which can result in very large frauds over time.
   – Sample testing doesn’t show warning patterns.

Data Analytics

➢ Test 100% transactions.
➢ Automate testing to ensure:
   – Continuous assessment of pain areas and scheduled repetitive monitoring of other risk areas.
   – Increased efficiencies in identifying indicators of fraud.
➢ Access and relate data from virtually any source.
   – Internal or external to organization & without moving sensitive data outside of the secure data center.
➢ Identify where automated system-based controls
   – Are not functioning effectively.
   – Do not apply to the business process (manual control).
Why Data Analytics Is Important?
Because We Are Worried About These........

Is everything Right?
Duplicate Payment **Unusual Returns Invalid or Duplicate Supplier Master** Delayed Collections **Statutory Audit Findings** Unauthorized Credit **Duplicate Invoices Unused Credit Memos Unauthorized Journal Entries** Split Purchase Orders **Over-payments to vendors** Unauthorized credit **Billing Errors Inaccurate Financial Reports Supplier Fraud** Delayed Supplier Payments **Incorrect Payment Terms Unapproved or Illegal Suppliers** Unauthorized Access
# Sample Red Flags

<table>
<thead>
<tr>
<th>Area</th>
<th>Red Flags</th>
</tr>
</thead>
</table>
| **Procurement**                   | • Long term vendors are suddenly no longer used.  
• Unusually high volumes of business with a particular vendor – especially a new vendor.  
• The sudden jump in complaints by vendors of exclusion from the bidding process.  
• Circumvention of bidding rules & procedures.  
• Prices for goods or services see a sudden jump.  
• Contract change orders lack sufficient information.  
• Purchasing exceeds the budget, significant increases in expenses and accounts payables.  
• Sham corporations.                                                                                                                                 |
| **Vendor’s Entity Verification**  | • Supplier and employee with matched names, addresses, telephone numbers, email addresses, fax numbers, etc.  
• Suppliers based in potentially unusual locations.  
• Unusual or unexplained changes in vendor master file.  
• Trading pattern shows renewed activity after a dormant period.                                                                                                                                 |
| **Vendor’s Unusual Invoices**     | • Low and/or sequential invoice numbers of supplier’s invoice numbers indicating supplier is overly dependent on our company.  
• Invoices, which are “round sum” values such as Rs.50,000, Rs.500,000, etc. By looking at the supplier and the type of service they provide, ask yourself the question “is this reasonable?”  
• Invoices that are not matched to purchase orders.  
• Vendor invoices that have no telephone or company registration number; have unusual-looking addresses (residential address); are sent from different companies but look suspiciously similar in format and layout; contain vague or incomprehensible descriptions of the goods or services provided; have been manually altered. |
## Sample Red Flags

<table>
<thead>
<tr>
<th>Area</th>
<th>Red Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial Statements</strong></td>
<td>• Delay in finalization of accounts.</td>
</tr>
<tr>
<td></td>
<td>• Frequent changes in accounting policies.</td>
</tr>
<tr>
<td></td>
<td>• Continuing losses.</td>
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<tr>
<td></td>
<td>• An overdraw of loans and advances.</td>
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<tr>
<td></td>
<td>• Higher cost per unit of production.</td>
</tr>
<tr>
<td></td>
<td>• The high number of losses or wastage shown in books vs. norms.</td>
</tr>
<tr>
<td></td>
<td>• High investment in group companies.</td>
</tr>
<tr>
<td></td>
<td>• Profit not supported by increased cash availability.</td>
</tr>
<tr>
<td><strong>Banking Transactions</strong></td>
<td>• Funds transferred from the company’s bank account to the employee’s bank account (exception is reimbursements).</td>
</tr>
<tr>
<td></td>
<td>• Manipulation of the accounting entries showing payments made to employee’s entities posted as bank charges/commission / LC charges etc. Sometimes even posted as payment to the company’s other vendor etc.</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>• Accounts receivable balances overstate the amounts that can be realistically collected from customers.</td>
</tr>
<tr>
<td></td>
<td>• Significant unreconciled variances in the bank reconciliation and/or accounts receivable reconciliation.</td>
</tr>
<tr>
<td></td>
<td>• Significant increase in fixed asset adjustments or inventory adjustments.</td>
</tr>
<tr>
<td></td>
<td>• Significant or unusual fluctuations in depreciation expense.</td>
</tr>
<tr>
<td></td>
<td>• Unusual amounts in estimates of accruals.</td>
</tr>
<tr>
<td></td>
<td>• Significant variations in liability and purchase amounts against previous periods and budget.</td>
</tr>
<tr>
<td></td>
<td>• Significantly underspent at the halfway point but fully or overspent at the end of the year.</td>
</tr>
<tr>
<td>Illustrative List of Data Analytics</td>
<td></td>
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<tr>
<td>------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Purchase</strong></td>
<td><strong>Sales</strong></td>
</tr>
<tr>
<td>Purchase price variance (same material, same/different vendor, same week / month)</td>
<td>Inconsistent sales price (same material, same/different customer, same month, different price)</td>
</tr>
<tr>
<td>Purchase order created with higher price while existing old purchase order is open at lower price</td>
<td>Variation in price (sales price master vs order price vs price invoiced)</td>
</tr>
<tr>
<td>Changes to purchase order terms post release</td>
<td>Incomplete / incorrect customer master data</td>
</tr>
<tr>
<td>Purchase order rate amendment post receipt of material</td>
<td>Sales invoicing during month end and subsequent cancellation</td>
</tr>
<tr>
<td><strong>Split purchase orders</strong></td>
<td>Unusual / high discount given to the customer</td>
</tr>
<tr>
<td>Single vendor dependency for high value items</td>
<td>Cases where 100% material returned and delay in physical receipt of material</td>
</tr>
<tr>
<td>Frequent changes in vendor master data</td>
<td>Contribution as a percent of sales from new customers /or customers who have left</td>
</tr>
<tr>
<td>Identification of employee as vendor (employee-vendor match)</td>
<td>Identification of employee as customer</td>
</tr>
</tbody>
</table>
'DATA WILL TALK TO YOU IF YOU’RE WILLING TO LISTEN TO IT.'

- JIM BERGESON
Benford’s Law states that if we randomly select a number from a table of physical constants or statistical data, the number 1 as the first digit of a number will appear 30.1% of the time while the number 9 as a first digit will appear only 4.6% of time. Benford also developed a distribution of frequencies for second, third, and fourth digits.

Using data analysis, you can see artificial highs or lows within your data that could be indicators of fraud, and then you can drill down and investigate further. The idea is to test certain points and numbers and identify those that appear more frequently than they’re supposed to.

Benford’s Law is particularly useful for detecting purchasing and accounts payable fraud. Other suitable areas include:

- Journal entries
- Accounts payable transactions
- Customer/client refunds
- Purchase orders
- Loan data
Data Mining Methods – Trend Analysis

➢ Trend analysis is the idea that what has happened in the past will give insight into what will happen in the future.

➢ Using trend analysis, you can examine the general ledger balance over time. Once you expect what will happen, compare the trend to the expectation. If the trend doesn’t meet the expectation, you can determine why.

➢ The period-to-period change method is the simplest type of trend analysis. For example, you project data into the future (e.g., month or year) based on data from two or more prior periods, and then you measure the outcome in values or percentage change.

➢ Predictive analysis from both trend analysis and time series can be used in a continuous monitoring environment.

➢ The analysis can help provide a forecast, and that data can then be compared to the actual data immediately after the event. Any difference between the two indicates that the data has diverged from its past trend, meaning a change of some kind must have occurred. Further investigation may reveal that this change was intentional/malicious.
Another useful fraud detection technique is the calculation of ratios for key numeric fields. Like financial ratios that give indications of the relative health of a company, data analysis ratios point to possible symptoms of fraud. Three commonly employed ratios are:

- Highest value to the next highest (Relative size factor)
- Highest value to the lowest value (maximum/minimum)
- Current year to the previous year.

In many cases, high ratios or abnormal values that deviate from industry standards and/or current business scenarios, have often unearthed potential frauds that need to be investigated.

**Relative Size Factor Test**

- In the relative-size factor test, a ratio is computed. The largest number in the data set is divided by the second-largest number. This test is often used in the accounts payable area.

- Suppose the highest accounts payable amount paid to vendor X for January is INR 50 lakhs and the second-highest payment is INR 40 lakhs. This would result in a relative-size-factor ratio of 1.25 for January. In February, however, this same relative-size-factor test yields a ratio of 12.5 (INR 500 lakhs highest payment divided by INR 40 lakhs second highest payment). This large change in the ratio needs to be investigated. You may discover that a decimal point was inadvertently moved one place to the right, resulting in INR 500 lakhs rather than INR 50 lakhs payment.
Data Mining Methods – Ratio Analysis (Case Study)

➢ ABC Fashions Inc. owns and operates retail clothing stores for women nationwide. The company builds and maintains all its retail stores. Each store manager is authorized to spend up to Rs. 50,000 per quarter on store maintenance. These expenditures include things such as repairing broken store windows and fixing air conditioning and heating problems, roofing problems, plumbing problems, etc. The maintenance expenditures are captured store by store.

➢ In 2019, to establish a benchmark or baseline data, the internal auditors of ABC Fashions Inc. decided to analyse the maintenance expenditures using digital analysis. During their analysis they had determined the pattern of the typical distribution for maintenance expenditures per quarter per store:
  - 30% of the expenditures range from Rs 1 to Rs 1,250;
  - 50% of the expenditures range from Rs 1,251 to Rs 2,500;
  - 15% of the expenditures range from Rs 2,501 to Rs 3,750; and
  - 5% of the expenditures range from Rs 3,751 to Rs 5,000.

➢ In 2020, further analysis of maintenance expenditures across all stores revealed that one store had 47 percent of its maintenance expenditures in the Rs 1 to Rs 1,250 range.

➢ This store was scheduled for an internal audit visit. Suspecting fraud, the internal auditors included a Chief finance executive on their audit team. The Chief finance executive’s investigation revealed that the store manager was participating in a kickback scheme with her brother-in-law who owns a heating and air conditioning company.

➢ Without the digital analysis of the maintenance expenditures account, this fraud possibly would have never come to light.
Duplicate testing is one of the more common fraud tests because it can indicate fraud as well as inefficiency and inaccuracies in transactions.

Running tests for duplicate transactions can determine if, for example, you’re getting duplicate invoices from somebody—and whether it’s deliberate or accidental.

Ordinarily, invoice-number/vendor/PO number combinations are unique. So, transactions with the same invoice number/vendor/PO number combinations would be an unexpected data pattern. Duplicate transactions could be a possible symptom of fraud that should be examined. But a word of caution: you should properly investigate the transactions before jumping to conclusions. Transactions that look like duplicates may simply be progress payments or equal billing of monthly charges.

Duplicate payments in most cases may not be fraud-related but continue to be a significant accounts payable weakness that is both preventable and recoverable.

Duplicate invoice numbers could indicate that invoices have been paid twice, either accidentally, or intentionally. A fraudster could be processing these invoices and paying the money to themselves or working with somebody at the vendor company to share the proceeds from the duplicate payments.
Data Mining Methods – Even Amounts

➢ People who commit fraud often create invoices with rounded amounts, which are invoices without pennies. Even (rounded-Rupee) amounts do not happen that often. So, numbers that are rounded to tens, hundreds, and thousands might be considered anomalies and should be looked at more closely.

➢ Don’t just focus on the large Rupee amounts. Even small amounts should be reviewed because these are generally easier for fraudsters to get away with. For example, consider reimbursement of travel expenses. Your organization will have maximum daily amounts for travel, meals, gas, etc. It’s most likely that these amounts are set in rupee amounts (e.g., Rs1000 for dinner, Rs 6000 per night for accommodation). To ensure that these maximums aren’t abused, the claims should be checked against receipts. It’s very uncommon, for example, for a hotel room to come to a rounded figure with taxes included. But if you’ve got hundreds of employees and they’re all making expense claims, that’s thousands of expenses to analyze and confirm that the amounts are legitimate, which can’t be done manually.

➢ Try to rank your vendors by those with a high percentage of rounded amount invoices. To do this, just calculate each vendor’s number of rounded amount invoices and divide it by the total number of invoices for that vendor, obtaining the percentage. Then rank by descending percentage to review the most suspicious vendors first.

➢ Data analysis software allows users to identify rounded-rupee instances in the data, so you can investigate these further and ensure that claims match the data.
Data Mining Methods – Last-Two Digit Test

➢ The last two digits test is another example of how digital analysis can be used.

➢ According to Benford's Law, as one investigates the far-right digits of a number (that is, the third and fourth digits) there's an approximately equal probability of each far-right digit occurring.

➢ For instance, the last two-digit combinations of 00, 01, 02 through 99 have approximately a 1 percent chance of occurring. If the data set shows a last two-digit distribution different from this expected 1 percent pattern, then you may need to do a follow-up analysis.

➢ For example, assume the last two digits, 00, occur 4 percent of the time in the data set. This could indicate that there's excessive rounding taking place.

➢ If the last two digits, 99, appear more than expected in the data set, employees may be trying to avoid a pre-set Rupee limit.
Data Mining Methods – Other Analysis

Ducking Authorization Levels

➢ Sometimes managers concentrate their purchases just below their authorization levels, so their choices won't be scrutinized.

➢ Managers with Rs 10,00,000 purchasing levels authority might have a lot of invoices for Rs 9,00,000 to Rs 9,99,999, which would show up in data analysis by spikes for the first three digits at 900 and 999.

Biases in Corporate Data

➢ In one company's accounts payable data, there was a large first two-digit spike (excess of actual over expected) at 24.

➢ An analysis showed that the amount of $24.50 occurred abnormally often. The audit revealed that these were claims for travel expenses and that the company had a $25 voucher requirement.

➢ Employees were biased toward claiming $24.50.
If you torture the data long enough, it will confess to anything.

RONALD COASE
There can be documents which are:

- Fictitious
- Falsified or Forged
- Altered

Simple tests to detect such documents:

- Juxtaposition test (explained in the next slide)
- Test of reasonableness or absurdity
- Test of replication of content
- Test of impossibility
- Scrutiny of suspicious documents particularly those having alterations
Various Tests To Detect Anomaly In Documents

➢ Juxtaposition test is used for testing the authenticity of documents format and content
➢ This test can be very effective in spotting duplicated or forged documents
➢ Juxtaposition means to place side by side. Documents when viewed singularly cannot be compared for differences, but when placed side by side these will be immediately spotted... for example consider the below type situation documents:
   ➢ Same vendor(name) with two different formats
   ➢ Two different vendors but with the same writing style/content
➢ Test of Absurdity - Contrary to reason or propriety; obviously and flatly opposed to manifest truth; inconsistent with the plain dictates of common sense; logically contradictory; nonsensical; ridiculous; silly.
➢ Test of Reasonableness - Having the faculty of reason; endued with reason; rational.
➢ Test of Replication- It is the repetition of an experimental condition so that the variability associated with the phenomenon can be estimated.
➢ Test of impossibility - The doctrine of impossibility is a contract law concept and refers to situations in which it is impossible for a party to a contract to perform its obligations under it.
Investigative Intelligence And Analysis

➢ Develop relationships with the employees and have frequent discussions with them to understand any suspicious transactions or unethical practices or any red flags noticed by them.

➢ Conduct computer forensic analysis of the data available on the computer system/server emails of the suspected employees.

➢ Research publicly sourced information, obtaining relevant information concerning individuals and entities suspected of involvement in the fraud. Typical sources of information
  – Social media
  – News items in the media
  – Market intelligence – lenders, competitors, clients, vendors, analysts
  – Registrar of companies - for directorships and shareholdings
  – Department of Company Affairs – watchoutinvestors.com
  – Court judgments
Case Studies
Background

➢ ABC is a large pharmaceutical company in India having subsidiaries across the globe.
➢ The company has a subsidiary company in Latin America with a business of more than USD 200 MN.
➢ The Latin American company was having more than 1000 customers spread across the length and breadth of the country.
➢ The customers were serviced from the multiple warehouse locations which were operated by third-party service providers (one warehouse in each province).
➢ A review of inventory data showed that an inventory of USD 10 MN was lying at the warehouse location XYZ. This warehouse was newly created in the system.

Data Analysis And Document Review Performed

➢ Analysis of all material movements in the system for warehouse location XYZ
➢ A review of the inward and outward registers maintained by the warehouse
➢ A review of the contract entered with the warehouse service provider for location XYZ
➢ A review of warehousing bills of the third-party service provider
Case Study 1 – Global Pharmaceutical Company

Red Flags / Initial Findings

➢ Inventory verification reports/stock confirmations were not available for warehouse location XYZ.
➢ The contract entered with the warehouse service provider was not signed by both parties.
➢ Invoices for the warehousing services were never received from the third-party service provider.
➢ Not a single case of direct receipt of goods from the vendors. Always the goods were received as a stock transfer from the other warehouses.
➢ Not a single outward movement of goods. Goods were getting accumulated over a period.
➢ Warehouse location XYZ was not informed to the insurance company for covering it under global marine stock throughout policy.

Key Findings

➢ Warehouse location XYZ was a virtual location (no physical location).
➢ A fictitious warehousing contract was prepared by the Supply chain manager for sharing with the audit team.
➢ Inventory shortages of USD 10 MN of other warehouses were parked in the XYZ warehouse location to mislead the higher management.
➢ No explanation was available with the business head and finance head for the significant inventory shortages.
Case Study 2 – Construction Company

Background
➢ ABC is a large company engaged in the business of executing projects in Civil, Mechanical, and Electrical Engineering and in particular undertaking and executing civil Construction projects involving engineering work, civil construction, execution of water treatment plants, etc.
➢ The company has five bank accounts (including two CC accounts).
➢ For any bank payments up to Rs.10 lakhs, single approval is required. For any bank payments above Rs.10 lakhs, a minimum of two approvals are required.

Data Analysis And Document Review Performed
➢ Analysis of bank payments from bank book (minimum, maximum, and average payment)
➢ Analysis of bank statements
➢ Review of vendor master data
➢ Review of bank reconciliation statements
➢ Review of vendor invoices
Case Study 2 – Construction Company

Initial Findings / Red Flags

➢ The blank cheques were signed by one of the authorized signatories.
➢ In the case of two banks, a few cheque leaves were missing.
➢ There was a substantial increase in the overall bank charges, LC charges, etc compared with the last year.
➢ The white ink was used on the bank statements.
➢ There was always a delay in the preparation of bank reconciliation statements and the same were not authorized by the supervisor.

Key Findings

➢ An employee fraudulently encashed the money from the Company’s bank accounts.
➢ An amount of Rs.2.2 crore (35 transactions) was transferred from the Company’s bank account to four entities belonging to an employee and his spouse.
➢ An amount of Rs.80 lakhs (out of Rs.2.2 crore) was accounted for as bank charges, LC charges, etc.
➢ An amount of Rs.1.4 crore was accounted for as construction expenses.
➢ 12 payments of Rs.9.9 lakhs were made thru a cheque signed by a single approver and the signature was forged.
Case Study 3 – Retail Company

Background

➢ ABC is a large retail company in India having more than 200 stores across the various cities in India.
➢ The company operates on two models, company-owned stores and franchisee stores.
➢ The company has a retail store XYZ (company-owned store) in Haryana with a sale of Rs.20 crores.
➢ The company operates on a cash & carry business model and hence credit sale is not allowed from the store.
➢ The company has prepared an SOP which is mandatory to be followed by all retail stores.
➢ As per SOP, cash sales of the previous day should be deposited into the company’s bank account on the following day before 3 PM through the CMS agency.
➢ As per SOP, materials must be sold at a price updated in the POS system by the corporate office.

Data Analysis And Document Review Performed

➢ Analysis of sales trends and patterns and mode of payment by the customers.
➢ Analysis of daily cash sales vs deposits.
➢ Review of bank accounts and bank reconciliation statements.
➢ Review of manual invoice books.
➢ Inventory verification reports.
Case Study 3 – Retail Company

Initial Findings / Red Flags

➢ There was average annual revenue growth of 10% during the last five years. However, during the current year sales declined by 15%.
➢ There was a delay in the deposit of cash and sometimes a short deposit of cash.
➢ Inventory verification reports were not provided by the store.

Key Findings

➢ The sales report was generated by the cashier from the POS system and a few line items were deleted from the sales report before providing it to the audit team to match the sales numbers with the actual deposit numbers.
➢ Manual invoice books were printed by the store and used instead of using the manual invoice books provided by the corporate office.
➢ Sale was made on a credit basis even though the business model is cash & carry business.
➢ The blank cheques were collected from the customers to whom the credit sale was made.
➢ In a few cases, cash/cheques collected from the customers were deposited into a personal bank account by the cashier.
➢ Lot of banking transactions between the employees of the same store and different stores.
➢ Products were sold at a discount or premium using the manual invoice books, ignoring the company policy and SOP.
➢ Products were purchased from the open market and sold from the store on manual invoices for personal benefit.
Case Study 4 – Purchase Function

Background
➢ ABC is a large manufacturing company in India.
➢ Company has a centralized procurement function based out of the Head Office.
➢ Value of procurement from India exceeds Rs.2000 crores per annum.
➢ Accused purchased materials of approximately 40% of the total purchases of the company.

Data Analysis And Document Review Performed
➢ Validation check was done on Google to see if there are any partnership firms/companies where the employee is a partner/director. This check is a pre-requisite when one is doing an audit of a purchase or marketing function.
➢ Review of conflict-of-interest document signed by the employee to ensure that he is aware of the code of conduct policy.
➢ Financials of the company belonging to an employee were downloaded from the ROC website to understand the nature of the business and calculate the income earned by the employee through his business.
➢ Review of employee emails and files stored on his laptop.
➢ Review of social media posts by the employee.
Case Study 4 – Purchase Function

Key Findings / Red Flags

➢ Name of the employee was displayed as a director with one of the private limited company named XYZ. This information was not submitted by the employee to the company. Thus, this was a conflict of interest situation.

➢ The company XYZ had two more directors (the employee’s spouse and the employee’s friend).

➢ A profit of Rs.20 crore was earned by company XYZ during the last 8 years.

➢ Company ABC had entered into a contract of Rs.15 crore with the company PQR. One of the directors was common in company XYZ and company PQR.

➢ Further, a review of the data stored on the laptop of the employee showed certain contracts with the vendors of ABC whereby it was stated in the document that the vendor will pay a certain percentage of the total procurement from him to one of the family members of the employee.

➢ Employee was taking kickbacks from 8 vendors in the range of 2% to 5% of the business allotted to these vendors. The kickbacks were given in the form of cash as well as in kind.

➢ Foreign trip was booked by the vendor for the employee and his spouse.

➢ Expensive watches and shoes were gifted by the vendors to the employee.
Case Study 5 – Sales Function

Background
➢ ABC is a large manufacturing company in India.
➢ The domestic sales of company ABC is Rs.5000 crore.
➢ More than 80% of domestic sales happen through dealer and distributor channel.
➢ A complaint was received against the regional business head for improper practices and alleged fraud.

Data Analysis And Document Review Performed
➢ Conducted computer forensic analysis of the data (available on computer system/server emails of the regional business head and other identified employees), using the following techniques (sample)
   – Performed keyword searches to identify the relevant data for the regional business head and identified employees
   – Co-related data from different sources
   – Drew timelines for the relevant activities and established co-relation of events
➢ Analysis of sales data, sales returns data, customer ledger, etc.
➢ Analysis of credit notes issued for the price difference, discounts, etc.
➢ Review of employees’ personal bank account statements.
➢ Review of social media posts of the suspected employees.
Key Findings

➢ Financial transactions identified with employees, dealers and other parties in bank statements of the regional business head and his spouse.

➢ Regional business head approved the sales return credit notes to dealers for the amount higher than the actual sales value. The value impact of Rs.1.1 crore.

➢ Additional discount of Rs.2 crores passed to a few dealers. Out of Rs.2 crore, Rs.1 crore was received back in hard cash from the dealers.

➢ Net credits of Rs.20 lakhs in inactive dealer accounts were transferred to other dealer accounts and reimbursement was received from dealers.

➢ Credit notes of Rs.47 lakhs were passed under “miscellaneous expense” for the generation of cash.

➢ Unidentified/Unexplained cash deposits of Rs.70 lakhs in the personal bank account of the regional business head and his spouse.

➢ Personal expenses routed through dealers and personal benefits received from dealers (flight tickets of the regional business head and his spouse were booked by the dealer. Apple iMac, bracelet, gold coins, etc were purchased by the dealers and given to the regional business head).
Strengthening Internal Controls And Processes To Prevent Fraud

Abraham Lincoln said:
“If I had six hours to chop down a tree, I’d spend the first four hours sharpening the axe”.

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THANK YOU

Dhanyawad

धन्यवाद