PacificCPE

COURSE
21754B

Forensic Accounting: Data Sources, Processing, and Comparative Analysis Techniques

Raw data doesn't tell a story on its own — how you source, process, and analyze it makes all the difference. This module covers the data sources most relevant to forensic investigations, effective techniques for preparing and managing that data, and two foundational analytical methods: comparative analysis and source and use summaries. You'll develop hands-on skills for transforming financial data into meaningful patterns that support well-grounded investigative conclusions.

CREDIT HOURS 2 | FIELD OF STUDY ACCOUNTING | EXAM QUESTIONS 10

Start Course ↓ | Final Exam Copy ↓

LEARNING ASSIGNMENTS AND OBJECTIVES

Assignment

- Study the full course materials included here.
- Complete the review questions after each chapter.
- Answer 10 final exam questions.
- Final exam is scored immediately, 70% or better passes.
- Certificate of completion is available in your account.
- Failed exams can be retaken free of charge.

Course Objectives

- Recognize the primary example of a qualitative data source.
- Identify the characteristics of the credit card Source and Use Summary.
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Chapter 1: DATA SOURCES AND DATA PROCESSING TECHNIQUES

Chapter Objective

After completing this chapter, you should be able to:

- Recognize the primary example of a qualitative data source.

Data should not be a formidable term as forensic accountants and fraud investigators have been looking at data throughout the entire evolution of the field. Data just looked different, as historically, they were stored on paper instead of in databases. Nevertheless, it is important to explain the data terms that will be used throughout the remaining chapters in the explanation of the Data Sleuth Process.

Because of the types and quantities of information that may be collected over the life of an engagement, systematic, thorough organization is required, and although time consuming on the front end will allow for simplified administrative, wrap-up processes at the end of the engagement.

Data Sleuth projects are entirely reliant on the quality of data relied upon and the manner by which those data are processed. This chapter contains detailed explanations of the Data Sleuth data processing steps and simple spreadsheet-based tools that have proven helpful on Data Sleuth engagements.

DATA SOURCES EXPLAINED

A data source is the origination of the data being used in the investigation. For example, if transactions that cleared a bank account are to be analyzed in an investigation, the data source for the transactions is the collection of bank account statements. Data sources, however, are not limited to just statements from financial institutions; they can also include things such as a collection of invoices from a vendor, payroll reports from a payroll provider, timesheets submitted by employees, or accounting software.

A data set is created from the extracted transactions provided by the data source. The transactions are typically arranged in a tabular format where each variable is grouped under columns representing the unique characteristic of the variable. For example, checks listed on a bank statement are identified by the date the check cleared the bank, the check number, and the amount of the check. To convert this information into a data set, each check would be represented on one row of a table with the check date in one column, the check number in one column, and the check amount in one column. An example of a data set created from a bank statement is illustrated in Table 8.1.

Data points are the individual variables, or transactions, that create a data set.

TABLE 8.1 ILLUSTRATION OF A DATA SET CREATED FROM A BANK STATEMENT DATA SOURCE.

Transactions Data Set from Bank Statement				
Line No	**Date**	**Check No**	**Payee**	**Check Amount**
1	07/02/12	4325	ABC PAYEE	56.32
2	07/03/12	4327	MR. BROWN	250.00
3	07/03/12	4398	DRY CLEANING	195.25
4	07/03/12	4350	BUSINESS LLC	506.52

QUANTITATIVE AND QUALITATIVE DATA SOURCES

Data sources used in Data Sleuth investigations are categorized as quantitative and qualitative data sources. The first category of data sources provides necessary quantitative evidence to calculate the client's loss or the benefit to the subject at the client's expense. The second category of data sources provides qualitative evidence lending to the understanding of the subject's intention behind the actions that caused the loss or the correlation between the subject and the loss.

DATA SOURCES FOR QUANTITATIVE EVIDENCE

Financial statement fraud investigations have been less common in my career than those involving misappropriation of assets or hidden assets. In financial investigations of missing or hidden money, knowing where to look – or which data sources to use to find evidence uncovering what happened and where the money went – is paramount. Data sources of this nature can be categorized into two groups: standard and nonstandard.

Standard Data Sources

Standard data sources are those for which the presentation of the contents, or data, may vary, but the data contained in the information is standard.

Standard Data Source: Bank Statements

Bank, or credit union, statements always contain the following data points if they occurred in the account:

- Statement date
- Account number

- Deposits/credits to the account
  - Dates of deposits/credits and corresponding amounts
  - Dates, source, and amounts of electronic deposits/credits
- Checks/debits to the account
  - Dates, check numbers, and corresponding amounts of checks that have cleared the account
  - Dates, payee, and amounts of electronic payments/debits
  - Dates, payee, and amounts of wire transfers
  - Dates and amounts of internal transfers

Additional information supporting each transaction can be requested from the financial institution if it is not provided with the statement itself.

Standard Data Source: Credit Card Statements

Credit card statements always contain the following data points if they occurred in the account:

- Statement closing date
- Account number
- Transaction date, posted date, payee, and corresponding amount for each transaction
- Transaction date, posted date, transaction description, and corresponding amount for each fee or interest charge
- Transaction date, posted date, transaction description, and corresponding amount for each payment and/or credit applied

Standard Data Source: Payroll Reports

Payroll reports vary the most in presentation out of the three standard data sources; however, payroll reports contain consistent data from provider to provider as the information presented will be provided to the Internal Revenue Service at the end of each year for tax purposes. Some of those standard data points include:

- Gross pay
- Employee and employer taxes
- Net pay
- Employee and employer contributions to retirement plans
- Other benefits
- Reimbursements
- Employee's Tax Identification Number

Because all the standard data sources have predictable types of data points, the information from the statements or reports can be entered into a tabular format for further analysis. Each data point is entered into one field per row within a spreadsheet in the corresponding data source type column.

Nonstandard Data Sources

Nonstandard data sources are those for which the information available is not consistent from custodian to custodian or provider to provider. The use of accounting systems, in general, varies from company to company and even user to user. The data input into these systems also varies. Information gathered by one company or user often differs from that gathered by another company – even if the source of the data is the same. For example, if an invoice from Company A is sent to two clients X and Y, client X may include Company A's name, address, federal employer identification number, and contact information in the setup of the vendor. However, Client Y may include only Company A's name and contact information. If the master vendor report is exported from both clients' systems, the information exported would differ.

Standard data sources are used frequently in investigations because they are simple to understand and analyze because of the predictable characteristics of the data points. However, nonstandard data sources are used when standard data sources are not sufficient to calculating a loss or if additional qualitative information is needed, as further explained in the next section. Nonstandard data sources are typically less reliable than standard data sources as they are commonly prepared by parties involved and/or they are derived from data entry with the risk of human error in the input.

Nonstandard Data Source: System Exports

An example of a nonstandard data source are system exports. In "The Case of the Nonexistent Inventory" in Chapter 2 of course 21752B, Acquiring Distribution system exports provided information from vendor invoices including invoice number, invoice date, item number, item descriptions, unit price, quantity purchased, and total amount by item. The information derived from the vendor invoices were listed in a tabular format with one line for each item invoiced. System exports were also provided for purchase order details and customer billing. As part of the loss calculation for Acquiring Distribution, Jeff's actions of creating purchase orders in the system and then immediately creating corresponding customer invoices was verified with the system exports. Using the system exports, the dates on which purchase orders were created were compared to the dates on which invoices were issued. Through this analysis, it was discovered that the only customers with this pattern in the data were those who Jeff admitted were charged for the products that did not exist. Identifying the purchase order to invoice date pattern for the known customers allowed me to also look for the same pattern with customers who were unknown. To further clean up the mess Jeff had made with his scheme, and to keep the customer relationship, Acquiring

Distribution needed to know all of the customers who were affected by Jeff's actions – not just the ones Jeff identified.

Another example of the use of a nonstandard data source is within "The Case of the Man Cave." When Bill would register LLCs with the Secretary of State, he would list the LLC as the Registered Agent. This setup made it more difficult to establish all of the entities owned by Bill when searching by Bill's name. Concerned that I had not identified all of Bill's LLCs, I noticed that the checks payable to Bill's LLCs identified were missing address information. Most of the company's vendor records contained name and address information that would print onto the checks, so the financing department could mail the payments. An export of the master vendor file was requested and filtered for those records without an address. Using the list of vendors without addresses in the system, the LLC names were searched using the Secretary of State website. This process identified multiple LLCs that were registered to the LLC but listed Bill's home address as the registered address. After the LLCs were identified, then the standard data source of bank statements could be searched for payments to the LLC and added to the loss calculation.

Examples of other nonstandard data source of system exports from previous cases include:

- Audit/user logs
- General ledgers
- Employee information

Nonstandard Data Source: Paper Conversion

Another nonstandard data source involves converting any type of record, report, or list that was written on paper. As discussed in further detail in Chapter 2, loss calculations in financial investigations can require a comparison. Sometimes, one side of the comparison is a standard data source, such as a bank statement, and the other side is a nonstandard data source. For example, in the "The Case of the Gambling Executive Director," standard data from bank and credit card statements were used, but in addition to the standard data, nonstandard data including information from cash donation records were also digitized and analyzed and compared to the bank deposits. By converting the paper nonstandard data source into a tabular format, like a spreadsheet, the comparison can be made with results able to be organized for communicating findings to clients and creating attachments for reports and related testimony.

Examples of nonstandard data source paper conversion from previous cases include:

- Paper point of sale receipts
- Cash receipt books
- Paper calendar entries
- Daily cash drawer logs
- Inventory count sheets

DATA SOURCES FOR QUALITATIVE EVIDENCE

Fraud investigators who love digging for evidence more than data analysis tend to enjoy the qualitative data sources the most. For those who love data analysis, the quantitative evidence gathering and related analysis is their favorite way to investigate a case. The best cases, and the ability to prove a case beyond a reasonable doubt, are those in which both qualitative and quantitative data sources exist and there is time to use both.

The primary example of a qualitative data source are emails. When an employee has stolen money from her employer, and the employer stores the employee's email for future reference, this evidence is the favorite among many fraud investigators. Qualitative data sources are where many feel the story and drama are uncovered. Examples of qualitative data sources include:

- Memos and notes within a company's general ledger and/or journal entries
  - One co-conspirator was responsible for the accounting entries to hide the stolen funds from the company's owners. He would leave notes in the memo field of journal entries stating things such as, "Reclass to [co-conspirator's] job." These journal entry notes confirmed employee interviews and other evidence that the conspirators were stealing money and hiding the missing funds in a fake job in an inventory/asset account.
- Spreadsheets
  - Employees were instructed by the owner to enter only checks into QuickBooks and manage inventory and the rest of the business on separate spreadsheets that did not tie to each other. However, financial statements had been prepared and provided to a bank to obtain a loan that was in default. Copies of the spreadsheets were collected and provided great evidence of multiple schemes in which not only was the bank defrauded but also the company's customers.
- Receipts in desks
  - An employee paid funds from a corporate holding account to an inheritance scam. In the books of the company, the employee recorded the payments to the scammers as a distribution to the company's owner. The owner, however, was not aware and did not receive the distributions. To confirm the recipient of the funds was not the owner, a receipt listing one of the bank accounts was discovered in the employee's office.
- Documents in file cabinets
  - The investigation involved verifying the assets of a company who defaulted on a loan. The company eventually was closed, but the investigation continued. As the company records were being packed up and taken off site for storage, paper bank statements with the account name, "Owner Name – Special Account" were discovered. Payments

that should have been used to pay down the loan at the bank and to purchase supplies for customer orders were being paid on expensive cars and Ivy League college tuition.

USING QUANTITATIVE AND QUALITATIVE DATA SOURCES

AData Sleuth begins with the quantitative data analysis. It is the qualitative data sources that compliment and complete the data analysis. Qualitative data sources could be used to investigate financial crimes or in forensic accounting engagements; however, it can be tedious, laborious, and inefficient.

Quantitative data sources should be analyzed first to confirm or deny the allegations made by the victim, or client, followed by the identification of patterns and data indicators that can be used to uncover any other schemes or losses incurred by the victim. Qualitative data source investigators are limited to known schemes and related losses. Without analyzing all activity during the relevant period, other schemes and losses may not be uncovered. In "The Case of the Gambling Executive Director," if I had focused on only quantifying the losses Adam had discovered, I would have missed the use of organization funds to pay additional personal credit card payments, of which Adam was unaware.

At the same time, quantitative data source investigators should remember that qualitative data sources are extremely valuable in providing the client, attorney, or prosecutor with evidence of intent and connecting the missing funds to the subject. However, when using quantitative data sources and related analyses, locating qualitative data for each item can be unnecessary and redundant. The amount of qualitative data obtained can simply represent a category of the findings instead of every transaction comprising the loss.

DATA PROCESSING TECHNIQUES

Within each of the following sections, important terms will be defined and helpful data processing steps will be provided as a guide to setting up the detailed data sets for the standard Data Sleuth analyses explained in Chapter 2 of course 21751B, Chapter 1 of course 21751B of course 21755B. Successful, thorough, and accurate data processing creates a much smoother analysis step reducing the need to update and revisit underlying data to correct mistakes. The adage "Garbage in, garbage out" holds true in the Data Sleuth Process starting with data processing. When processing data, it is a good rule of thumb to process everything an analyst or investigator believes they may need whether they use it all or not. Selecting data points instead of processing entire statements usually results in revisiting this step – and the worst part of the process to revisit data processing is when a report is being written just before a deadline.