Using Data Analytics to Detect Fraud

Data Analysis Tests for Detecting Corruption
Corruption Schemes

- Involve employees’ use of their influence in a business transaction in a way that violates their duty to their employer for the purpose of obtaining a benefit for themselves or someone else
- Often involve collusion between an internal employee and an outside party
- Can be difficult to detect
Corruption Schemes

- Bribery:
  - Kickbacks
  - Bid rigging
- Illegal gratuities
- Economic extortion
- Conflicts of interest
Red Flags of Corruption Schemes

- Anomalies in salesperson commissions or bonuses
- Vendor payment anomalies
- Inventory anomalies
- Anomalies in bid process
Discussion Scenario: Corruption Schemes

- What types of tests will you run to look for signs of a bribery scheme involving kickbacks?
- What files and documents will you need to run these tests?
- Aside from a bribery scheme, what might be some other explanations for any exceptions found?
Tests for Corruption Schemes

- Tests to identify anomalies in:
  - Salesperson commissions or bonuses
  - Vendor payments
  - Inventory
  - Bid process
# Analysis of Payment Text Descriptions

Nobody calls it “bribe expense.”

<table>
<thead>
<tr>
<th>Goodwill payment</th>
<th>Special payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consulting fee</td>
<td>Friend fee</td>
</tr>
<tr>
<td>Processing fee</td>
<td>Volume contract incentive</td>
</tr>
<tr>
<td>Incentive payment</td>
<td>Pay on behalf of</td>
</tr>
<tr>
<td>Donation</td>
<td>Commission to the customer</td>
</tr>
<tr>
<td>Special commission</td>
<td>Government fee</td>
</tr>
<tr>
<td>One-time payment</td>
<td>Team-building expense</td>
</tr>
</tbody>
</table>
DOJ’s Five Elements of an FCPA Violation

**Who**
- Potentially applies to any individual, firm, officer, director, employee, or agent of a firm and any stockholder acting on behalf of a firm

**Corrupt Intent**
- Payer must have a corrupt intent, and payment must be intended to induce the recipient to misuse their official position to direct business wrongfully to the payer or to any other person

**Payment**
- Prohibits paying, offering, promising to pay (or authorizing to pay or offer) money or anything of value

**Recipient**
- Extends only to corrupt payments to a foreign official, a foreign political party or party official, or any candidate for foreign political office

**Business Purpose**
- Prohibits payments made to assist the firm in obtaining or retaining business for or with, or directing business to, any person
# Tests for Corruption Schemes

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<tr>
<th>Element of an FCPA Violation</th>
<th>Sample Analytical Tests</th>
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</table>
| **Who** (vendor and agent analysis) | • Stratify agent payments by time period and currency amount.  
• Stratify agent payments by contract or project code.  
• Identify large, round-sum payments by agent and frequency.  
• Identify top ten agents with highest expense-to-fee ratio.  
• Analyze agent commissions, recurring commissions, large/round dollars, etc.  
• Identify payments to vendors not listed in the vendor master.  
• Cluster bottom ten agent payments and frequency. |
| **Corrupt intent** (textual analytics) | Analysis of free-text fields of selected GL data:  
• Cash disbursements  
• Travel and entertainment  
• Consultant/agent payments  
• Marketing expenditures  
• Charitable expenditures  
• Customs clearance account  
• Cost of sales |
# Tests for Corruption Schemes

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| **Payment** (cash disbursements analysis) | • Cash disbursement analysis by country  
• Petty cash account analysis in selected countries  
• Payments made w/o a PO or to payee not in vendor master  
• Comparing payment activity to Transparency International’s CPI index (generate heat map)  
• Analysis of travel and entertainment by country  
• Analysis of payments to charity by country  
• Analysis of payments made to customs agents by country  
• Vendor background checks/third-party due diligence |
# Tests for Corruption Schemes

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| **Recipient**                              | • Customer segmentation by country  
• Government customer segmentation by country  
• Compare with Transparency International’s CPI index  
• Sale price and margin analysis across customers by product  
• Free goods or credits as a percentage of sales |
| (customer/buyer analysis)                  |                                                                                                                                                         |
| **Business purpose test**                  | • Trending analysis of revenue by country  
• Stratification of revenue by country  
• Trending analysis of revenue by customer  
• Stratification of revenue by customer  
• Calculation of effective commission rate paid to agents |
| (revenue analysis)                         |                                                                                                                                                         |
CORRUPTION PERCEPTIONS INDEX 2017

The perceived levels of public sector corruption in 180 countries/territories around the world.

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Predictive Modeling for Corrupt Payments

- Predictive modeling can be a particularly effective tool in identifying potentially corrupt payments.
- Create a model based on a sample and apply it to population to identify high-risk transactions.
**Challenge**: Analyze 400,000 transactions for suspected bribery payments.

1. Analysis team reviewed 2,000 transactions from ledger data (text comments, amounts, dates, etc.).
   - Identified 400 suspicious and 1,600 non-suspicious entries
2. Created statistical model: *is suspicious/is not suspicious*
3. Applied model to remaining 398,000 transactions
4. Identified 14,000 new suspicious transactions
   - 95% confident they are similar to “is suspicious”
   - Identified more than $8 million in highly suspicious payments
These three variables were the highest drivers of suspicious transactions. These variables were less important when predicting suspicious transactions. Client should focus resources on monitoring efforts for the three leading drivers, which account for 80% of the predictive value.