CAN WE DETECT fraud EARLIER?

A technique called content analysis raises the possibility.

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Wouldn't it be helpful to be able to detect fraud earlier? The ability to do so would probably reduce the impact of any particular incident of fraud considerably because history shows us that most fraudulent events tend to start out slowly and build over time. Prior fraud-detection research based the likelihood of fraud on numbers and ratios, but this method is usually too late to be effective because it indicates fraud long after catastrophic financial results are irreversible.

Our study is different. We examined the words and grammatical cues used in business reporting for detection, focusing on the Management's Discussion and Analysis (MD&A) section of annual reports since this section contains the written assertions of management. We analyzed management's communication in this section for cues regarding deception that might be used to conceal fraudulent activity. By examining these written statements, we confirmed that early detection is possible. In this article we explain how.

To determine a company's likelihood of deception involved with misstating financial statements, we used a method called *content analysis* to focus on specific written content that might indicate that things in the annual report weren't likely to be what they seemed. These included characteristics in written communication that indicated lack of organization (i.e., apparently trying to be unclear as to disguise the truth), increased brevity (i.e., to decrease the risk of making mistakes), decreased expression of optimism, and less expression of certainty. These grammatical characteristics are potential indicators of deception that show up much earlier than when they are borne out in the financial results—thus providing the key to early detection. All of these items showed significance in detecting deception. These indicators are part of a method that could be used by management accounting professionals to reliably detect fraud in a timelier manner.

SEARCHING FOR FRAUD

There is a great amount of motivation for discovering reliable ways of detecting fraud *after* devastating financial results occur, but consider how much better it would be to detect fraud *before* this happens. Think for a moment about the damage that resulted in the major companies where fraud was detected in recent years. Think about WorldCom, Enron, HealthSouth, and Xerox. Consider the dissolution of Arthur Andersen and the victims of lost pension plans and ruined careers. Rather than looking for reasons *why* management overstated earnings or *why* the market reacts to overstatements, we hope to identify cues that assist in the detection of fraudulent information earlier, which could help to prevent catastrophe.

We know that the presence of financial irregularity is a huge problem that the accounting profession has suffered, especially recently. The number of incidents of violations has increased over the years as indicated by the increase in the number of Accounting and Auditing Enforcement Releases (AAERs) filed by the Securities & Exchange Commission (SEC). These are companies that the SEC *required* to restate their financial statements. (When the SEC formally charges a company with a violation, it issues an AAER.) The number of these required restatements has doubled recently and keeps climbing.

Many researchers are trying to find reliable fraud indicators, and some are working on building fraud-prediction models. In terms of fraud detection, auditors are required to assess the likelihood of fraudulent financial reporting throughout audits. The American Institute of Certified Public Accountants (AICPA) and the Committee of Sponsoring Organizations of the Treadway Commission (COSO) have issued standards and reports to aid auditors in detecting various types of fraud. For instance, Statement on Auditing Standards (SAS) No. 99, "Consideration of Fraud in a Financial Statement Audit," issued in 2002, provides auditors with a list of risk factors categorized into three areas: incentives/pressure, opportunities, and attitude/rationalization. The presence of these risk factors doesn't always indicate the existence of fraud, but these factors exist when fraud is present. When encountering these risk factors, auditors should raise their professional skepticism and determine whether more extensive testing is necessary. But the professional balance of relying on this approach shouldn't be so skewed toward auditors alone.

Although most of the fraud-detection focus has been on internal and external auditors with the passage of the Sarbanes-Oxley Act of 2002 (SOX), management accounting professionals are also greatly affected by these scandals. SOX was created with the idea of greater accountability for management, but guidance that management could use wasn't as forthcoming. Most guidance was supplied to public accounting, who then tried to interpret the rules to management. Management accountants have the major role to play here. They design, implement, and manage the internal control systems that aid in combating fraud. Moreover, management accountants rely on and review large amounts of information provided by those internal control systems daily. If management accounting professionals could identify fraudulently misstated information before using it, they could provide better decision-support information to management, improve risk assessment, and enhance their contribution to enterprise optimization.

As we noted, researchers have made diligent efforts to focus on various ways of detecting fraud, such as ratio analysis and financial statement data. But, as we said earlier, these studies tend to focus on quantitative measures, which is often much too late to avert financial disaster. The content analysis approach, which we used in this study, is different.

CONTENT ANALYSIS

Content analysis is a systematic technique for categorizing words into content categories using special coding rules. In essence, it's a *qualitative* method of determining characteristics of interest based on grammatical structure, word content, and other fundamental characteristics of communication. The method has been used to analyze the content of presidents' letters and narrative disclosures as they relate to bankruptcy, good news vs. bad news, and deceit. Content analysis has been used to describe the content of stock analyst reports where financial and operating data is most often cited as indicating determinants of interest. It has also been used to analyze the drivers of analysts' reports and to show that characteristics of the chairman's statement are associated with company failure. For example, one researcher found that deceivers' written communication will contain higher levels of rhetoric, sentence sophistication, and self-reference. With regard to words related to self-reference, a deceiver tends to avoid using *I* or *me*. Instead, they might use *we* to steer clear of committing themselves to the things they are communicating. Given these embedded indicators of deception evidenced in written communication, why shouldn't we explore the use of content analysis as an indicator of financial fraud? Based on prior studies, we did just that.

EXAMINING MANAGEMENT'S DISCUSSION AND ANALYSIS

To see if content analysis might be a useful tool for early fraud detection, we identified 311 firms for which revenue-related Accounting and Auditing Enforcement Releases were issued in the years 2000–2003, which was reduced for firms for which prior-year revenue (for purposes of matching) or financial statements were unavailable, and for firms for which no suitable matching data was obtainable. For these remaining 68 firms, several received multiple-year restatements, providing a final sample of 118 "firm years" available for data comparison purposes.

We also constructed a sample of *matched* companies that were similar to the sample firms in terms of revenue size (in a nonrestated year) and industry, but they didn't have to restate anything. We then obtained the annual reports of the companies on which to base a comparative analysis. Using this method, we examined the MD&A sections using a sample of 118 matched observations for comparison.

During the analysis we used a software program called *Linguistic Inquiry and Word Count* (LIWC). Often used for content analysis studies, LIWC parses and identifies parts of speech and syntax. It then tallies the frequencies of the word occurrences (e.g., we, I). LIWC also analyzes individual text files and computes the percentage of words in each text file that fall into each of more than 70 linguistic categories of detail. These groupings of word occurrences reflect themes that are categorized and statistically analyzed by the software. Since we were interested just in fraud characteristics, we focused only on categories related to deception in the context of the MD&A portion of the annual report.

We chose to examine four contextual variables that would suggest deception: brevity, optimism, certainty, and organization. To examine brevity, we measured the word count per sentence and absolute word count of the Management's Discussion and Analysis. To test for optimism, we measured emotional words—both positive and negative—and words related to downward direction. Positive emotion words would include happy, glad, pretty, good, etc. Negative emotion words would include poor, sad, worthless, etc. To examine certainty, we measured the use of past tense, present tense, the word *note*, the word *see*, and the use of self-references such as *management*. To test for organization of the writing, we measured colon use.

Why did we choose these variables for our study, and how were they used as indicators in prior studies?

The degree of brevity used can be indicative of deception. Companies are less apt to expand their discussion using lengthy, descriptive sentences when they have something to hide. Thus, brevity is more likely for communication that is intended to deceive.

The logic of examining optimistic words is that management knows the real condition of the company, so when they discuss its financial condition, managers who have knowledge of fraud may avoid using optimistic words. What happens if the company is merely having a bad year? Wouldn't we expect them to use less optimism in their writing? Although issues of this sort are possible, this is why only one linguistic characteristic isn't enough to convince anyone of an intention to deceive. The method tests for multiple indicators and statistically analyzes them to determine characteristic patterns reflecting deception.

What about the certainty words? Companies with forthcoming restatements are much less likely to use words that indicate certainty or anything related to the present. Examples here could include the words *always*, *never*, or *certainly*. They don't want to commit to a particular position, essentially choosing to be intentionally more ambiguous. They are also less prone to use self-references or references to *management* as a way of cognitively disassociating themselves from their deception. If they are intending to deceive, they won't want someone to personally associate them with the deception. They are vague in their description of events and less apt to use a comment to refer to other data for support of their statements, such as "*See note* 9 on page…" or "*See* footnote 9…," that would signify greater assurance of certainty to the reader.

How can the lack of colons possibly make a difference? The use of colons is common for listing items, which is

ILLUSTRATION: CATHY GENDRON/WWW.CATHYGENDRON.COM indicative of organization for written text. That is, for well-structured writing, colons are often used to precede a clear list of examples or other items relevant to the list. All of these indicators were chosen as variables that can be used to determine the difference between truthful and deceptive written communication. In the future, accounting professionals may be able to detect fraud through the use of content analysis.

EVIDENCE OF FRAUD?

When comparing the MD&A of the matched companies with that of the companies with restatements, we found that, on average, the companies that restated used significantly fewer colons, fewer words per sentence, fewer optimistic words, more words related to downward direction, fewer words describing certainty, fewer of the words *note* and *see*, fewer self-references, more past tense words, and fewer present tense words. The conclusion suggested by these results is that there are distinguishing communication characteristics present within the Management's Discussion and Analysis section of the business reporting of publicly held companies that would indicate deception. To demonstrate these effects, we decided to select the MD&A of some famous companies where fraud was confirmed (Enron, WorldCom, and Tyco) and compare them with the MD&A of healthy companies.

While healthy companies averaged roughly 17 words related to downward direction, WorldCom, Enron, and Tyco used more for eight out of 10 years for which we had data. They averaged 61 words related to downward direction—a difference of 44 words. Within this group, for 2003, Tyco used 158 words indicating downward direction! We found similar results with these companies for the other grammatical indicators we examined. For example, while colon use averaged seven per report for the healthy companies, Tyco used only three in 1997. Similarly, although the healthy companies averaged 116 optimistic words, Tyco's 1997 report contained only 75. While the evidence is anecdotal, this data provides realistic examples of the underlying indicators that could provide red flags suggesting potential problems.

Are these results indicators of fraud? We can't say conclusively, but consider the evidence carefully. On average, the Management's Discussion and Analysis sections of matched companies showed significantly different results from those of the companies that were required by law to restate their financials. How severe is a mandate for restatement by the SEC as shown by the companies examined in our study? In all cases, these restatements were required because of legal action on the part of the SEC that successfully won the right to demand restatement. Thus, we know that the restatements were extremely serious, if not actually a result of financial fraud. This suggests that restatements are not the result of companies that simply make innocent mistakes that result in restatements. These were companies that were *forced* to issue restatements.

MAKING A DIFFERENCE

Using a technique like content analysis is an effective example of how management accounting professionals can reclaim some needed balance within the profession. That is, here is a key area where management accountants can make an important difference. Making effective internal probes where indicators point to the likelihood of deception in communication is a powerful tool for early detection of defalcation. By tagging potentially misstated information before using it, management accountants could truly provide better decision-support information to management, improve risk assessment, and enhance their contribution to enterprise optimization.

Researchers are currently using this evidence to form the basis of additional study. They are applying the fraud indicators to a new sample identified in a different time period to see if they can detect which companies the SEC required to restate their financial statements. This will help to substantiate our findings here. We hope the research will result in an additional technique that management accountants can use to add value for their companies. Stay tuned! ■

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