

# Financial Intelligence: People and Money Techniques to Prosecute Fraud, Corruption, and Earnings Manipulation

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# Financial Intelligence: People and Money Techniques to Prosecute Fraud, Corruption, and Earnings Manipulation

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## I. Introduction

Money cannot deceive by itself—it requires the actions of people engaged in fraud, corruption, or earnings manipulation. People engaged in such activities unknowingly generate a rich evidentiary trail, the “people and money” trail. Unfortunately, much of the evidentiary trail is overlooked because prosecution and investigation usually focus on the inadequate, “self-reported” numbers that are contained in financial statements, bank statements, journal entries, phone bills, credit and debit memos, receipts, purchase orders, closing documents, deposition transcripts, and other records.

This issue of the Bulletin is written for two types of readers: those who relate to people and those who relate to numbers. It describes some of the simple but powerful tools, techniques, methods, and methodologies that are used to sift through the otherwise overlooked evidentiary trail. Although it addresses people-related tools and money-related tools separately, the tools often overlap one another. For example, a people-related technique, such as CICO (Concentric-In/Concentric-Out) (pronounced see-k ), can yield financial statement veracity measurements. Conversely, money-related investigation techniques, such as forensic lexicology, can yield parties’ identification.

The table of contents of this issue is hyperlinked so that AUSAs, investigators, and analysts can easily access further information regarding these tools and readily apply them to existing matters.

### A. Targeted readers

This issue of the Bulletin targets three types of readers: AUSAs, investigators, and analysts. In keeping with the mission of the Executive Office for United States Attorneys, it intends to provide “for

the internal guidance of the United States Attorneys' offices and other organizational units of the Department concerned with litigation." OFFICES OF THE UNITED STATES ATTORNEYS, <http://www.justice.gov/usao/eousa/mission.html>.

It is important to note, however, that although this issue's primary focus is the Department of Justice, the tools, techniques, methods, and methodologies described herein are applicable to virtually any agency, domestic or global, that is combating fraud, corruption, or earnings manipulation. Domestic agencies include the Federal Bureau of Investigation, the Securities and Exchange Commission, the Secret Service, the Bureau of Alcohol, Tobacco, Firearms, and Explosives, state Attorneys General, and state and local prosecutors and law enforcement. Global entities include agencies such as the Central Intelligence Agency, the Drug Enforcement Administration, the Department of Defense, the National Security Agency, and INTERPOL.

The Bulletin is widely read and highly regarded throughout the world as evidenced by the positive feedback and inquiries the authors received (from the United States, Australia, and United Kingdom, et al.) to the two previous forensic accounting issues of the Bulletin that were published in March 2005 and May 2005. The hope is that this issue will offer additional insights, guidance, and expertise and aid a wide-reaching spectrum of agencies dealing with matters of fraud, corruption, and earnings manipulation.

## B. Additional reference resources

This issue of the Bulletin references content from the two previous Bulletins that were authored by the principals of *financialforensics*® in March 2005 and May 2005. The March issue is legally-focused and foundational. See Darrell D. Dorrell and Gregory A. Gadawski, *Financial Forensics I—Counterterrorism: Conventional Tools for Unconventional Warfare*, 53 UNITED STATES ATTORNEYS' BULLETIN, No. 2 (Mar. 2005), available at [http://www.justice.gov/usao/eousa/foia\\_reading\\_room/usab5302.pdf](http://www.justice.gov/usao/eousa/foia_reading_room/usab5302.pdf). The May issue contains specific foundational forensic accounting tools, techniques, methods, and methodologies. See Darrell D. Dorrell and Gregory A. Gadawski, *Financial Forensics II—Forensic Accounting: Counterterrorism Tactical Weaponry*, 53 UNITED STATES ATTORNEYS' BULLETIN, No. 3 (May 2005), available at [http://www.justice.gov/usao/eousa/foia\\_reading\\_room/usab5303.pdf](http://www.justice.gov/usao/eousa/foia_reading_room/usab5303.pdf).

Certain content in this Bulletin also derives from our book, Financial Forensics Body of Knowledge. DARRELL D. DORRELL & GREGORY A. GADAWSKI, FINANCIAL FORENSICS BODY OF KNOWLEDGE (Wiley & Sons 2012). It is included with permission from the publisher. The book contains 560 pages and about 400 pages of Internet-accessible forensic reports from actual assignments. The authors will donate a copy of their book to a limited number of agencies requesting a copy for their library.

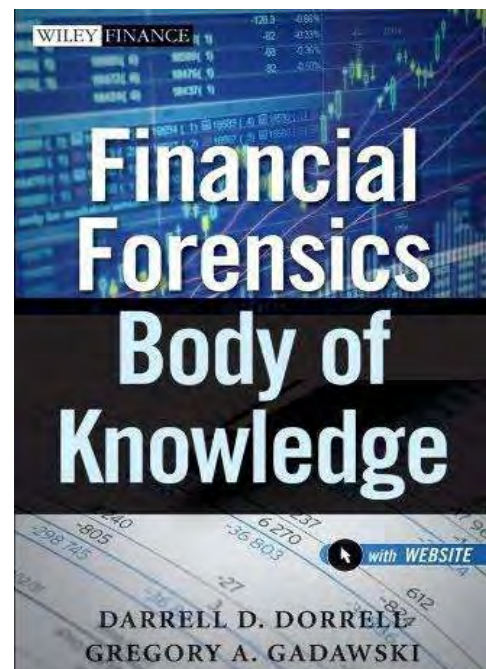


Figure 1

### **C. People investigation tools: summary**

There is almost no end to the guidance (good and bad) available regarding how to extract information from people. It is important to remember that each individual tool, technique, method, and methodology, regardless of its quality, offers only one fragment of the process of prosecuting likely crimes and is dependent upon various mechanisms to identify lying parties.

Part III of this issue explores these tools and details a methodology that can be used to comprehensively assimilate almost any type of people-focused guidance. The technique, known as CICO (Concentric-In/Concentric-Out), is easily assimilated and accommodates virtually everything that pertains to interviews, interrogation, and behavior detection.

In addition, Part III introduces some of the methods used to “quantify” words, thus adding another dimension to people-related inquiry.

### **D. Money investigation tools: summary**

This issue addresses money-related tools in Part IV, but these tools often overlap into people-related tools. For example, the word count technique referenced in the people investigation section can also evaluate financial statement veracity.

Part IV introduces eight distinct categories of financial statement analysis that are virtually unknown in the financial forensics and accounting profession. Each category uses the same baseline data (from an actual forensic assignment) and presents the data analyzed from a forensic perspective. The categories are easily understood and readily applicable to prosecutors, investigators, and analysts who seek new weapons in combating financial crime of all types.

## **II. Foundation**

### **A. Background**

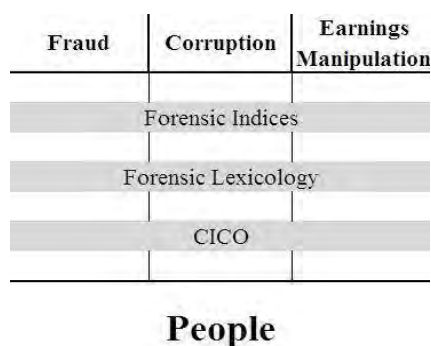
The methods described in this issue of the Bulletin apply to virtually all financial matters, whether civil, criminal, or dispute. Figure 2 illustrates the transcendent nature of these techniques in a wide range of cases and also depicts how the two general types of people and money techniques each play a role in prosecuting cases.

The “Fraud,” “Corruption,” and “Earnings Manipulation” columns include nearly every type of matter that could conceivably involve money. Granted, the categories could be further divided but, even so, the techniques would still apply in a similar manner. The base of the visual, “People,” symbolizes the foundational and essential role that people play in all types of financial matters. Fraud, corruption, and earnings manipulation are caused by and are dependent on the acts of one or more persons. The visual thus conveys the interrelatedness of money and people in these types of cases.

Consequently, prosecutors, investigators, and analysts seek to achieve two objectives that will address both the “people” and “money” aspects that are involved. First, they seek to execute effective interviews, interrogations, and behavior detection to elicit information from the parties who may directly or indirectly be involved. Prosecutors, investigators, and analysts turn to people-related tools to achieve this goal. Second, they seek to clinically identify, investigate, and explain how the people stole, extorted, or manipulated the money involved, an objective that requires money-related tools.

The key benefit to learning and applying the techniques conveyed in this issue is that the techniques lend themselves to virtually all dimensions of financial matters. This is preferable to learning

discrete techniques that apply only to a limited number of applications. The transcendence of the techniques' application is represented in Figure 2 below by "Forensic Indices," "Forensic Lexicology," and "CICO."



**Figure 2**

## B. Definitions

This section contains definitions that apply to all content in this issue. Subsequent sections contain additional definitions pertinent to the topic.

Definitions are essential because financial terminology can be surprisingly nuanced. For example, the terms "earnings management" and "earnings manipulation" are often confused by the financial community. Indeed, earnings management is sometimes characterized as "acceptable," suggesting mere "smoothing" to give the appearance of earnings stability. The authors adamantly disagree. See the various definitions below.

Certain definitions reside in their respective section. For example, the definitions of assets, liabilities, and equity reside in the balance sheet section. The following definitions support the content of this issue.

- **Accrual basis accounting.** In the context of accounting, the practice in which expenses and income are accounted for as they are earned or incurred, whether or not they have been received or paid. This is the antithesis of cash basis accounting. CAMPBELL R. HARVEY, *HYPertextual Finance Glossary*, <http://www.duke.edu/~charvey/Classes/wpg/glossary.htm>.
- **CICO (Concentric-In/Concentric-Out).** A comprehensive investigation/cross-examination technique. It comprises virtually all indicators affecting a subject and permits the assessment of the integrity, probity, or veracity of a subject's behavior, and oral or written statements. DARRELL D. DORRELL & GREGORY A. GADAWSKI, *FINANCIAL FORENSICS BODY OF KNOWLEDGE* (Wiley & Sons 2012).
- **Corruption.** An act done with an intent to give some advantage inconsistent with official duty and the rights of others. The act of an official or fiduciary person who unlawfully and wrongfully uses his station or character to procure some benefit for himself or for another person, contrary to duty and the rights of others. BLACK'S LAW DICTIONARY 345 (6th ed. 1990).

- **Earnings.** Net income for the company during a period. CAMPBELL R. HARVEY, HYPERTEXTUAL FINANCE GLOSSARY, <http://www.duke.edu/~charvey/Classes/wpg/glossary.htm>. *See* net income.
- **Earnings management.** “Reasonable and legal management decision making and reporting intended to achieve stable and predictable financial results.” THOMAS E. MCKEE, EARNINGS MANAGEMENT: AN EXECUTIVE PERSPECTIVE (South-Western Pub. 2005). Michael R. Young, Esq. describes the term as embracing two types of “managed earnings” and observes, “Now in talking about managed earnings, one has got to be careful. There are two types of managed earnings. One type is simply conducting the business of the enterprise in order to attain controlled, disciplined growth. The other type involves deliberate manipulation of the accounting in order to create the *appearance* of controlled, disciplined growth—when, in fact, all that is happening is that accounting entries are being manipulated.” MICHAEL R. YOUNG & JACK H. NUSBAUM, ACCOUNTING IRREGULARITIES AND FINANCIAL FRAUD: A CORPORATE GOVERNANCE GUIDE (2d ed. 2001) (emphasis in original).
- **Earnings manipulation.** “We define earnings manipulation as any action that enables low-value firms to report the same earnings as high-value firms. This includes cases of fraudulent accounting in which firms get auditors to approve statements that are inconsistent with accounting standards, as well as cases in which firms take actions within accepted accounting and legal standards to improve their accounting performance.” GÜNTER STROBL, EARNINGS MANIPULATION AND THE COST OF CAPITAL, Kenan-Flagler Business School, University of North Carolina at Chapel Hill (Mar. 15, 2008).
- **FA/IM© (Forensic Accounting/Investigation Methodology©).** A facile yet comprehensive civil and criminal investigation methodology that enables the forensic operator to either rely on or modify self-reported data to arrive at a correct and defensible evidence-based conclusion. It parallels the evidence-based analysis techniques used by judicial systems (civil and criminal), law enforcement, the military, et al. The only Internet-based, hypertext-linked financial forensics methodology known to exist. It applies to civil, criminal, and disputed matters involving money.
- **Forensic operator.** The term that describes those select individuals possessing the uncommon skills, education, experience, knowledge, and training to comprehensively deploy the hundreds of tools, techniques, methods, and methodologies necessary to investigate people and money. DARRELL D. DORRELL & GREGORY A. GADAWSKI, FINANCIAL FORENSICS BODY OF KNOWLEDGE (Wiley & Sons 2012).
- **Fraud.** An intentional perversion of truth for the purpose of inducing another in reliance on it to part with some valuable thing belonging to him or to surrender a legal right. BLACK’S LAW DICTIONARY 660 (6th ed. 1990). The FBI has defined white-collar crime as “those illegal acts which are characterized by deceit, concealment, or violation of trust and which are not dependent upon the application or threat of physical force or violence. Individuals and organizations commit these acts to obtain money, property, or services; to avoid the payment or loss of money or services; or to secure personal or business advantage with tough talk.” UNITED STATES DEPARTMENT OF JUSTICE, FEDERAL BUREAU OF INVESTIGATION, WHITE COLLAR CRIME: A REPORT TO THE PUBLIC 3 (1989).

- **Net income.** The residual, if any, after subtracting costs, operating expenses, depreciation, interest, and income taxes from revenue. An algebraically negative result yields a net loss. *See Earnings.*

### III. People investigation tools

People are far more complex and devious than any form of financial statement. However, their complexity and dynamic nature do not preclude the use of methods to inquire and elicit data and information essential to various matters. This section describes key tools that can be used to “quantify the unquantifiable” in order to benefit investigations.

#### A. Background

A great deal of discussion and writing has taken place regarding how, over the millennia, data and information can be and has been extracted from people. Some of the input has been good, other input less so. Regardless, the fact remains that people are a “target rich” source of data useful to prosecutors, investigators, and analysts. Many of these actors have developed their own techniques by experimentation and by observing others. Some are even innately capable of identifying the veracity of another’s statements without these tools.

Regardless of individual’s capabilities, forensic operators can be very effective with the tools contained in this section. For example, it is possible to quantify words to assess veracity. A word count example is provided using financial statement notes as a baseline. Other techniques involve face-to-face encounters using the CICO technique.

Forensic operators should learn and incorporate a few of the contained techniques and, upon mastering them, review the article for additional tools and repeat until the content is exhausted.

#### B. Definitions

This section contains definitions that apply to people inquiry content. Other sections contain additional definitions pertinent to the topic.

- **CICO (Concentric-In/Concentric-Out).** Defined previously in Section II.B, CICO is equally effective as a people investigation tool as it permits the assessment of the integrity, probity, or veracity of a subject’s behavior as well as their oral or written statements.
- **F.A.C.E. (Facial. Expression. Awareness. Compassion. Emotions.).** The technique developed by Dr. Paul Ekman provides information on how to recognize emotion and facial expressions. One tool, METT (Micro Expression Training Tool), trains forensic operators to recognize emotion. The tool uses video expressions that begin very slowly and then rapidly progress to speeds that are typical of subjects. The first phase is conducted in slow motion. It compares and contrasts emotions most often confused with one another, such as anger and disgust, fear and surprise, or fear and sadness. The second phase uses gradually faster motion where an individual first displays no emotion and then a specific expression that the forensic operators strive to interpret, such as fear, anger, or disgust.

- **Facial mapping.** The technique developed by Dr. Paul Ekman and Wallace V. Friesen. See PAUL EKMAN & WALLACE V. FRIERSEN, UNMASKING THE FACE: A GUIDE TO RECOGNIZING EMOTIONS FROM FACIAL EXPRESSIONS (Malor Books 2003).
- **FACS (Facial Action Coding System).** Developed by Dr. Paul Ekman to codify every conceivable human facial expression. It is used to interpret involuntary facial expressions resulting from reactions to emotional stress and can be used to gauge a subject's veracity.
- **SETT (Subtle Expression Training Tool).** This tool was developed by Dr. Paul Ekman to recognize very subtle signs of emotion. It is useful to forensic operators who deal with subjects who purposely attempt to suppress expressions of emotion. Used in concert with METT described above.
- **Splatter vision.** Looking at the big picture and not focusing on anything in particular and monitoring for deviation or change that results in increased focus on the behavior. In effect, slightly un-focusing on a subject so that observations can be directed toward movement and/or other indicators as required. This technique supports interviewing, interrogation, and behavior detection. Used by the Secret Service for crowd observation.

Prosecutors, investigators, and analysts are encouraged to visit Dr. Ekman's site at [www.paulekman.com](http://www.paulekman.com). It contains significant training and research tools to support learning the techniques. Also, it references a television program, "Lie to Me," that dramatizes Dr. Ekman's techniques. Naturally, for many reasons, the television techniques and resultant observations are exaggerated. Nonetheless, the content is generally instructive because Dr. Ekman was the technical advisor.

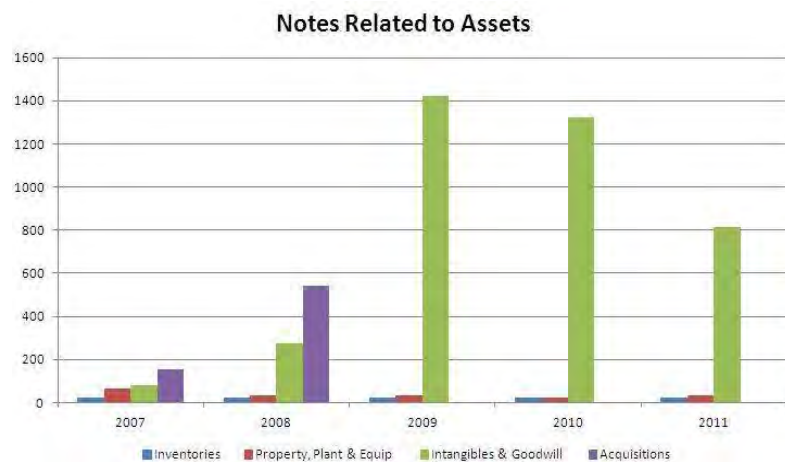
One Internet site that relies on Dr. Ekman's tools and techniques is [www.humintell.com](http://www.humintell.com). It provides various tools and training material similar to Dr. Ekman. Users of the site, however, can access limited free training and micro-expressions for 365 days.

### C. Forensic lexicology

Financial statement notes are intended to supply the user with additional information and clarification. While financial statement notes are designed to disclose and clarify more complex items, clarification does not always happen. Jim Chanos described the infamous Enron "Footnote 16," discussed in section VI (Appendix), in his testimony to the House Committee on Energy and Commerce as "difficult to understand despite the more detailed disclosure Enron had provided." H. COMM. ON ENERGY AND COMMERCE, 107th Cong. Feb. 6, 2002, *available at* [http://www.actwin.com/kalostrader/Enron Testimony.htm](http://www.actwin.com/kalostrader/Enron%20Testimony.htm). Chanos also described the note as "cryptic."

Word count is a technique used to analyze the veracity of financial statement notes and auditor opinions. The method simply counts the number of words in each note for each year and looks for expected and unexpected changes in both occurrence and verbiage length. Changes can signal a company's attempt to manipulate the user through vague, confusing, or obscure language.

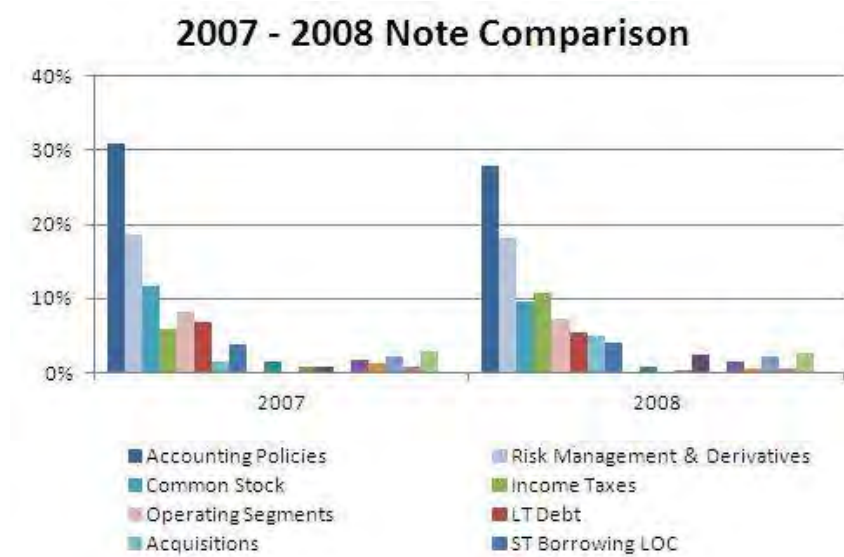
The following chart illustrates the word count of notes related to assets of a well-known, publicly traded company. The significant spike in the number of words counted in 2009 would suggest possible manipulation and requires further scrutiny of the information disclosed regarding intangibles and goodwill. See Figure 3.



**Figure 3**

A quantitative comparison between all notes is also a powerful tool to identify the significant notes (based on word count) in the financial statements for each year.

The following graph illustrates the same company's overall financial statement note comparison between 2007 and 2008. See Figure 4.



**Figure 4**

## D. Physiological stressors

It is widely understood that stress-induced physiological reactions manifest in the human body in many ways and can be observed in various locations on the human body. For example, some people under stress exhibit a “flush” in their neck, temple or cheek areas; others exhibit a widening or even a watering of the eyes and still others may continually wet their lips to counter throat and mouth dryness. This presumes that the subject is capable of a “normal” range of emotions. For example, the authors have

been advised that psychopaths, and perhaps sociopaths and others, are incapable of exhibiting emotion. Further, it is “possible” that certain individuals can train and condition themselves to suppress or disguise physiological reactions.

Forensic operators benefit from this knowledge because stress typically results when subjects fabricate responses to questions. Simply put, lying causes stress and stress manifests in the body. Therefore, forensic operators can observe physiological manifestations as signals indicating whether or not the subject is lying.

This section summarizes how the body reacts to stress. This information is helpful to the forensic operator, because the better he understands how his own body reacts to stress, the easier it will be for him to identify stress indicators in other people, such as those under interrogation.

Stress-induced physiological reactions vary in degree depending on diverse factors, including the subject’s perception of the threats’ severity, the impact of anxiety, and the subject’s practiced responses. Further, endogenous factors such as the subject’s gender, culture, age, health, mental stability, and circadian rhythms, among others, may also be significant. Exogenous factors such as changes in barometric pressure and sunlight variation may likewise impact the subject even though they are unseen and unconsidered.

The body’s reaction to stress will vary depending on the circumstances but can include increased breathing rates, gastrointestinal discomfort (for example, “butterflies”), sweating, clammy palms, pupil dilation, and constriction. Many subjects experience cold hands and/or feet and even tingling or numbed extremities, such as arms and legs, under stress. This reaction results from blood flow constriction that decreases blood flow to the extremities in order for the body to preserve the blood for the major internal organs. Blood flow constriction may also impact motor skills; fine motor skills are the most significantly affected.

Diminished motor control is a major reason why “muscle memory” training is essential for law enforcement and military personnel. Under stress, a law enforcement officer’s muscle memory will likely be triggered. For example, stress may arise from a confrontation by an armed opponent and muscle memory necessary to draw a weapon automatically comes into play. Police officers are known to state that they did not realize they had drawn their weapon in response to a threat. This phenomenon occurs largely because of the muscle memory resulting from many hours of training.

In addition to physiological impacts, many subjects experience varying degrees of psychological impairment. This reaction is directly related to the physiological impacts of stress because internal metabolic processes are slowed down. Consequently, a subject under severe stress, such as a guilty subject being interrogated, will often have great difficulty in maintaining composure and delivering measured, cogent, and credible lies in response to interrogation.

Fortunately, the forensic operator can exploit these factors by using a methodology designed to comprehensively assimilate and evaluate the various physiological indicators of stress. Thus, forensic operators interrogating a subject and applying CICO will be able to identify when the subject is lying in response to interrogation.

## **E. Methodology**

Prosecutors, investigators, and analysts know that people often hold the key to evidence in transactions. They also know that many highly regarded methods and techniques are available to sharpen their interview and interrogation skill sets. It is then important to ask: Which technique? Which method? Which training? The options are endless.

Dr. Paul Ekman is renowned for his tools, for example, FACS, F.A.C.E, METT, and SETT. Each mechanism is highly regarded with respect to interpreting facial expressions. Moreover, because facial expressions often reflect stress, forensic operators who use the techniques are keenly aware of the subject's credibility. DR. PAUL EKMAN, <http://www.paulekman.com>.

Don Rabon is well-known for his interrogation techniques that use questions focused on auditory, visual, and sensory memory and recollection. His techniques also stress that eye movement prior to answering a question indicates fabrication depending on the direction of the movement. For example, if a subject is asked a visually related question, such as, "What did you see when the automobile struck the pedestrian," a subject glancing to his left before answering may indicate recollection. However, a subject glancing to the right may indicate constructing a fabrication. HAMLET'S MIND, <http://www.hamletsmind.com>.

The Reid Technique of Interviewing® and Interrogation developed by John Reid is widely deployed by law enforcement as a means of structuring interrogation leading to confession. Reid incorporates guidelines for lie detection, including clustering, projection, question avoidance, and other methods. JOHN E. REID & ASSOCIATES, INC., <http://www.reid.com>.

Sergeant Bob Schaffer of the Loveland Colorado Police Department conducts training on LSAT (Linguistic Style Analysis Techniques). His methods parse verbal content into structural components in order to compare and contrast the facts. LSAT: THE CONFESSION IS IN THE STATEMENT, <http://linguisticstatementanalysis.com>.

The Wicklander-Zulawski company trains law enforcement, military personnel, and others in methods of interrogation, lie detection, behavior detection, and other techniques. WICKLANDER-ZULAWSKI & ASSOCIATES, INC., <http://www.w-z.com>.

Many other technical resources could be cited but the point is made—forensic operators are confronted with a wide array of training and skill education. More importantly, they *need* continual training and education.

The answer to the question posed earlier in this section is that *all* of the tools, techniques, methods, and methodologies should be employed. The challenge is *how* to employ them. That challenge is specifically addressed in this section by introducing and explaining the CICO method. CICO provides a framework that allows forensic operators to use virtually any and all behavior detection methods. CICO is discussed in more detail below.

**1. Facial expressions:** A significant amount of attention has been directed in recent years toward observing facial expressions. This amount of attention is not surprising because the face is the only location in the human body where muscles are attached directly to the skin. Further, humans have more facial muscles than any other species, thus resulting in a greater range of facial expressions.

Perhaps the most significant work in facial analysis and mapping has been completed by Dr. Paul Ekman. He analyzed the 43 facial muscles of the human face and categorized them into 23 Action Units (AUs). Further, he distilled facial expressions into seven core emotions comprising anger, contempt, disgust, fear, happiness, sadness, and surprise. His methods train forensic operators to observe the various facial muscle actions and determine whether the subject is reacting to one of the seven core emotions. Consequently, skilled forensic operators can use the techniques to determine whether the subject is lying. If lies occur in response to questions, the forensic operator knows to pursue that line of questioning or achieve the answer through alternate means.

Significantly, Dr. Ekman has determined that congenital blindness does not prevent subjects from forming facial expressions consistent with other human beings. Moreover, facial expressions transcend all cultures, although culture clearly has an impact. For example, a culture reticent to express emotion still expresses emotion under stress, but to a lesser degree than more expressive cultures. Nonetheless, facial expressions occur in and transcend culture, age, and health and can be of great benefit to forensic operators.

**2. Putting it into practice:** The challenge for prosecutors, investigators, and analysts is to *comprehensively* apply the myriad of tools, techniques, methods, and methodologies that are available to support interviews, interrogation, and behavior detection. Dozens of highly qualified companies provide a wide range of training, from simple self-study to comprehensive, multi-week, intensive training sessions. Even then, the forensic operator armed with a particular technique is left with the questions regarding which is applied first, which is most important, which can be disregarded, and related dilemmas.

Fortunately, a methodology has been developed that collectively accommodates these techniques that range from facial expressions to physiological indicators to more exogenous symptoms, such as time of day and weather. That technique is known as CICO (Concentric-In/Concentric-Out) and is explained below.

Immediately after reading this section, prosecutors, investigators, and analysts can begin practicing the techniques by viewing television news programs (particularly interviews of high-profile parties, such as CEOs, politicians, and celebrities) with the sound turned off. The lack of sound permits focus on facial expressions and note-taking for observed departures from what is otherwise a “normal” expression. Further practice results by recording the program and listening to the interview again, this time with the eyes closed. Finally, while simultaneously watching and listening to the program, one can then review the notes taken from the first viewing. Slow-motion playback reinforces the observation of unusual expressions.

**3. CICO (Concentric-In/Concentric-Out):** CICO is a method that aggregates virtually all behavioral indicators and exogenous factors so that a forensic operator can collectively assess the veracity of the subject. Simply stated, CICO recognizes that behavior detection comprises anything and everything that might represent a cause or effect of a subject’s behavior. CICO was inspired by the behavior detection techniques that were used by the Israeli Security Agency, designed to detect people with harmful intentions, namely terrorists. The techniques are applicable to virtually any forensic assignment involving people and can be used from a distance or during a face-to-face encounter.

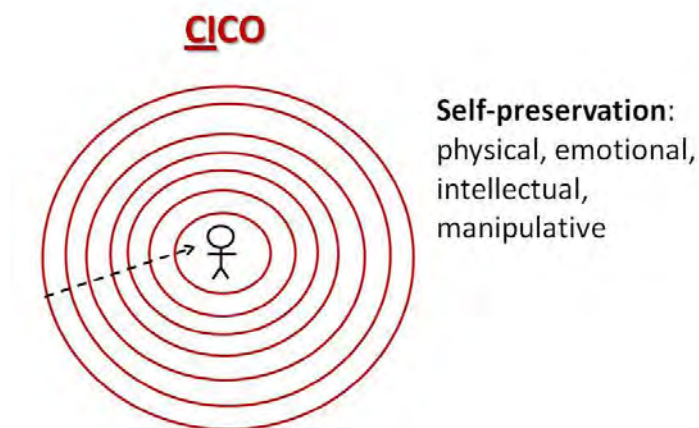
The process of obtaining data from a subject is often divided into three categories: (1) interviewing; (2) interrogation; and (3) behavior detection. The authors view such categorization as arbitrary and argue that behavioral detection should be used regardless of the purpose because it is the most comprehensive and effective technique. That is, a subject undergoing an interview will yield more information under behavior detection than if the process is treated as a routine interview. Furthermore, the forensic operator who continually applies behavior detection tools, even in casual social settings, becomes more skilled than he would had he simply used an occasional application.

As the name implies, CICO is comprised of two components, Concentric-In (CI) and Concentric-Out (CO). For example, a forensic operator conducting an interrogation next week will begin deploying CI to gather any data that may be useful to conduct the interrogation. Then, when the forensic operator begins the interrogation, he has armed himself with every possible means of pre-interrogation intelligence that he can use to maximize the information gained.

The forensic operator begins using CO coincident with the interrogation, calibrating the subject to gain baseline behavioral information and progressing with the interrogation. During the interrogation, the forensic operator continually observes the subject's behavior, such as physiological indicators that may reflect stress due to the subject's attempts to deceive.

A forensic operator who attempts to conduct an interrogation or even an interview without such advance and concurrent intelligence will fail to maximize his efforts. Naturally, certain circumstances, such as "battlefield" interrogation, preclude advance and concurrent observation; even so, CICO tools are still beneficial.

The CI component starts conceptually with a very wide circle that encompasses the subject's business, professional, and personal footprint and progressively becomes focused inward toward the subject's location. The term Concentric-In expresses this inward movement. Using this method, a subject to be interrogated tomorrow and employed by a business with operations in three states would require consideration of the factors that may affect his state of mind during the interrogation. Such factors include physical (for example, weather and traffic flow), economic (for example, the state of the economy and labor force), cultural (for example, the deep South versus New England), and other factors that could possibly impact the business now and in the pertinent past.

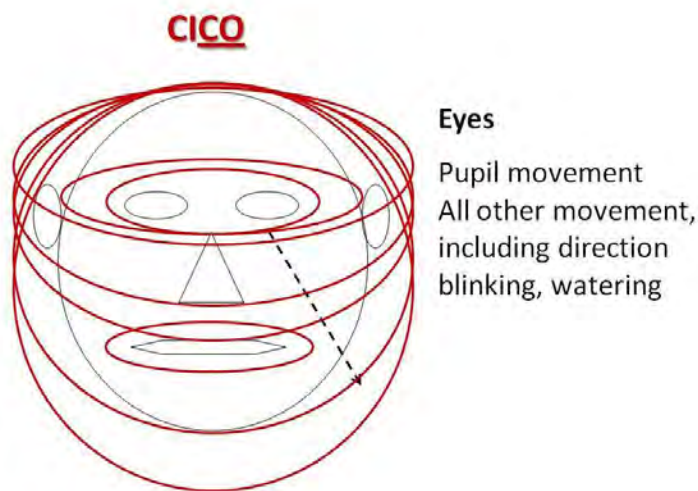


**Figure 5**

Many factors at the physical location could affect the subject's demeanor. Thus, the forensic operator should be aware of them to anticipate their impact. For example, abrupt barometric pressure changes are known to affect some people's behaviors. The explanation of how external factors have an increasingly important impact on the subject will be explained in detail later.

The CI concept is illustrated by the following visual, a series of inward-flowing concentric circles of inquiry and data capture. See Figure 5.

The CO component starts conceptually with a very narrow circle encompassing the subject's eyes and progressively expands outward to include the forehead, scalp and temples, face, throat, shoulders, upper diaphragm, and torso. The term Concentric-Out expresses this outward movement. Then, it starts conceptually again with a very narrow circle encompassing the subject's feet and progressively expanding to include the legs, knees, thighs, and lower midsection. All the while, the forensic operator notes the subject's hands and feet because they are very mobile and often expressive.



**Figure 6**

The CO concept is illustrated by the following visual, a series of outward-flowing concentric circles of inquiry and data capture. See Figure 6.

The forensic operator knows that the beginning of an interview offers the “calibration” window of opportunity. That is, by asking general, noninvasive, informational type questions, a subject’s behavior can be calibrated. For example, the subject can be asked to confirm the date and location of birth, parent and sibling information, education and life experience, and the like. Further, the knowledge gained during the CI component will permit questions about the subject’s personal interests, such as sports or hobbies. The assumption here is that such questions are acceptable and feasible, because they may not be in highly structured environments such as a deposition. Nonetheless, the principle can be deployed even in constrained circumstances.

Once the subject’s “normal” or non- or low-stress behaviors have been calibrated, different behaviors will be more obvious when triggered by sensitive questions. These different behaviors often flag avenues for additional inquiry.

The Concentric-Out technique is detailed below. This technique is explained first because it is generally more intuitive for forensic operators. Note that the following content provides general guidance subject to an individual’s specific behaviors. Therefore, a calibration process is essential before undertaking a detailed inquiry.

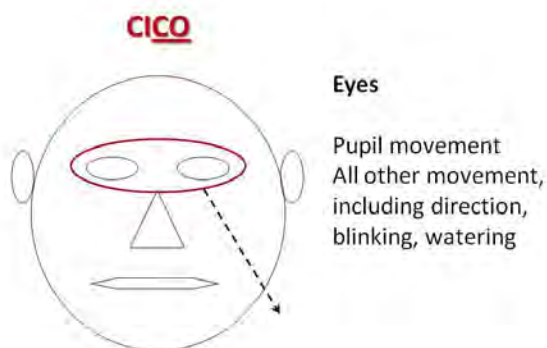
**4. Concentric-out:** The following visual illustrates the primary focus of attention, the eyes. More specifically, the pupils of the eyes can indicate stress-induced emotion. For example, law enforcement officers, combat veterans, and others who are impacted by extreme emotional stress have described experiencing “tunnel vision.” The condition results from the body’s “fight or flight” physiology and thus constricts pupils to focus on the threat. Conversely, pupil dilation commonly occurs in other circumstances, such as sexual arousal. Overall, pupil dilation and constriction changes can be very telling. However, it is often difficult to be close enough or observant enough to detect such changes. Further, in certain circumstances forensic operators need to maintain distance to ensure safety.

Fortunately, eye movement and/or stability can be another indicator of stress response, whether emotional or physiological. For example, when law enforcement officers conduct field sobriety tests, one

of the techniques they use is Horizontal Gaze Nystagmus (HGN). A normally constricting pupil and smoothly flowing eye generally indicate non-impairment. However, when a law enforcement officer instructs a driver to keep his head still and “follow the pencil” with his eyes, the officer is looking for pupil change and eye movement. One analogy equates the smooth movement of a marble rolling across an even surface with the focused movement of a non-impaired eye, while equating the uneven and jerky movement of a marble rolling across an asphalt road to the eye movement of a subject impaired by drugs, alcohol, and certain medications.

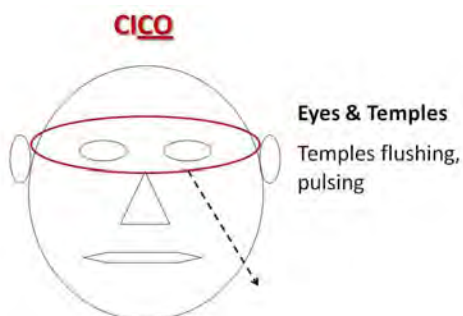
Other stress-induced responses that are often manifested in the eyes include change in blinking rate, duration of closed eyes during a blink, rapid and darting movements, furtive movements, and eye contact avoidance. Furthermore, the orbital muscles around the eye reflect emotion. Compare someone’s wide-open eyes in reaction to surprise to someone’s very narrowed eye openings reflecting anger. Regardless, initial focus on a subject’s eyes permits a forensic operator to progressively move outward to subsequent physiological indicators.

The concept is illustrated in the following visual. See Figure 7. The downward pointing dotted line represents the continual Concentric-Out viewing.



**Figure 7**

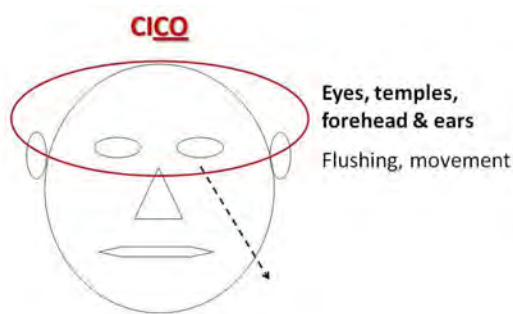
While maintaining focus on the subject’s eyes, the forensic operator slightly expands his vision to include the temples as illustrated in the following visual. See Figure 8. The temples may exhibit flushing and or pulsing when emotion is physiologically manifested, such as when a subject lies in response to a question.



**Figure 8**

While maintaining focus on the subject's eyes and temples, the forensic operator further expands his vision to include the forehead, scalp, and ears as illustrated in the following visual. See Figure 9. The forehead, scalp, and even the ears may exhibit flushing, pulsing or even movement when stress-induced emotion is physiologically manifested.

Hair movement on other parts of the body may also be indicative of stress in response to a forensic operator's questions. Specifically, the phrase, "the hair stood up on my arm," illustrates how question-induced stress may result in physiological responses.

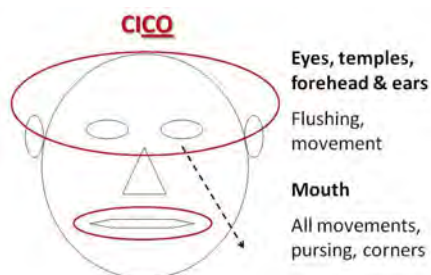


**Figure 9**

While maintaining focus on the subject's eyes, temples, forehead, scalp, and ears, the forensic operator further expands his vision to include the mouth. The concept is illustrated in the following visual. See Figure 10.

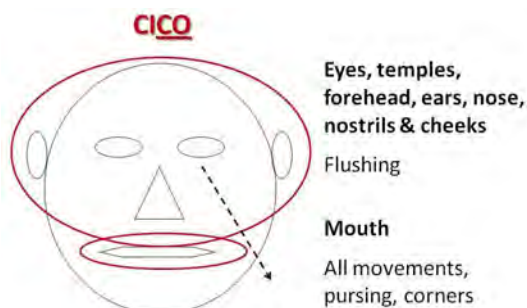
The mouth can exhibit stress-induced dryness in the throat and may express emotion through pursing of the lips, turning down the corners of the mouth, and other movements, such as wetting dry lips. Also, exaggerated breathing may be evidenced by the subject breathing through his mouth in response to stress.

The mouth is the logical point to address the subject's vocalization, that is, *how* the subject is stating his words. Recently, a great deal of progress has been made using technology to analyze voice stress as an indicator of veracity. Consequently, the forensic operator must note changes in voice pitch, rate, speed, articulation, tone (for example, whether the tone is nasal, guttural, or otherwise), and other voice "prints" that yield clues to stress-induced physiological indicators.



**Figure 10**

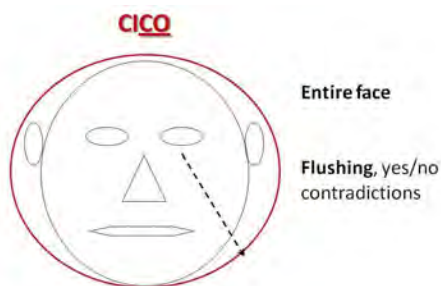
While maintaining focus on the subject's eyes, temples, forehead, scalp, ears, *and* mouth, the forensic operator further expands his vision to include the nose. The concept is illustrated in the following visual. See Figure 11. The nose may exhibit flared nostrils due to accelerated rates of breathing, anger, and even constrictive muscle movements around the nose resulting from stress. Forensic operators are familiar with the phrase, "wrinkled up my nose in disgust," that illustrates the type of movement the nose may make.



**Figure 11**

While maintaining focus on the subject's eyes, temples, forehead, scalp, ears, mouth, *and* nose, the forensic operator further expands his vision to include the entire face. The concept is illustrated in the following visual. See Figure 12

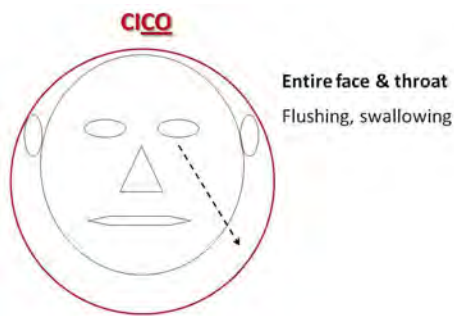
Because each subject is different, physiological indicators may occur in various parts of the face, thus requiring concentrated, positive focus. Variations can be more readily observed by paying careful attention to the calibration process mentioned earlier in this section.



**Figure 12**

While maintaining focus on the subject's eyes, temples, forehead, scalp, ears, mouth, nose, *and* entire face, the forensic operator further expands his vision to include the throat. The concept is illustrated in the following visual. See Figure 13.

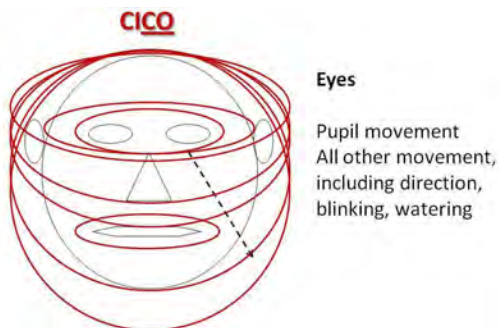
The throat may manifest stress by flushing or pulsing and movement as expressed in the Adam's apple when swallowing. Further, the carotid arteries, even if not pronounced, may indicate pulsing under stress.



**Figure 13**

While maintaining focus on the subject's eyes, temples, forehead, scalp, ears, mouth, nose, face, *and* throat, the forensic operator is collectively focusing on and gathering indicators from a portion of the body rich with signals. The concept is illustrated in the following visual. See Figure 14.

Effectively, the forensic operator maintains the subject's entire face slightly out of focus so that movements and unusual occurrences are detected and incorporated during the observation. This technique is similar to splatter vision, a term that is contained in the definitions section.

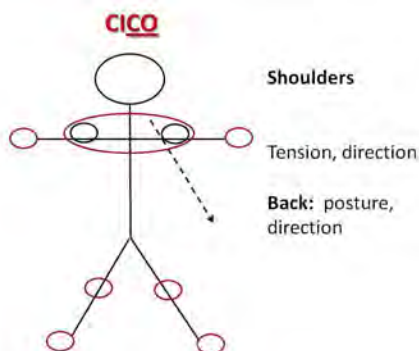


**Figure 14**

While *maintaining* a collective focus on the facial features just discussed, the forensic operator expands his vision to include the shoulders as illustrated in the following visual. See Figure 15.

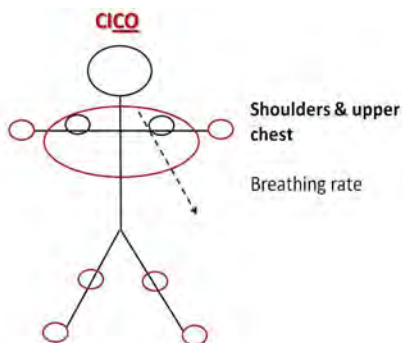
The shoulders may manifest stress by movements that can suggest discomfort and/or unconscious desire to turn away from the forensic operator. Consider attending a function such as a conference where several people are standing around talking. Generally, two parties involved in a conversation display shoulders parallel to one another, exhibiting full attention to one another. In a multiparty conversation the shoulders tend to form a circle, depending on the number of people, thus demonstrating a willingness to address the others in an equal manner. If the group is penetrated by an unwanted or unwelcome visitor, the other group members tend to keep their shoulders focused on the earlier group, thus not directing attention toward the new visitor. This expression effectively signals that attention is not granted to the interloper.

Additionally, shoulder movements may indicate rate and extent of breathing that may also be another sign of stress. Furthermore, shoulders assuming an “attention” posture may suggest positioning for action or confrontation.



**Figure 15**

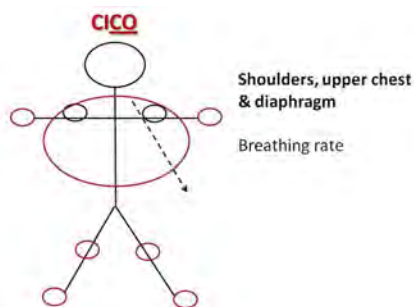
While maintaining a collective focus on the facial features *and* shoulders, the forensic operator expands his vision to include the upper chest as illustrated in the visual below. See Figure 16. The chest can indicate changes in rate and extent of breathing. Moreover, chest expansion can also cause subtle shoulder movement outward.



**Figure 16**

While maintaining a collective focus on the facial features, shoulders, *and* chest the forensic operator expands his vision to include the torso and the diaphragm as illustrated in the visual below. See Figure 17.

The torso can exhibit directional indicators, such as the unconscious desire to turn away from the forensic operator. Additionally, the torso and diaphragm may exhibit changes in breathing rate and extent. The torso also serves as a surrogate indicator for the subject’s back. For example, a subject who is beginning to resign himself to the realization that he has been “caught” by the forensic operator may tend to slouch slightly forward or to one side, thus posturing for surrender. This reaction may be difficult to observe while face-to-face with the subject but the torso may indicate the change.



**Figure 17**

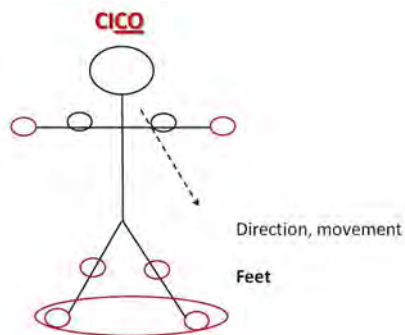
While maintaining a collective focus on the facial features, shoulders, chest, torso, *and* diaphragm, the forensic operator expands his vision to include the feet as indicated in the visual below. See Figure 18.

Feet are easy to move and are often very active. They may reflect an unconscious desire to offload stress or even depart from the forensic operator. On the other hand, movement may merely reflect the subject's habit; recall the importance of the calibration session discussed previously. Because feet are so mobile, it is important to observe their movement during the initial calibration to ensure that movement is not confused with emotion.

Hands are likewise often very active. Hand movements may be very telling and may express thought contrary to what the forensic operator hears. Indeed, certain facial expression training involves video clips of high-profile figures, such as politicians, who, while verbally expressing neutrality or respect regarding an opponent, will simultaneously rub his nose with his middle finger. Unconscious expression conveyed by hand movement speaks much louder than words alone.

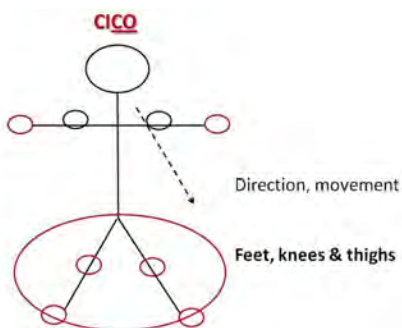
Hands can serve another purpose, as well, by communicating body temperature. Take, for example an experience that one of the authors of this issue had. The author was testifying in a long-term trial when a belligerent entered the courtroom, began shouting threats, and sped toward the female judge. The author intercepted and detained the belligerent. Upon making contact with him, the author noted the very warm, almost hot skin of the belligerent's hands, suggesting one of two problems: (1) the belligerent was extremely ill; or (2) the belligerent was under the influence of drugs, possibly methamphetamines or PCP. Fortunately, the deputies arrived shortly and took custody of the party.

Forensic operators can apply this technique every time they shake hands with someone and can take note of the subject's skin temperature. Cold hands could indicate stress because stress-induced constricted blood flow creates cold extremities.



**Figure 18**

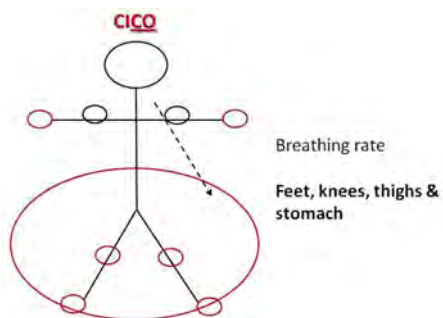
While maintaining a collective focus on the facial features, shoulders, chest, torso, diaphragm, feet, *and* hands, the forensic operator expands his vision to include the knees and thighs as indicated in the visual below. See Figure 19. Knees may be very telling and reflect an unconscious desire to avoid the forensic operator by pointing in a direction toward an exit or window, or away from the forensic operator.



**Figure 19**

While maintaining a collective focus on the facial features, shoulders, chest, torso, diaphragm, feet, hands, knees, *and* thighs the forensic operator expands his vision to include the stomach as indicated in the visual below. See Figure 20.

The stomach's proximity to the diagram may reflect changes in the rate and extent of breathing even more directly than chest expansion because the stomach is far more pliable than the rib cage.



**Figure 20**

While maintaining a collective focus on the facial features, shoulders, chest, torso, diaphragm, feet, hands, knees, thighs, *and* the stomach, the forensic operator is collectively observing virtually any possible physiological manifestation of stress as indicated in the following visual. See Figure 21.

Granted, the prospect of simultaneously collecting and evaluating the various indicators appears daunting. Fortunately though, the first step in effectively implementing the CICO technique is to realize how much the body says about its condition during observation. Consequently, the forensic operator should start with the easiest indicators, the eyes, and progress through the other indicators as described above. Over time, the indicators will become more intuitive, more telling, and more beneficial to the forensic operator.

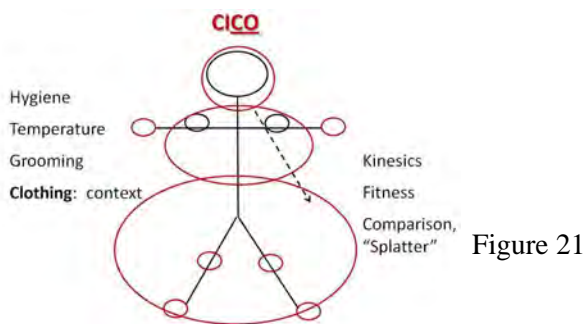


Figure 21

Figure 21

**5. Concentric-in:** The CI component is conceptually similar to the CO component except that it works in reverse. That is, before interrogating a subject, the forensic operator gathers information in smaller and smaller concentric “circles” regarding the subject. This information-gathering process arms the forensic operator with any and all facts that may be applicable to the interrogation.

For example, forensic operators are familiar with how circadian rhythms work. Consequently, knowing that a subject’s mental acuity will likely be at its lowest level around 3 p.m. (plus or minus approximately 45 minutes), the forensic operator can press harder with questioning during that time period. The subject will be most vulnerable and least able to efficiently fabricate lies. He will also find it more difficult to disguise the physiological effects of stress.

Law enforcement and the military routinely use these concepts in their work. Specifically, drug raids and special forces operations are often conducted at the point where unsuspecting targets are least likely to effectively respond to the aggression.

The authors work with a well-known Midwest family law attorney who is also a CPA. He typically represents the wife in divorce actions. During depositions of the husband, his staff brings high-sugar content candy and snacks into the conference room around 2:30 p.m. Inevitably, the deponent begins to eat some of the snacks. If necessary, the attorney begins to nibble on a snack, typically triggering the subject to begin eating as well. The combination of minimum circadian rhythms, a grueling day of deposition questions, the false post-lunch satisfaction, and a blood sugar “crash” render the party sufficiently vulnerable that the attorney begins a “full-court press” with questioning intensity, complexity, and other aggressive factors. He reports that the results are generally excellent.

The CI concept begins far removed from the subject and focuses at the global level with respect to events that may impact the subject. For example, an Indonesian national may be concerned about

relatives affected by an earthquake and a subsequent tsunami that was announced on the news the evening before. The concept is illustrated in the following visual. See Figure 22.

The forensic operator successively moves from global to the continent level, the region, state, county, city, and so on, giving consideration to the subject's residence and work location to anticipate impact during the questioning.



**Figure 22**

While *maintaining* awareness of global factors that may affect the subject, the forensic operator constricts his inquiry to the next level as illustrated in the following visual. See Figure 23.

The forensic operator will consider and apply any environmental identity with respect to the subject. A subject with a particular political affiliation gives the forensic operator the opportunity to interact using common terminology and other symbols. For example, keywords and phrases can be innocuously interspersed into questioning, thus suggesting to the subject that a certain personal affinity exists between the two parties. A perceived connection may be able to lessen the subject's internal protection mechanisms.



**Figure 23**

While maintaining awareness of global factors *and* environmental identity that may affect the subject, the forensic operator constricts his inquiry to the next level as illustrated in the following visual. See Figure 24.

The subject's career and related experiences, whether personal or professional, will have formed and shaped his thought processes and communication protocols. Consequently, the forensic operator can exploit them to his advantage.



**Figure 24**

While maintaining awareness of global factors, environmental identity, *and* career factors that may affect the subject, the forensic operator constricts his inquiry to the next level as illustrated in the following visual. See Figure 25.

The forensic operator considers the subject's chosen self-identity that is comprised of formal and informal education, life experiences, work history, marital and offspring events, and aspirations, especially with regard to failures.

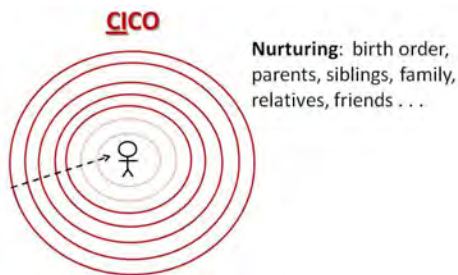
The authors once interrogated an accountant who aspired to be a CPA in public practice but was unable to pass the CPA exam despite taking it seven separate times. The authors sympathized with examples of parties experiencing similar difficulty, thus establishing a connection with the subject that benefited the interrogation process.



**Figure 25**

While maintaining awareness of global factors, environmental identity, career factors, *and* self identity factors that may affect the subject, the forensic operator constricts his inquiry to the next level as illustrated in the following visual. See Figure 26.

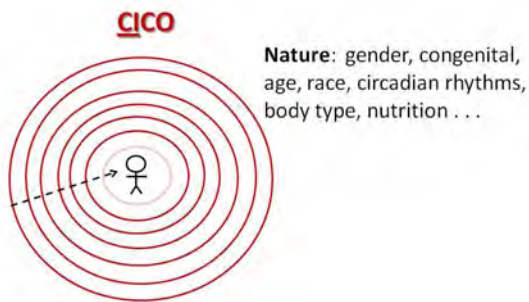
Despite the continuing debate regarding “nature versus nurture,” it is well known that certain events or life experiences can have significant impacts depending on the subject. For example, some studies have suggested that birth order is significant regarding personally accepted levels of responsibility. Thus, the youngest child may feel the least sense of personal responsibility among all his siblings. Likewise, a middle child may harbor varying degrees of identity conflict and resentment that the forensic operator can exploit.



**Figure 26**

While maintaining awareness of global factors, environmental identity, career factors, self identity, *and* nurturing factors that may affect the subject, the forensic operator constricts his inquiry to the next level as illustrated in the following visual. See Figure 27.

The “nature” of the subject is almost at the core of one’s personality, that is, male and female personality traits date from birth and may be reinforced or undermined throughout life. Congenital factors such as vision difficulties, age, and other physical characteristics will impact how the forensic operator conducts the interrogation. Other factors such as weather, time of day, circadian rhythms, and nutritional deficiencies, among others, also need to be considered by the forensic operator.



**Figure 27**

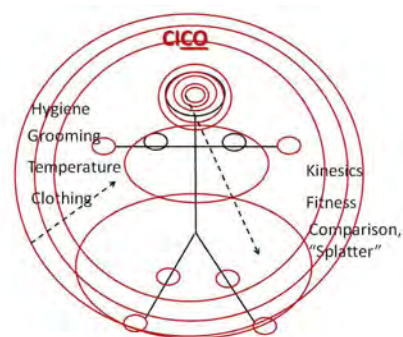
While maintaining awareness of global factors, environmental identity, career factors, self identity, nurturing, *and* nature factors that may affect the subject, the forensic operator constricts his inquiry to the next level as illustrated in the following visual. See Figure 28.

These are the factors that arise and directly relate to the purpose of the forensic operator’s interrogation. If the subject is indeed guilty, he is threatened by the forensic operator’s presence and will be compelled to take actions such as lying (and possibly other actions) to maximize his chances of self-preservation.



**Figure 28**

The forensic operator will maximize his effectiveness in face-to-face encounters by using the comprehensive CICO tools, techniques, methods, and methodologies as illustrated in the visual below. See Figure 29.



**Figure 29**

## **IV. Money investigation tools**

### **A. Background**

It is not necessary that AUSAs, investigators, and analysts function as forensic operators. Rather, they can be more effective by directing and overseeing the money-related analysis performed by qualified forensic operators. However, it is necessary for AUSAs, investigators, and analysts to understand the capabilities of financial forensics investigations because very few accountants, analysts, and investigators have adequate forensic training.

The logical starting point for AUSAs, investigators, and analysts is to understand the concepts of financial statements, their structure, and the evidence that can be “coaxed” out of subjects by using forensic tools, techniques, methods, and methodologies.

This section discusses actual results from a forensic assignment. Many of the specific tools and techniques deployed are illustrated, thus permitting their immediate application to current cases.

## B. Definitions

This section contains definitions that apply to financial statement content. Other sections contain additional definitions pertinent to the topic.

- **BIC.** A convenient acronym and mnemonic reflecting the three financial statements foundational to any matter, i.e. Balance sheet, Income statement, and Cash flow statement. The BIC diagram illustrates the interdependent nature of the financial statements. See Figure 33. DARRELL D. DORRELL & GREGORY A. GADAWSKI, FINANCIAL FORENSICS BODY OF KNOWLEDGE (Wiley & Sons 2012).
- **Financial statement.** “A financial statement is any report summarizing the financial condition or financial results of a person or organization on any date or for any period. Financial statements include the balance sheet, the income statement, and sometimes the statement of changes in financial position,” currently identified as the cash flow statement. BLACK’S LAW DICTIONARY 631 (6th ed. 1990).
- **ICE/SCORE.** A forensic methodology used to measure the reliability of financial information. DARRELL D. DORRELL & GREGORY A. GADAWSKI, FINANCIAL FORENSICS BODY OF KNOWLEDGE (Wiley & Sons 2012).
- **MIMO (Money-In/Money-Out).** An acronym describing a highly simplified conceptual methodology for forensic assignments. *Id.*
- **Self-reported financial information.** Data compiled or reported or both by any person or entity without the benefit of independent oversight or attestation. *Id.*

Financial statements and/or financial information are found in a wide variety of documents. Typical examples are presented below in order of increasing complexity and potential reliability. They include, but are not necessarily limited to the following:

- **Shoebox data.** Mid-sized business owners sometimes rely on a primary or a few key measurements (as they perceive them) to manage the business.
- **Checkbook management.** Many small business owners rely on a primary or a few key measurements (as they perceive them) to manage the business. The authors have encountered a wide variety of such practices.
- **Other Comprehensive Basis of Accounting (OCBOA).** This category, under SAS No. 62 (Statement on Accounting Standards) Special Reports, can be any one of the following:
  - A statutory basis of accounting (for example, a basis of accounting insurance companies use under the rules of a state insurance commission).
  - Income tax–basis financial statements. Financial statements prepared using definitive criteria having substantial support in accounting literature that the preparer applies to all material items appearing in the statements (such as the price level basis of accounting).
  - Tax-basis accounting. Even mid-size business owners rely on annual income tax returns as their primary business management tool. Tax-basis accounting may or may not be based on generally accepted accounting principles (GAAP), but is

typically cost-driven or fair market value-driven, depending on the respective facts and circumstances.

- **Compilation.** This form of financial statement is prepared by a CPA but contains virtually no reliance beyond the numbers provided by the client. It may be slightly better than client-prepared financials but not by much. It may contain footnotes or related disclosures.
- **Review.** This form of financial statement is prepared by a CPA and contains considerably more scrutiny than a compilation but still less than an audit. The reviewed financials prepared in accordance with GAAP contain footnotes explaining the financials.
- **Audit.** This form is the highest level of assurance, because it reflects a CPA's attestation of client-prepared financial statements. It contains the highest level of scrutiny and disclosure, for example, footnotes that can be obtained from a CPA. Still, recall that it reflects only an attestation of client-prepared financials and does not provide any assurance that fraud, earnings management, or earnings manipulation did not occur.

### **C. Financial statements**

The following content used throughout this issue of the Bulletin contains the actual, audited financial statements of a company that the authors investigated during a forensic assignment. The name has been changed to ABC, Inc., and potentially identifying content has been disguised.

This section describes and illustrates the three foundational financial statements necessary to execute forensic investigation: (1) the balance sheet; (2) the income statement; and (3) the cash flow statement. Fortunately, these three statements are structured and formatted in virtually the same way for all entities; for example, publicly held companies, privately held companies, government agencies, nongovernmental organizations, and nonprofits. These statements also hold true for non-domestic entities. In many closely held and/or small entities, only a balance sheet and income statement may be available, and the financial data produced, if any, is often sketchy. Thus, the cash flow statement must be constructed by a forensic operator.

The three financial statements are described below commensurate with a convenient acronym and mnemonic, "BIC," (Balance sheet, Income statement, Cash flow statement) to help remind AUSAs, investigators, and analysts that those three financial statements are foundational to any matter. The following BIC diagram illustrates the interdependent nature of the financial statements. See Figure 30.

The shareholders' equity statement reflected within the BIC diagram demonstrates that certain accounting entries can be used to conceal manipulation but the explanation is beyond the scope of this Bulletin and requires a forensic operator to analyze.



**Figure 30: Dorrell and Gadawski,**  
reprinted with permission by John  
Wiley & Sons, Inc.

**1. Balance sheet:** The balance sheet consists of three primary components: (1) assets; (2) liabilities; and (3) equity, as defined below.

“The balance sheet, sometimes called the statement of financial position, lists the company’s assets, liabilities, and stockholders’ equity (including dollar amounts) as of a specific moment in time.”  
ROGER H. HERMANSON & JAMES DON EDWARDS, FINANCIAL ACCOUNTING: A BUSINESS PERSPECTIVE 20 (Irwin/McGraw-Hill 1998).

“Assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events.” FINANCIAL ACCOUNTING STANDARDS BOARD, CONCEPT STATEMENT NO. 6, ELEMENTS OF FINANCIAL STATEMENTS (1985). Assets are typically categorized into current, long-term, and other classifications, such as goodwill. Current assets include cash, accounts receivable, inventory, and prepaid items, and are typically liquidated within one year or less. Long-term assets include land, buildings, fixtures, equipment, and their related accumulated depreciation. Other assets such as goodwill are expected to last much longer than one year and have an indefinite life. See Figure 31 for a table layout of balance sheet assets.

Assets:	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Current Assets:											
Cash											
Checking	5,046,000	5,265,000	8,857,000	7,152,000	8,857,000	9,972,000	10,587,000	9,752,000	9,051,000	9,484,000	9,331,000
Marketable Securities	452,000	427,000	260,000	189,000	143,000	275,000	26,000	39,000	20,000	22,000	24,000
Total Cash	5,498,000	5,692,000	9,097,000	7,341,000	9,000,000	10,247,000	10,613,000	9,791,000	9,071,000	9,506,000	9,355,000
Accounts Receivable	1,879,000	2,790,000	2,113,000	3,038,000	3,532,000	3,451,000	4,066,000	5,355,000	4,681,000	4,573,000	7,773,000
Inventory	15,867,000	17,931,000	19,355,000	20,707,000	21,186,000	22,273,000	23,672,000	25,709,000	27,994,000	30,666,000	34,983,000
Other Current Assets	1,236,000	1,555,000	1,594,000	2,000,000	2,209,000	2,133,000	2,161,000	2,681,000	2,600,000	3,714,000	4,912,000
Total Current Assets	24,480,000	27,968,000	32,159,000	33,086,000	35,927,000	38,104,000	40,512,000	43,536,000	44,346,000	48,459,000	57,025,000
Fixed Assets - Net	64,416,000	65,471,000	71,456,000	78,479,000	82,986,000	79,502,000	69,919,000	70,554,000	79,567,000	83,029,000	83,160,000
Other Assets											
Intangible Assets - Net	2,057,000	4,144,000	5,629,000	8,641,000	8,274,000	8,008,000	13,193,000	19,238,000	24,625,000	30,806,000	40,535,000
Other Non-Current Assets											
Investments	1,914,000	3,796,000	3,927,000	4,003,000	3,671,000	4,648,000	7,381,000	10,151,000	10,802,000	11,886,000	6,796,000
Reorganization value excess	-	-	-	-	-	-	7,253,000	7,253,000	7,253,000	7,253,000	-
Deferred Taxes	-	974,000	1,055,000	925,000	663,000	650,000	333,000	311,000	-	-	-
Other Assets	6,762,000	3,810,000	2,850,000	4,677,000	4,115,000	3,623,000	4,994,000	4,646,000	4,930,000	4,167,000	3,027,000
Total Other Non-Current Assets	8,676,000	8,580,000	7,832,000	9,605,000	8,449,000	8,921,000	19,961,000	22,361,000	22,985,000	23,306,000	9,823,000
Total Other Assets	10,733,000	12,724,000	13,461,000	18,246,000	16,723,000	16,929,000	33,154,000	41,599,000	47,610,000	54,112,000	50,358,000
Total Assets:	99,629,000	106,165,000	117,076,000	129,811,000	135,636,000	134,535,000	143,585,000	155,689,000	171,523,000	185,800,000	190,541,000

**Figure 31**

“Liabilities are probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events.” *Id.* Liabilities are typically categorized into current, long-term, and other classifications, such as contingent liabilities. Current liabilities include accounts payable, accrued expenses, lines of credit, and current portions of long-term debt and are typically liquidated within one year or less. Long-term liabilities include long-term debt and are expected to last longer than one year. Other liabilities are seldom identified because they can consist of contingent liabilities, such as pending lawsuits.

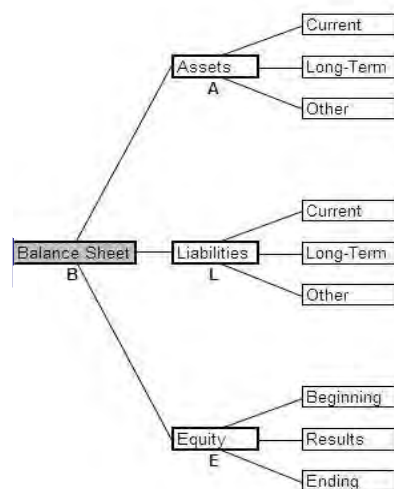
“Equity or net assets is the residual interest in the assets of an entity that remains after deducting its liabilities.” *Id.* If liabilities exceed assets, a negative equity results and the entity is technically insolvent, depending on other measures. See Figure 32 for a layout of balance sheet liabilities and equity.

Liabilities and Equity:	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Liabilities											
Current Liabilities											
Accounts Payable	5,902,000	9,075,000	10,262,000	11,814,000	10,301,000	11,937,000	13,295,000	11,860,000	14,960,000	17,605,000	21,614,000
Outstanding Checks	2,362,000	1,659,000	2,332,000	3,172,000	6,851,000	7,058,000	4,399,000	7,590,000	4,560,000	5,591,000	4,553,000
Notes Payable	2,000,000	2,000,000	5,000,000	5,500,000	4,000,000	2,000,000	3,000,000	7,000,000	10,000,000	12,200,000	13,175,000
Securities Margin Account	-	-	-	-	-	-	-	-	-	-	-
Current Portion - LTD	5,865,000	8,641,000	11,350,000	6,722,000	9,504,000	11,797,000	6,038,000	6,220,000	8,049,000	7,792,000	5,272,000
Current Portion Deferred Inc. Tax	479,000	513,000	388,000	482,000	521,000	451,000	471,000	466,000	-	-	-
Income Taxes Payable	-	116,000	149,000	81,000	21,000	1,676,000	2,492,000	1,593,000	3,870,000	2,667,000	741,000
Accrued Liabilities	4,139,000	4,530,000	5,208,000	5,283,000	5,743,000	5,826,000	5,635,000	6,552,000	8,709,000	9,743,000	10,125,000
Total Current Liabilities	20,745,000	26,534,000	34,689,000	33,054,000	36,941,000	40,715,000	35,330,000	41,281,000	50,148,000	55,598,000	55,480,000
Long-Term Liabilities											
Total Long-Term Liabilities	55,434,000	53,538,000	53,579,000	67,002,000	66,935,000	55,527,000	70,863,000	72,529,000	75,293,000	91,310,000	95,183,000
Other Liabilities											
Deferred Income Taxes	5,825,000	5,379,000	6,365,000	6,716,000	7,268,000	7,920,000	8,295,000	8,770,000	8,546,000	8,776,000	8,874,000
Total Other Liabilities	5,825,000	5,379,000	6,365,000	6,716,000	7,268,000	7,920,000	8,295,000	8,770,000	8,546,000	8,776,000	8,874,000
Total Liabilities	82,004,000	85,451,000	94,633,000	106,772,000	111,144,000	104,162,000	114,488,000	122,580,000	133,987,000	155,684,000	159,537,000
Equity											
Preferred Stock Series A-2	-	-	-	-	-	-	9,500,000	9,500,000	9,500,000	-	-
Preferred Stock Series B	-	-	-	-	-	-	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000
Common Stock Class C	-	-	-	-	-	-	905,000	813,000	813,000	813,000	813,000
Common Stock Class D	-	-	-	-	-	-	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000
Common Stock, no par value	100,000	100,000	100,000	100,000	100,000	100,000	-	-	-	-	-
Minority Interest in Other Entities	-	-	-	-	-	-	-	-	-	-	97,000
Add'l Paid-In Capital	4,302,000	4,415,000	4,573,000	4,634,000	4,879,000	4,814,000	-	-	-	79,000	368,000
Investment Valuation Allowance	( 1,046,000)	904,000	1,037,000	317,000	( 170,000)	( 399,000)	( 308,000)	( 81,000)	349,000	905,000	905,000
Retained Earnings	14,269,000	15,293,000	16,733,000	17,988,000	19,683,000	25,858,000	21,255,000	-	3,877,000	7,874,000	9,119,000
Common Dividend Paid	-	-	-	-	-	-	-	( 540,000)	( 720,000)	( 560,000)	-
Preferred Dividend Paid	-	-	-	-	-	-	( 2,582,000)	( 990,000)	( 1,320,000)	( 352,000)	-
Stock Redemptions	-	-	-	-	-	-	( 39,234,000)	( 15,000)	( 243,000)	( 600,000)	-
Quasi Reorganization Adjustment	-	-	-	-	-	-	16,449,000	-	-	-	-
Net Income	-	-	-	-	-	-	4,112,000	5,420,000	6,280,000	2,757,000	702,000
Total Equity	17,625,000	20,712,000	22,443,000	23,039,000	24,492,000	30,373,000	29,097,000	33,109,000	37,536,000	29,916,000	31,004,000
Total Liabilities and Equity:	99,629,000	106,163,000	117,076,000	129,811,000	135,636,000	134,535,000	143,585,000	155,689,000	171,523,000	185,600,000	190,541,000

**Figure 32**

The asset portion of the balance sheet consisting of current, long-term, and other assets is shown as Figure 33. The liabilities and equity portion of the balance sheet consisting of current liabilities, long-term liabilities, and equity are also shown on Figure 33.

The following tree diagram illustrates the logical composition of the balance sheet. For example, current assets, long-term assets, and other assets comprise the total assets of the balance sheet. Likewise, current liabilities, long-term liabilities on other liabilities comprise the total liabilities of the balance sheet. Finally, beginning equity, results from operations, and ending equity comprise the total equity in the balance sheet. See Figure 33.



**Figure 33: Dorrell and Gadawski, reprinted with permission by John Wiley & Sons, Inc.**

**2. Income statement:** The income statement consists of three primary components: (1) revenues; (2) costs; and (3) expenses as defined below.

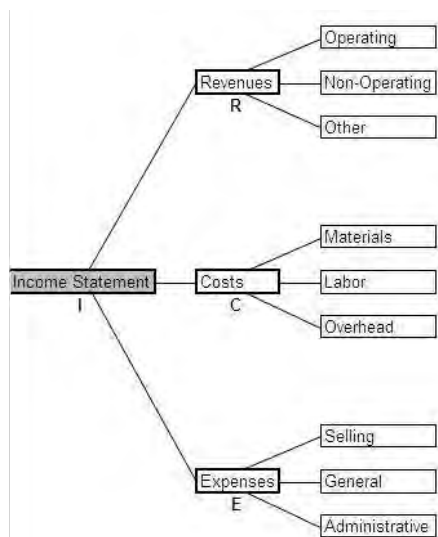
“The income statement, sometimes called an Earnings Statement or Profit and Loss (P&L) Statement, reports the profitability of a business organization for a stated period of time. In accounting, profitability is measured for a period by comparing the revenues generated with the expenses incurred to produce the revenues.” HERMANSON, *supra* at 18. “Revenues are inflows or other enhancements of assets of an entity or settlements of its liabilities (or a combination of both) from delivering or producing goods, rendering services, or other activities that constitute the entity’s ongoing major or central operations.” *Id.* See Figure 34 below for table layout of the income statement.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Revenues	204,035,000	231,630,000	261,983,000	282,684,000	316,135,000	323,807,000	341,198,000	361,435,000	375,711,000	423,455,000	477,275,000
Cost of Goods Sold											
Merchandise Purchased	149,829,000	169,118,000	191,578,000	204,743,000	227,159,000	229,161,000	242,177,000	255,003,000	259,960,000	293,102,000	326,870,000
Freight		1,182,000	1,719,000	1,896,000	2,062,000	2,109,000	2,360,000	2,671,000	2,838,000	3,854,000	-
Trucking Expenses	444,000	59,000	-	-	-	-	-	-	-	-	-
Less Trucking Revenue	( 641,000 )	( 107,000 )	-	-	-	-	-	-	-	-	-
Laboratory Payouts	97,000	( 4,000 )	( 33,000 )	( 20,000 )	( 54,000 )	( 32,000 )	( 35,000 )	( 41,000 )	( 38,000 )	( 40,000 )	-
Discounts given	23,000	33,000	41,000	48,000	193,000	339,000	345,000	222,000	189,000	350,000	-
Less Discount Earned	( 1,635,000 )	( 3,229,000 )	( 4,148,000 )	( 3,845,000 )	( 4,046,000 )	( 4,410,000 )	( 4,283,000 )	( 5,526,000 )	( 5,201,000 )	( 5,888,000 )	-
Less Rebates Earned	( 2,137,000 )	( 2,288,000 )	( 2,673,000 )	( 2,771,000 )	( 2,901,000 )	( 3,581,000 )	( 3,856,000 )	( 5,469,000 )	( 5,373,000 )	( 5,580,000 )	-
COGS Depreciation (trucks)	43,000	16,000	-	-	-	-	-	-	-	-	-
Inventory Change	-	-	-	-	-	-	-	-	-	-	-
Total Cost of Goods Sold	146,023,000	164,780,000	186,484,000	200,051,000	222,413,000	223,586,000	236,708,000	246,860,000	252,375,000	285,798,000	326,870,000
Gross Profit	58,012,000	66,850,000	75,499,000	82,633,000	93,722,000	100,221,000	104,490,000	114,575,000	123,336,000	137,657,000	150,405,000
Operating Expenses											
Selling Expenses	43,972,000	49,095,000	55,874,000	61,801,000	71,011,000	72,810,000	77,640,000	84,907,000	88,564,000	102,901,000	129,956,000
General and Administrative	2,722,000	3,458,000	3,902,000	4,558,000	4,995,000	5,594,000	6,747,000	7,378,000	8,388,000	9,692,000	-
Total Operating Expenses	46,694,000	52,553,000	59,776,000	66,359,000	76,006,000	78,404,000	84,387,000	92,285,000	96,952,000	112,593,000	129,956,000
Officers' Compensation											
Salaries	650,000	691,000	766,000	805,000	881,000	938,000	840,000	830,000	795,000	521,000	-
Bonuses	-	-	-	-	-	-	-	-	-	-	-
Total Officers' Compensation	650,000	691,000	766,000	805,000	881,000	938,000	840,000	830,000	795,000	521,000	-
Operating EBITDA	10,668,000	13,606,000	14,957,000	15,469,000	16,835,000	20,879,000	19,263,000	21,460,000	25,589,000	24,543,000	20,449,000
Depreciation and Amortization											
Depreciation	3,680,000	3,982,000	4,353,000	4,570,000	5,124,000	5,216,000	5,487,000	5,214,000	5,778,000	6,681,000	7,310,000
Amortization	375,000	455,000	576,000	658,000	799,000	276,000	284,000	302,000	274,000	329,000	-
Total Depreciation and Amortization	4,055,000	4,437,000	4,929,000	5,228,000	5,923,000	5,492,000	5,771,000	5,516,000	6,052,000	7,010,000	7,310,000
Operating - EBIT	6,613,000	9,169,000	10,028,000	10,241,000	10,912,000	15,387,000	13,512,000	15,944,000	19,537,000	17,533,000	13,139,000
Interest Expense	5,202,000	6,255,000	6,181,000	7,275,000	7,283,000	6,117,000	5,445,000	8,451,000	9,097,000	12,158,000	13,115,000
Operating Income/(Loss)	1,411,000	2,914,000	3,847,000	2,966,000	3,629,000	9,270,000	8,067,000	7,493,000	10,440,000	5,375,000	24,000
Miscellaneous Income/(Expense)											
Patronage dividends	-	-	-	205,000	265,000	404,000	474,000	839,000	744,000	901,000	918,000
Dividend and interest Income	96,000	36,000	56,000	89,000	109,000	68,000	34,000	58,000	53,000	144,000	10,000
Income (loss) from investment in other entities	( 1,000 )	( 85,000 )	( 65,000 )	( 17,000 )	( 16,000 )	( 292,000 )	( 456,000 )	( 592,000 )	( 508,000 )	( 2,047,000 )	-
Gain (loss) on sale of investments	22,000	7,000	11,000	14,000	-	-	( 219,000 )	-	14,000	-	-
Gain (loss) on disposition of property	( 15,000 )	( 144,000 )	37,000	133,000	( 100,000 )	455,000	871,000	14,000	576,000	( 22,000 )	669,000
Gain (loss) on sale of intangibles	-	-	-	-	-	-	75,000	-	-	-	-
Debt restructuring expense	( 854,000 )	( 1,173,000 )	( 1,173,000 )	( 1,534,000 )	( 580,000 )	( 580,000 )	( 580,000 )	( 228,000 )	-	( 228,000 )	( 228,000 )
Plant closure/opening expense	-	-	-	-	( 554,000 )	-	-	-	( 388,000 )	( 247,000 )	( 356,000 )
Net unrealized gain (loss) mktble. Securities	40,000	( 27,000 )	( 156,000 )	( 37,000 )	( 38,000 )	132,000	312,000	13,000	( 308,000 )	2,000	2,000
Other Expense	-	-	-	-	-	-	-	( 10,000 )	-	-	25,000
Total Miscellaneous Income/(Expense)	( 712,000 )	( 1,386,000 )	( 1,290,000 )	( 1,147,000 )	( 914,000 )	187,000	436,000	179,000	( 27,000 )	( 1,497,000 )	1,040,000
Pre-Tax Income	699,000	1,528,000	2,557,000	1,819,000	2,715,000	9,457,000	8,503,000	7,672,000	10,413,000	3,878,000	1,064,000
Less: Income Taxes	231,000	504,000	1,117,000	564,000	1,020,000	3,282,000	4,391,000	2,252,000	4,133,000	1,121,000	362,000
Net Income/(Loss)	468,000	1,024,000	1,440,000	1,255,000	1,695,000	6,175,000	4,112,000	5,420,000	6,280,000	2,757,000	702,000
Per Income Statements											
	468,000	1,024,000	1,440,000	1,255,000	1,695,000	6,175,000	4,112,000	5,420,000	6,280,000	2,757,000	702,000

**Figure 34**

Costs are sacrifices of assets that result in the generation of revenues. Costs in manufacturing operations are comprised of materials, labor, and overhead. Overhead is typically applied in some manner related to the operations of the business, such as labor hours, labor dollars, machine time, and other techniques. Costs in retail operations are comprised of purchased merchandise.

“Expenses are period outflows or other using up of assets or incurrence of liabilities (or a combination of both) from delivering goods, rendering services, or carrying out other activities that constitute the entity’s ongoing major or central operations.” *Id.* They are typically categorized within classifications of sales, general, and administrative expenses.



The following tree diagram illustrates the logical composition of the income statement. For example, operating revenues, non-operating revenues, and other revenues comprise the total revenue of the income statement. Likewise, materials, labor, and overhead comprise the total costs of the income statement. Finally, selling and general and administrative expenses comprise the total expenses of the income statement. See Figure 35.

In like manner, the revenues, costs, and expenses determine the net income or loss of the business.

**3. Cash flow statement:** The cash flow statement consists of three primary components: (1) operating cash; (2) investing cash; and (3) financing cash as defined below.

“The cash flow statement shows the cash inflows and cash outflows from operating, investing, and financing activities. HERMANSON, *supra* at 20. See Figure 36 for a table layout of the cash flow statement.

**Figure 35: Dorrell and Gadawski, reprinted with permission by John Wiley & Sons, Inc.**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Cash Provided by (Used for) Operations:</b>										
Net Income (Loss)	1,024,000	1,440,000	1,255,000	1,695,000	6,175,000	4,112,000	5,420,000	6,280,000	2,757,000	
COGS Depreciation (trucks)	16,000	-	-	-	-	-	-	-	-	-
Depreciation	3,982,000	4,355,000	4,570,000	5,124,000	5,216,000	5,467,000	5,214,000	5,778,000	6,681,000	
Amortization	455,000	576,000	658,000	799,000	276,000	384,000	302,000	274,000	329,000	
(Increase) Decrease in Accounts Receivable	( 911,000)	677,000 (	925,000) (	494,000)	81,000 (	615,000) (	1,289,000)	674,000	108,000	
(Increase) Decrease in Inventory	( 2,064,000) (	1,424,000) (	1,352,000) (	479,000) (	1,087,000) (	1,399,000) (	2,037,000) (	2,285,000) (	2,672,000)	
(Increase) Decrease in Other Current Assets	( 319,000) (	39,000) (	406,000) (	309,000)	76,000 (	28,000) (	520,000)	81,000 (	1,114,000)	
(Increase) Decrease in Other Non-Current Assets	96,000	748,000 (	1,773,000)	1,156,000 (	472,000) (	11,040,000) (	2,400,000) (	624,000) (	321,000)	
Increase (Decrease) in Current Liabilities	3,011,000	5,446,000	2,993,000	1,105,000	1,511,000	344,000	5,769,000	7,038,000	5,707,000	
Increase (Decrease) in Long-Term Liabilities	-	-	-	-	-	-	-	-	-	
Increase (Decrease) in Other Liabilities	( 446,000)	986,000	351,000	552,000	652,000	375,000	476,000 (	224,000)	230,000	
<b>Total Cash Provided by (Used for) Operations:</b>	<b>4,844,000</b>	<b>12,763,000</b>	<b>5,371,000</b>	<b>9,248,000</b>	<b>12,428,000</b>	<b>( 2,500,000)</b>	<b>10,935,000</b>	<b>16,992,000</b>	<b>11,705,000</b>	
<b>Cash Provided by (Used for) Investing Activities:</b>										
Net (Additions to) Disposal of Fixed Assets - Net	( 5,052,000) (	10,339,000) (	11,593,000) (	9,631,000) (	1,732,000)	4,116,000 (	5,848,000) (	14,791,000) (	10,143,000)	
Net (Additions to) Disposal of Intangible Assets - Net	( 2,543,000) (	2,060,000) (	3,670,000) (	432,000) (	10,000)	5,469,000) (	6,348,000) (	5,662,000) (	6,510,000)	
<b>Total Cash Provided by (Used for) Investing Activities:</b>	<b>( 7,595,000) (</b>	<b>12,399,000) (</b>	<b>15,263,000) (</b>	<b>10,063,000) (</b>	<b>1,742,000) (</b>	<b>1,353,000) (</b>	<b>12,196,000) (</b>	<b>20,453,000) (</b>	<b>16,653,000)</b>	
<b>Cash Provided by (Used for) Financing Activities:</b>										
Net Additions to (Reductions in) Notes Payable	882,000	2,750,000	8,795,000	2,713,000 (	9,145,000)	9,607,000	1,847,000	4,594,000	13,760,000	
Net Investment in (Distribution of) Preferred Stock Series A-2	-	-	-	-	-	9,500,000	-	-	( 9,500,000)	
Net Investment in (Distribution of) Preferred Stock Series B	-	-	-	-	-	7,000,000	-	-	-	
Net Investment in (Distribution of) Common Stock Class C	-	-	-	-	-	905,000 (	92,000)	-	-	
Net Investment in (Distribution of) Common Stock Class D	-	-	-	-	-	12,000,000	-	-	-	
Net Investment in (Distribution of) Common Stock, no par value	-	-	-	-	( 100,000)	-	-	-	-	
Minority Interests in Other Entities	-	-	-	-	-	-	-	-	-	
Net Investment in (Distribution of) Add'l Paid-In Capital	113,000	158,000	61,000	245,000 (	65,000) (	4,814,000)	-	-	79,000	
Net Investment in (Distribution of) Investment Valuation Allowance	1,950,000	135,000 (	720,000) (	487,000) (	229,000)	91,000	227,000	430,000	556,000	
Net Investment in (Distribution of) Retained Earnings	-	-	-	-	-	( 8,715,000) (	26,675,000) (	2,403,000)	1,240,000	
Net Investment in (Distribution of) Common Dividend Paid	-	-	-	-	-	-	( 540,000) (	180,000)	360,000	
Net Investment in (Distribution of) Preferred Dividend Paid	-	-	-	-	-	( 2,582,000)	1,592,000 (	330,000)	768,000	
Net Investment in (Distribution of) Stock Redemptions	-	-	-	-	-	( 39,234,000)	39,221,000 (	230,000) (	357,000)	
Net Investment in (Distribution of) Quasi Reorganization Adjustment	-	-	-	-	-	16,449,000 (	16,449,000)	-	-	
Net Investment in (Distribution of) Net Income	-	-	-	-	-	4,112,000	1,308,000	860,000 (	3,523,000)	
<b>Total Cash Provided by (Used for) Financing Activities:</b>	<b>2,945,000</b>	<b>3,041,000</b>	<b>8,136,000</b>	<b>2,473,000 (</b>	<b>9,439,000)</b>	<b>4,219,000</b>	<b>439,000</b>	<b>2,741,000</b>	<b>5,383,000</b>	
<b>Total Increase (Decrease) in Cash</b>	<b>194,000</b>	<b>3,405,000 (</b>	<b>1,756,000)</b>	<b>1,659,000</b>	<b>1,247,000</b>	<b>366,000 (</b>	<b>822,000) (</b>	<b>720,000)</b>	<b>435,000</b>	
<b>Cash Balance at Beginning of Year</b>	<b>5,498,000</b>	<b>5,692,000</b>	<b>9,097,000</b>	<b>7,341,000</b>	<b>9,000,000</b>	<b>10,247,000</b>	<b>10,613,000</b>	<b>9,791,000</b>	<b>9,071,000</b>	
<b>Cash Balance at End of Year</b>	<b>5,692,000</b>	<b>9,097,000</b>	<b>7,341,000</b>	<b>9,000,000</b>	<b>10,247,000</b>	<b>10,613,000</b>	<b>9,791,000</b>	<b>9,071,000</b>	<b>9,506,000</b>	

**Figure 36**

Operating activities include all transactions and other events that are not defined as investing or financing activities. Operating activities generally involve producing and delivering goods and providing services. Cash flows from operating activities are generally the cash effects of transactions and other events that enter into the determination of net income. FINANCIAL ACCOUNTING STANDARDS BOARD, FINANCIAL ACCOUNTING STANDARD 95, STATEMENT OF CASH FLOWS (1987).

Investing activities include making and collecting loans and acquiring and disposing of debt or equity instruments and property, plant, and equipment and other productive assets, that is, assets held for or used in the production of goods or services by the enterprise (other than materials that are part of the enterprise's inventory). *Id.*

“Financing activities include obtaining resources from owners and providing them with a return on, and a return of, their investment; borrowing money and repaying amounts borrowed, or otherwise settling the obligation; and obtaining and paying for other resources obtained from creditors on long-term credit.” *Id.*

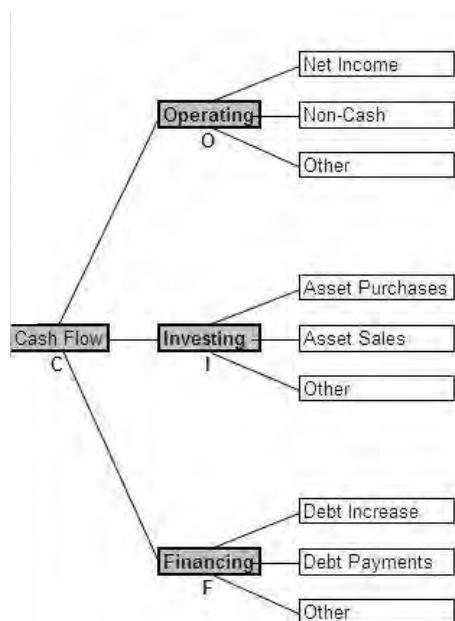
Note that the cash flow statement is perhaps the single most powerful forensic accounting tool to deploy in virtually all financial investigations. Certain critical transactions will show up nowhere else, unless a cash flow statement is prepared; for example, cash distributions to or infusions from owners and outside parties.

Unfortunately, the cash flow statement is very “young” relative to the balance sheet and income statement. The balance sheet and income statements can be traced to Luca Pacioli, a 15th century Franciscan Monk credited with formalizing the double-entry method of accounting in his 1494 treatise, SUMMA DE ARITHMETICA, GEOMETRIA, PROPORTIONI ET PROPORTIONALITA. The title translates to, “Everything about arithmetic, geometry, and proportion.” It was written as a digest and guide to existing mathematical knowledge and bookkeeping was only one of the five topics covered. The SUMMA's 36 short chapters on bookkeeping, titled, “De Computis et Scripturis,” meaning “of reckonings and writings,” were added in “order that the subjects of the most gracious Duke of Urbino may have complete

instructions in the conduct of business” and to “give the trader without delay information as to his assets and liabilities.” All quotes come from the translation by J.B. GEIJSBEEK, ANCIENT DOUBLE ENTRY BOOKKEEPING: LUCAS PACIOLI’S TREATISE (Published by the author 1914).

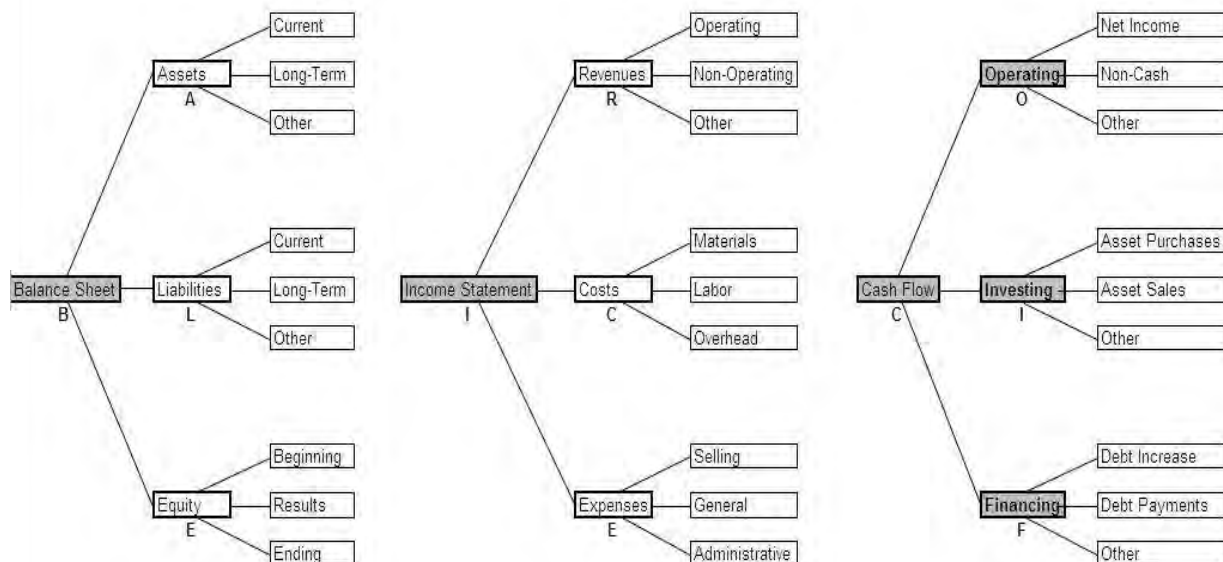
The cash flow statement was only recently mandated by the Financial Accounting Standards Board (FASB) in 1987. Therefore, the 500-year-old familiarity of the balance sheet and income statement stand in stark contrast to the mere 25-year tenure of the cash flow statement. Simply put, even skilled accountants often lack a deep understanding of the cash flow statement’s powerful capabilities and applications.

The following tree diagram illustrates the logical composition of the cash flow statement. For example, net income, non-cash items, and other items comprise the operating cash flows of the cash flow statement. Likewise, asset purchases, asset sales, and other items comprise the investing cash flows of the cash flow statement. Finally, the increases, debt payments, and other items comprise the financing cash flows of the cash flow statement and, in like manner, the operating and investing and financing cash flows determine the cash increase or decrease for the business. See Figure 37.



**Figure 37: Dorrell and Gadawski, reprinted with permission by John Wiley & Sons, Inc.**

The components of the various financial statements (for example, assets, liabilities, and equity on the balance sheet) are consistent regardless of entity type. The following tree diagram simply illustrates the logical structure of the components leading to each of the statements. See Figure 38.



**Figure 38: Dorrell and Gadawski, reprinted with permission by John Wiley & Sons, Inc.**

#### **D. Forensic indices**

Historically, earnings manipulation matters have been characterized by two types of “pick and shovel” work by accountants. First, the financial statements were “analyzed” by using rudimentary techniques such as common sizing, horizontal analysis, vertical analysis, trending analysis, ratio analysis, and similar methods. These techniques reflect the dictum, “Not knowing what to do, one does what one knows.”

Those techniques have their place in certain circumstances. However, they were historically developed by lenders seeking to measure a borrowing company’s capability to repay its incurred debt. Also, techniques were compared against presumptively “similar” entities hopefully (and occasionally) identifying potential discrepancies. Consequently, significant emphasis focused on assessments of collateral capacity and comparisons of coverage. Such traditional and debt-focused analysis seldom yields forensic results without additional tools.

The need for tools to assess the veracity of earnings has been long recognized in the financial discipline, at least since 1909, and likely much longer. *See* AMERICAN SCHOOL OF CORRESPONDENCE, CYCLOPEDIA OF COMMERCE, ACCOUNTANCY, BUSINESS ADMINISTRATION, Vol. 10 (American Technical Society 1909).

In 1934, Benjamin Graham and David Dodd, Columbia University professors, codified the foundations of financial analysis in their 736 page book. BENJAMIN GRAHAM & DAVID DODD, SECURITY ANALYSIS: THE CLASSIC 1934 EDITION 350 (McGraw-Hill 1934). They assessed reported earnings veracity by multiplying the earnings against a suitable “coefficient of quality” derived from various qualitative and quantitative indicators of the subject company. For example, a reported earnings amount of \$1 million would be adjusted downward by applying a coefficient of quality approximating .73 and arriving at a “realistic” earnings amount of \$731,000. *Id.* Warren Buffet wrote that he considers this book to be one of the four most treasured books that he owns.

Since Graham and Dodd published this book, thousands of academicians, analysts, researchers, and others have published hundreds of powerful methods to forensically analyze reported earnings. Curiously, few of the methods have made their way into the accounting or forensic investigation realm. The following content highlights several of the more straightforward methods, presented in alphabetical order, after discussing the CRO technique. It is presented first because it is arguably more intuitive for a non-financial reader. Also, non-quantitative techniques such as Lev-Thiagarajan's "12 Signals" and Piotroski's "F-Score" are included because non-quantitative methods are excellent platforms from which to intuitively progress to more quantitative methods.

Because many of the techniques measure period-to-period (for example, year-to-year, month-to-month, quarter-to-quarter, etc.) changes by indexing the measurements, they are individually referred to as an index and collectively referred to as indices. Indexing can be defined as the relative comparison of a measurement to itself at a different period of time. A common example is annual Gross Domestic Product (GDP) measurements that determine purchasing power increases or declines relative to a given year. Such measures are known as real and nominal GDP used to measure inflation. The terms index and indices are important because they differentiate results from the more common vernacular of "ratios."

Forensic operators use the indices in a manner similar to a physician diagnosing his patient's physical health. The physician orders a complete workup, ranging from simple measurements such as height and weight, to more complex measurements that require laboratory analysis, such as blood chemistry, EKGs, and related tests. The physician assesses the panoply of technical and emotional (such as patient disposition) results to arrive at a diagnosis and prognosis. Forensic investigation should be executed in a like manner, utilizing all available technology to gather quantitative and qualitative data to present evidence and reach a conclusion regarding financial statement veracity.

The following forensic techniques cannot be mechanically deployed—the aggregate results are indicative and not probative, certain exceptions notwithstanding. The indices are generally diagnostic, pointing forensic operators in directions promising results. Furthermore, few forensic assignments merit application of all the indices; thus, seldom are all indices required during an assignment.

However, the indices provide pointers for investigative drill-downs into successive levels of details; for example, from financial statements to account groupings, to the general ledger, to the journal entries, to the supporting documents, to the authorization trail and related evidence. Moreover, the indices lend themselves to visuals as contained in this issue of the *Bulletin*. Visuals can be persuasive to triers of fact and useful in supplemental briefs, expert reports, and testimony.

All of the following content was developed during an actual forensic assignment executed by the authors. The authors were asked to conduct a valuation assignment unrelated to earnings manipulation. However, they routinely apply forensic indices to the requisite economic benefit stream in even simple matters. During such analysis it became clear that manipulation had occurred within the audited financial statements. The findings were presented to the board of directors who initiated litigation proceedings against the chief financial officer.

He had used arcane and complex accounting manipulation through a quasi-reorganization technique to temporarily declare the company insolvent. That permitted him to transact a new capital structure whereby he "gifted" himself a one-third interest in the company. He ascribed no "value" to the transaction because the company was officially insolvent. After the structure was in place, he re-booked the assets to their appraised value and voilà!, the company was once again solvent. The entire transaction was simultaneously executed, thus no risk of debt default existed.

The transaction involved certain debt covenants that he needed to meet to give the appearance of compliance. Consequently, he manipulated the financial statements for a few years before the authors became involved. Prior to the authors' involvement, the manipulation had not been detected or suspected by the company's long-time auditors, sophisticated lenders (and their auditors), affiliated companies, major vendors, or shareholders.

The following content used throughout this issue contains the actual audited financial statements of the company that the authors investigated during their forensic assignment. As mentioned previously, the name of the company has been changed to ABC, Inc., and potentially identifying content has been disguised. Regardless, the power of the indices is illustrated because virtually all of the results point to the *same* period of manipulation, that is, 2007-2008. The span results from the various techniques inherently identifying leading, coincident, and lagging indicators. (Note: Annual financial statements will indeed divulge their manipulation but quarterly or monthly financial statements—depending on the extent of detail and other factors—are often more definitive.)

Prosecutors, investigators, and analysts are encouraged to consider financial statements as “written confessions.” That is, financial statements “confess” to telling the truth or lying. Thus, prosecutors, investigators, and analysts can use the contents of this issue to test for earnings manipulation.

Certain facts and circumstances apply to the ABC, Inc. financial statements and contents. First, the company was closely held, had been audited by the same auditors for many years, and had received unqualified, that is, “clean” opinions. Next, the accounting staff was very skilled, but the CFO maintained certain calculations and journal entries as his responsibility commensurate with accounting period closings. Also, the company's financial statements were reported on a consolidated basis to reflect its various subsidiaries and affiliates that required recognition of minority interests. Furthermore, ABC, Inc. had been acquiring many smaller operations for several years, typically absorbing them through various combinations of cash purchase, debt restructurings, and stock transactions that occasionally required recognition of intangible assets such as goodwill. Moreover, the earnings manipulation was discovered during 2010. Therefore, 2011 results include substantial financial statement adjustments and are disregarded for purposes of this analysis. Finally, ABC, Inc. was predominantly a retail operation, so inventory was the critical revenue generating asset.

Regarding the forensic indices, recall that the results of the indices are indicative and not probative. Occurrence of an unusual indicator does not necessarily reflect earnings manipulation. However, unusual occurrences guide the way for forensic operator investigation and are often sufficient “reasonable cause” to persuade triers of fact regarding subsequent actions. Also, forensic operators require specific training in a wide range of financial forensics to enable them to skillfully derive and interpret results. Finally, forensic indices exhibit “leading, coincident, and lagging” measurements inherent to the nature of the underlying data. Specifically, ABC, Inc.'s CFO manipulated earnings for 2007 with most indices pointing to 2007, while others pointed to 2008, reflecting residual impacts.

The authors will provide a copy of the Excel files that contain the underlying calculations to a limited number of agencies requesting a copy for their library.

**1. CRO (Cash Realized from Operations):** This index measures the correlation between net income and cash from operations, thus comparing accrual net income (or loss) with cash net income (or loss). It is self-evident that accrual net income and cash net income should be rather closely correlated—discrepancies suggest earnings manipulation. This comparison identifies inordinate timing differences between accrual accounting and cash accounting and thus identifies potential earnings manipulation.

Earnings manipulation is a relatively simple task in accrual-based financial statements—earnings are overstated by overstating accruals, accounts receivable accruals representing one of the most obvious sources. For example, a company reporting \$1 million in accounts receivable should expect to receive \$1 million in cash for those receivables subject, of course, to nominal write-offs, adjustments, late payments, and related refinements. To overstate earnings by \$100,000 it is only necessary to book \$1.1 million in accounts receivable. The company’s reporting for that year will have overstated both net income and accounts receivable by \$100,000. Therefore, operating cash should increase by \$1 million but the \$100,000 will never be realized in cash.

Naturally, the \$100,000 discrepancy must eventually be removed from the books. If the overstatement occurred for only one year, \$100,000 could be removed gradually over successive years by write-offs and other adjustments. However, once earnings manipulation begins, it tends to continue, thus compounding the difficulty of removal and the likelihood of impact to other accounts. Therefore, techniques such as CRO identify the accrual versus cash discrepancies in company financial statements.

The amounts used in the CRO calculation are taken from the income statement and cash flow statement, respectively. The expectation is that the components of this index will demonstrate a strong correlation. In other words, as earnings go up or down, operating cash should move in the same direction.

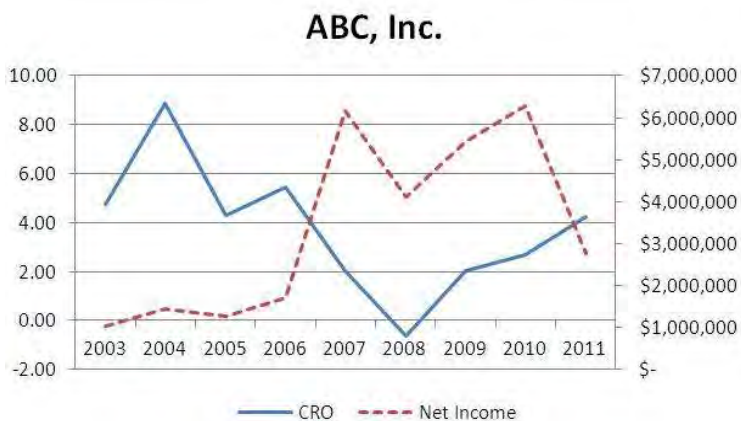
The calculation consists of comparing operating cash to net income for each reporting period as indicated in the following formula. Ordinarily, the relationship of operating cash to net income for any given company should be relatively constant, explainable changes such as acquisitions, accounting changes, and related matters notwithstanding. Therefore, significant changes in the relationship absent an explanation indicate potential manipulation.

The calculation is indicated in the following formula:

$$\frac{\text{Operating Cash Flow } cy}{\text{Net Income } cy}$$

*cy* symbolizes “current year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing CRO and net income on a dual-axis chart as shown below. See Figure 39.



**Figure 39**

The two measurements depict dramatic discrepancies. First, reported net income is generally increasing (particularly for the 2006-2010 period), thus operating cash should likewise increase. However, the CRO index is rapidly decreasing (particularly for the 2004-2008 period). Additionally, the “crossover” year (where the CRO index changed direction) 2007, tells a forensic operator precisely where to begin directing attention. More significantly, reported net income for the 2007-2010 period effectively suggests “record earnings” for the company despite much lower CRO measures for the same time period, with 2008 illustrating a negative CRO.

The company’s CFO manipulated earnings for the 2007-2008 period to meet debt covenant requirements that he structured to enable him to acquire company stock.

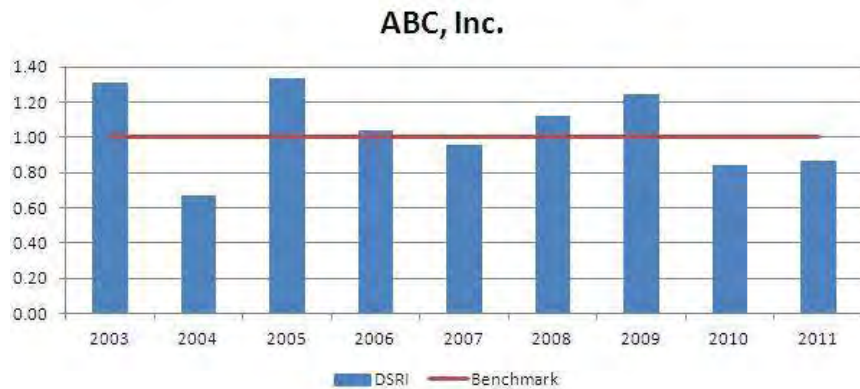
**2. Beneish’s M-Score:** The M-Score is a compilation of eight indices designed to measure earnings manipulation. It was developed by Professor Messod D. Beneish of Kelley School of business, Indiana University. *The Detection of Earnings Manipulation*, 55 FIN. ANALYSTS J. NO. 5 (Sept./Oct. 1999).

The indices are defined and illustrated below, using the actual ABC, Inc. results from the authors’ forensic assignment.

- **Days Sales in Receivables Index (DSRI).** This index measures receivables to sales in the current year relative to receivables to sales in the prior year. A DSRI of greater than 1.0 (as a general benchmark, companies and industries may vary according to their respective characteristics) suggests that accounts receivable and sales are not maintaining a stable relationship and indicates potential earnings manipulation through receivables overstatement. The calculation is indicated in the following formula:

$$\left( \frac{\text{Accounts Receivable } cy}{\text{Sales } cy} \right) \bigg/ \left( \frac{\text{Accounts Receivable } py}{\text{Sales } py} \right)$$

The simplest and most effective means to examine and illustrate the relationship consists of graphing DSRI in comparison to the benchmark and is shown below. See Figure 40. Forensic operators will note the varying scales on the “Y” or vertical axes. In most cases the scales used were Excel defaults, although in some cases the scales were modified to emphasize the point. In actual assignments the scales are often stabilized with ancillary explanatory support, for example, statistical computations and explanations.



**Figure 40**

The measurements for nearly all the years do not significantly vary from the general benchmark of 1.0. Small differences are not concerning since ABC's receivables are not significant to business operations. Further, ABC, Inc. was comprised of operations where receivables turned very quickly.

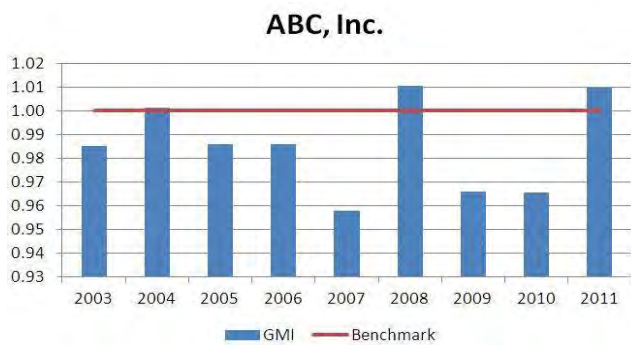
In addition, their receivables policies changed for the respective years, thus accounting for the variation.

- Gross Margin Index (GMI).** This index measures the gross margin of the current year relative to the gross margin of the prior year. In effect, the index measures changes in price and cost relationships. Therefore, a GMI less than 1.0 (as a general benchmark, companies and industries may vary according to their respective characteristics), indicates a decline in gross profit, alerting the forensic operator to drill down into the respective fiscal period to test for earnings manipulation. Significantly, ABC, Inc. was a company heavily dependent on inventory turns. Therefore, such a characteristic places more emphasis on a measure such as GMI where even small amounts of gross margin become more important in competitive environments. The calculation is indicated in the following formula.

$$\frac{\text{Gross Profit Percentage } py}{\text{Gross Profit Percentage } cy}$$

*cy* symbolizes "current year"  
*py* symbolizes "prior year"

The simplest and most effective means to examine and illustrate the relationship consists of graphing GMI in comparison to the benchmark as shown below. See Figure 41.



**Figure 41**

The measurements nominally vary from 1.0 for all years with certain years, for example 2007, 2009, 2011, depicting dramatic differences. Furthermore, the dramatic change during the 2007-2008 period alerts the forensic operator to conduct further investigation.

Recall from the previous comments that the CFO manipulated earnings for the 2007-2008 period. This is reflected in the dramatic change for 2008 because he was manipulating inventory to overstate net income. The auditors had conducted significant testing on inventory every year but failed to discern the CFO's manipulation of inventory to overstate earnings.

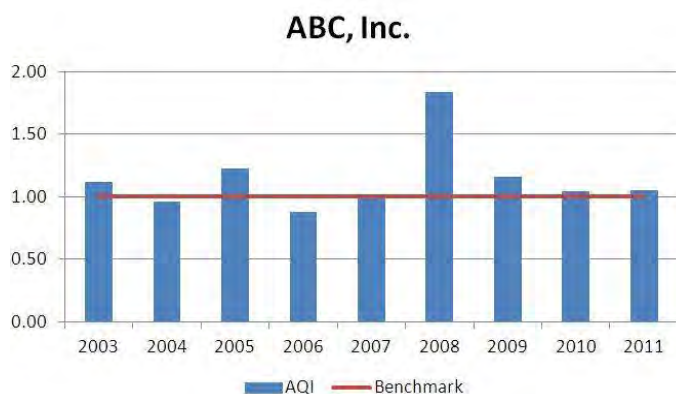
- Asset Quality Index (AQI).** This index measures the relationship of non-current assets (other than property, plant, and equipment) to total assets for the current year in comparison to the prior year. In effect, the index measures changes in asset realization, that is, lower realization suggests higher risk and vice versa. Therefore, an AQI greater than 1.0 (as a general benchmark, companies and industries may vary according to their respective characteristics) indicates a decline in asset realization, alerting the forensic operator to drill down into the respective fiscal period to test for earnings manipulation. Another way to think about this is to recall that balance sheets consist of three types of assets, that is, current assets, long-term assets, and other assets. The farther "down" assets are reported on the balance sheet, the less reliable and less liquid their eventual realization into cash will be. For example, accounts receivable is a current asset that should result in cash in 30 days or so, depending on terms. Delivery trucks are long-term assets that indirectly generate cash by permitting products to be delivered. Finally, other assets (which are very long term in nature) contain categories, such as goodwill, that is typically related to a specific transaction but only tangentially relates to generated cash. The distinction among assets is often characterized by referring to long-term assets as "hard" assets and other assets as "soft" assets. Hard assets may consist of equipment, automobiles, buildings, and related tangible items. Conversely, soft assets may consist of goodwill, deferrals, and other intangible items. The calculation is indicated in the following formula.

$$\frac{\left(1 - \left(\frac{\text{Current Assets } cy + \text{Net Fixed Assets } cy}{\text{Total Assets } cy}\right)\right)}{\left(1 - \left(\frac{\text{Current Assets } py + \text{Net Fixed Assets } py}{\text{Total Assets } py}\right)\right)}$$

*cy* symbolizes “current year”

*py* symbolizes “prior year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing AQI in comparison to the benchmark as shown below. See Figure 42.



**Figure 42**

The measurements are relatively close to the benchmark for all years except for 2008. Small differences are not concerning. However, the magnitude of the difference in 2008 suggests that further investigation is warranted for that year. In ABC, Inc.’s case, the earnings were manipulated in 2007 and the rebooking of assets was reported in 2008.

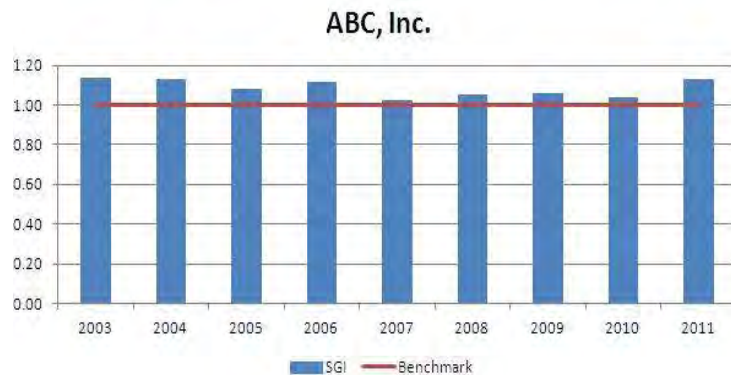
Recall from the previous CRO comments that the CFO manipulated earnings for the 2007-2008 period; the AQI variation is another indicator of the manipulation.

- Sales Growth Index (SGI).** This index measures the ratio of sales in the current year to sales in the prior year. An SGI of greater than 1.0 indicates growth. Furthermore, larger SGI measures indicate faster rates of growth. Growth alone does not imply manipulation, but growing companies are viewed by forensic operators as more likely to engage in earnings manipulation because their financial position and capital needs put pressure on managers to achieve earnings targets. Significant variations in this index could indicate manipulation.

The calculation is indicated in the following formula.

$$\frac{\text{Sales } cy}{\text{Sales } py}$$

The simplest and most effective means to examine and illustrate the relationship consists of graphing SGI in comparison to the benchmark as shown below. See Figure 43.



**Figure 43**

The measurements for the sample company ABC, Inc. exhibit certain variations but on further investigation into the financial statement notes it becomes evident that the variation was accounted for by several acquisitions.

- Depreciation Index (DI or DEPI).** This index measures the relationship of the rate of depreciation in the prior year to the rate of depreciation in the current year using depreciation expense and net property, plant, and equipment. A DEPI of greater than 1.0 (as a general benchmark, companies and industries may vary according to their respective characteristics) suggests that the rate of depreciation has slowed, thus indicating potential manipulated earnings or perhaps changes to estimated useful lives or new methods of accounting.

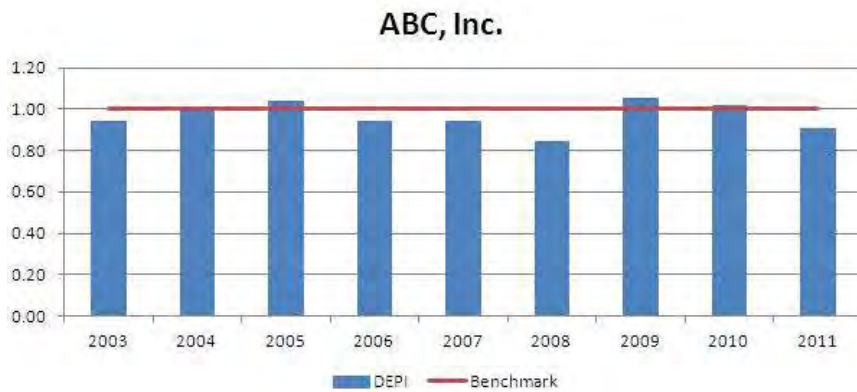
The calculation is indicated in the following formula.

$$\left( \frac{\text{Depreciation Expense } py}{\text{Depreciation Expense } py + \text{Net PPE } py} \right) \div \left( \frac{\text{Depreciation Expense } cy}{\text{Depreciation Expense } cy + \text{Net PPE } cy} \right)$$

*cy* symbolizes “current year”

*py* symbolizes “prior year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing DEPI in comparison to the benchmark is shown below. See Figure 44.



**Figure 44**

In the ABC, Inc. case, depreciation is not a significant item. Therefore, the nominal indices suggest strong stability and did not warrant further investigation.

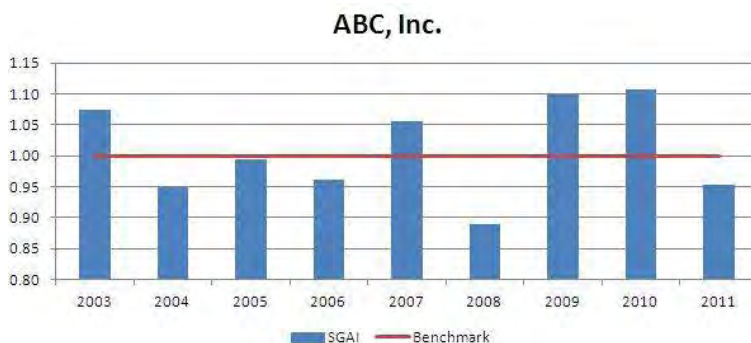
- Sales General and Administrative Expenses Index (SGAI or SGAEI).** This index measures SGA to sales in the current year to SGA to sales in the prior year. This index should remain relatively stable (1.0). A disproportionate increase in this index may suggest manipulation.

$$\left( \frac{\text{SG\&A Expenses } cy}{\text{Sales } cy} \right) \bigg/ \left( \frac{\text{SG\&A Expenses } py}{\text{Sales } py} \right)$$

*cy* symbolizes “current year”

*py* symbolizes “prior year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing SGA I in comparison to the benchmark as shown below. See Figure 45.



**Figure 45**

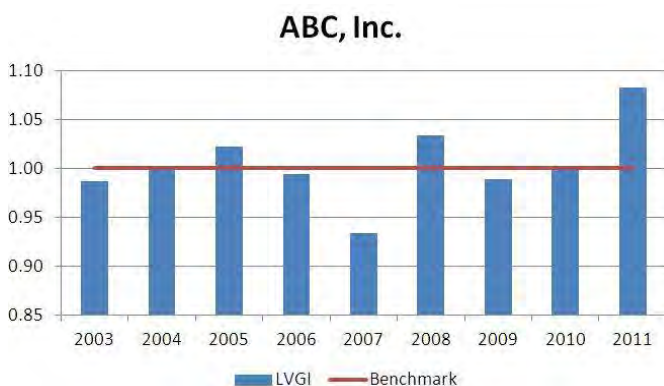
The measurements for ABC, Inc. are very close to 1.0, that is, stable for all years, thus suggesting a low likelihood of earnings manipulation, except for 2008.

- **Leverage Index (LI or LVGI).** This index measures total debt to total assets in the current year relative to debt to total assets for the prior year. An LVGI of greater than 1.0 (as a general benchmark, companies and industries may vary according to their respective characteristics) indicates an increase in leverage. In effect, the index measures increases in leverage that suggest new or increased debt loading.

The calculation is indicated in the following formula.

$$\left( \frac{\text{LTD } cy + \text{Current Liabilities } cy}{\text{Total Assets } cy} \right) \div \left( \frac{\text{LTD } py + \text{Current Liabilities } py}{\text{Total Assets } py} \right)$$

The simplest and most effective means to examine and illustrate the relationship consists of graphing LVGI in comparison to the benchmark as shown below. See Figure 46.



**Figure 46**

The measurements vary significantly for the 2007-2008 period. Recall from the previous comments that the CFO manipulated earnings for the 2007-2008 period. This is reflected in the dramatic change for the 2007-2008 period because he incurred considerable debt in order to transact the quasi-reorganization and acquire company stock for himself.

- **Total Accruals to Total Assets (TATA).** This index measures the ratio of total accruals to total assets for each year. Total accruals are computed as the change in working capital accounts other than cash, less depreciation. Total accruals are used to approximate the extent to which cash underlies reported earnings. A business usually has a relatively consistent or explainable pattern in its internal financial statement relationships. High levels of accruals (and therefore less cash) relative to assets can be an indicator of financial statement manipulation. This index should remain “relatively” stable at 0.0. A positive result in this index suggests potential earnings manipulation.

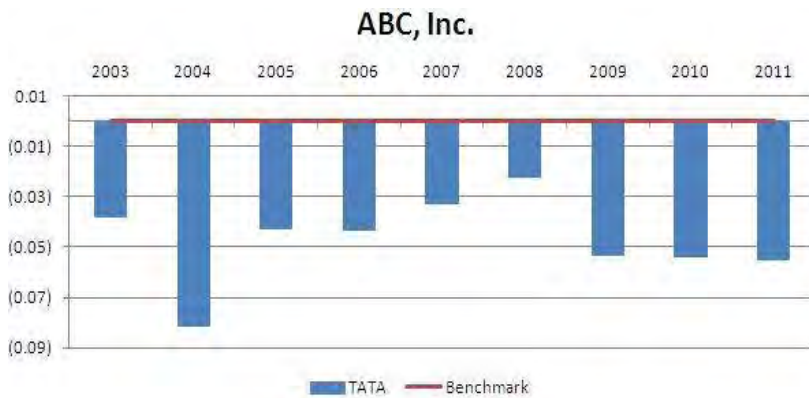
The calculation is indicated in the following formula.

$$\frac{((\text{Working Capital } cy - \text{Working Capital } py) - (\text{Cash } cy - \text{Cash } py) + (\text{Income Taxes Payable } cy - \text{Income Taxes Payable } py) + (\text{Current LTD } cy - \text{Current LTD } py) - \text{Depreciation Expense } cy)}{\text{Total Assets } cy}$$

*cy* symbolizes “current year”

*py* symbolizes “prior year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing TATA in comparison to the benchmark as shown below. See Figure 47.



**Figure 47**

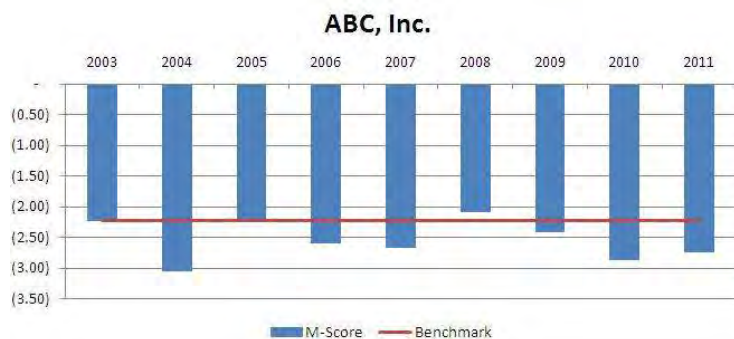
The measurements for ABC, Inc. demonstrate convergence toward the smallest indicator from 2007-2008, the period of earnings manipulation.

- Overall M-Score.** Beneish’s overall M-Score is comprised of a weighted combination of the above factors to arrive at a composite score. Based on his model, scores that are higher than (negative) -2.22 suggest a higher probability of financial statement manipulation.

The calculation is indicated in the following formula.

$$\text{M score} = -4.48 + \text{DSRI} \times .920 + \text{GMI} \times .528 + \text{AQI} \times .404 + \text{SGI} \times .892 + \text{DEPI} \times .115 + \text{SGAI} \times (.172) + \text{TATA} \times 4.679 + \text{LVGI} \times (.327)$$

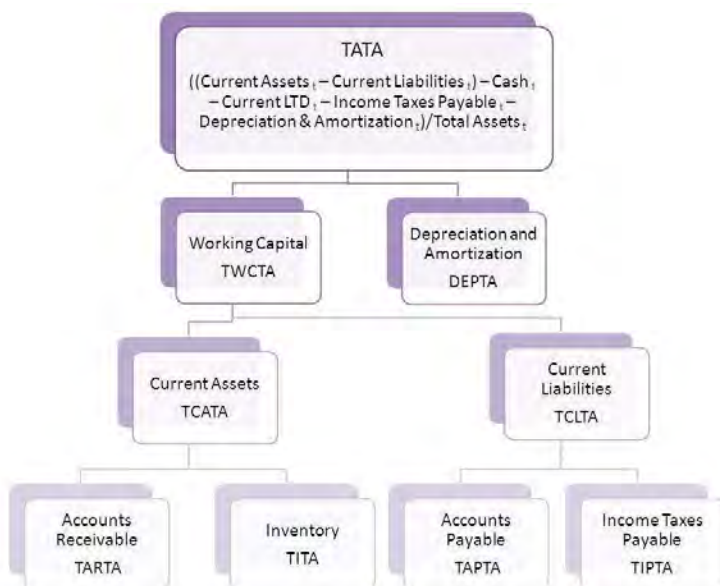
The simplest and most effective means to examine and illustrate the relationship consists of graphing the M-Score in comparison to the benchmark as shown below. See Figure 48.



**Figure 48**

The measurements for ABC, Inc. are all lower than -2.22 (except for 2008) and, based on the parameter of the model, would not suggest manipulation. The year 2008 suggests sufficient variation to warrant further investigation. In addition, the indicators within the individual measures cannot be ignored and illustrate why the individual measurements are so important. Furthermore, the M-Score factors and their relative weightings are based on a study of public companies. ABC, Inc. is derived from private company data. Finally, the various weightings assigned to the original model relate to numerous companies bearing characteristics different from ABC, Inc.

**3. Beneish drill-down:** The authors amplify the Beneish techniques to certain of the sub-categories of the respective indices to more closely focus on earnings manipulation. The following visual illustrates how TATA is disaggregated into its respective components. See Figure 49.



**Figure 49**

Each pertinent drill-down index is explained below.

- **Total Current Assets to Total Assets (TCATA).** This index measures the year-to-year change in current assets relative to the current year's total assets. Inordinate changes indicate potential earnings manipulation.

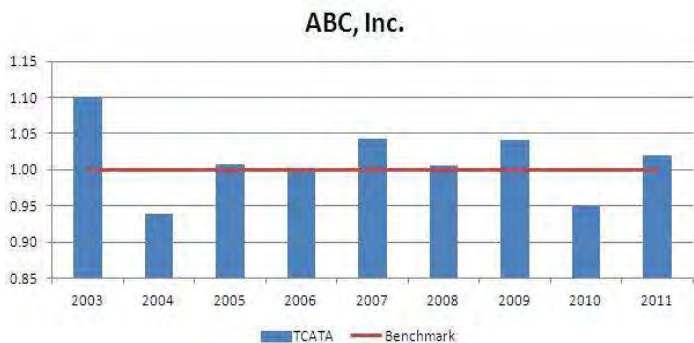
The calculation is indicated in the following formula.

$$\frac{((\text{Total Current Assets } cy - \text{Cash } cy) / \text{Total Assets } cy)}{((\text{Total Current Assets } py - \text{Cash } py) / \text{Total Assets } py)}$$

*cy* symbolizes “current year”

*py* symbolizes “prior year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing the index in comparison to the respective years as shown below. See Figure 50.



**Figure 50**

The measurements for ABC, Inc. illustrate a significant change for 2007, thus warranting further forensic investigation. Recall that 2007 was the initial year of earnings manipulation.

- **Total Accounts Receivable to Total Assets (TARTA).** This index measures the year-to-year change in accounts receivable relative to the current year's total assets. Inordinate changes indicate potential earnings manipulation.

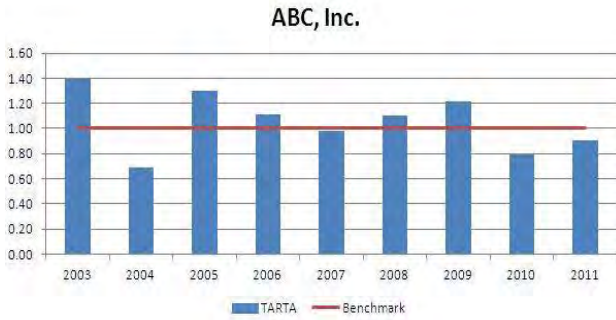
The calculation is indicated in the following formula.

$$\frac{(\text{Accounts Receivable } cy / \text{Total Assets } cy)}{(\text{Accounts Receivable } py / \text{Total Assets } py)}$$

*cy* symbolizes “current year”

*py* symbolizes “prior year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing the index in comparison to the respective years as shown below. See Figure 51.



**Figure 51**

The measurements for ABC, Inc. illustrate a crossover year for 2007. However, subsequent investigation determined that the acquisitions made by ABC, Inc. resulted in a change in accounts receivable policies. Also, recall that the company's receivables turn very rapidly and do not offer a convenient means of earnings manipulation.

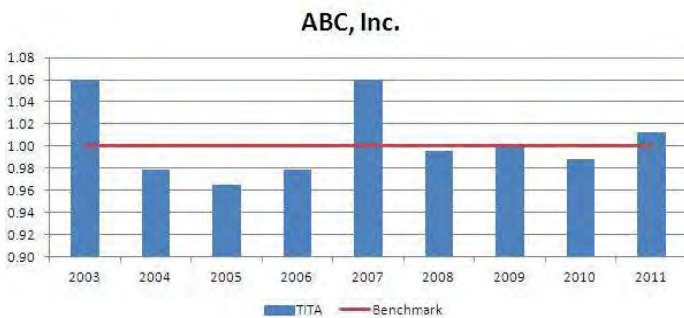
- **Total Inventory to Total Assets (TITA).** This index measures the year-to-year change in inventory to the current year's total assets. Inordinate changes indicate potential earnings manipulation.

The calculation is indicated in the following formula.

$$\frac{(\text{Inventory } cy / \text{Total Assets } cy)}{(\text{Inventory } py / \text{Total Assets } py)}$$

*cy* symbolizes "current year"  
*py* symbolizes "prior year"

The simplest and most effective means to examine and illustrate the relationship consists of graphing the index in comparison to the respective years as shown below. See Figure 52.



**Figure 52**

The measurements for ABC, Inc. illustrate a significant change for 2007 and the subsequent year. This information indicates that reported inventory significantly changed relative to total assets, thus warranting further investigation. Recall that earnings manipulation began 2007 and that the company's inventory is a primary earnings asset and offers a convenient means of earnings manipulation.

- **Total Current Liabilities to Total Assets (TCLTA).** This index measures the year-to-year change in current liabilities to the current year's total assets. Inordinate changes indicate potential earnings manipulation.

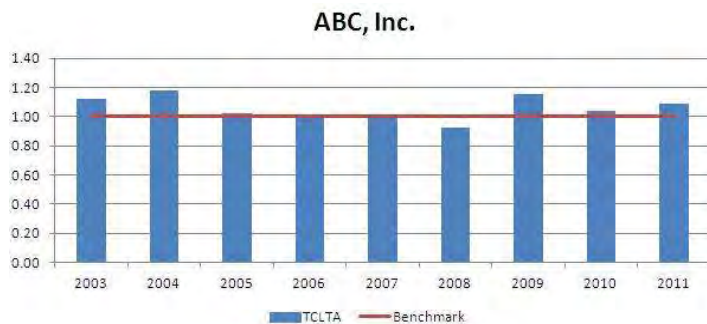
The calculation is indicated in the following formula.

$$\frac{((\text{Total Current Liabilities } cy - \text{Current LTD } cy - \text{Inc Tax Payable } cy) / \text{Total Assets } cy)}{(\text{Total Current Liabilities } py - \text{Current LTD } py - \text{Inc Tax Payable } py) / \text{Total Assets } py)}$$

*cy* symbolizes "current year"

*py* symbolizes "prior year"

The simplest and most effective means to examine and illustrate the relationship consists of graphing the index in comparison to the respective years as shown below. See Figure 53.



**Figure 53**

The measurements for ABC, Inc. illustrate statistically significant changes in 2008 and 2009. 2008 and 2009 were directly related to inventory overstatement, that is, the corresponding swing in the changes in current liabilities to offset the change in inventory.

- **Total Accounts Payable to Total Assets (TAPTA).** This index measures the year-to-year change in accounts payable to the current year's total assets. Inordinate changes indicate potential earnings manipulation.

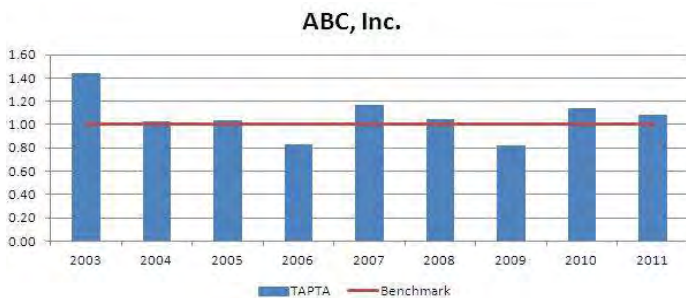
The calculation is indicated in the following formula.

$$\frac{(\text{Accounts Payable } cy / \text{Total Assets } cy)}{(\text{Accounts Payable } py / \text{Total Assets } py)}$$

*cy* symbolizes "current year"

*py* symbolizes "prior year"

The simplest and most effective means to examine and illustrate the relationship consists of graphing the index in comparison to the respective years as shown below. See Figure 54



**Figure 54**

The measurements for ABC, Inc. illustrate dramatic a change in 2007. The 2007 change resulted from inventory manipulation, that is, the corresponding credit increase to offset the debit in inventory.

**4. Dechow-Dichev accrual quantity:** Professors Patricia Dechow and Ilia Dichev published a report that contains analysis applied to this section. PATRICIA DECHOW & ILIA DICHEV, *THE QUALITY OF ACCRUALS AND EARNINGS: THE ROLE OF ACCRUAL ESTIMATION ERRORS* (2001). They defined accrual quality as the extent to which accruals map into cash flow realizations and also linked accrual quality to earnings persistence.

The measurement combines the change in working capital and cash flow from operations for the current year and computes the relationship to total assets. They define the difference between operating cash flow and working capital as “earnings before long-term accruals.” This difference effectively isolates near-term accruals in comparison to net income that should demonstrate a relatively stable relationship.

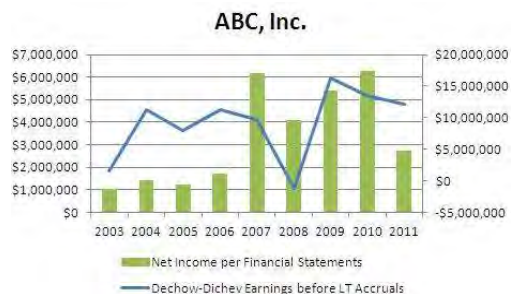
The calculation is indicated in the following formula.

$$\frac{(\text{Operating Cash Flow } cy + \Delta \text{ Working Capital } cy)}{(\text{Total Assets } cy + \text{Total Assets } py)}$$

*cy* symbolizes “current year”

*py* symbolizes “prior year”

The simplest and most effective means to examine and illustrate the relationship consists of graphing the Dechow-Dichev index in comparison to net income is shown below. See Figure 55.



**Figure 55**

The measurements for ABC, Inc. are relatively stable for 2003-2006. However, 2007 exhibits a stable relationship for earnings before long-term accruals despite a dramatic increase in reported net income. The disparity indicates potential earnings manipulation.

**5. Jones nondiscretionary accruals:** In the study, *Earnings Management During Import Relief Investigations*, Dr. Jennifer J. Jones analyzed discretionary accruals as a measure to detect earnings management. See Jennifer J. Jones, *Earnings Management During Import Relief Investigations*, 29 J. ACCT. RES. NO. 2 (1991). Discretionary accruals tend to increase during import relief investigations because a clear incentive arises to decrease earnings to obtain import relief funds. Therefore, by measuring the extent of nondiscretionary accruals, discretionary accruals are used to indicate potential earnings manipulation.

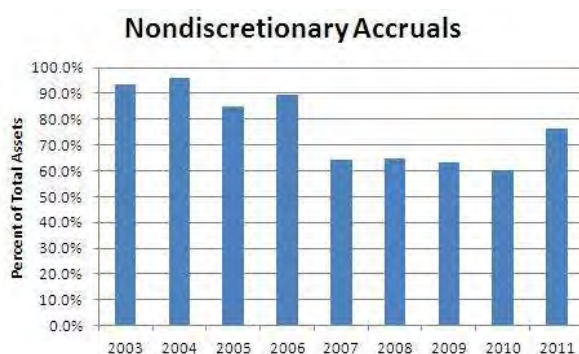
The calculation is indicated in the following formula.

$$\begin{aligned} & (1/\text{Total Assets } py) \\ & + \\ & \frac{(\text{Revenue } cy - \text{Revenue } py)}{\text{Total Assets } cy} \\ & + \\ & \frac{\text{Property, Plant \& Equipment } cy}{\text{Total Assets } py} \end{aligned}$$

*cy* symbolizes “current year”  
*py* symbolizes “prior year”

The measurements for ABC, Inc. are summarized in the visual below. See Figure 56.

Nondiscretionary accruals, as a percentage of total assets, is lower in the years 2007-2010, indicating that discretionary accruals are higher, starting with the year of manipulation, 2007. Subsequent years are impacted by 2007, thus appearing to be more stable unless the manipulation is considered.



**Figure 56**

**6. Lev-Thiagarajan 12 signals:** In their work, *Fundamental Information Analysis*, Dr. Baruch Lev and Dr. S. Ramu Thiagarajan identified a set of twelve financial variables (also referred to as signals or fundamentals) that are claimed by analysts to be useful in security valuation. See Baruch Lev & S. Ramu Thiagarajan, *Fundamental Information Analysis*, 31 J. ACCT. RES. NO. 2 (1993). Their study supported the value relevance of these signals, particularly when evaluated in light of the macroeconomic conditions present during the period evaluated and the link between the identified signals and persistence (quality and growth) of reported earnings.

They scored each signal, assigning one point each for positive, negative, and neutral. Consequently, the higher negative scores suggest earnings manipulation. Their method compares each year to the preceding year. Therefore, a significant negative score in a given year warrants investigation.

The signals are defined below and presented as Figure 57.

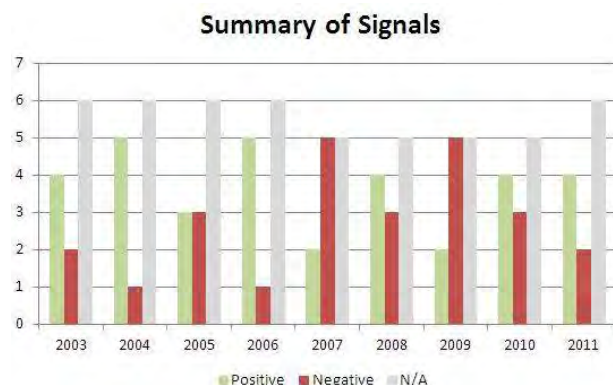
- Inventory. Percentage change in inventory less the percentage change in sales. Disproportionate inventory increases (for example, index is a positive number) are considered a negative signal as they can indicate the holding of inventory that is often associated with earnings management such as production smoothing.
- Accounts receivable. Percentage change in accounts receivable less the percentage change in sales. Disproportionate accounts receivable increases (for example, index is a positive number) are considered a negative signal. They may suggest the recording of unrealized revenues as sales or credit extensions that will impact future earnings persistence.
- Capital expenditures and research and development expenditures. Percentage change in industry benchmarks less the percentage change in the firm's expenditures. Disproportionate decreases relative to the benchmarks are considered a negative signal.
- Gross margin. Percentage change in gross margin less the percentage change in sales. A decrease in gross margin relative to sales (for example, index is negative) is considered a negative signal. Erosion of a firm's margins has a negative impact on the long-term performance of the firm.
- Sales and administrative expenses. Percentage change in selling and administrative expenses less the percentage change in sales. Most administrative costs are approximately fixed. A disproportionate increase (for example index is a positive number) suggests a loss of cost controls or an unusual sales effort.
- Provision for doubtful receivables. This phrase is also commonly referred to as allowance for doubtful accounts. It is measured as the percentage change in gross accounts receivable less the percentage change in the provision for doubtful receivables. Positive values of this measure are perceived as a negative signal. Firms with inadequate provisions for doubtful receivables are expected to suffer future earnings decreases.

- Effective tax rate. Computes the portion of net earnings attributable to the effective tax rate change (not caused by statutory tax rate changes). An unusual decrease in the effective tax rate is generally considered a negative signal (index is negative number).
- Order backlog. Percentage change in sales less the percentage change in order backlog. A decrease in order backlog relative to sales (index is a positive number) is considered a negative signal. It may suggest that unrealized sales were recorded or that the demand for the firm's products is decreasing, thus having a negative impact on future performance.
- Labor cost. Percentage change in sales per employee. Decreases in sales per employee (index is a positive number) is a negative signal. This measurement is used instead of earnings per employee, as in a year of restructuring the labor cost is often increased. Removing the cost impacts provides insight regarding the future potential benefits of a restructuring.
- LIFO earnings. When input prices are increasing, LIFO earnings are regarded as more sustainable or closer to economic earnings than FIFO earnings, because LIFO cost of sales is a closer approximation of current (replacement) cost than FIFO cost of sales. The use of the LIFO inventory method is considered a positive signal. However, in instances where inventory turns over very quickly, such as monthly, LIFO earnings may not be a factor as LIFO and FIFO cost of sales would essentially be the same.
- Audit qualification. A qualified, disclaimed, or adverse audit opinion sends a negative message to investors and is therefore considered a negative signal.

Lev-Thiagarajan's Summary of 12 Signals									
12 Signals	2003	2004	2005	2006	2007	2008	2009	2010	2011
Inventory	Positive	Positive	Positive	Positive	Negative	Negative	Negative	Negative	Positive
Accounts Receivable	Negative	Positive	Negative	Positive	Positive	Negative	Negative	Positive	Positive
Capital Expenditures	n/a	n/a	n/a	n/a	Negative	Positive	Negative	Negative	n/a
R&D Expenditures	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gross Margin	Positive	Positive	Positive	Positive	Negative	Positive	Positive	Positive	Positive
Sales and Administrative Expenses	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Provision for Doubtful Receivables	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Effective Tax	Positive	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Order Backlog	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Labor Force	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LIFO Earnings	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
Audit Qualification	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive
Positive	4	5	3	5	2	4	2	4	4
Negative	2	1	3	1	5	3	5	3	2
N/A	6	6	6	6	5	5	5	5	6

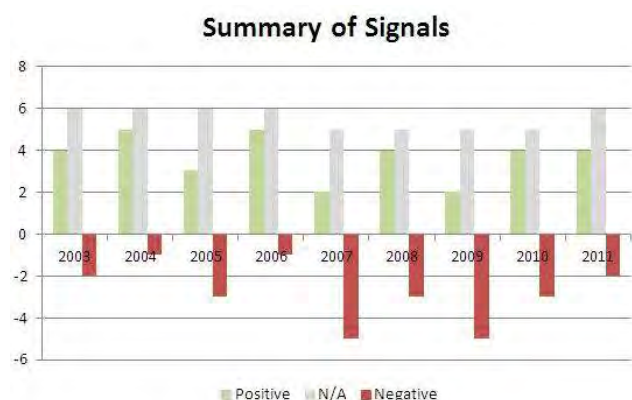
**Figure 57**

As the visual below illustrates, the negative signals are the highest in the years 2007 and 2009. The most dramatic change occurred in 2007, thus warranting further investigation due to potential for earnings manipulation.



**Figure 58**

The significant change in 2007 is more evident when the negative signals are entered below the line in the following visual. See Figure 59.



**Figure 59**

**7. Piotroski's F-Score:** Joseph Piotroski, an accounting professor at the University of Chicago, published *Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers*. See Joseph Piotroski, *Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers*, 38 J. ACCT. RES. 1 (2002). He reasoned that because value stocks are troubled companies by definition, many are financially distressed and will not have the financial resources to recover. In considering whether he could improve the performance of a value portfolio by throwing out the financially weakest stocks, he devised a simple nine-criterion stock-scoring system for evaluating a stock's financial strength. The evaluation can be made using data solely from financial statements. One point was awarded for each test that a stock passed. Piotroski classified any stocks that scored eight or nine points as being the strongest stocks.

His findings were that these strong stocks, as a group, outperformed a portfolio of all value stocks by 7.5 percent annually over a 20-year test period. Piotroski also found that weak stocks, those that scored two points or fewer, were five times more likely to either go bankrupt or delist due to financial problems.

Because the source of the data comes from financial statements and does not require any market values, Piotroski's system can be applied to private company financial statements, such as those of ABC, Inc. Figure 60 below explains the individual criteria and ABC's points in each category.

The nine categories are defined below.

- Net income. Net income, the bottom line after-tax profits, is the simplest measure of profitability. Score 1 if the latest year's net income is positive; otherwise, score a zero.

The score for ABC, Inc. is 1 and 1 for 2007 and 2008, respectively.

- Operating cash flow. Cash flow is arguably a better profitability measure than net income. Cash flow measures the money that actually moved into or out of a company's bank account. Score 1 point if the latest year's operating cash flow is positive; otherwise, score a zero.

The score for ABC, Inc. is 1 and 0 for 2007 and 2008, respectively.

- Return on assets (ROA), earnings quality. Many experts compare net income to operating cash flow to detect potential accounting manipulations. Cash flow normally exceeds net income because depreciation and other non-cash expenses reduce income, but not cash flow. Score 1 point if the latest year's operating cash flow exceeds the current year's net income; otherwise, score a zero.

The score for ABC, Inc. is 1 and 0 for 2007 and 2008, respectively.

- Quality of earnings. Warns of accounting tricks. Score 1 if last year's operating cash flow exceeds net income; otherwise, score a zero.

The score for ABC, Inc. is 1 and 1 for 2007 and 2008, respectively.

- Long-term debt (LTD) vs. assets: Is Debt decreasing? Score 1 if the ratio of long-term debt to assets is down from the year-ago value; otherwise, score a zero. (If LTD is zero but assets are increasing, score 1 anyway.)

The score for ABC, Inc. is 0 and 0 for 2007 and 2008, respectively.

- Current ratio (CR). Measures increasing working capital. Score 1 if CR has increased from the prior year; otherwise, score a zero.

The score for ABC, Inc. is 0 and 1 for 2007 and 2008, respectively.

- Shares outstanding. A measure of potential dilution. Score 1 if the number of shares outstanding is no greater than the year-ago figure; otherwise, score a zero.

The score for ABC, Inc. is 0 and 0 for 2007 and 2008, respectively.

- Gross margin (GM). A measure of improving competitive position. Score 1 if full-year GM exceeds the prior-year GM; otherwise, score a zero.

The score for ABC, Inc. is 1 and 0 for 2007 and 2008, respectively.

- Asset turnover. Measures productivity. Score 1 if the percentage increase in sales exceeds the percentage increase in total assets; otherwise, score a zero.

The score for ABC, Inc. is 0 and 0 for 2007 and 2008, respectively.

- Overall F-Score. The overall F-Score is made up of a combination of the above factors to arrive at a composite score. Scores higher than 8-9 points suggest a stronger stock and 0-2 points suggest the weakest stocks.

ABC, Inc. received 5 and 3 points, indicating a lower-middle conclusion, barely above the weakest conclusion. Although only 2007 and 2008 were displayed, prior years consistently scored in the upper-middle range, thus demonstrating 2007's and 2008's dramatic decline in measurement.

Piotroski's F-Score			
Category	Description and Scoring	2007	2008
Net Income	Positive net income - Net income, the bottom line after-tax profits, is the simplest measure of profitability. Score 1 if the latest year's net income is positive; otherwise, a zero.	1	1
Operating Cash Flow	Cash flow is arguably a better profitability measure than net income. Cash flow measures the money that actually moved into or out of a company's bank account; Score 1 point if the latest year's operating cash flow is positive, otherwise, a zero.	1	0
Return on Assets (ROA)	Earnings quality - Many experts compare net income to operating cash flow to detect potential accounting manipulations. Cash flow normally exceeds net income because depreciation and other non-cash expenses reduce income, but not cash flow; Score 1 point if the latest year's operating cash flow exceeds the current year's net income, otherwise, a zero.	1	0
Quality of Earnings	Warns of Accounting Tricks. Score 1 if last year's operating cash flow exceeds net income, otherwise, a zero.	1	1
Long-Term Debt(LTD) vs. Assets	Is Debt decreasing? Score 1 if the ratio of long-term debt to assets is down from the year-ago value, otherwise, a zero. (If LTD is zero but assets are increasing, score 1 anyway.)	0	0
Current Ratio (CR)	Measures increasing working capital. Score 1 if CR has increased from the prior year, otherwise, a zero.	0	1
Shares Outstanding	A Measure of potential dilution. Score 1 if the number of shares outstanding is no greater than the year-ago figure, otherwise, a zero.	0	0
Gross Margin (GM)	A measure of improving competitive position. Score 1 if full-year GM exceeds the prior-year GM, otherwise, a zero.	1	0
Asset Turnover	Measures productivity. Score 1 if the percentage increase in sales exceeds the percentage increase in total assets, otherwise, a zero.	0	0
Total		5	3

#### Scoring

8-9 points - strongest

3-8 - middle

0-2 weakest

ABC Inc. scores here

**Figure 60**

**8. Sloan's accruals:** Professor Richard G. Sloan of the University of Pennsylvania published *Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings?* See Richard G. Sloan, *Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings?*, 71 ACCT. REV. No. 3 (July 1996). Sloan's approach derives the implied cash component of earnings by computing the changes in current net operating assets. Current operating assets and current operating liabilities are computed and netted to arrive at current net operating assets.

The calculation to derive current operating assets and current operating liabilities are indicated in the following formulas.

Current operating assets = total current assets less cash and cash equivalents.

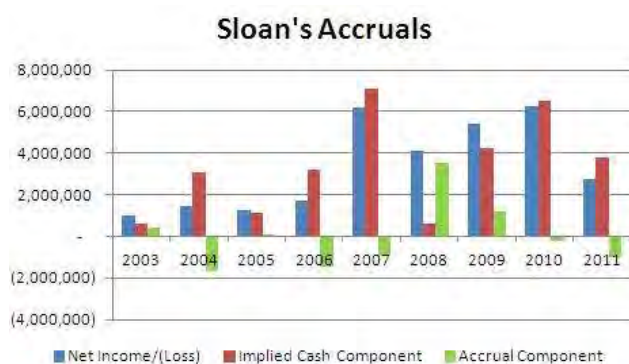
Current operating liabilities = total current liabilities less short-term debt, current portion of long-term debt, and income taxes payable.

Then, current net operating assets are derived as indicated in the following formula.

Current net operating assets = current operating assets less current operating liabilities.

Consequently, current net operating assets isolate the accrual component within the year-to-year change in net operating assets. If the accrual component is positive, it indicates that accruals have increased net income and should thus be deducted from the net income in order to derive the implied cash component. Likewise, if the accrual component is negative, it indicates that accruals have decreased net income and should thus be added to net income to derive the implied cash component.

The theory is that net income that has a higher implied cash component indicates a stronger financial outlook. As used in forensic analysis, it can be used to help focus on specific time periods within the same company or specific companies within a group of companies for further in-depth analysis. The simplest and most effective means to examine and illustrate the relationship consists of graphing Sloan's accruals. See Figure 61.



**Figure 61**

In the case of ABC, Inc., the year 2008 results indicate a high level of accruals relative to net income. The cash flow statement for 2008 shows a negative \$2.5 million from operations, and the balance sheet for that year indicates a reorganization transaction that must have funded operations because the overall change in cash for the year was a \$366,000 increase.

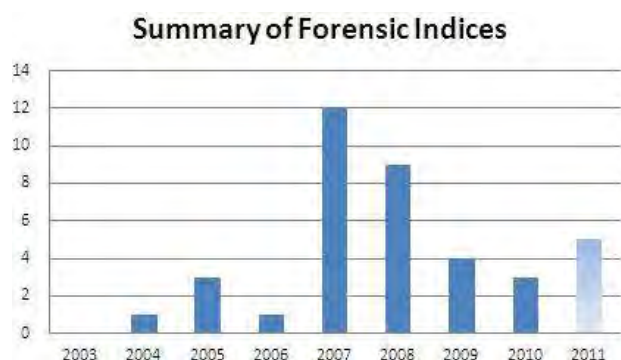
### **E. Forensic conclusion**

Eight different types of forensic indices have been presented, discussed, and applied to ABC, Inc. Although they were developed by several different people for many different purposes, their application is the same—they can be used to test for earnings manipulation. And, if manipulation is indicated they can be used to substantiate its likelihood, thus supporting subsequent actions.

The eight types of forensic indices comprised 41 distinct tests over a 9-year period, a total of 328 (41 x 8) separate tests. Significantly, only 36 indicators (not counting the first year's accounting changes) pointed to potential earnings manipulation. Even more significantly, the preponderance of indicators

directed forensic operators to drill down further into the years 2007 and 2008. Perhaps most importantly, the indicators told the forensic operators where to look within each of those two years. This information demonstrates the extraordinary power of such forensic indices because they can direct attention to when and where further investigation is required, thus saving significant time and money that can be wasted in random “pick and shovel” and “hunt and peck” exercises.

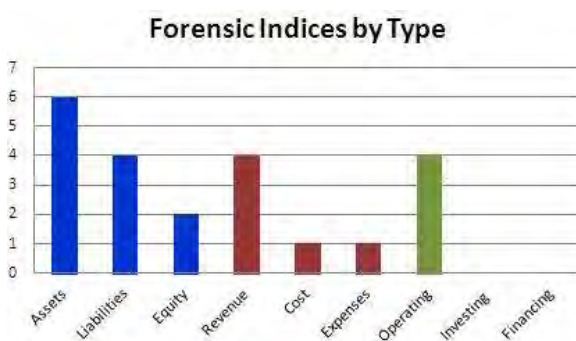
The following visual summarizes the respective findings and focuses attention on two specific years. See Figure 62. The visual demonstrates that the years 2007 and 2008 exhibited significant indicators of manipulation, particularly in comparison to other years.



**Figure 62**

As previously mentioned, the various indicators may be coincident, leading, or lagging with respect to their findings. That timing nuance is related to the nature of the earnings manipulation. For example, ABC, Inc.’s CFO manipulated earnings by overstating inventory. That action had various consequences, including an inordinate change in gross margin for the respective year, a consequent increase in income taxes payable, an inordinate increase in accounts payable to offset the inventory so that debits and credits were in balance, and residual impact to other categories such as current assets and current liabilities. The forensic indices can easily discern such anomalies where traditional techniques fall short.

The following visual summarizes the findings by financial statement category for the respective years. See Figure 63.



**Figure 63**

Note that the earnings manipulation conducted by the CFO directly impacted the balance sheet and the income statement, both of which impacted the cash flow statement. Furthermore, discrepancies between the operating cash flow and reported net income substantiated discrepancies. Different types of earnings manipulation would result in different mixes of occurrences.

The preponderance of balance sheet related indices reflects the state of financial reporting at the time the indices were developed. That is, significant emphasis in the early part of the twentieth century was focused primarily on the balance sheet with the income statement having a secondary focus. Moreover, the cash flow statement that is arguably the single most important financial statement to test for earnings manipulation has only been required reporting for the last 25 years. Consequently, in the future, the cash flow statement will become more significant to earnings manipulations tests.

The following visual summarizes the findings by category for the respective years. It illustrates a widely-accepted decision analysis technique known as multi-attribute utility analysis. See Figure 64. Note that these findings reflect ABC, Inc. and do not necessarily represent the composition of the indices or the likelihood of manipulation within a subject company. However, it is significant that the indices applied across the board resulted in the indicators zeroing-in on the method and year of earnings manipulation.

Indicator	2003	2004	2005	2006	2007	2008	2009	2010	2011
CRO					X	X	X	X	
<b>Beneish Indices</b>									
GMI						X			X
AQI						X			
DEPI									
DSRI									
SGAI					X	X			
SGI					X				
LVGI			X			X			X
TATA					X				
M-Score			X			X			
<b>Beneish Drill-Down</b>									
TARTA			X	X		X	X		
TITA					X				X
TAPTA					X			X	X
TCATA					X		X		X
TCLTA		X					X		
<b>Other Indicators</b>									
Dechow-Dichev					X	X		X	
Jones					X				
Lev-Thiagarajan					X				
Piotroski F-Score					X				
Sloan's Accruals					X	X			
<b>Scores</b>		1	3	1	12	9	4	3	5

**Figure 64**

Finally, prosecutors, investigators, and analysts must remember an important point. That is, all of the tests contained within this section focus *within* the self-reporting system of the subject company. Therefore, a sophisticated subject will maintain clandestine transactions *outside* of the self-reporting system. Although that compounds investigation complexity, the forensic operator has certain techniques, including the ICE/SCORE method, that are specifically designed to identify those occurrences.

Prosecutors, investigators, and analysts can use the contents of this section to test for and drill down into a subject company's. Only a small segment of the universe of indices has been presented. The authors have identified well in excess of 300 tools, techniques, methods, and methodologies available to forensic operators skilled in their use.

## **V. Bibliography: written & internet**

The following sources comprise a "short list" of written and Internet sources that the authors have found useful. They are organized as indicated for the reader's benefit.

### **A. People investigation "shortlist"**

The following sources contain, but are not necessarily limited to, material pertinent to investigating people.

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- PAUL EKMAN & WALLACE V. FRIESEN, *UNMASKING THE FACE: A GUIDE TO RECOGNIZING EMOTIONS FROM FACIAL EXPRESSIONS* (Malor Books 2003).

#### **Internet:**

- BLACK BOOK ONLINE, <http://www.blackbookonline.info>. This is a "gateway" site containing many hundreds of links to a vast array of publicly-available information. It is heavily used by law enforcement and private investigators.
- FINANCIAL FORENSICS ACADEMY, <http://www.financialforensicsacademy.com>.

- HUMINTELL, <http://wwwhumintell.com>. This Web site is a resource for forensic operators who seek training on interpreting facial expressions during interviews to determine veracity and other conditions. It offers free on-line training for up to one year.
- JOHN E. REID & ASSOCIATES, INC., <http://wwwreid.com>. This site offers highly regarded text and training resources. It is the source of The Reid Technique, a well-known method of interviewing and interrogation taught to law enforcement.
- WICKLANDER-ZULAWSKI & ASSOCIATES, INC., <http://wwww-z.com>. This site is offered by Wicklander-Zulawski & Associates, Inc., a highly regarded entity that provides text and training resources on interviewing and interrogation techniques.
- INTERNATIONAL SOCIETY OF CERTIFIED SURVEILLANCE PROFESSIONALS, <http://www.iacsp.org>.
- CONFIDENTIAL INFORMANT, <http://wwwconfidentialinformant.org>.
- CRIME TIME, <http://wwwcrimetime.com>.
- INTERNATIONAL ASSOCIATION OF UNDERCOVER OFFICERS, <http://wwwundercover.org>.

#### **B. Money investigation “shortlist”**

The following sources contain, but are not necessarily limited to, material pertinent to investigating money.

##### **Written:**

- EDWARD R. TUFTE, ENVISIONING INFORMATION (1990).
- KALMAN BARSON, INCOME RECONSTRUCTION: A GUIDE TO DISCOVERING UNREPORTED INCOME (Kalman A. Barson et al. 1999).
- DARRELL D. DORRELL & GREGORY A. GADAWSKI, FINANCIAL FORENSICS BODY OF KNOWLEDGE (Wiley & Sons 2012).
- ROMAN L. WEIL ET AL., LITIGATION SERVICES HANDBOOK: THE ROLE OF THE FINANCIAL EXPERT (John Wiley & Sons 4th ed. 2011).
- ALBERT S. OSBORN, QUESTIONED DOCUMENTS (2d ed. 1974).
- ROBERT P.I. SCOTT, THE INVESTIGATOR’S LITTLE BLACK BOOK (3d ed. 2002).
- EDWARD R. TUFTE, THE VISUAL DISPLAY OF QUANTITATIVE INFORMATION (2d ed. 2001).

### Internet:

- ACL, <http://www.acl.com>. A provider of business assurance technology for audit, finance, and compliance with supporting data analytics software.
- IDEA, <http://www.audimation.com>. The company that markets IDEA, a proprietary software that can include digital analysis tools, for example Benford's Law, maintains this site.
- CAMPBELL R HARVEY'S HYPERTEXTUAL FINANCE GLOSSARY, <http://www.duke.edu>.
- FINANCIAL FORENSICS ACADEMY, <http://www.financialforensicsacademy.com>.
- FEDERAL JUDICIAL CENTER, <http://www.fjc.gov>. This site is used by judges for technical reference. A key downloadable resource is *Reference Manual on Scientific Evidence, Reference Guide on Economic Losses in Damages Awards* by Mark A. Allen, Robert E. Hall, and Victoria A. Lazear.
- IRS, <http://www.irs.gov/businesses/small/article/0,,id=108149,00.html>. This site links to the IRS audit technique guides (ATGs) that provide examination techniques, common and unique industry issues, business practices, industry terminology, and other information intended to support examiners for specific market segments, for example, construction, executive compensation, farmers, hardwood timber, etc. The ATGs are quite detailed and specific and some approach 200 pages of industry-specific instruction.
- KHAN ACADEMY, <http://www.khanacademy.com>.
- MARK J. NIGRINI, PH.D., <http://www.nigrini.com>.
- SKIP TRACE SEMINAR, <http://www.skiptraceseminar.com>.
- STATISTICA, <http://www.statsoft.com>.

## VI. Appendix

The following text is the actual content from Enron's December 31, 2000 financial statement notes. It amplifies why Forensic Lexicology techniques are essential to augment forensic analysis. The opaque and enigmatic Note 16 was interpreted by Jim Chanos, a hedge fund manager, and indicates earnings manipulation. He made substantial sums of money by short-selling Enron as its stock fell from \$90 to \$1 per share from 2000-2001.

Source: Committee on Governmental Affairs United States Senate, "Financial Oversight of Enron: The SEC and Private-Sector Watchdogs," Oct. 7, 2002.

Note 16 to Financial Statements, Enron Corp. Form 10-K for the Year Ended December 31, 2000.

## 16. RELATED PARTY TRANSACTIONS

In 2000 and 1999, Enron entered into transactions with limited partnerships (the Related Party) whose general partner's managing member was a senior officer of Enron. The limited partners of the Related Party are unrelated to Enron. Management believes that the terms of the transactions with the Related Party were reasonable compared to those that could have been negotiated with unrelated third parties.

In 2000, Enron entered into transactions with the Related Party to hedge certain merchant investments and other assets. As part of the transactions Enron did the following: (1) contributed to newly-formed entities (the Entities) assets valued at approximately \$1.2 billion, including \$150 million in Enron notes payable, 3.7 million restricted shares of outstanding Enron common stock and the right to receive up to 18.0 million shares of outstanding Enron common stock in March 2003 (subject to certain conditions); and (2) transferred to the Entities assets valued at approximately \$309 million, including a \$50 million note payable and an investment in an entity that indirectly holds warrants convertible into common stock of an Enron equity method investee. In return Enron received economic interests in the Entities, \$309 million in notes receivable, of which \$259 million is recorded at Enron's carryover basis of zero, and a special distribution from the Entities in the form of \$1.2 billion in notes receivable, subject to changes in the principal for amounts payable by Enron in connection with the execution of additional derivative instruments. Cash in these Entities of \$172.6 million is invested in Enron demand notes. Moreover, Enron paid \$123 million to purchase share-settled options from the Entities on 21.7 million shares of Enron common stock. The Entities paid Enron \$10.7 million to terminate the share-settled options on 14.6 million shares of Enron common stock outstanding. In late 2000, Enron entered into share-settled collar arrangements with the Entities on 15.4 million shares of Enron common stock. Such arrangements will be accounted for as equity transactions when settled.

In 2000, Enron entered into derivative transactions with the Entities with a combined notional amount of approximately \$2.1 billion to hedge certain merchant investments and other assets. Enron's notes receivable balance was reduced by \$36 million as a result of premiums owed on derivative transactions. Enron recognized revenues of approximately \$500 million related to the subsequent change in the market value of these derivatives that offset market value changes of certain merchant investments and price risk management activities. Furthermore, Enron recognized \$44.5 million and \$14.1 million of interest income and interest expense, respectively, on the notes receivable from and payable to the Entities.

In 1999, Enron entered into a series of transactions involving a third party and the Related Party. The effect of the transactions was as follows: (1) Enron and the third party amended certain forward contracts to purchase shares of Enron common stock, resulting in Enron having forward contracts to purchase Enron common shares at the market price on that day; (2) the Related Party received 6.8 million shares of Enron common stock subject to certain restrictions; and (3) Enron received a note receivable that was repaid in December 1999 and certain financial instruments hedging an investment held by Enron. Enron recorded the assets received and equity issued at estimated fair value. In connection with the transactions, the Related Party agreed that the senior officer of Enron would have no pecuniary interest in such Enron common shares and

would be restricted from voting on matters related to such shares. In 2000, Enron and the Related Party entered into an agreement to terminate certain financial instruments that had been entered into during 1999. In connection with this agreement, Enron received approximately 3.1 million shares of Enron common stock held by the Related Party. A put option—originally entered into in the first quarter of 2000 and gave the Related Party the right to sell shares of Enron common stock to Enron at a strike price of \$71.31 per share—was terminated under this agreement. In return Enron paid approximately \$26.8 million to the Related Party.

In 2000 Enron sold a portion of its dark fiber inventory to the Related Party in exchange for \$30 million cash and a \$70 million note receivable that was subsequently repaid. Enron recognized a gross margin of \$67 million on the sale.

In 2000, the Related Party acquired, through securitizations, approximately \$35 million of merchant investments from Enron. Enron and the Related Party formed partnerships in which Enron contributed cash and assets and the Related Party contributed \$17.5 million in cash. Subsequently, Enron sold a portion of its interests in the partnerships through securitizations. See Note 3. Also, Enron

contributed a put option to a trust in which the Related Party and Whitewing hold equity and debt interests. On December 31, 2000, the fair value of the put option was a \$36 million loss to Enron.

In 1999, the Related Party acquired approximately \$371 million, merchant assets, and investments and other assets from Enron. Enron recognized pre-tax gains of approximately \$16 million related to these transactions. The Related Party also entered into an agreement to acquire Enron's interests in an unconsolidated equity affiliate for approximately \$34 million.❖

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